Offshore Victoria Oil Pollution Emergency Plan

Victoria | ER | EMP

ATTENTION:

For **First Strike (initial 48hrs) Response Actions** see:

Section 2.4 – 'Regulatory Notifications'

Section 2.5 - 'Action Sequence Checklists'

Purpose

To instruct the response to an unplanned release of hydrocarbons

Scope

The OPEP provides response instructions for vessels and facilities inlcuding:

Otway Subsea Facilities: Casino, Henry, Netherby, Annie[1], Juliet[1]

Gippsland Subsea Facilities: Basker Manta Gummy[2], Patricia Baleen[2], Sole

[1] *Infill wells from 2024/25*

[2] *Non-Production Phase*

Role	Name	Job Title	Signature	Document Control
Document Originator:	Xodus Group	Environment Consultant	JJM pp for Xodus Group Digitally signed by JJM pp for Xodus Group Date: 2022.07.18 13:57:31 +08'00'	**Doc No.** VIC-ER-EMP-0001
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Health, Safety and Environment Policy

Cooper Energy | HSE | Policy

Our Commitment

Care is a core value of Cooper Energy.

Cooper Energy is committed to taking all reasonably practicable steps to protect the health and safety of our workers, contractors, partners, and communities in the areas in which we operate. In addition, we will ensure our business is conducted in an environmentally responsible manner.

Our Actions

Wherever we operate we will develop, implement, and maintain HSE protocols that are consistent with recognised standards and practices, which will enable us to:

- Proactively assess and control our health and safety risks and environmental aspects and impacts
- Provide the HSE systems and resources to adequately support organisation in meeting its objectives
- Continually improve HSE systems through periodic consultation and review with the workforce
- Ensure all employees and contractors are appropriately trained and competent and suitably supervised to ensure works are undertaken in a safe and environmentally responsible manner
- Monitor HSE performance through the identification and communication to the workforce of clear, effective HSE objectives and targets
- Encourage participation in promoting improvements in safety, health and environmental practices and supporting a positive and caring culture in all areas of Cooper Energy's business
- Identify and comply with relevant HSE legislation and regulations and other requirements to which we subscribe and incorporating any changes into our HSE systems.

Governance

The HSEC Committee has oversight of this policy. The Managing Director is accountable for communicating this Policy and for ensuring compliance with its undertakings. All Executive Leadership Team members and Managers shall ensure the effective implementation, management, and monitoring of the HSEC Management System and its subsequent outcomes. All Staff are responsible for compliance with our policy, standards, and procedures. This policy will be reviewed at appropriate intervals and revised, as necessary.

David Maxwell

Managing Director

Role	Name	Signature	Document Properties
Document Author:	Ben Edwards	Ben Edwards	Doc No. CMS-HS-POL-0001
CEMS Review:	Sean Brooks		Rev: 5
Document Owner:	Iain MacDougall	Iain MacDougall Digitally signed by Iain MacDougall Date: 2021.12.20 10:30:31 +10'30'	Rev Date: 22 Sept 2021
Document Approver:	David Maxwell		

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1.0 Scope of OPEP

This Offshore Victoria Oil Pollution Emergency Plan (OPEP) (VIC-ER-EMP-0001) has been prepared to support Cooper Energy's assets and activities in offshore Victorian waters.

The OPEP consolidates Cooper Energy's response to all spill risks across the Gippsland: Patricia-Baleen (PB), Basker Manta Gummy (BMG)[1], Sole and Otway (CHN, Annie, Juliet[2]) assets (Figure 1), given the commonality of many of their oil spill risks and resources to respond. Where there are specific requirements for scenarios associated with assets or activities, these are described in this plan.

This OPEP has been prepared in accordance with Regulation 14(8) (8AA) (8A) of the OPGGS(E) Regulations (Cth) and Regulation 17 of the OPGGS Regulations (Vic).

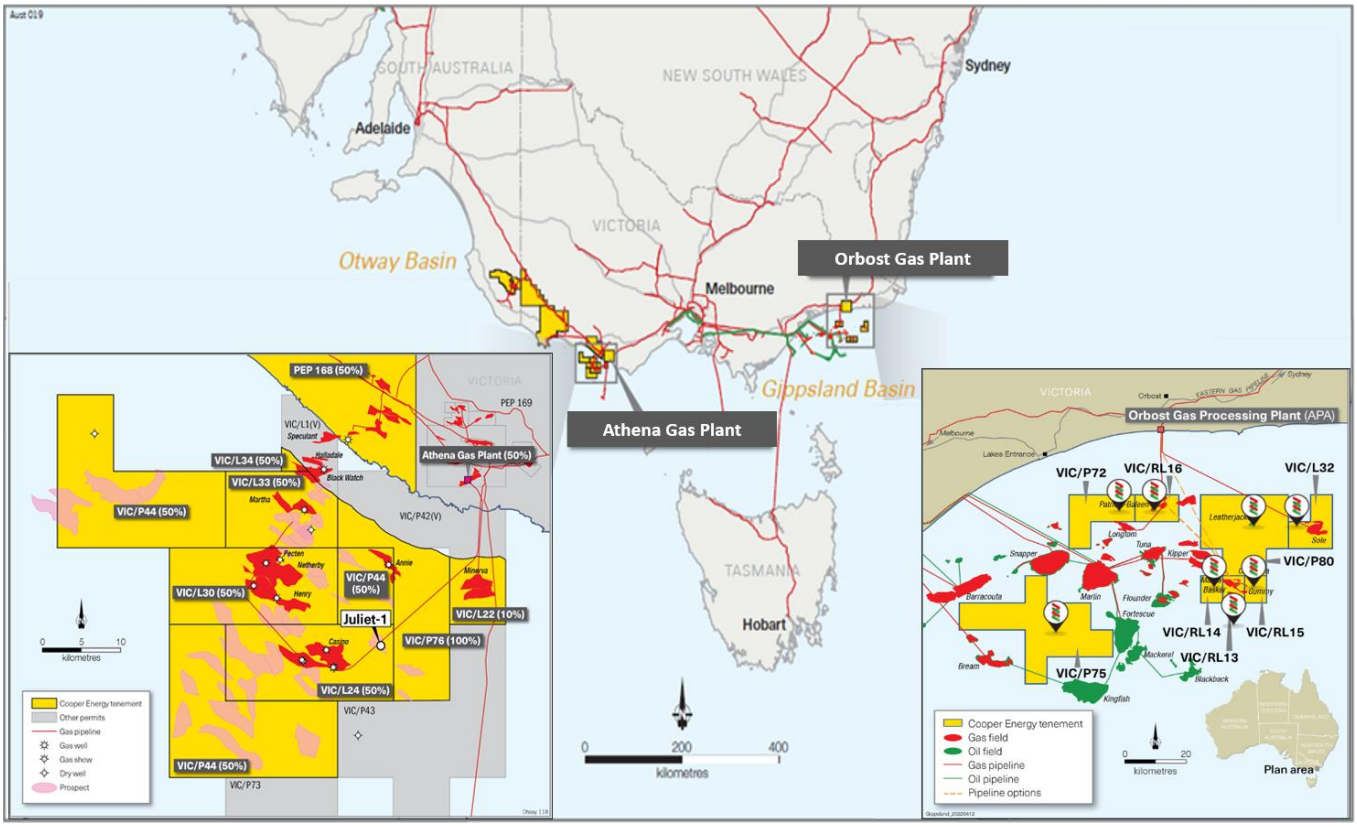


Figure 1 - Cooper Energy Offshore Victoria assets

[1] *This OPEP provides for BMG and PB NPP Activities*

[2] *This OPEP provides for the drilling and operation of Annie and Juliet infill wells. Drilling is planned from 2024.*

1.1 Facilities and Activities Relevant to the OPEP

Table 1-1 describes the facilities and activities for which this OPEP applies.

Table 1 - Facilities and Activities within the scope of the Offshore Victoria OPEP

Asset	Description	Activities	Fluid Types
Otway Stage I & II Operations – Otway Basin	A gas and condensate pipeline servicing subsea completions in the Casino, Henry and Netherby (CHN) fields located in Production Licence area VIC/L24 (Casino) and VIC/L30 (Henry and Netherby) and Licensed Pipelines VIC/PL37, VIC/L42 and Vic/PL37 (V) from the gas fields to the Victorian shoreline (shore crossing location).	Operations and maintenance activities on the following facilities in Commonwealth and Victorian state waters: • Subsea wells (Netherby-1, Casino-4, Casino-5 and Henry-2) in water depth: 63-70 m. • 32.6 km x 300 mm (ND) subsea pipeline (Casino-5 well to shore-crossing). • 22 km x 300 mm (ND) subsea pipeline (Casino-5 to Pecten East Pipeline). • 31.2 km x 120 mm EHU cable (Casino-5 to shore crossing). • 22 km x 135 mm EHU cable (Casino-5 to Netherby-1 well).	Gas and condensate Marine diesel oil Stored oils
Otway Stage III Drilling and Operations – Otway Basin	Future infill wells tied back via short flowlines / jumpers to Otway Stage I facilities (Casino pipeline). Two infill wells: • Annie-2 • Juliet-1	Drilling, completion and operation of two infill wells. Offshore assets located in Commonwealth waters: • A subsea well at Annie-2 tying to existing Casino pipeline. • A subsea well at Juliet-1 tying to existing Casino pipeline.	Gas and condensate Marine diesel oil Stored oils
Patricia Baleen (PB) - Gippsland Basin	A gas and condensate pipeline (now suspended) servicing subsea completions at Patricia and Baleen in Production Licence VIC/L21 and Licensed Pipelines VIC/PL31 and VIC/PL31 (V) from the VIC/PL31 tie-in point to the Longtom Pipeline (VIC/PL38) to the Victorian shoreline (mean low water mark). This also includes the suspended well, Patricia-2 located in VIC/L21.	PB non-production phase (NPP) activities which includes integrity management on the following offshore assets in Commonwealth and Victorian state waters: • Two subsea production wells (Patricia -2 and Baleen-4 that are shut-in) in 54 m water depth. • One suspended well (Patricia-1). • 24 km x 300 mm (ND) subsea pipeline from Patricia-2 and Baleen-4 wells to shore. The pipeline is non-operational and suspended with nitrogen (4,550 m^3), natural gas (2,700 m^3), residual Longtom	Gas and condensate Marine diesel oil Stored oils

Asset	Description	Activities	Fluid Types
		condensate (5 m^3) and MEG/water mixture (150 m^3 in a 40:60 ratio). • A subsea umbilical located 20 m to the west of the pipeline running from the gas plant to the subsea wells.	
Sole – Gippsland Basin	An operating gas field in VIC/L32, 40 km south of the Bemm River in Victoria. Includes the active wells Sole-3 and Sole-4, connected to the Orbost Gas Plant via Licenced Pipeline VIC/PL43 and VIC/PL006401(V), a 65 km subsea pipeline and umbilical cable. Permit area also includes an abandoned well Sole-2.	Sole operations activities which include integrity management of the following assets and activities in Commonwealth and Victorian state waters: • Two subsea producing wells (Sole-3 and Sole-4). • One abandoned well (Sole -2). • Operations of pipeline to the Orbost Gas Plant.	Gas and condensate Marine diesel oil Stored oils
Baker Manta Gummy (BMG) – Gippsland Basin	The BMG field comprises seven subsea wells split between three locations: • Basker-A Wells (Basker-2, Basker-3, Basker-4, Basker-5, Basker-7; 15 to 20 m apart) • Manta-2A Well (2.5 km north of Basker-A group) • Basker-6ST1 Well (3.3 km south east of Basker-A group) The seven wells are shut-in and are suspended. Subsea infrastructure including manifolds, flowlines and subsea control modules.	BMG is currently in a non-production phase (NPP) with all wells currently suspended and infrastructure non-operational. Decommissioning is planned from 2023. NPP scenarios are provided for under this OPEP. The BMG Closure Project (Phase 1 and 2) is provided for under the BMG Closure Project (Phase 1) OPEP (BMG-ER-EMP-0004).	Inhibited water Gas and condensate Marine diesel oil Stored oils

1.2 Spill scenarios

The spill scenarios for the assets and activities described in *Table 1* are identified in the corresponding Environment Plans (EP). Table 2 describes the spill scenarios for which this OPEP has been developed.

Table 2 - Spill scenarios for this OPEP

Spill Risk*	Fluid type	Worst-Case Volume*	Otway Ops	Otway Drill	PB NPP	Sole Ops	BMG NPP
Minor vessel spill (Level 1)	MDO, hydraulic oil	Up to ~ 50 m^3		(Cwth)			(Cwth)
Vessel Collision (Level 1 or 2)	MDO	250 m^3 surface release over 6 hours 500 m^3 surface release over 6 hours (BMG decommissioning). Included for information.		(Cwth)			(Cwth)

Spill Risk*	Fluid type	Worst-Case Volume*	Otway Ops	Otway Drill	PB NPP	Sole Ops	BMG NPP
Pipeline or infrastructure leak (Level 1 or 2)	Gas / condensate / diesel	Otway pipeline: 50 m^3 condensate (+gas) Sole: 274,000m^3 gas PB: 5 m^3 condensate (+gas) BMG (B6 flowline): 2.3m^3					(Cwth)
Subsea well leak (Level 1)**	Gas / condensate	Otway Operations: 0.1m^3/day condensate (+gas) Sole: <160 MMscfd gas** PB: 0.022 MMscfd gas BMG: 0.12 m^3 condensate/day (+gas)	(Cwth)		(Cwth)	(Cwth)	(Cwth)
Subsea LOWC (Level 2 or 3)	Gas / Condensate	Otway Drilling: 712 MMscf/d gas, 1,805 bbl/day condensate		(Cwth)			

** Further details regarding worst-case discharge volumes, discharge locations, potential release durations and environmental impacts and risks are detailed within each relevant activity-specific Environment Plan (EP).*
***These scenarios require unconstrained flow from the well, this is not considered credible during steady state operations (SOL-DC-WMP-0001, CHN-HS-SMP-0001).*

1.3 OPEP Exclusions

This OPEP does not include the following:

- The Longtom Development (consisting of production wells, pipeline and associated subsea infrastructure) tied into the offshore PB assets in VIC/PL38 these are managed by Seven Group Holdings.
- Management of onshore activities including gas plants.
- Vessels transiting to or from the Operational Area. These vessels are deemed to be operating under the Commonwealth *Navigation Act 2012* and not performing a petroleum activity.
- All activities outside the activities defined in Section 1.1 of this OPEP.

1.4 Supporting documents

Cooper Energy manages emergencies from the offshore operations and activities in accordance with the Cooper Energy Incident Management Plan (COE-ER-ERP-0001) (IMP). The purpose of the IMP is to provide the Cooper Energy Incident Management Team (IMT) with the necessary information to respond to an emergency affecting operations or business interruptions. Specifically, this plan:

- Describes the Emergency Management Process.
- Details the response process.
- Lists the roles and responsibilities for the IMT members.

This OPEP is integrated with the IMP and related documentation and supports the in-force Environment Plans (EP) for the offshore Victoria assets and activities. It should be read in conjunction with the respective EPs as well as the supporting documents:

- Cooper Energy Incident Management Plan (IMP) (COE-ER-ERP-0001)
- Cooper Energy Crisis Management Plan (CMP) (COE-ER-ERP-0003)
- Offshore Victoria Source Control Plan (VSCP) (VIC-DC-ERP-0001)

- Offshore Victoria Operational and Scientific Monitoring Plan (OSMP) (VIC-ER-EMP-0002)
- Tactical Response Plans (site-specific)
- Vessel or MOU Shipboard Marine Pollution Emergency Plan (SMPEP) and Emergency Response Plans (ERPs) for vessels or MOUs undertaking activities on Cooper Energy's behalf.

Additionally, this OPEP has been developed to integrate with the NATPLAN, Victorian Maritime Emergencies NSR Plan, NSW State Waters Marine Oil and Chemical Spill Contingency Plan, Tasmanian Marine Oil Spill Plan (TasPlan) and AMOS Plan.

Figure 2 details the relationship between this plan and other related documentation.

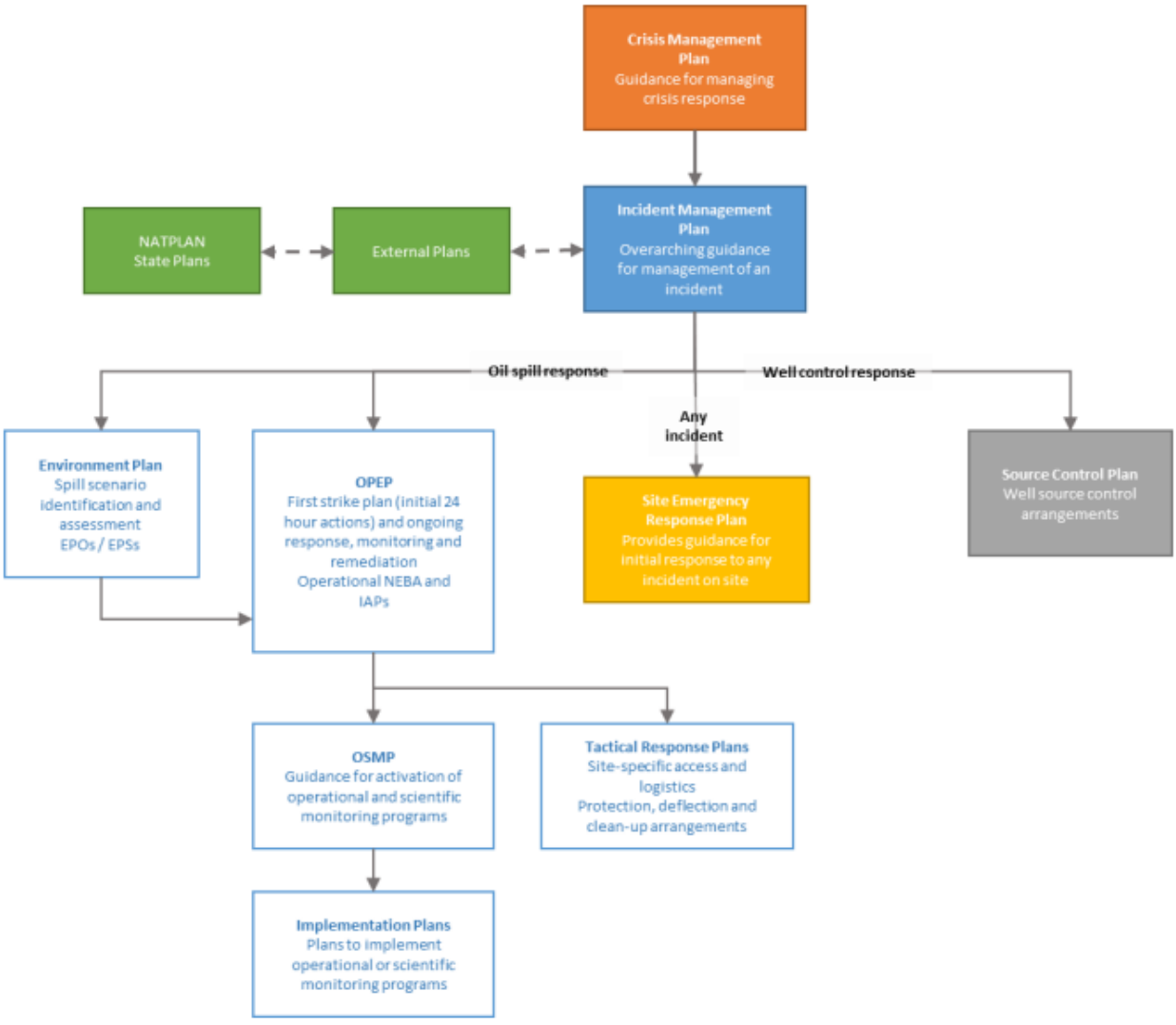


Figure 2 - Relationship between Cooper Energy emergency and oil response plans

1.5 Review of OPEP

Internal OPEP Reviews

The OPEP should be reviewed internally at least annually, in addition to the following circumstances:

1. Prior to undertaking a new activity not currently provided for, and prior to the submission or re-submission of a new Environment Plan for activities, in accordance with the management of change (MOC) process.

2. Following any exercises or other means of testing of the arrangements, as required, to capture learnings.
3. Following activation, to capture lessons learned.

Changes to the OPEP or the OSMP resulting from exercise outcomes, altered contractual arrangements, corrective actions, routine information updates (i.e. contact details change), or other items will be managed as per the MOC process.

State Government OPEP Review Arrangements

From the Victorian Joint Industry and State Oil Pollution Responses Guidance Note 2019, and as advised by Victoria DoT July 2021:

It is recognised that after an OPEP is accepted, titleholders may incorporate additional assets and update its OPEP during the 5-year lifespan before re-submission to NOPSEMA. In such circumstances, timely notification and consultation is required should these asset(s) alter or increase the likelihood or threat of pollution, and/or pose a significant difference to the spill scenario modelled in the original OPEP such as including a different product.

Any internal/organisational alterations to titleholder response arrangements detailed in their OPEPs such as emergency management structure amendments, do not necessitate further consultation. However, to promote an ongoing partnership and enhance collaborative engagement, amendments would be useful to share electronically between titleholder and DoT.

This process is relevant to NSW and Tasmania marine pollution agencies (where relevant), unless otherwise advised by those teams.

1.6 Training and Testing Arrangements

In accordance with Regulation 14 (8A) & (8C) of the OPGGS(E) Regulations, the response arrangements 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.

As required by the Environment Regulation 14(8A), the testing must relate to the nature and scale of the risk of oil pollution.

The effectiveness of response arrangements will be measured by the performance standards detailed in Table 3 for each exercise type. At the completion of the exercise, the observers (where relevant to the test) and participants will hold a debrief session during which the exercise is reviewed, and lessons learned and areas for improvement are identified. All exercises will be documented, and corrective actions/recommendations tracked to closure. For Cooper Energy drills, lessons learned, and actions will be captured via action tracking system (e.g., Synergi).

Training and testing arrangements appropriate to the nature and scale of Cooper Energy's activities are included in Table 4. The arrangements detail those actions which will be undertaken by Cooper Energy and response partners to maintain readiness for the oil spill response scenarios. Position specific training and competency provisions are detailed in Section 3.2. Response organisations such as AMOSC, State and National response teams also run testing and exercise regimes to maintain preparedness for credible spill events across a broader portfolio of areas and activities; these are outlined below but do not form part of Cooper Energy's specific training and exercise plans for the activity.

Table 3 - OPEP Testing Performance Outcomes, Standards, and Measurement Criteria

Performance Outcome	Control	Environmental Performance Standard	Measurement Criteria
Response personnel are trained and prepared to respond to a worst-case spill scenario for the activity. The OPEP is implemented and is effective in mitigating a spill event.	C1 Response Training	Response personnel are trained according to schedule.	• Training records.
	C2 Response Exercise and Testing.	Exercise and testing are completed according to schedule.	• Exercise and testing plan progress tracked via Synergi.
		Lessons from exercises and testing are captured, actioned and integrated into the relevant part of the OPEP.	• Exercise report including observations and opportunities for improvement. • Actions are managed through Synergi.

Table 4 - OPEP Training and Testing Schedule and Objectives

Aspect	Who	Plan	Timing	Preparedness Activity Scope (arrangements and capabilities tested)	Training / Testing Objectives	Indicative duration	Evaluation / lessons learned
Training	Cooper Energy	OPEP	5 years renewal	IMO Oil Spill Response Training for IMT, FOB and Field Team Lead Roles.	Demonstrated competency to undertake lead role in an IMT.	3-5 days	Feedback during training.
Training	Cooper Energy	OPEP	On joining the IMT, FOB or Field Team.	Offshore Victorian OPEP Induction for: • IMT, FOB and Field Team Lead and Support Roles. OPEP induction covers aspects including titleholder obligations, Scenarios, hydrocarbon fate/behaviour, Response documents, Response Organisation, Response Options, Response Termination and Debrief.	Demonstrated understanding of OPEP responses, roles, and support services.	1.5 hours	Feedback during training.
Training	AMOSC & AMOSC Core Group	AMOSC Plan	Every 2 years	IMO Oil Spill Response Training IMT, FOB and Field Team Lead Roles, and training of specialist roles such as aerial surveyor. Training provided in accordance with AMOSC core group agreement.	Demonstrated competency to undertake lead role in an IMT.	3-5 days	Feedback during training.
Training	Cooper Energy	SCERP	Valid through drilling	Current well control training certificate for relevant Source Control Team Leads.	Demonstrated competency to undertake lead role in source control team task groups.	3-5 days	Feedback and testing during training.
Training	Cooper Energy	OPEP	Annually	Incident Control System Refresher Training for IMT IC and Functional Leads.	Understanding of IMT incident control system.	1 hour	Feedback during training.

Aspect	Who	Plan	Timing	Preparedness Activity Scope (arrangements and capabilities tested)	Training / Testing Objectives	Indicative duration	Evaluation / lessons learned
Exercise	Cooper Energy & AMOSC	OPEP	Annually	Level 2/3 OPEP Drill (Desktop) • IMT response teams form and initiate alert and call-out of response teams to respective incident control centres. • Notifications to regulators undertaken within the regulatory timeframes (simulated). • First-strike response operation activated monitoring and surveillance (simulated) within implementation timeframes. • Contact external resources to confirm support first strike response. • Common Operating Picture established. • IAP generated for the next operational period integrating information from monitoring and surveillance and NEBA recommendations.	IMT Roles are provided for, and responsibilities are understood. IMT communications and support coordinated and efficient response. IMT remote systems support coordinated and efficient response. Capability to Develop IAP for the next operational phase of a response. Response Option Initiation inside OPEP implementation timeframes. External resources are available to respond.	1 day	Observer for the duration of the drill. Evaluation against the planned scope and objectives.
Exercise	Cooper Energy & OSMP contractors	OSMP	Annually Either conducted prior to drilling commencing, or using the drilling commencement itself as the annual exercise.	OSMP Drill. Call out of external resources for at least two OSMP module simultaneously (nominally hydrocarbon weathering assessment and coastal shoreline assessment (simulated scenario). Test of logistical arrangements to meet implementation timeframes form nominated modules.	Response Options are initiated according to OPEP implementation timeframes. IMT-OSMP Contractor communications are established. External resources sufficient for a worst-case	½ day	Evaluation against the planned scope and objectives.

Aspect	Who	Plan	Timing	Preparedness Activity Scope (arrangements and capabilities tested)	Training / Testing Objectives	Indicative duration	Evaluation / lessons learned
				Confirm sufficient Principal Investigators for all OSMP Modules.	scenario for the activity are available to respond.		
Exercise	Cooper Energy	OPEP / Crisis Management Plan	Prior to drilling commencement.	CMT activated and provide support to IMT during L3 incident. • CMT forms and establishes communications with the IMT IC. • CMT obtain situational awareness. • External notifications are issued (simulated) including media release.	CMT Roles are provided for, and responsibilities are understood. CMT-IMT Communication protocols are understood. IMT Remote systems support coordinated and efficient response. Notifications developed efficiently.	2 hours	Observer for the duration of the drill. Evaluation against the planned scope and objectives.
Exercise	AMOSC, National and State response personnel	AMOSC Plan / Nat Plan	Ongoing testing and exercise regime.	IMT Desktop and Operational exercises spanning all potential response strategies both nearshore and offshore including: • Monitoring and Evaluation • Containment and Recovery • Chemical dispersant application • Protection and Deflection • Shoreline Response • Wildlife Response These exercises involve field responders and use of response equipment.	In accordance with AMOSC Plan, National Plan and State Response Plan Testing and Exercise priorities.	5-10 days	Evaluation against the planned scope and objectives.

Aspect	Who	Plan	Timing	Preparedness Activity Scope (arrangements and capabilities tested)	Training / Testing Objectives	Indicative duration	Evaluation / lessons learned
Exercise	Cooper Energy	SCERP	Prior to drilling commencement.	Level 2/3 SCERP Drill - SCERP Leads availability to implement selected source control options (capping, relief well) is verified. - Communications between leads are established. - Vessel and MODU availability and mobilisation times are verified. - Equipment (capping, relief well long leads) availability and mobilisation times are verified.	SCERP source control response times verified. Source control response logistics confirmed.	½ day	Evaluation against the planned scope and objectives.
Exercise	Cooper Energy and Response Contractors	OPEP / OSMP / SCERP	Annually May be undertaken with other exercises or separately	Callout response contact details and personnel availability verification: - OPEP contractors - OSMP contractors - SCERP contractors	Personnel required to implement OPEP, OSMP and SCERP are available to respond.	½ day	Evaluation against the planned scope and objectives.
Exercise	Cooper Energy MOU and Vessel Service Partners	OPEP	During mobilisation or transit to site	Communications check between vessel / MODU and shore-based response personnel.	Incident notification channels are established.	30 minutes	Improvements are identified, logged and resolved.
Exercise	MOU Service Partner	OPEP / SCERP / SMPEP	Prior to and during offshore campaign according to vessel and MODU operating procedures	DP system trials. Emergency shutdown / well control.	DP systems are tested. Emergency shutdown protocol is tested.	2 hours	Evaluation against the planned scope and objectives.

Aspect	Who	Plan	Timing	Preparedness Activity Scope (arrangements and capabilities tested)	Training / Testing Objectives	Indicative duration	Evaluation / lessons learned
Exercise	Vessel and MOU Service Partners	SMPEP	Prior to and during offshore campaign according to vessel and MODU drill schedule	Vessel SMPEP drills	Personnel are familiar in their role and equipment available for SMPEP strategies.	2 hours	Evaluation against the planned scope and objectives.

1.7 Regulatory Responsibilities

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 Cooper Energy remains accountable for spills relating to its Petroleum Activities, the nominated Control Agency (CA) will vary depending on source, size and location of the spill. Table 5 provides a summary of Statutory Agency and CA scenarios in the event of a spill.

NOPSEMA has the regulatory responsibility for any activities in Commonwealth waters covered in this OPEP.

Although Victoria have conferred functions for the regulation of health and safety and structural integrity to NOPSEMA for petroleum activities occurring in State waters, State Authorities (as relevant) retain the regulatory responsibility for any spill response activities in State waters covered in the OPEP. DoT is the Control Agency for a spill response in Victorian waters. DELWP is the lead agency for responding to wildlife impacted by marine pollution in Victorian waters or along the coastline.

Table 5 - Summary of Regulatory Responsibilities (Statutory and Control Agencies)

Spill Source	Spill Level	State Waters (<3nm from coast baseline)	Commonwealth Waters (>3 nm from coast baseline)	Statutory Agency	Control Agency
Subsea infrastructure LOC or LOWC	1	✓		Vic DoT	Cooper Energy
			✓	NOPSEMA	Cooper Energy
	2 & 3	✓		Vic DJPR / Vic DoT	Vic DoT
			✓	NOPSEMA	Cooper Energy
Vessel Collision	1	✓		Vic DoT	Vessel owner / Operator
			✓	AMSA	Vessel owner / Operator
	2 & 3	✓		Vic DoT	Vic DoT / relevant Port Authority
			✓	AMSA*	AMSA
Wildlife	1	✓		Vic DELWP	
			N/A[#]	-	-
	2 & 3	✓		Vic DELWP	
			N/A[#]	-	-

* Within 500m platform exclusion zone the statutory agency will be NOPSEMA

[#] where wildlife is captured in Commonwealth waters and bought to shore for assessment and treatment, they will fall under the responsibility of the Lead Agency for Wildlife impacted by marine and freshwater pollution (e.g., DELWP for Victoria) and all relevant state-based legislation.

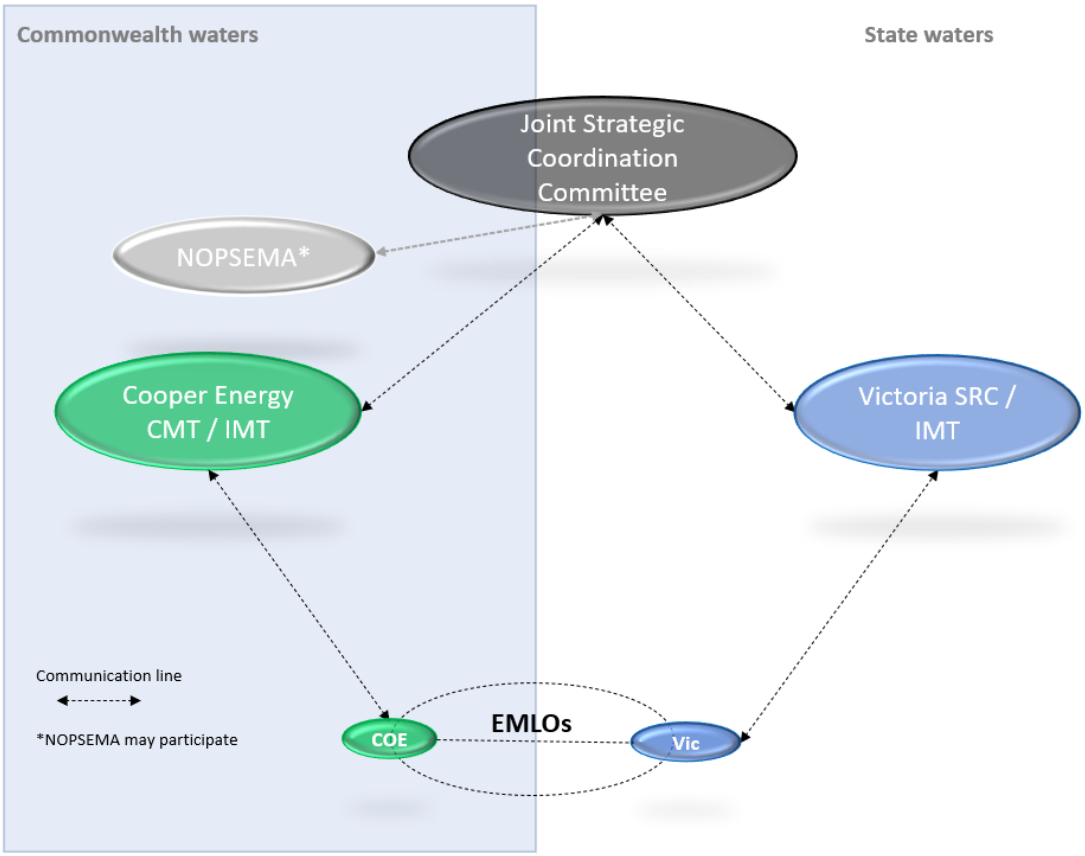
1.7.1 Joint Strategic Coordination Committee (Cooper Energy Interface with State Governments)

Transboundary arrangements from state to state is covered by the National Plan. Where State and Commonwealth waters are impacted by cross-jurisdictional marine pollution incidents, a Joint Strategic Coordination Committee will be established (JSCC). The role of the JSCC is to facilitate effective coordination between Cooper Energy and the State Control Agency IMTs.

Initiation: Initially, the JSCC would be administered by DJPR, and convened by the State Controller Maritime Emergencies (SCME).

Organisation: The JSCC will be jointly chaired by the SCME and Cooper Energy Senior Representative. The JSCC will ensure a coordinated response across the multiple control agencies.

The worst-case scenarios presented within this OPEP demonstrate that it is unlikely that an incident will impact multiple states.



Adapted from DoT Joint Industry and State Oil Pollution Response Guidance Note, 2020

Figure 3 – Cross-jurisdictional control and coordination structure

2.0 Response Activation

2.1 Cooper Energy Incident Management Plan and OPEP Activation

Cooper Energy manages emergencies from its offshore activities in accordance with the Cooper Energy Incident Management Plan (IMP). The purpose of the IMP is to provide the Incident Management Team (IMT) with the necessary information to respond to an emergency. The IMP:

- Describes the emergency management process.
- Details the response process.
- Lists the roles and responsibilities for the IMT members.
- Includes duty cards for the IMT Members.

All spill events under the scope of this OPEP will be reported to the Cooper Energy Duty Manager by operator/maintainers or by contracted vessel masters. The Cooper Energy Duty Manager will notify the IC of the incident, providing the following information to allow the IC to assess the required response level:

- The source of the spill and the location.
- The type of hydrocarbon released.
- How much material has been released (e.g. estimated size based on a 'known' hydrocarbon inventory; estimates based on flowrates from wells; or an estimate based upon the appearance and area of oil on the sea surface (refer Section 7.0)).
- Whether the source been contained or whether the spill is continuing.
- Worst-case scenario.
- Weather conditions – wind speed and direction, swell and current speed and direction (if available).

Based on the information made available, the IC is responsible for:

1. Identifying the Control Agency (Section 1.7 provides description of regulator responsibilities).
2. Determining the response level.
3. Activating the Cooper IMT (either where Cooper is the Control Agency or is directed by the Control Agency).
4. Implementing the OPEP.

2.2 Control Agency

The Control Agency (CA) is determined based on the source of the spill and whether the spill takes place in Commonwealth or State waters. Control agencies for the spill scenarios within the scope of this this OPEP are detailed in Table 5.

AMSA is the designated CA for oil spills from vessels within the Commonwealth jurisdiction. Upon notification of an incident involving a vessel, AMSA will assume control of the incident and respond in accordance with AMSA's Marine Pollution Response Plan. Co-ordination of resources under NATPLAN will occur through formal request of the appointed Incident Controller.

Where a spill originates in Commonwealth waters but has the potential to impact State waters or lands, the State CA will establish an IMT and may assume control of response activities within State jurisdiction. Where response activities are implemented in Commonwealth jurisdiction, the CA remains either AMSA for vessel spills or Cooper Energy for spills relating to petroleum activities.

2.3 Response Level

The level of spill response depends on the nature and scale of the spill, whether on-site resources can manage the response or additional support resources are required, and the environmental sensitivities at risk.

The IC must make an initial assessment of the spill level based upon the initial information provided and NATPLAN criteria. Table 6 provides NATPLAN criteria for spill level classification together with guidance on possible level classifications for credible maximum spill scenarios for applicable for to this OPEP.

Throughout the response, the Cooper Energy IC must continue to assess the response level in accordance with NATPLAN criteria, considering factors which may lead to escalation of the response level. Within State boundaries, the State CA will determine the response level.

Table 6 - NATPLAN Guidance on Spill Level Classification

Criteria	Level 1	Level 2	Level 3
		Management	
Jurisdiction	Single jurisdiction	Multiple jurisdiction	Multiple jurisdictions including international
Number of Agencies	First Response Agency	Routine multi-agency response	Agencies from across government and industry
Incident Action Plan	Simple/Outline	Outline	Detailed
Resources	Onsite resources required only	Requires intra-state resources	Requires national or international resources
		Type of Incident	
Type of response	First Strike	Escalated	Campaign
Duration	Single shift	Multiple shifts Days to weeks	Extended response Weeks to months
Hazard	Single Hazard	Single Hazard	Multiple Hazards
		Resources at Risk	
Human	Potential for serious injuries	Potential for loss of life	Potential for multiple loss of life
Environment (Habitat)	Isolated impacts with natural recovery in a few weeks	Significant impacts and recovery may take months. Remediation required.	Significant area and recovery may take months or years. Remediation required.
Wildlife	Individual fauna	Groups of fauna or threatened fauna	Large numbers of fauna
Economy	Business level disruption	Business failure	Disruption to a sector
Social	Reduced services	Ongoing reduced services	Reduced quality of life
Infrastructure	Short term failure	Medium term failure	Severe impairment
Public Affairs	Local and regional media coverage	National media coverage	International media coverage
		Cooper Energy Assets - Spill Scenarios – Notional Level Classification	
Offshore Victoria Operations	Diesel spill (Vessel) Pipeline release Subsea leak	Diesel spill (Vessel) Pipeline release Subsea leak	
Offshore Victoria well construction	Bunkering release Diesel spill (Vessel) Subsea leak	Diesel spill (Vessel) Subsea leak	LOWC

2.4 Notification Requirements

Internal and regulatory notifications must be made in accordance with requirements outlined in Table 7 for vessel spills,
Table 8 for spills from loss of infrastructure integrity.

It is important that information generated during an initial response is accurately recorded, transmitted, acted upon and ultimately stored for future use. The information is to include:

- Incident details – where, what, when, how, why (where possible).
- Extent of spill.
- Immediate actions taken.

Copies of forms referenced in these tables and Appendix 1 can be found on the Cooper Energy SharePoint system: Regulatory Management System:

https://cooperenergy.sharepoint.com/sites/HSEC2/Emergency/Forms/Documents.aspx?web=1

Table 9 also provides additional external notifications (excluding response resources) which may be required depending on the nature and scale of the spill incident (specified scenarios). These notifications will be made by the IC or delegate.

Table 7 - Notification Requirements for a Vessel Spill (Level 1 or 2/3)

Vessel Spill Notifications				
From	**To**	**Type**	**Timing**	**Supporting Information**
Vessel Master	Cooper Energy Duty Manager	Verbal	Immediately	Refer to Cooper Energy Contacts directory on the Cooper Energy Intranet VIC-ER-EMP-0020
	AMSA – All spills to sea	Verbal	Immediately (no later than 2 hours after incident)	Report verbally or by email if phone contact is not possible to AMSA immediately: Ph: 1800 641 792 (24-hour) Incident Alert form 18 **Email:** rccaus@amsa.gov.au **Email**: reports@amsa.gov.au
		Written notification	ASAP	Complete POLREP online available at: https://amsa-forms.nogginoca.com/public/polrep.html
		Written updates	As requested, or every 24 hours	Complete and issue SITREP / POLREP and IAP SITREP / POLREP available at: https://amsa-forms.nogginoca.com/public/polrep.html Email to: rccaus@amsa.gov.au and reports@amsa.gov.au
Cooper Energy Duty Manager	Cooper Energy Incident Management Team (IMT) Cooper Energy Crisis Management Team (CMT)	Verbal	As required	IMT Duty Roster CMT Duty Roster Emergency Roster and Emergency Contacts Directory
Cooper Energy Duty Manager (or delegate)	NOPSEMA Dangerous occurrences at or near facilities must be reported to NOPSEMA under the applicable safety case. Occurrences include:	Verbal	As soon as practicable and no later than 2 hours	Report verbally Ph: 1300 674 472
		Written notification	As soon as practicable after oral notification	Email: submissions@nopsema.gov.au Copy also to NOPTA (08) 6424 5317 Email: info@nopta.gov.au / titles@nopta.gov.au

Vessel Spill Notifications				
	• Any vessel collision with a facility or MODU within Commonwealth Waters (> 3 nm) • Any hydrocarbon spill >80L • Spill has caused, or has the potential to cause, moderate to significant environmental damage (refer to activity-specific EP spill risk assessment)	Written report	As soon as practicable, but within 3 days of incident	NOPSEMA Form N-03000-FM0831 A543965 Email: submissions@nopsema.gov.au Copy also to NOPTA (08) 6424 5317 Email: info@nopta.gov.au / titles@nopta.gov.au
Vessel Master or Cooper Energy Duty Manager (or delegate) as relevant	State and Port Authorities Level 1/2/3 Vessel spills (threatening State waters)	Telephone	ASAP (no later than 2 hours after risk identification)	As relevant to Port (Port Master) and/or State Waters (State Duty Officer). Authorities include: **Victorian State Waters** Port of Portland: (03) 5525 0999 Gippsland Ports: (03) 5150 0500 For Level 2-3 spills notify the State Duty Officer: 0409 858 715 (24/7) **NSW State Waters** Maritime emergency (24 hr): 1800 641 792 NSW Maritime: (02) 13 12 36 **NSW Port (phone diverted for out-of-hours response)** Port of Eden Port of Kembla Port of Sydney Port of Newcastle Port of Yamba **Tasmanian State Waters** EPA Tasmania: +61 (0)3 6165 4599 or 1800 005 171 (within Tasmania only)

Vessel Spill Notifications				
				Radio: TasPorts Vessel Traffic Services VHF radio channel 16/14/12 Call sign “relevant port name VTS” More contact details available at: Emergency Roster and Emergency Contacts Directory
Cooper Energy Duty Manager (or delegate)	DoT – State Waters (< 3nm) Level 2/3 spill threatening State waters; or Spill has caused, or has the potential to cause, moderate to significant environmental damage in State waters (refer to activity-specific EP spill risk assessment)	Verbal	As soon as practicable and no later than 2 hours	Report verbally SCC-Vic (State Duty Officer - Dept of Transport) Ph: 0409 858 715 (24/7)
		Written notification	As soon as practicable after oral notification	POLREP available at: https://amsa-forms.nogginoca.com/public/ Duty Officer - Dept of Transport Ph: 1800 961 311 (24/7) Email: sccvic.sdo.transport@scc.vic.gov.au
Cooper Energy IC (or delegate)	Resources/Contractors Marine Stakeholders (Fisherpersons, AHS, adjacent titleholders)	Telephone	As directed	Refer to Cooper Energy Contacts directory on the Cooper Energy Intranet VIC-ER-EMP-0020 Emergency Roster and Emergency Contacts Directory
Cooper Energy IC (or delegate)	Director of National Parks Spill with potential to impact Australian Marine Park(s) or impact matters of national environmental significance (including potential for oiled wildlife)	Verbal	As soon as practicable	Marine Compliance Duty Officer Ph: 0419 293 465 (24/7)
Cooper Energy IC (or delegate)	Relevant marine stakeholders (Fishers, AHS, adjacent titleholders etc.)	Telephone	As directed (or directed by IC)	Refer to Cooper Energy Contacts directory on the Cooper Energy Intranet VIC-ER-EMP-0020 Emergency Roster and Emergency Contacts Directory

Table 8 - Notification Requirements for Loss of Infrastructure Integrity (Pipeline, Well Release, LOWC)

Pipeline, Well Release, and LOWC Notifications				
From	**To**	**Type**	**Timing**	**Supporting Information**
Cooper Energy Duty Manager (or delegate)	Cooper Energy Incident Management Team (IMT) Cooper Energy Crisis Management Team (CMT)	Verbal	As required	IMT Duty Roster CMT Duty Roster Emergency Roster and Emergency Contacts Directory
Cooper Energy Duty Manager (or delegate)	NOPSEMA Commonwealth Waters (> 3 nm) Spill has caused, or has the potential to cause, moderate to significant environmental damage (refer to activity-specific EP spill risk assessment)	Verbal	As soon as practicable and no later than 2 hours	Report verbally NOPSEMA Ph: 1300 674 472
		Written notification	As soon as practicable after oral notification	Email: submissions@nopsema.gov.au Copy also to NOPTA (08) 6424 5317 Email: info@nopta.gov.au / titles@nopta.gov.au
		Written report	As soon as practicable, but within 3 days of incident	NOPSEMA Form N-03000-FM0831 A543965 Email: submissions@nopsema.gov.au Copy also to NOPTA (08) 6424 5317 Email: info@nopta.gov.au / titles@nopta.gov.au
Cooper Energy Duty Manager (or delegate)	AMSA	Verbal	As soon as practical and no later than 2 hours	Any marine pollution incident must be reported to AMSA including where NatPlan resources are required Ph: 1800 641 792 (24-hour)
Cooper Energy Duty Manager (or delegate)	DoT – State Waters (< 3nm) Level 2/3 spills (threatening State waters) or Spill has caused, or has the potential to cause, moderate to significant environmental damage (refer to activity-specific EP spill risk assessment)	Verbal	As soon as practicable and no later than 2 hours	Report verbally SCC-Vic (State Duty Officer - Dept of Transport) Ph: 0409 858 715 (24/7)
		Written notification	As soon as practicable after oral notification	POLREP available at: https://amsa-forms.nogginoca.com/public/ State Duty Officer - Dept of Transport Ph: 1800 961 311 (24/7) Email: sccvic.sdo.transport@scc.vic.gov.au
Cooper Energy Duty Manager (or delegate)	Port Authorities	Telephone	ASAP	Port of Portland: (03) 5525 0999

Pipeline, Well Release, and LOWC Notifications				
	Level 2/3 spills (threatening State waters)			Gippsland Ports: (03) 5150 0500 For Level 2-3 spills notify the State Duty Officer: 0409 858 715 (24/7)
Cooper Energy IC (or delegate)	Resources/Contractors Marine Stakeholders (Fishermen, AHS, adjacent titleholders)	Telephone	As directed	Refer to Cooper Energy Contacts directory on the Cooper Energy Intranet VIC-ER-EMP-0020. Emergency Roster and Emergency Contacts Directory

Table 9 - Additional External Notifications

Stakeholder	Issue	Spill Level	Timeframe	References
Australian Hydrographic Service	Protection of mariners from safety and environmental impacts of spill	2, 3 (LOWC, well release, pipeline rupture, vessel MDO spill)	2 hrs	Refer to Cooper Energy Contacts directory on the Cooper Energy Intranet VIC-ER-EMP-0020 Emergency Roster and Emergency Contacts Directory
Fishery Groups / Marine users	Protection from spill impacts and/or notify of safety exclusion zones	2, 3 (Vessel MDO spill, LOWC, well release, pipeline rupture)	As soon as practicable	
Adjacent Titleholders	Spill notification	2, 3	As soon as practicable	
VIC - Department of Environment Land Water and Planning (DELWP) (Victoria)	Oiled Wildlife in respective state jurisdictions	1, 2, 3	Immediately, or whenever wildlife in Victoria's jurisdiction is expected to be impacted	1300 134 444 Email: sccvic.scmdr.delwp@scc.vic.gov.au
TAS -Environmental Protection Agency (EPA)			Immediately, or whenever wildlife in Tasmania's jurisdiction is expected to be impacted	1800 005 171
NSW - Department of Primary Industries (DPI)			Immediately, or whenever wildlife in NSW jurisdiction is expected to be impacted	Maritime emergency (24 hr): 1800 641 792
Department of Climate Change, Energy, the Environment and Water (DCCEEW)	Damage to wildlife of national environmental significance (NES)	1, 2, 3	As soon as practicable following the discovery of impact to wildlife of NES (but not longer than 7 days) and/or under the direction of relevant State authority.	Refer to Cooper Energy Contacts directory on the Cooper Energy Intranet VIC-ER-EMP-0020 Emergency Roster and Emergency Contacts Directory

Table 10 - Spill Notification EPO

Performance Outcome	Control	Performance Standard	Measurement Criteria
Notification and reporting to regulators and other relevant persons occur in a timely manner.	C3 Response Communications	Notifications and written reporting to be undertaken in accordance with the relevant content and timeframes specified in Table 7 and Table 9.	Incident log verifies this action has been undertaken in the required timeframe.

2.5 Action Sequence Checklists

The sequence of actions following alerting the IMT and activating this OPEP will be determined based on the spill scenario and level. Specific action sequence checklists are provided in this section for the following scenarios:

- Vessel Collision resulting in a Marine Diesel Oil (MDO) Spill (Level 1 or 2) (Table 11).
- Subsea loss of infrastructure integrity and LOC, including LOWC during Otway Basin drilling activities (Level 1, 2 or 3) (Table 12).

Table 11 - Spill Response Action List - Vessel Marine Diesel (MDO) Spill

VESSEL COLLISION (MDO) SPILL - RESPONSE ACTIONS		
Action	**Responsible Party**	**Timing/ Additional Information**
On discovery of the spill notify the Vessel Master	Spill Observer	ASAP
Manage the safety of all personnel. Secure sources of ignition and alert all personnel (appropriate to the level of the spill)	Vessel Master	ASAP
If safe, stop the spill through source control actions. Assess incident and prevent further spillage. Estimate the quantity of oil released and provide initial incident information. In the event of a significant (Level 2 or 3) spill, deploy the Oil Spill Tracking Buoy (if available) following the deployment instructions.	Vessel Master	ASAP
Notify the Cooper Energy Duty Manager of the spill, providing information available from preliminary spill assessment. Including • What is it - Oil type/group/properties? • Where is it - Lat/long • How big is it - Area/volume? • Where is it going - Weather conditions/currents/tides • What is in the way - Resources at risk • When will it get there - Weather conditions/currents/tides • What is happening to it - Weathering processes predicted	Vessel Master	ASAP
Based on the preliminary spill assessment and operational monitoring from the Vessel Master approximate the spill level, Assess response required. Response commensurate to the size and level of risk.	Cooper Energy Duty Manager	ASAP
Undertake regulatory notifications and other stakeholder notifications (as required). Refer to **Section 2.4** above.	Cooper Energy Duty Manager	ASAP
Assemble Cooper Energy Incident Management Team (as required). Number of, and team members selected, will be based upon the nature and scale of response required. The IC is responsible for: • Identifying the control agency (CA). • Determining the response level. • Activate the Cooper IMT (either where Cooper is the control agency or is directed by CA). • Implementing this FSP and the OPEP (where relevant).	Cooper Energy Duty Manager	ASAP

VESSEL COLLISION (MDO) SPILL - RESPONSE ACTIONS		
NOTE: Cooper Energy is in a support role for this scenario as AMSA (Commonwealth waters) or designated State CA (state waters).		
Activate AMOSC Member Agreement to support the response if require. Cooper Energy Authorising Officer to activate via the AMOSC Duty Manager • Level 1 spill for remote advice. • Level 2 for on-site support (e.g., aerial observers, SCAT, oil spill trajectory modelling, shoreline clean-up coordinators, boom equipment). See Cooper Emergency Roster and Emergency Contacts Directory (VIC-ER-EMP-0020): Emergency Roster and Emergency Contacts Directory for **AMOSC call-our authority personnel.**	Incident Controller (IC) (or Delegate)	Cooper Energy Offshore Victoria OPEP: **Section 3.1**
Login to AMOSC Website for the latest equipment and personnel information. See Cooper Emergency Roster and Emergency Contacts Directory (VIC-ER-EMP-0020): Emergency Roster and Emergency Contacts Directory for log in details (username and password). http://www.amosc.com.au	Planning Officer (or delegate)	
Determine spill trajectory – weather conditions and perform initial vector analysis. See Spill Response Tools on IMT SharePoint for Trajectory Estimator	Planning Officer (or delegate)	Cooper Energy Offshore Victoria OPEP: **Section 7**
Identify protection priorities at risk and confirm response strategies via NEBA.	Planning Officer (or delegate)	Cooper Energy Offshore Victoria OPEP: **Section 4**
Based on operational monitoring and in consultation with CA, where applicable activate the relevant Tactical Response Plan (TRP).	Planning Officer (or delegate)	Cooper Energy Offshore Victoria OPEP: **Section 7**
Support incident action plan (IAP) (as required) in consultation with AMOSC and CA (AMSA or State CA).	Incident Controller (IC) (or Delegate)	Cooper Energy Offshore Victoria OPEP: **Section 5**
Allocate responsibilities to support implementation of IAP (as required).	Incident Controller (IC) (or Delegate)	
In collaboration with CA undertake consultation with appropriate land managers for any shoreline activities (as required).	Incident Controller (IC) (or Delegate)	
As directed by CA, implement response strategies and monitor effectiveness.	Incident Controller (IC) (or Delegate))	Cooper Energy Offshore Victoria OPEP: **Section 5**
As directed by CA – continue until termination criteria met.	Incident Controller (IC) (or Delegate)	Cooper Energy Offshore Victoria OPEP: **Section 5**
Monitor & Evaluate – if required (NOTE: Cooper Energy is in a support role for this scenario)		
Obtain weather data via of the Bureau of Meteorology (http://www.bom.gov.au/) for the spill location.	Planning Officer (or delegate)	Cooper Energy Offshore Victoria OPEP: **Section 7**
Use vectoring to identify predicted spill trajectory or initiate RPS APASA modelling (as required) via AMOSC Duty Manager.	Planning Officer (or delegate)	Cooper Energy Offshore Victoria OPEP: **Section 7**

VESSEL COLLISION (MDO) SPILL - RESPONSE ACTIONS		
Determine Spill Trajectory – weather conditions and vectoring and/or APASA modelling via AMOSC Duty Manager. • AMOSC Duty Manager: Emergency Roster and Emergency Contacts Directory See Cooper Emergency Roster and Emergency Contacts Directory (VIC-ER-EMP-0020): Emergency Roster and Emergency Contacts Directory for AMOSC and RPS APASA contact.		
Undertake ADIOS modelling using hydrocarbon characteristics in **Section 4.2** https://response.restoration.noaa.gov/adios	Planning Officer (or delegate)	
As directed by CA, mobilise aerial observation (if Level 2) See Cooper Emergency Roster and Emergency Contacts Directory (VIC-ER-EMP-0020): Emergency Roster and Emergency Contacts Directory for Aerial Services Provider. Confirm the 'opening status' of estuaries identified as areas for priority protection. Preliminary information may be obtained via: http://www.estuarywatch.org.au/	Logistics Officer (or delegate)	Cooper Energy Offshore Victoria OPEP: **Section 7**
Access oil spill tracking buoy live feed data if a buoy has been deployed from the vessel: Website: https://myionu.track-viewer.com/Login.aspx See Spill Response Tools on IMT SharePoint for username and password for tracking buoy data.	Logistics Officer (or delegate)	Cooper Energy Offshore Victoria OPEP: **Sections 7**
Shoreline Assessment and Clean-up - if required (NOTE: Cooper Energy is in a support role for this scenario)		
As directed by CA (as relevant to State) and in consultation with AMOSC identify Shoreline Assessment and Clean-up Team (SCAT).	IC (or delegate)	Cooper Energy Offshore Victoria OPEP: **Section 9**
In consultation with CA (as relevant to State) AMOSC to identify SCAT locations.	Planning Officer (or delegate)	Cooper Energy Offshore Victoria OPEP: **Section 9**
As directed by CA (as relevant to State) initiate SCAT surveys.	Operations Officer/OSMP Support Contractors	Cooper Energy Offshore Victoria OPEP: **Section 9**
Undertake NEBA for shoreline clean-up as required.	Planning Officer (or delegate)	Cooper Energy Offshore Victoria OPEP: **Section 5**
Protection and Deflection – if required (NOTE: Cooper Energy is in a support role for this scenario)		
Assess deployment location with AMOSC, CA (as relevant to State) and relevant waterway manager.	Operations Officer	Cooper Energy Offshore Victoria OPEP: **Section 8**
As directed by CA (as relevant to State), mobilise equipment and people to location.	Logistics Officer	Cooper Energy Offshore Victoria OPEP: **Section 8**
In consultation with EPA, and as directed by CA (as relevant to State), mobilise waste management contractor	Logistics Officer	Cooper Energy Offshore Victoria OPEP: **Section 11**

VESSEL COLLISION (MDO) SPILL - RESPONSE ACTIONS		
Oiled Wildlife Response – if required (NOTE: Cooper Energy is in a support role for this scenario)		
Notify relevant State Authority if any oiled wildlife is identified or have the potential to be impacted and provide support services as directed. Refer to Cooper Energy Contacts directory on the Cooper Energy Intranet VIC-EREMP-0020 Emergency Roster and Emergency Contacts Directory	IC (or delegate)	Cooper Energy Offshore Victoria OPEP: **Section 10**
In consultation with State lead agency for wildlife response, and as directed by CA (as relevant to State), mobilise waste management contractor.	Logistics Officer	Cooper Energy Offshore Victoria OPEP: **Section 10**
Scientific Monitoring – if required (NOTE: Cooper Energy is in a support role for this scenario)		
Consult with government environmental department (as relevant), and State Statutory Authority on the scope of the scientific monitoring if required.	Planning Officer	Cooper Energy Offshore Victoria OPEP: **Section 12**
Initiate scientific monitoring contractor – GHD. 24/7 Emergency Response Hotline: Emergency Roster and Emergency Contacts Directory	Planning Officer or delegate	Cooper Energy Offshore Victoria OPEP: **Section 12**
As directed by CA (as relevant to State) define monitoring and control sites. CA may consult with AMOSC to define monitoring and control sites.	Planning Officer or delegate	Cooper Energy Offshore Victoria OPEP: **Section 12**
Continue with scientific monitoring until termination criteria are met.	Planning Officer or delegate	Refer OSMP

Table 12 - Spill Response Action List - Loss of Infrastructure Integrity, LOC and LOWC

LOSS OF INFRASTRUCTURE INTEGRITY, LOC and LOWC - RESPONSE ACTIONS		
Action	**Responsible Party**	**Timing/ Additional Information**
On discovery of the spill: • Initiate source control to prevent further spillage. • Notify the Duty Incident Manager providing initial incident information. • In the event of a significant (Level 2 or 3) spill, deploy the Oil Spill Tracking Buoy (if available and safe to do so) following the deployment instructions.	Site Operator/ Maintainer	ASAP
Undertake spill assessment. • What is it - Oil type/group/properties? • Where is it - Lat/long? • How big is it - Area/volume? • Where is it going - Weather conditions/currents/tides? • What is in the way - Resources at risk? • When will it get there - Weather conditions/currents/tides? • What is happening to it - Weathering processes predicted? • Assess response required. • Response commensurate with the size and level of risk. • Marine Safety Assessment undertaken	Cooper Energy Duty Manager	ASAP
Undertake regulatory notifications and other stakeholder notifications (as required). Refer to Section 2.4.	Cooper Energy Duty Manager (or delegate)	ASAP
Assemble Cooper Energy Incident Management Team (as required). Number of, and team members selected, will be based upon the nature and scale of response required. The IC is responsible for: 1. Determining the response level. 2. Activating the Cooper IMT and Source Control Team (SCT). 3. Implementing the OPEP (where relevant), N.B. the Cooper Energy SCT initiate the Offshore Victorian Source Control Plan (VSCP) (VIC-DC-ERP-0001)	Cooper Energy Duty Manager	ASAP
Activate AMOSC Member Agreement to support the response. Cooper Energy Authorising Officer to activate via the AMOSC Duty Manager • AMOSC (Level 2/3 for advice/support) (e.g., aerial observers, SCAT, oil spill trajectory modelling) • AMOSC Duty Manager: Emergency Roster and Emergency Contacts Directory See Cooper Emergency Roster and Emergency Contacts Directory (VIC-ER-EMP-0020): Emergency Roster and Emergency Contacts Directory for call-our authority personnel.	Cooper Energy Authorising Officer	
Login to AMOSC Website for the latest equipment and personnel information: See Cooper Emergency Roster and Emergency Contacts Directory (VIC-ER-EMP-0020): Emergency Roster and Emergency Contacts Directory for website login (username and password). http://www.amosc.com.au	Planning Officer or delegate	
Contact AMSA (Level 2/3 for support) as per Table 9: Emergency Roster and Emergency Contacts Directory	Cooper Energy Duty Manager	

LOSS OF INFRASTRUCTURE INTEGRITY, LOC and LOWC - RESPONSE ACTIONS		
Determine Spill Trajectory – weather conditions and vectoring and/or RPS APASA modelling via AMOSC Duty Manager. • AMOSC Duty Manager: Emergency Roster and Emergency Contacts Directory See Cooper Emergency Roster and Emergency Contacts Directory (VIC-ER-EMP-0020): Emergency Roster and Emergency Contacts Directory for AMOSC and RPS APASA contact.	Planning Officer or delegate Officer	
Identify protection priorities at risk and confirm response strategies via NEBA in consultation with CA for State waters (DoT) where state waters may be impacted.	Planning Officer or delegate	Cooper Energy Offshore Victoria OPEP: **Section 5**
Based on operational monitoring and in consultation with DoT activate the relevant Tactical Response Plan (TRP), where applicable.	Planning Officer or delegate	Cooper Energy Offshore Victoria OPEP: **Section 4**
Develop incident action plan (IAP) in consultation with Well Control Specialists (where relevant), AMOSC and DoT (where State water may be impacted) and implement.	Planning Officer or delegate	Cooper Energy Offshore Victoria OPEP: **Section 5**
In collaboration with DoT undertake consultation with appropriate land managers for any shoreline activities.	Incident Controller (IC) (or delegate)	
Implement response strategies and monitor effectiveness, including dispersant application where relevant (LOWC scenario)*. *for the purpose of reducing VOCs to safe working levels (<10%)	Operations Officer	Cooper Energy Offshore Victoria OPEP: **Section 5**
Response Termination – continue until termination criteria met.	IC (or delegate)	Cooper Energy Offshore Victoria OPEP: **Section 5**
Monitor & Evaluate		
Obtain weather data via of the Bureau of Meteorology (http://www.bom.gov.au/) for the spill location.	Planning Officer or delegate	Cooper Offshore Victoria OPEP: **Section 7**
Use manual vectoring to identify predicted spill trajectory Spill Response Tools on IMT SharePoint for Trajectory Estimator Initiate APASA modelling using Form in Section 4 and via AMOSC Duty Officer: • AMOSC Duty Manager: Emergency Roster and Emergency Contacts Directory	Planning Officer or delegate	Cooper Energy Offshore Victoria OPEP: **Section 7**
Undertake ADIOS modelling using hydrocarbon characteristics in Section 4.2 - https://response.restoration.noaa.gov/adios	Planning Officer or delegate	Cooper Energy Offshore Victoria OPEP: **Section 4**
As directed by CA, mobilise aerial observation (if level 2/3) to commence operations in daylight hours. See Cooper Emergency Roster and Emergency Contacts Directory (VIC-ER-EMP-0020): Emergency Roster and Emergency Contacts Directory for aerial services provider. Confirm the 'opening status' of estuaries identified as areas for priority protection. Preliminary information may be obtained via: http://www.estuarywatch.org.au/	Operations & Logistics Officer	Cooper Energy Offshore Victoria OPEP: **Section 7**

LOSS OF INFRASTRUCTURE INTEGRITY, LOC and LOWC - RESPONSE ACTIONS		
Mobilise vessel observations and confirm deployment of satellite tracking buoys (as appropriate if Level 2/3 incident). Access oil spill tracking buoy live feed data if a buoy has been deployed from the MOU/vessel: Website: https://myionu.track-viewer.com/Login.aspx See Spill Response Tools on IMT SharePoint for username and password for tracking buoy data.	Operations & Logistics Officer	Cooper Energy Offshore Victoria OPEP: **Sections 7**
Protection and Deflection – if required		
Assess deployment location with AMOSC, CA (DoT) and relevant waterway manager.	Operations Officer	Cooper Energy Offshore Victoria OPEP: **Section 8**
As directed by CA (DoT), mobilise equipment and people to location.	Logistics Officer	Cooper Energy Offshore Victoria OPEP: **Section 8**
In consultation with EPA, and as directed by CA (DoT), mobilise waste management contractor.	Logistics Officer	Cooper Energy Offshore Victoria OPEP: **Section 11**
Shoreline Assessment and Clean-up - if required		
As directed by CA (DoT) and in consultation with AMOSC identify Shoreline Assessment and Clean-up Team (SCAT).	Operations Officer	Cooper Energy Offshore Victoria OPEP: **Section 9**
In consultation with CA (DoT) AMOSC to identify SCAT locations.	Planning Officer/DoT	Cooper Energy Offshore Victoria OPEP: **Section 9**
As directed by CA (DoT) initiate SCAT surveys.	Operations Officer /OSMP Support Contractors	Cooper Energy Offshore Victoria OPEP: **Section 9**
Undertake NEBA (Appendix 3) for shoreline clean-up as required.	Planning Officer/DoT	Cooper Energy Offshore Victoria OPEP: **Section 5**
Initiate shoreline clean-up (as required).	Operations & Logistics Officer	Cooper Energy Offshore Victoria OPEP: **Section 9**
Mobilise waste management contractor. See Cooper Emergency Roster and Emergency Contacts Directory (VIC-ER-EMP-0020): Emergency Roster and Emergency Contacts Directory for waste contractor contact.	Logistics Officer	Cooper Energy Offshore Victoria OPEP: **Section 11**
Oiled Wildlife Response – if required		
Notify DELWP if any oiled wildlife is identified or has the potential to be impacted and provide support services as directed.	Cooper Energy IMT	Cooper Energy Offshore Victoria OPEP: **Section 10**
In consultation with EPA, state lead agency for oiled wildlife, and as directed by CA (DoT), mobilise waste management contractor.	Logistics Officer	Cooper Energy Offshore Victoria OPEP: **Section 11**

LOSS OF INFRASTRUCTURE INTEGRITY, LOC and LOWC - RESPONSE ACTIONS		
Scientific Monitoring – if required		
Consult with EPA, state lead agency for oiled wildlife, and DoT on the scope of the scientific monitoring if required.	Planning Officer	Cooper Energy Offshore Victoria OPEP: **Section 12**
Initiate scientific monitoring contractor – GHD. 24/7 Emergency Response Hotline: Emergency Roster and Emergency Contacts Directory	Planning Officer	Cooper Energy Offshore Victoria OPEP: **Section 12**
As directed by CA (DoT) define monitoring and control sites. DoT may consult with AMOSC to define monitoring and control sites.	Planning Officer/DoT	Cooper Energy Offshore Victoria OPEP: **Section 12**
Continue with scientific monitoring until termination criteria are met.	Cooper Energy IMT	Refer OSMP
Planning beyond First Strike Period		
Create an IAP for ongoing operational period using the IAP template in Appendix 1.	Cooper Energy Planning/ Information Officer	Cooper Energy Offshore Victoria OPEP: Appendix 1

2.6 Safety Exclusion Zones

On activation of the OPEP, the Cooper Energy Operations Officer will establish a safety exclusion zone for all Level 2/3 spill incidents. The extent of the exclusion zone will be determined based on the risks associated with the incident and may be informed by modelling to predict areas where safety thresholds are exceeded.

All aircraft and vessels will observe the exclusion zone around infrastructure to prevent personnel exposure to safety hazards. All vessels and aircraft are to remain up wind and up-current from the source of the spill.

The following additional notifications will be made to protect the health and safety of third-party marine stakeholders:

- Exclusion zones will be established on-water around the source and slick area by requesting a Notice to Mariners via the Australian Hydrographic Service (refer Table 9) and via the AMSA RCC on (02) 6230 6811 who will issue an AusCoast warning.
- Cooper Energy to notify adjacent petroleum titleholders and relevant fishing stakeholders to advise of the spill conditions and any exclusion requirements (refer Table 9).

Safety exclusion zones are maintained until the hydrocarbon release is terminated and the Cooper Energy Spill Incident Controller has determined there is no hazard to personnel, contractors or third-party marine users. The establishment of safety exclusion zones is captured as an enforceable EPO in the event of a spill and is described along with the corresponding performance standards and measurement criteria in Table 13.

Table 13 - Safety Exclusion Zones

Applicable Level	Performance Outcome	Control	Standard	Measurement Criteria
2 & 3	Establish and implement safety exclusion zones	C4: Exclusion Zones	IAP documents the need for, and if required, refines throughout the incident safety exclusion areas to prevent exposure of Cooper Energy contractors and third parties to hazardous conditions.	IAP reflects these constraints have been identified and communicated to user groups.

3.0 Emergency Response Organisation

Cooper Energy's emergency management structure is scalable according to the level of incident. In general, incident response is managed by the Cooper Energy response teams listed in Table 14. The relationship between these groups is provided in Figure 4 - Cooper Energy Oil Spill Response Structure.

Incidents that are extremely large, complex, or protracted, may be managed more effectively by splitting the management of that incident between two or more response teams, (i.e. source control and oil spill response). An incident could be split geographically or functionally depending on the circumstances. Cooper Energy's incident control system provides for remote access and integration of IMT personnel.

Table 14 - Emergency Response Groups

Parameter	Crisis Management Team (CMT)	Incident Management Team (IMT) and Field Teams	Well Source Control Team (SCT)
Role	Manages corporate strategic issues (i.e. wider spill implications) and provides support in terms of finance, insurance, legal, external affairs, media, Joint Venture partner liaison, ASX releases and Government Department liaison.	Supports tactical response for the oil spill and supports site-based ERT. Interface between local stakeholders, external spill response and support agencies.	Responsible for planning and recovery from source control and well incidents.
Leader	CMT Leader	Incident Controller	SCT Leader
Plan	Cooper Energy Crisis Management Plan (CMP)	Cooper Energy Incident Management Plan (IMP) Cooper Energy Offshore Victoria Oil Pollution Emergency Plan (OPEP) Cooper Energy Tactical Response Plans	Cooper Energy Offshore Victoria Source Control Plan (VSCP) Activity Source Control Emergency Response Plan (SCERP)
Nominal Location	CMT Room Level 8, 70 Franklin St, Adelaide, SA	Incident Control Centre Level 8, 70 Franklin St, Adelaide, SA Note, the IMT may move to another nominated location such as AMOSC in Geelong or as nominated by Vic DoT. FOB and Field Teams will be directed by the IMT to locations identified through the IAP cycle.	Perth Level 15, 123 St Georges Terrace, Perth WA
Interface with regulator/industry response plans & resources	-	NATPLAN Victorian Maritime Emergencies (Non search and rescue) (NSR) Plan NSW State Waters Marine Oil and Chemical Spill Contingency Plan Tasmanian Marine Oil Spill Plan (TasPlan) AMOSPlan	MoU between Titleholders
External Liaison Positions within Team	AMOSC Industry Intergovernmental Advisor	Liaison Officers (AMOSC, AMSA, State CA, State government Lead Agencies) (as required).	-

Parameter	Crisis Management Team (CMT)	Incident Management Team (IMT) and Field Teams	Well Source Control Team (SCT)
		Note – Cooper Energy Liaisons should be prepared to deploy to Government Agency Location e.g., Melbourne or Canberra.	

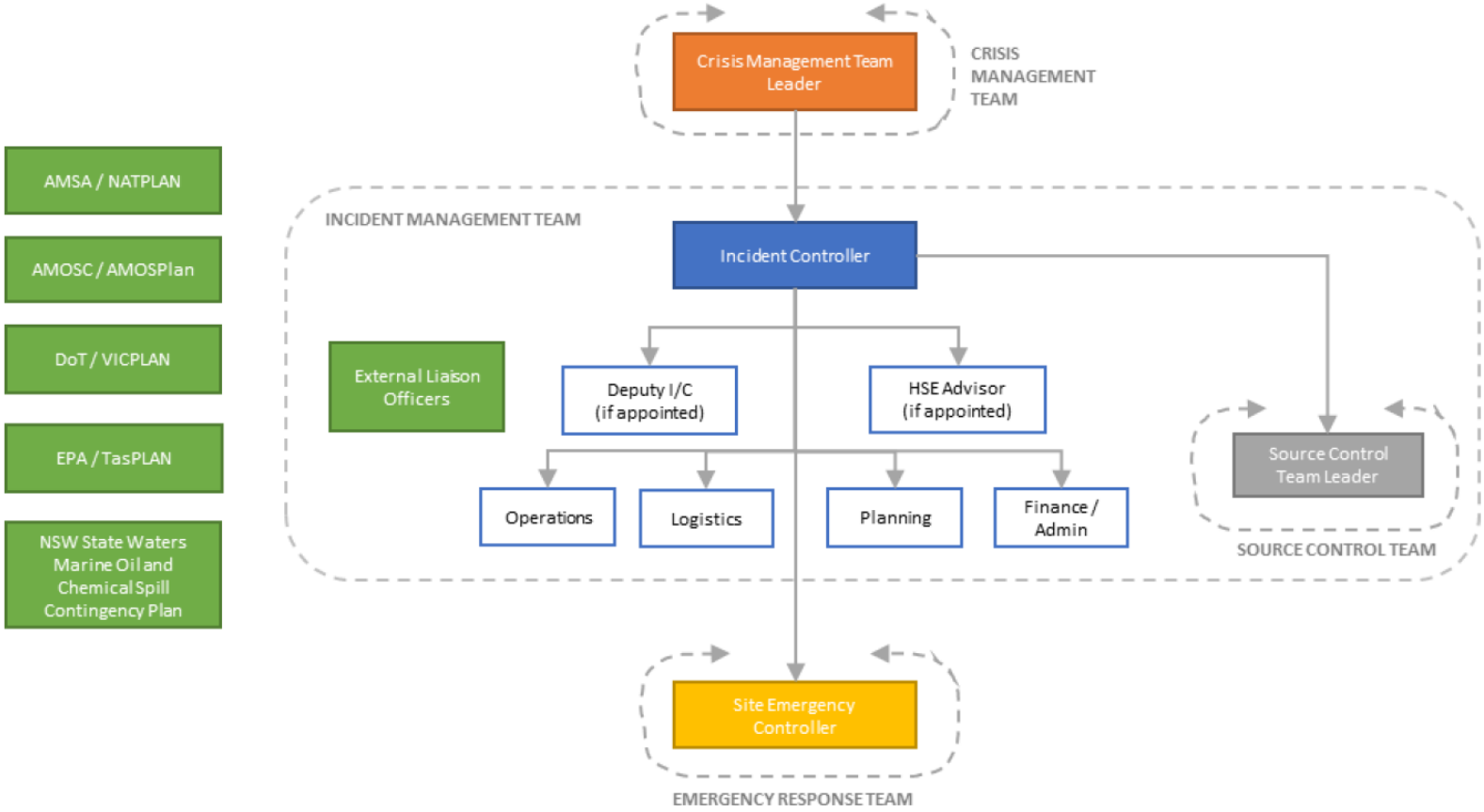


Figure 4 - Cooper Energy Oil Spill Response Structure

3.1 Spill Management Team – Level Structures

Figure 4 provides the Cooper Energy emergency response structure, which is scalable, according to the emergency or oil spill level.

This structure is consistent with the Australasian Inter-service Incident Management System (AIIMS) structure adopted by NATPLAN and Victorian Maritime Emergencies NSR Plan where the IC holds overall management responsibility for activities to control the incident. Use of this structure provides consistency in role definition between Cooper Energy and regulator/industry plans and allows external trained resources to fit seamlessly into the Cooper Energy IMT structure in a surge capacity.

Table 15 - Cooper Energy Emergency Response Structure

Level 1 Spill Management Structure:
A Level 1 spill is within the response capabilities of Cooper Energy site or the vessel operator's resources. The response structure is site-based with notification to the Cooper Energy Duty Manager. The Cooper Energy IMT or CMT may be mobilised if there is a possibility that the spill incident could escalate.
Level 2 Spill Management Structure:
A Level 2 spill incident, where Cooper Energy is the control agency for the spill, will likely activate the Cooper Energy IMT to support oil spill response. The Incident Controller (IC) will nominate the positions which need to be filled and allocate subordinate functions as required. In a Level 2 spill event the IC must notify the CMT Leader and determine if the spill response requires support from CMT resources. Additional resources (i.e. media) may be mobilised as required. The mobilisation and composition of the CMT are detailed in the IMP. For Level 2 spills where Cooper Energy is not the control agency (i.e. significant vessel spills), the Cooper Energy IMT will support the control agency (either AMSA or relevant State Authority). A Cooper Energy liaison officer may be deployed to the AMSA or State Authority incident team to facilitate support activities (i.e., equipment and personnel).
Level 3 Spill Management Structure:
A level 3 spill incident requires resources which exceed the capacity of Cooper Energy. Cooper Energy may request additional personnel from external agencies such as AMOSC, industry mutual aid (core group) assistance through AMOSPlan (via AMOSC) and AMSA to act as surge resources for the Cooper Energy IMT in an on-going large-scale response. The IMT would be expected to mobilise for a Level 3 spill event when notified by the Duty Manager. If the Level 3 spill event is well-related, the Source Control Team will also be activated to initiate source control. The IC will interface with the Source Control Team Leader.

3.2 Roles and Responsibilities

3.2.1 Incident Management Team

Figure 5 provides details of a Level 3 oil spill support organisation. Each unit within the Planning, Operations, Logistics and Finance / Administration functional area is headed by a coordinator who reports to their relevant functional officer.

The initial Cooper Energy IMT resourcing strategy, and responsibilities for these key roles is provided in Table 16. Surge capacity resources are also nominated together with the role competency requirements.

In the event of a prolonged large-scale oil spill event, additional resources would be sourced from external agencies to fulfil the necessary roles.

Individual Oil Spill Response Officer Position Checklists are provided in Appendix 4 of this OPEP. Maximum IMT resourcing requirements for the WCD spill response have been evaluated in consultation with AMOSC. Appendix 4 provides further information on where IMT personnel will be sourced from to match the response requirements identified in the OPEP.

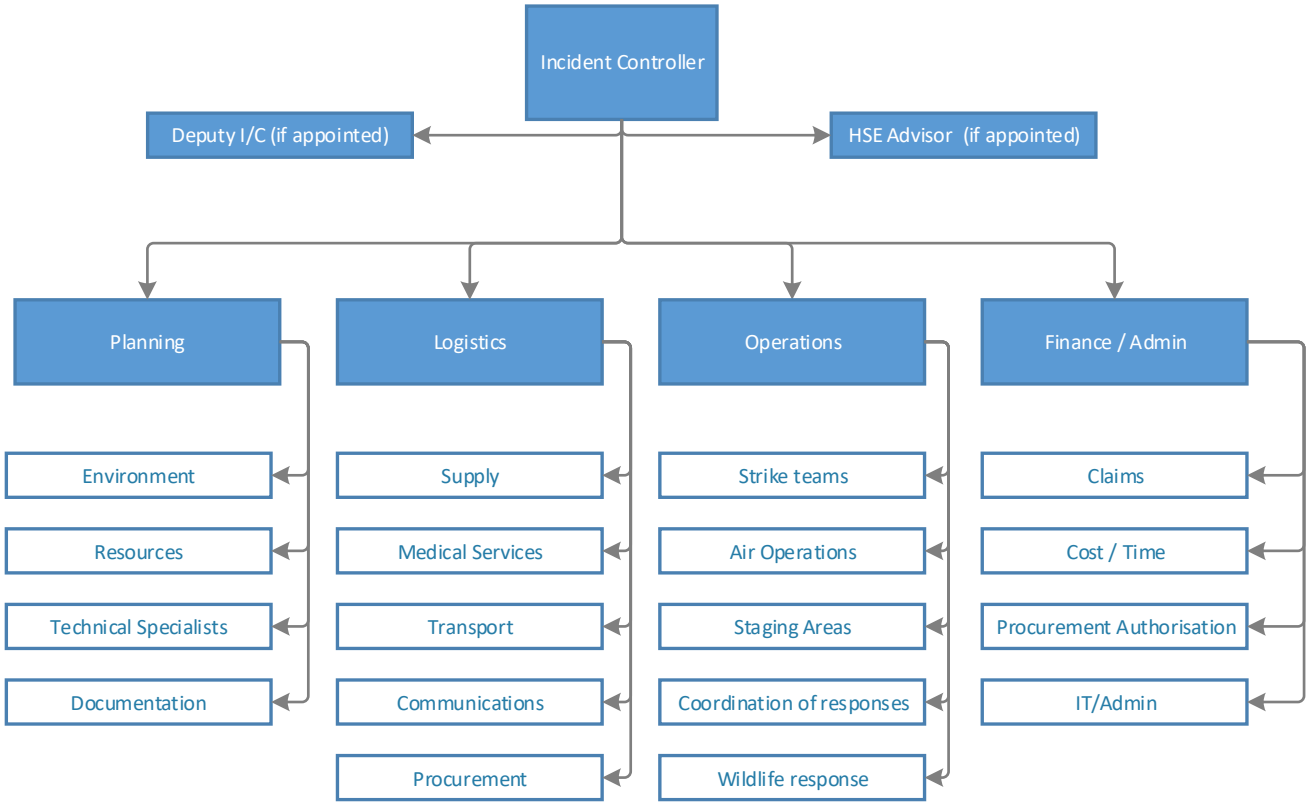


Figure 5 - Spill Level 3 Support Organisation (Indicative)

Table 16 - IMT Lead Roles, Responsibilities, Competencies and Provision

Initial Responder	Responsibilities	Output	Responder Competency/ Training	Initial / Surge
Incident Controller	The management of all activities necessary for the resolution of an incident.	Safe and efficient response structure and organisation.	IMO3 or equivalent OPEP Induction	Cooper Energy / AMOSC Core Group AMSA Liaison Officer/ CA Emergency Management Liaison Officer (EMLO) (or equivalent)
Safety Officer	Oversees the health and safety of the response operations.	Health and Safety Plans, control measures and evaluation.	Industry HSE role > 5 years OPEP induction	Cooper Energy
Liaison Officer	Relaying critical information to key stakeholders (government, community). Feeding back stakeholder concerns to the IC for resolution	External/ pubic/ stakeholder affairs are managed.	Industry or communications role > 5 years OPEP Induction	Cooper Energy / AMOSC Core group
Planning Officer	The collection, analysis and dissemination of information and the development of plans for the resolution of an incident.	Drive the planning process that develops the IAP. Tracking resources. COP – situational assessment (intelligence).	IMO2 or equivalent Internal competencies* OPEP Induction	Cooper Energy / AMOSC Core Group / AMSA NRT
Environment Officer	Reports to Planning Officer. Collects and analyse environmental information for areas that are or may be impacted by the incident. Undertakes NEBA. Works with experts to provide concise and accurate environmental advice to the IC.	OPEP strategies are tactically implemented consistent with good global practice, accounting for the net. environmental benefit of each strategy. Assessment of environmental risks.	Internal competencies* OPEP Induction	Cooper Energy / Environmental Consultancy or AMOSC Core Group. (Ext interface: State Environmental Officers)
Operations Officer	The tasking and application of resources to achieve resolution of an incident.	Run the operations in the field. Provide technical input to the production of the next operational period IAP. Draft the daily operational orders for each field team. Provide tech input to the safety plans.	IMO2 or equivalent Internal competencies* OPEP Induction	AMOSC Core Group, AMSA NRT

Initial Responder	Responsibilities	Output	Responder Competency/ Training	Initial / Surge
Logistics Officer	The acquisition and provision of human and physical resources, facilities, services, and materials to support achievement of incident objectives.	Acquire resources and materials that match the operations. Ensure resources are serviced and maintained to required specifications.	IMO2 or equivalent Internal competencies* OPEP Induction	AMOSC Core Group, AMSA NRT
Finance and Administrator Officer	The management of all financial and administrative activities to enable and record the incident.	Tracks all costs and provides financial oversight consistent with the control agency requirements.	Internal competencies* OPEP Induction	Cooper Energy

Notes:
**Defined for role and maintained as part of the Cooper training and competence matrix.*
Support from National Response Team (NRT) under National Plan arrangements and AMOSC-AMSA MoU.

3.2.2 Forward Operating Base and Field Teams

The IMT will provide support to the Field Team (FT) Forward Operating Base (FOB) Leads (Table 3-4). The FOB(s) will be located near to response activities to manage and provide for the daily operations of the field response. All roles may not be necessary for the entire response.

Table 17 - FOB and Field Team Lead Roles, Responsibilities, Competencies and Provisions

Initial Responder	Responsibilities	Output	Responder Competency/ Training	Initial / Surge
FOB Lead	Set-up and management of the forward operating base, IT systems, personnel, materials and equipment.	Functional FOB for response	IMO2 or equivalent OPEP Induction	Cooper Energy / AMOSC
Safety Officer	Coordinate welfare requirements for all field response personnel.	Implementation of health and safety plan measures.	Industry HSE role > 5 years OPEP induction	Cooper Energy
Aerial Operations Manager	Coordination of Aerial Response Operations	Aerial response operations are implemented in line with the IAP	IMO2 or equivalent OPEP Induction	AMOSC
Aerial Observer	Plotting and recording of oil spill.	Observer reports outlining location, extent and thickness of oil.	AMOSC Aerial Surveillance Course or equivalent HUET OPEP Induction	AMOSC
Marine Operations Manager	Coordination of Marine Response Operations	Marine response operations are implemented in line with the IAP.	IMO1 or equivalent OPEP Induction	AMOSC
Shoreline Operations Manager	Coordination of Shoreline Response Operations	Shoreline response operations are implemented in line with the IAP.	IMO1 or equivalent OPEP Induction	AMOSC

Initial Responder	Responsibilities	Output	Responder Competency/ Training	Initial / Surge
SCAT Team Leads	Coordinate day to day SCAT at respective field location	SCAT operations are implemented in line with the IAP.	IMO1 or equivalent	AMOSC & AMOSC Core Group
Shoreline Response Team Leads	Coordinate day to day shoreline response at respective field location	Shoreline response operations are implemented in line with the IAP.	IMO1 or equivalent OPEP Induction	AMOSC Core Group and NRT
TRP Team Leads	Coordinate tactical response at respective tactical response site	Response operations are implemented in line with TRPs / IAP.	IMO1 or equivalent	AMOSC Core Group
Oiled Wildlife Coordinator	Coordinate oiled wildlife response	Oiled wildlife response is implemented in line with TRPs / IAP.	AMOSC Functional specific training oiled wildlife response management OPEP Induction	AMOSC Core Group
Oiled Wildlife Rehabilitation Manager	Coordinate rehabilitation of oiled wildlife rescued during the response	Process implemented for the rehabilitation of oiled wildlife.	Functional specific training oiled wildlife response management	Philip Island Nature Park

3.2.3 Source Control Team (Well Incident)

The Cooper Energy Offshore Victoria Source Control Plan (VIC-DC-ERP-0001) provides details and guidance on emergency well control management for Cooper Energy's offshore Victoria assets and activities. It covers the activities to be carried out to assess the well control incident and to plan and execute appropriate response measures to regain control of and secure the well.

The IC will interface with the Source Control Team (Section 3, Figure 6). Figure 6 details the Source Control Team structure and Table 18 roles, responsibilities, competencies, and where initial and surge personnel can be sourced. All roles may not be necessary for the entire response.

A detailed resourcing plan is developed as part of the drilling campaign SCERP.

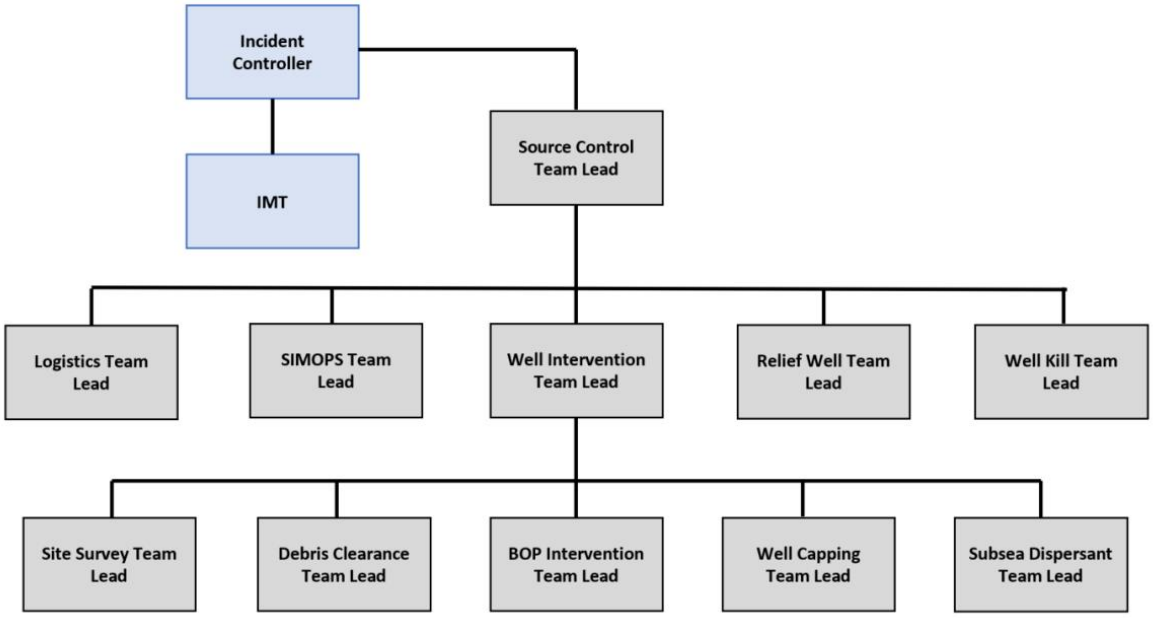


Figure 6 - Source Control Team Structure

Table 18 - Source Control Team Lead Roles, Responsibilities, Competencies and Provision

Initial Responder	Responsibilities	Output	Responder Competency/ Training	Initial / Surge
Source Control Team Lead	The Source Control Team Leader gathers all the information from the source control subgroups to manage and report on the progress of the various source control methods being pursued	Approve and authorise the implementation of a Source Control Action Plan.	IMO III, IWCF Subsea Supervisor Well Control or equivalent	Cooper Energy WWC Labour Agency
Well Intervention Team Lead	The Well Intervention Team Leader reports to the Source Control Team Leader and supports activities related to site surveys, debris removal, subsea dispersant and well intervention of the incident well.	Approve and authorise the implementation of an: Site Survey Plan BOP/ Well Intervention Plan Debris Removal Plan Subsea Dispersant Plan.	IMO II, IWCF Subsea Supervisor Well Control	Cooper Energy Labour Agency WWC
Site Survey Team Lead	The Site Survey Team Leader is responsible for the management and coordination of surveying the site subsea.	Provides data for all other source control efforts to assist in the development of the operational plans and procedures.	Experience offshore subsea survey lead role	Cooper Energy Fugro Oceaneering
BOP Intervention Team Lead	The BOP Intervention Team Leader is responsible for the management and coordination of an intervention on the BOP of the incident well.	Approve the BOP intervention plans and procedures, secures resources and manages BOP intervention operations with the objective of closing the BOP.	Experience offshore subsea intervention lead role	Cooper Energy WWC Service Rep. - BOP/Well Head
Debris Removal Team Lead	The Debris Removal Team Leader is responsible for the management and coordination of subsea debris removal operations.	Coordinate the development of operational plans and procedures, secure resources, and manage debris removal operations to ensure clear access for the relief well.	Experience offshore subsea operations lead role	Cooper Energy WWC Oceaneering Service Rep. – ISV / Debris Vessel
Subsea Dispersants Team Lead	The Dispersant Team Leader is responsible for the management and coordination of subsea dispersant operations at or near the source.	Coordinate the development of the subsea dispersant application and monitoring plans and procedures, secure resources, and manage subsea dispersant operations. Prepare procedures and plans for submission to be approved by the local governmental authority and coordinated through the SIMOPS Team.	Experience offshore subsea operations lead role	Cooper Energy AMOSC WWC Oceaneering Service Rep. – Dispersant Vessel

Initial Responder	Responsibilities	Output	Responder Competency/ Training	Initial / Surge
SIMOPS Team Lead	The SIMOPS Leader reports to the Source Control Team Leader and supports activities related to SIMOPS plans and activities of the incident well.	Approve and coordinate activities at the incident site. Coordinate and schedule all activities within the SIMOPS area. Coordinate with other groups for the transport of all well control materials to the site Create and maintain SIMOPS plan detailing organization and process flow. Establish On-Site SIMOPS Control/Coordination Centre	Experience SIMOPS lead role	Cooper Energy Labour Agency Oceaneering Service Rep. – Vessel
Well Capping Team Led	The Well Capping Leader reports to the Source Control Team Leader and supports activities related to well capping	Approve and authorise the implementation of a Well Capping Action Plan.	Experience offshore well intervention lead role. IWCF Subsea Supervisor Well Control or equivalent	WWC Service Rep. – Capping Vessel
Relief Well Team Lead	The Relief Well Leader reports to the Source Control Team Leader and supports activities related to planning and operations for drilling the relief well and well kill modelling, planning and operations associated with well kill from the relief well to the incident well.	Determine if impacted rig may be used for relief rig. Determine number of relief wells to be drilled Obtain and assess information on reservoir and wellbore geometry Source rigs to drill the well(s) Identify available resources (i.e., rig, oil country tubular goods, pumping fluids) Identify surface location and develop relief well plan Submit permit(s) and receive approval Finalize well design Drill relief well.	Experience offshore well construction lead role. IWCF Subsea Supervisor Well Control or equivalent	Cooper Energy WWC Labour Agency Schlumberger Wellsite Services MODU Manager Fluid provider
Well Kill Team Lead	Well Kill Team Leader is responsible for the management and coordination of well kill operations.	Coordinate the development (and approval) of the well kill plans and procedures, secure resources, and manage well kill operations via a relief well or capping stack, concurrently with all other source control efforts until the well is dead.	Experience offshore drilling lead role	Cooper Energy WWC Schlumberger Wellsite Services MODU Manager Service Rep. – Vessel Fluid Provider
Logistics Team Lead	The Logistics Team Leader will support the Source Control Team during a subsea well containment incident. The Logistics Team will coordinate internal and external to the Source Control Team to ensure that all necessary resources and services for source control operations are procured.	Approve and authorise the implementation of SCERP logistics strategy, manage vessel support, materials support, facility support, and communications support for source control operations	Experience logistics lead role	Cooper Energy Service Rep. – Vessel Pentagon Cube Energy Labour Agency

3.2.4 Crisis Management Team

The Cooper Energy Crisis Management Team (CMT) typically comprises senior executives representing the major areas of the Cooper Energy business (Table 3-6). The CMT Leader will activate support as required to assist with legal and media issues.

The focus of the CMT includes:

• Supporting the IMT to contain an incident.

• Communicating with all relevant stakeholders and managing the demand for information.

• Strategic planning of control and recovery processes.

Table 19 - Crisis Management Team Roles, Responsibilities, Competencies and Provision

Initial Responder	Responsibilities	Output	Responder Competency/ Training	Initial / Surge
CMT Team Lead	Overall responsibility for management of the Crisis Team including overall responsibility for internal and external communications to the Board, JV partners, ASX and other stakeholders	Supports the IC to provide Safe and efficient response structure and organisation.	General Management (or delegate)	Cooper Energy
External Affairs / Stakeholder relations	Advise on development of internal and external affairs and communications strategy. Brief company spokesperson	Provision of information to external parties in timely manner.	Manger (or delegate)	Cooper Energy
Legal	Assist in the development of a positive legal direction	Legal implications of the response are assessed and communicated to the CMT lead.	General council, Manager (or delegate)	Cooper Energy
Finance	Financial notifications, provision of adequate funds, advice on financial impacts	Response is adequately funded to implement the IAP.	General Manager (or delegate)	Cooper Energy
Human Resources	Source relief and specialist personnel	Response is adequately resourced to implement the IAP.	Manager (or delegate)	Cooper Energy

4.0 Pre-Operational Response Options

Spill response options will be based on the general conditions, oil type and the response priorities. This section describes pre-operational spill response options based on known scenarios, fate and trajectory predictions and an assessment of impacts.

The response taken in an actual event may draw on this information initially but must be appropriate to the conditions of the spill at the time. Approaches to support the live operational response are provided in Section 5.

4.1 General Environmental Conditions of the Bass Strait

Victorian's climate can be characterised as cool temperate, with cool wet winters and cool summers. Water temperatures in Bass Strait are between 12.6˚C and 18.4˚C (average 15˚C).

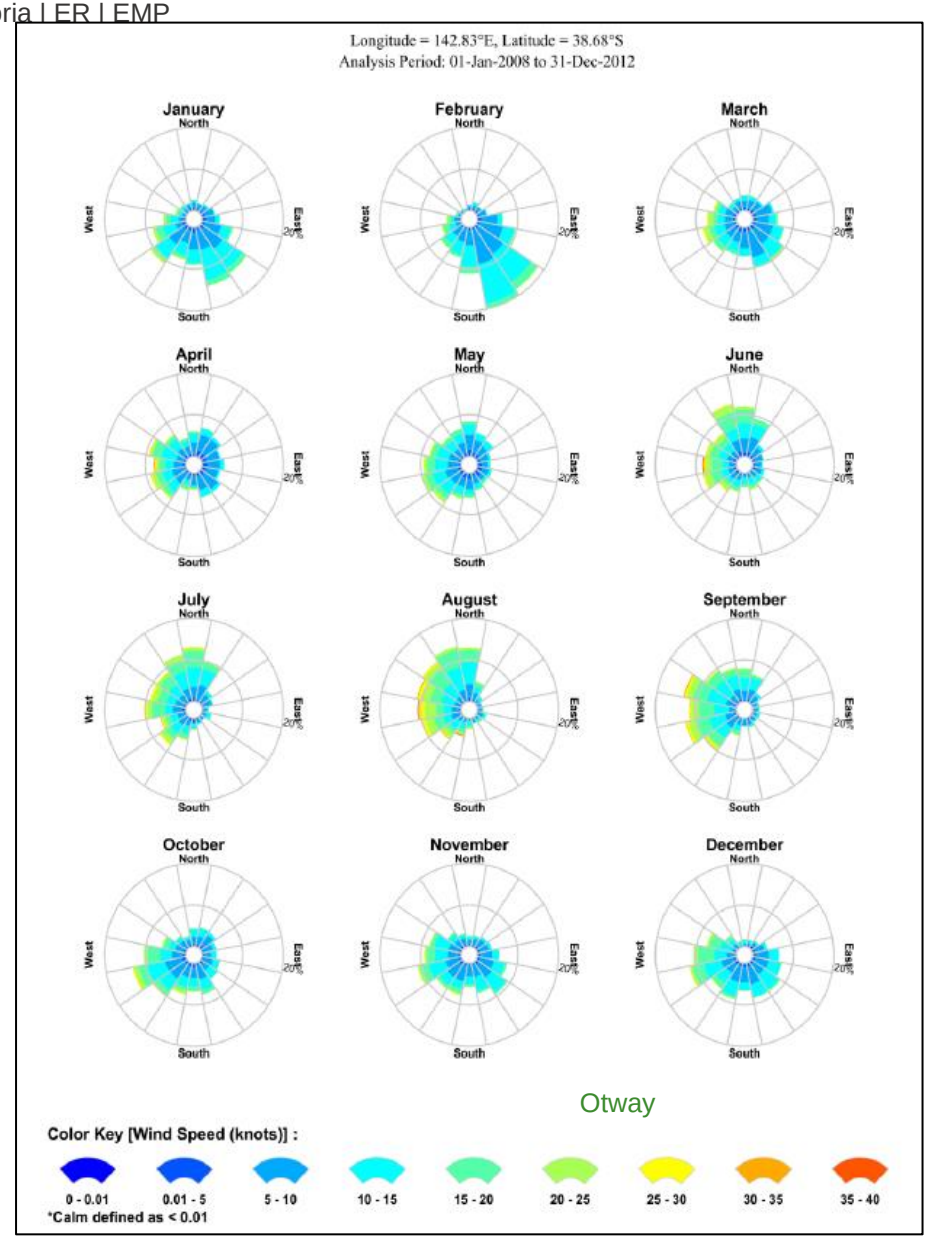
4.1.1 Wind

Bass Strait is located on the northern edge of the westerly wind belt known as the Roaring Forties. Hindcast modelled wind data from the National Centres for Environmental Predictions Climate Forecast System Reanalysis for the period 2008 to 2017 (inclusive), showed winds were typically from the southwest during the summer months and west-southwest during the winter months, with average monthly wind speeds under 16 knots, winds can at times blow over 52 knots at the release location (RPS, 2021).

Average mean wind speeds for Bass Strait are as follows (BOM, 2016):

- Point Hicks (Patricia-Baleen, BMG, Sole): 19.2 km/hr (9am) and 22 km/hr (3pm)
- Cape Otway (Casino-Henry): 24.7 km/hr (9am) and 24.9 km/hr (3pm).

Figure 7 illustrates the monthly wind rose distributions.



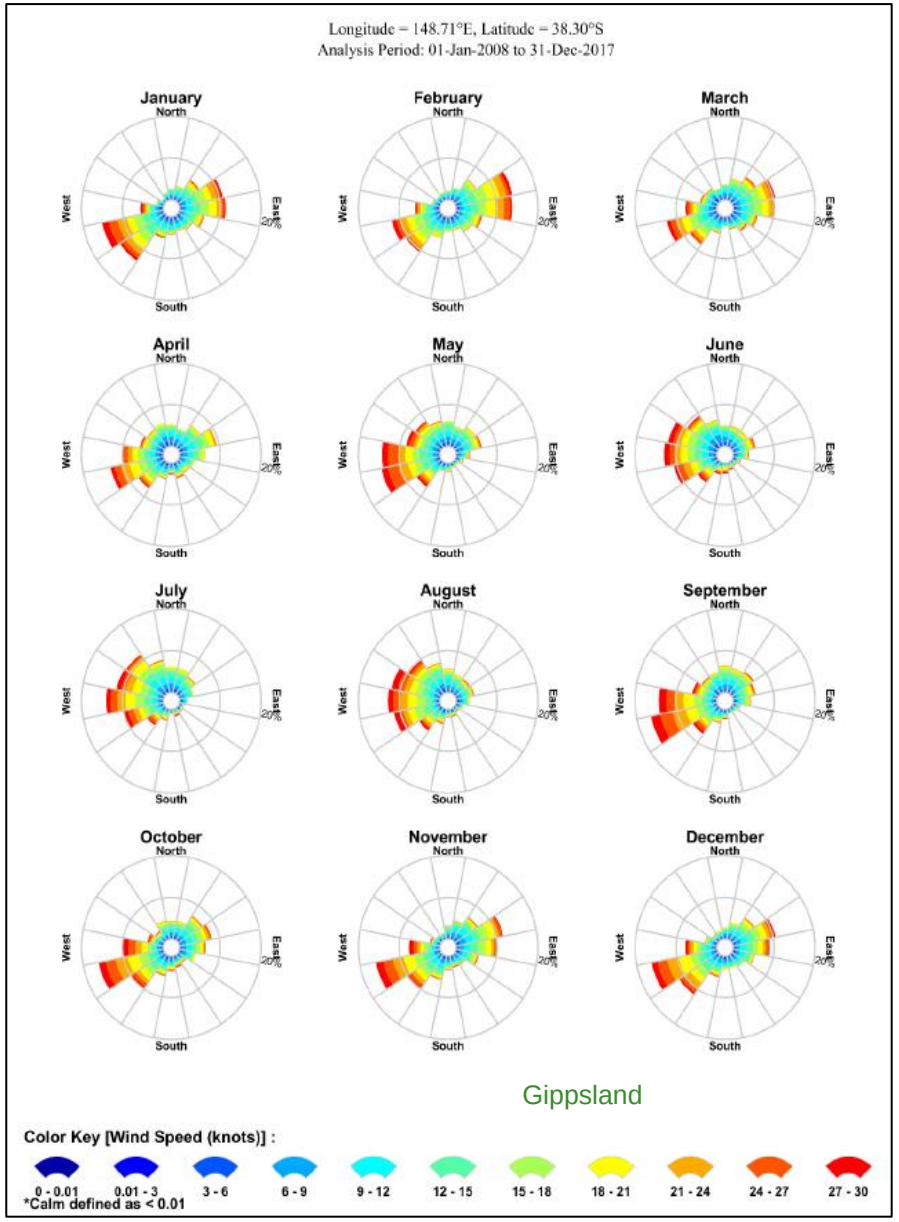


*Figure 7 - Modelled monthly wind data **Otway (left)** and **Gippsland (right)** (RPS 2019, RPS 2021)*

4.1.2 Surface Currents

The Bass Strait region has a reputation for high winds and strong tidal currents (Jones, 1980). Currents within the strait are primarily driven by tides, winds and density driven flows. In winter and spring, waters within the strait are well mixed with no obvious stratification, while during summer the central regions of the strait become stratified (Baines and Fandry, 1983; Middleton and Black, 1994).

The varied geography and bathymetry of the region, in addition to the forcing of the south-eastern Indian Ocean and local meteorology lead to complex shelf and slope circulation patterns (Middleton and Bye, 2007). During winter there is a strong eastward water flow due to the strengthening of the South Australian Current (fed by the Leeuwin Current in the Northwest Shelf), which bifurcates with one extension moving though the Bass Strait, and another forming the Zeehan Current off western Tasmania (Sandery and Kampf, 2007). During summer, water flow reverses off Tasmania, King Island and the Otway Basin travelling westward, as the coastal current develops due to south-easterly winds (Figure 8).

Surface currents flow with different intensities within the Bass Strait depending on the time of year. The average current speed ranged between 0.18 m/s and 0.24 m/s while maximum current speeds ranged between 0.59 m/s (December) and 0.96 m/s (March) (RPS, 2020).

Figure 9 illustrates the monthly current rose distributions based on 10-year dataset for the period 2008 to 2017 (inclusive).

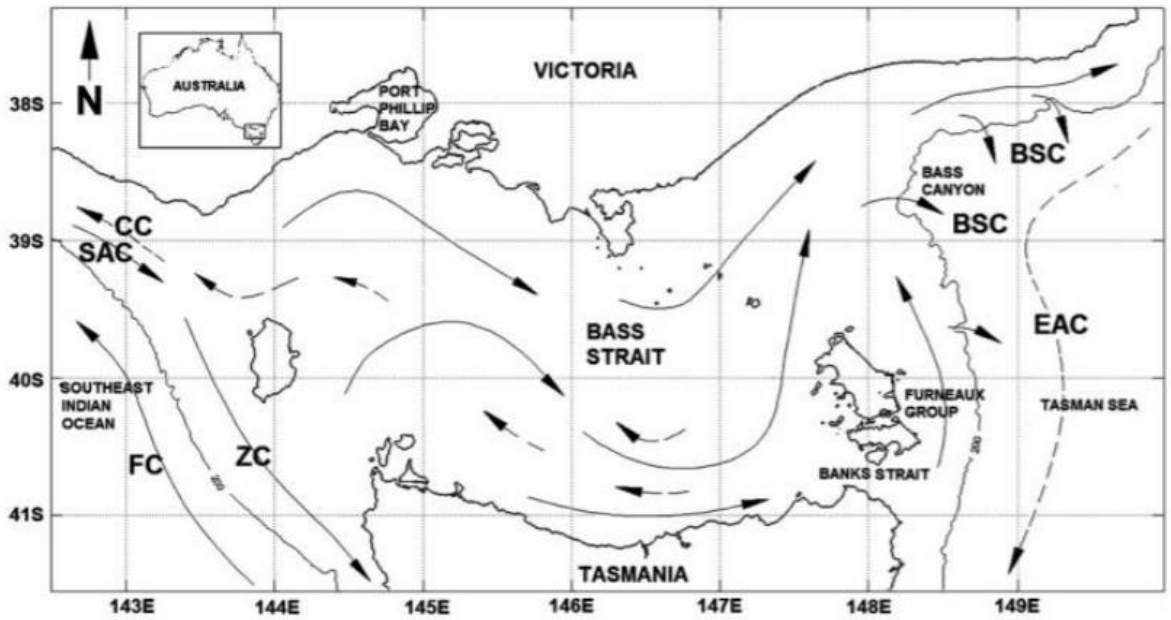
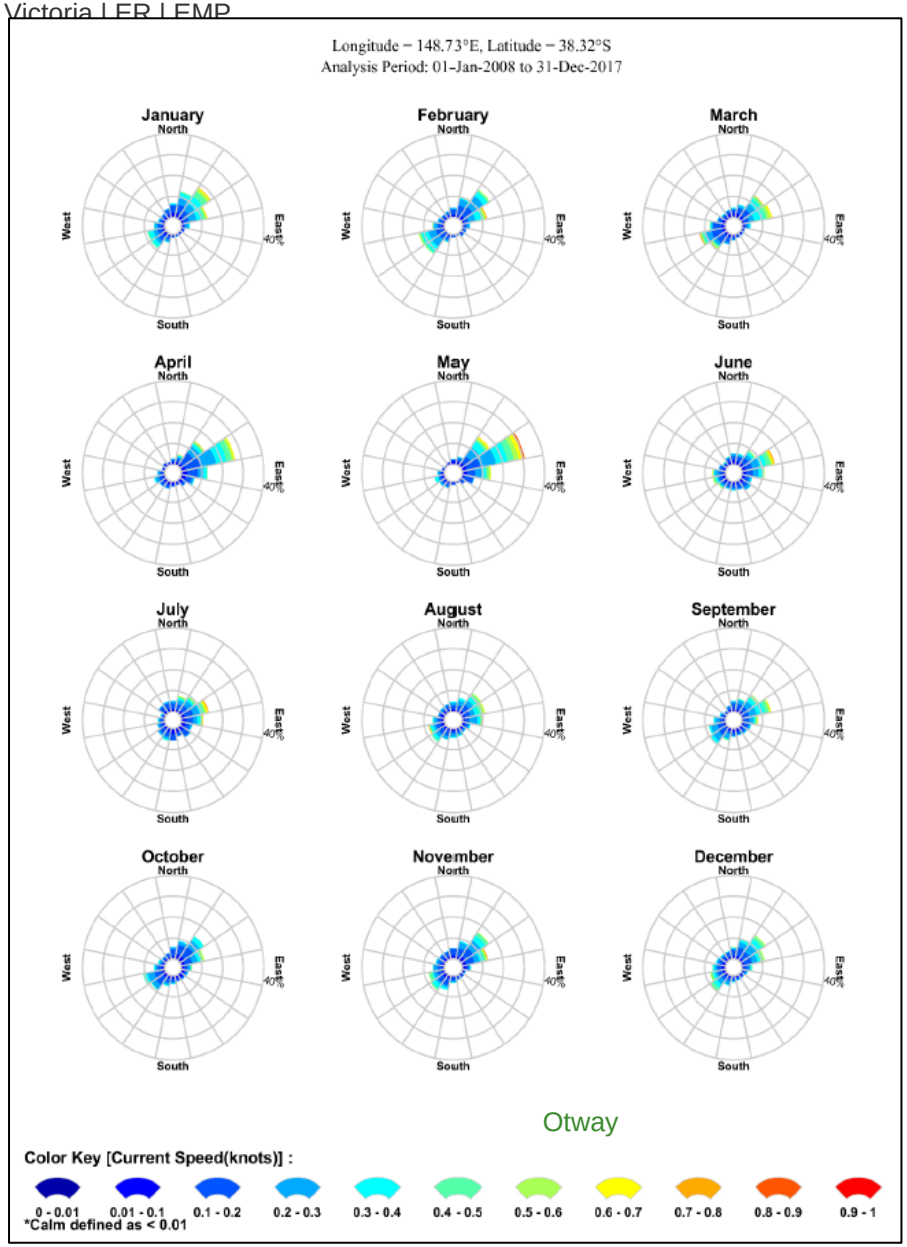


Figure 8 - Schematic representation of currents in the region. Dashed arrows denote summer currents. Shelf break depth (200m isobath) is indicated (Sandery and Kamf, 2007)



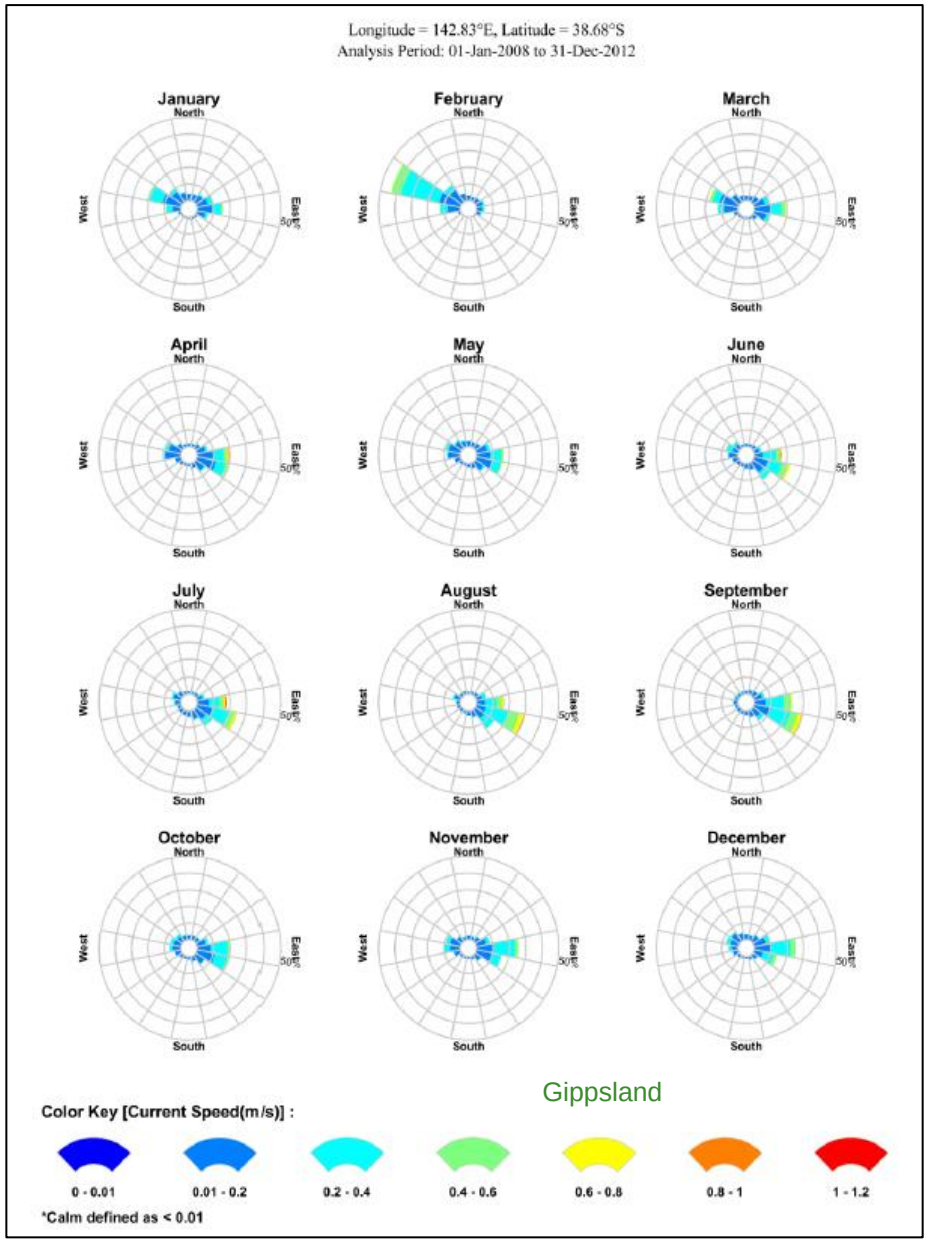


*Figure 9 - Modelled monthly surface current data **Otway (left)** and **Gippsland (right)** (RPS 2019, RPS 2021)*

4.1.3 Water Temperature and Salinity

Monthly average sea surface temperatures range from 14.1°C (September) to 20.5°C (March). Salinity tends to remain consistent throughout the year, between 35.4-35.6 psu (RPS, 2020).

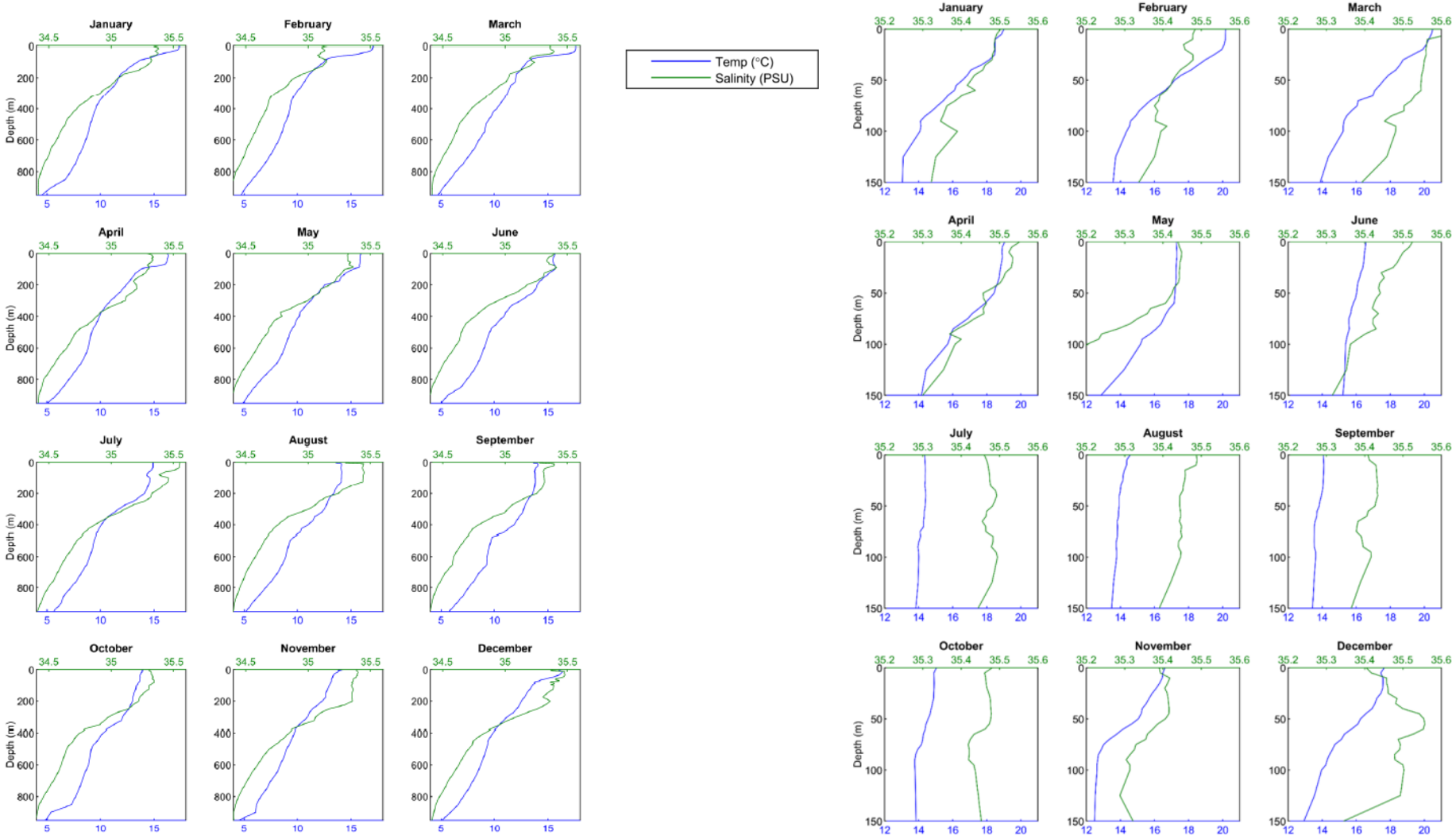


*Figure 10 - Monthly temperature and salinity profiles throughout the water column **Otway (left)** and **Gippsland (right)** (RPS 2019, RPS 2021)*

4.2 Hydrocarbon Characteristics

4.2.1 Marine Diesel Oil (MDO)

Vessels engaged will use MDO which is a mixture of both volatile and persistent hydrocarbons and is classified as Group II oil. MDO has the following behaviour at sea:

- The hydrocarbon spreads very rapidly to thin thicknesses elongated in the direction of the wind and current.
- Evaporation is the dominant process contributing to the removal of spilled MDO from the sea surface and can account for 60-70% loss (depending upon wind conditions, sea state and sea temperature).
- MDO residues usually consist of heavy components which may persist for longer and tend to disperse as oil droplets in the upper layers of the water column in the presence of waves but can re-float to the surface if wave energies abate.

Table 20 provides the physical properties of MDO.

Table 20 - MDO Properties and Behaviour

Properties		MDO
API Gravity		37.6
Density@25°C g/ml		0.83
Dynamic Viscosity @ 25°C (cP)		4.0
Pour Point (°C)		-14
Boiling Point Curve (% mass)	Volatiles (<180°C)	6
	Semi-volatile (180-265°C)	34.6
	Low Volatility (265-380°C)	54.4
	Residual (>380°C)	5
Group		II

4.2.2 Otway Facilities

The Otway reservoirs access the Warre formation and are similar in nature. The Casino, Henry and Netherby reservoirs have been producing for over a decade and hence are depleted relative to initial pressures. Annie and Juliet are not depleted.

The condensates of the Otway reservoirs are classified as a Group I oil (non-persistent). The Netherby condensate is considered representative of all reservoirs (Casino, Henry, Netherby, Annie, Juliet). Netherby condensate is highly evaporative when released into the environment with zero estimated residual (persistent) components. Table 20 provides the physical properties of Netherby condensate.

Table 21 - Otway Reservoir Conditions (Santos 2014)

Parameter	Casino Waarre C	Casino Waarre A	Henry	Netherby	Annie	Juliet
Pressure at Reservoir Depth (psia)	Undepleted: 2850 Current: 515	Undepleted: 2830 Current: 880	Undepleted: 2670 Current: 880	Undepleted: 2550 Current: 505	Undepleted: 3280	Undepleted: 3150-3350
Temperature (°C)	80	87	80	76	100	101-106
Gas Specific Gravity	0.595-0.65	0.595-0.65	0.59	0.584	0.66	0.6
Condensate to Gas Ratio	Undepleted: 1.1 bbls/MMscf Current: 0.3 bbls/MMscf				1bbl/MMscf	1bbl/MMscf

Table 22 – Otway (Netherby) Condensate Physical Properties

Properties		CHN Condensate
API Gravity		51.2
Density@25ºC g/ml		0.774
Dynamic Viscosity @ 25ºC (cP)		0.14
Pour Point (ºC)		-54
Boiling Point Curve (% mass)	Volatiles (<180ºC)	84
	Semi-volatile (180-265ºC)	14
	Low Volatility (265-380ºC)	2
	Residual (>380ºC)	-
Group		I

4.2.3 Patricia and Baleen (PB)

The PB reservoirs are dry gas as provided in . The reservoirs are now substantially depleted. However, approximately 5 m^3 of Longtom condensate remains in the offshore PB pipeline in its current non-operations phase. The physical characteristics of the Longtom are provided in Table 24.

Table 23 - PB Reservoir Conditions (Santos 2014)

Properties	Patricia-2	Baleen-4
Maximum Pressure at Reservoir Depth	400 psi	650 psi
Maximum temperature	120 °F	120 °F
Gas Specific Gravity	0.572	0.563
Condensate to Gas Ratio	<1 bbl/MMscf	<1 bbl/MMscf

Table 24 - Longtom Condensate Physical Properties (Santos 2015)

Properties		Longtom Condensate
API Gravity		51.2
Density@25oC g/ml		0.777
Dynamic Viscosity @ 20°C (cP)		1.081
GOR		10.85 stb/MMscf
Pour Point (°C)		-9 (when fresh)
Boiling Point Curve (% mass)	Volatiles (<180°C)	61.5
	Semi-volatile (180-265°C)	14.3
	Low Volatility (265-380°C)	21.1
	Residual (>380°C)	3.1
ITOPF Group		I

4.2.4 Sole

The Sole reservoir is a dry gas reservoir with very limited condensate observed or recovered during the well tests on Sole-2, Sole-3 and Sole-4. Physical characteristics of the Sole gas is provided in Table 25.

Table 25 - Physical Characteristics of Sole Gas (Cooper Energy 2018)

Properties	Sole
Maximum Pressure at Reservoir Depth	1147 psi
Maximum temperature	43 °C
Gas Specific Gravity	0.589
Condensate to Gas Ratio	<0.1 bbl/MMscf

4.2.5 Basker Manta Gummy (BMG)

The BMG development produced light crude oil. The oil type used to represent the LOWC was a composite crude using B6 as a basis, with B2 properties used to resolve the full data set required for modelling purposes. The oil from the BMG development is categorised as a group II oil (light-persistent). Table 26 summarise the Basker hydrocarbon properties (RPS, 2020) based on assay information for the B2 and B6 production wells.

Table 26 - Physical Properties of Basker Light Crude (RPS,2020)

Properties		Basker Crude
API Gravity		45.2
Density@15ºC kg/m^3		829.8
Dynamic Viscosity @ 40ºC (cP)		2.8
Pour Point (ºC)		15
Wax Content (%)		27.7
Boiling Point Curve (% mass)	Volatiles (<180ºC)	19.4
	Semi-volatile (180-265ºC)	19.5
	Low Volatility (265-380ºC)	20.8
	Residual (>380ºC)	40.3
Group		II

4.3 Response Option Effectiveness

An assessment of the suitability and effectiveness of spill response options for the hydrocarbon types which could potentially be released from Cooper's activities was undertaken in preparation of the corresponding Environment Plans.

Table 27 provides a summary of this assessment and lists the response options suitable for mitigating spill impacts according to hydrocarbon type which may be present on the CHN, BMG, PB and Sole assets.

Given the hydrocarbon types the primary response strategy will be to initiate source control and then monitor and evaluate the spill (natural weathering). Additional secondary measures to protect specific environmental sensitivities within the spill response EMBA where response activities may offer net benefit includes protection and deflection, shoreline monitoring and clean-up (on sandy beaches) and oiled wildlife response.

Further information on each of the selected response strategies is provided in Section 6 to Section 11.

Table 27 - Response option summary for MDO, BMG, CHN, PB & Sole Hydrocarbons

Response Option (OPEP Section Reference)	Description	MDO	BMG (Condensate)	Otway Ops (Condensate)	Otway Drill (Condensate)	PB & Sole (Dry gas)
Source Control (OPEP Section 0)	Limit flow of hydrocarbons to environment.	✓	✓	✓	✓	✓
Monitor & Evaluate (OPEP Section 7.0)	Direct observation – Aerial or marine; Vector Calculations; Oil Spill Trajectory Modelling; Satellite Tracking Buoys To maintain situational awareness, all monitor and evaluate options suitable.	✓	✓	✓	✓	✓
Dispersant Application	Breakdown surface spill & draw droplets into upper layers of water column. Increases dispersion and in turn biodegradation and provides benefit to sea-surface /air breathing animals.	X	X	X	Surface application: X Subsea application: ✓*	X
Contain and Recover	Booms and skimmers to contain surface oil where there is a potential threat to environmental sensitivities.	X	X	X	X	X
Protect & Deflect (OPEP Section 8.0)	Booms and skimmers deployed to protect environmental sensitivities.	✓	✓	X	✓	X
Shoreline Clean-up (OPEP Section 8.4)	The selection and application of shoreline clean-up methods will take into account environmental sensitives based on NEBA	✓	✓	✓	✓	X
Oiled Wildlife Response (OPEP Section 10.0)	Consists of capture, cleaning and rehabilitation of oiled wildlife. May include hazing or pre-spill captive management.	✓	✓	✓	✓	X

** While dispersants are not proposed for direct environmental benefit, dispersants may be used in the vicinity of the well in Commonwealth waters to reduce Lower Explosive Limits (LELs) at surface and to assist in gaining safe access to a flowing well (e.g. for intervention).*

4.4 Priority Protection Areas

Predictive modelling has been used to identify the areas that may be exposed to hydrocarbons from hypothetical worst-case spill scenarios. To identify the primary response planning areas the following oil exposures were used from AMSA's foreshore assessment guide (NP-GUI-025; AMSA 2015):

- A sea surface oil exposure of 10 g/m^2 as this represents the practical limit for surface response options; below this loading, oil containment, recovery, and chemical treatment (dispersant) become ineffective.
- A shoreline contact exposure of 100 g/m^2 as this represents the minimum loading that is not likely to inhibit the potential for recovery; hydrocarbons below this loading may be best remediated by natural coastal processes alone.

The primary response planning areas were developed based on the modelling of the worst-case spill scenarios that covered the greatest area above the exposures stated above for the Gippsland and Otway assets.

Based on the modelling outputs, priority protection areas have been identified as have other areas where response strategies may be practically implemented. Figure 11 shows the primary response areas for Cooper Energy's Gippsland Basin assets and activities. Figure 12 shows the primary response areas for Cooper Energy's Otway Basin assets and activities.

A timely and appropriate response for the identified areas for priority protection have been planned for in the EPs to ensure that the risks and impacts are ALARP and acceptable. A series of Tactical Response Plans (TRPs) have been developed to assist in implementing a rapid response (Section 4.4.2).

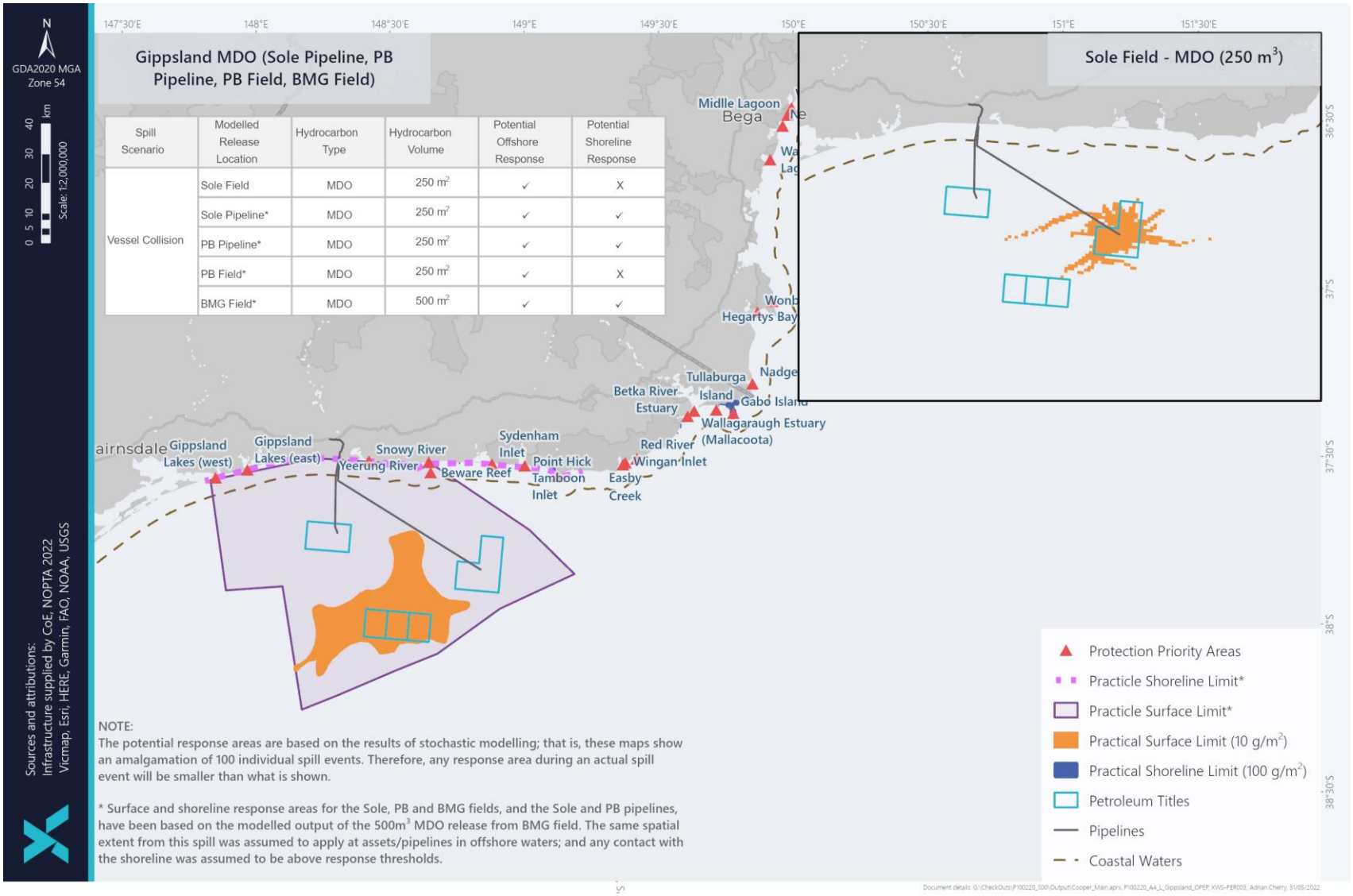


Figure 11 - Gippsland Basin Primary Response Area

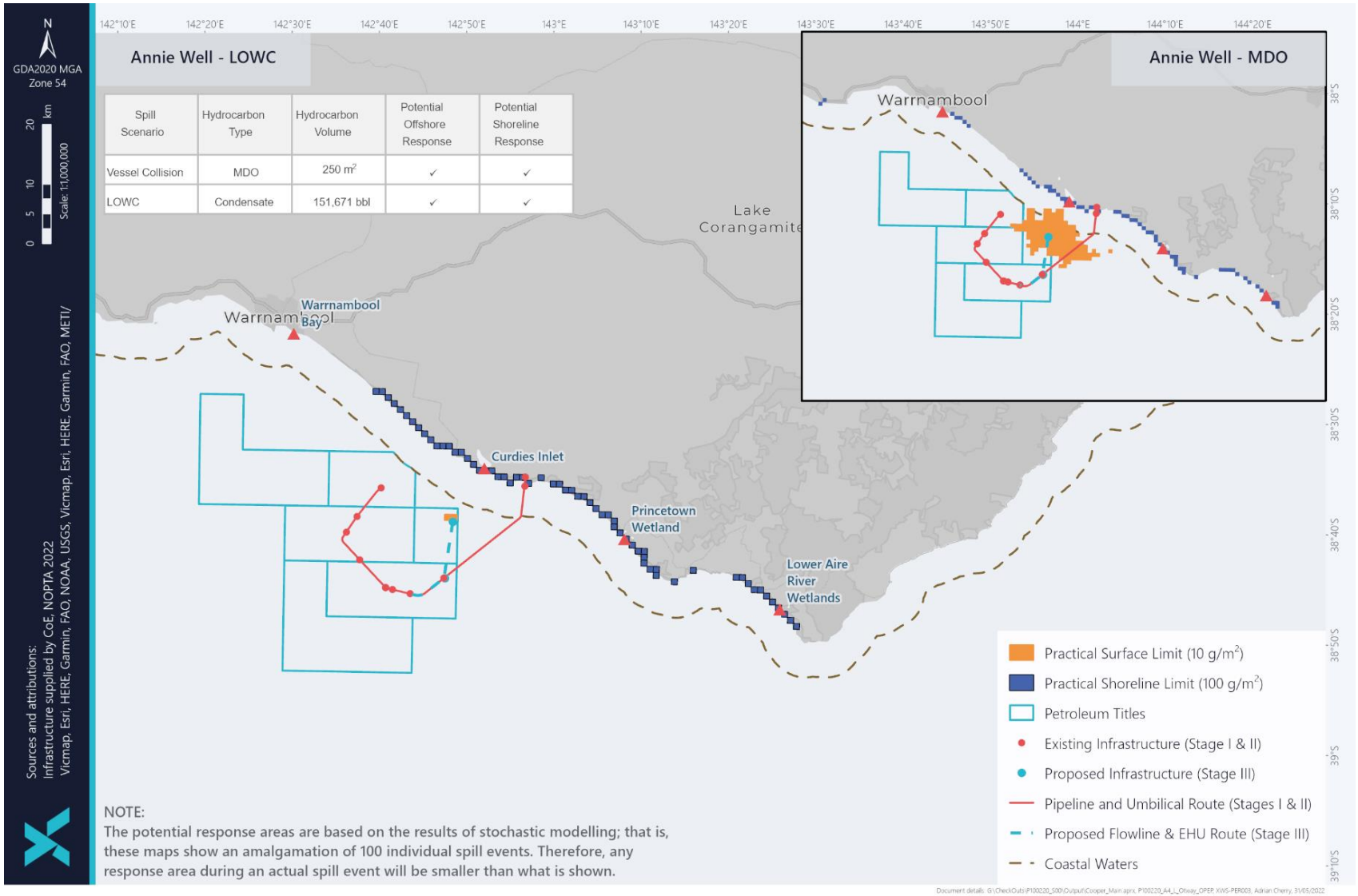


Figure 12 - Otway Basin Primary Response Areas

4.4.1 Sensitivity Criteria

To support the identification of priority response areas, shoreline sensitivity analysis and mapping was undertaken guided by IPIECA principles and informed by the regional description of the environment and understanding of receptor presence in the region. Coastal landform types, habitats and other receptors within the region have been ranked based upon sensitivity to hydrocarbon exposure in accordance with the criteria in Table 28.

Table 28 - Sensitivity Criteria

Sensitivity	Code	Criteria
Severe Impact	**S1**	Region of known sensitive habitat (mangrove, salt marshes, and sheltered tidal flats) which if impacted may have significant impacts and long recovery periods. Presence of known threatened species feeding, breeding, nesting or congregation areas. Areas of national significance or biological processes for species of national significance (e.g. breeding sites and National and State Parks, Commonwealth Heritage listed areas). Identified marine sanctuary or reserve.
Medium Impact	**S2**	Region of known moderately sensitive habitats (sheltered rocky rubble coasts, exposed tidal flats, gravel beaches, mixed sand and gravel beaches) which have a medium recovery period (~2-5 years). Presence of known threatened species or cultural heritage impacted. Region of significant commercial activity (e.g. fishing, tourism). Places of public interest such as beaches.
Low Impact	**S3**	Region of known low sensitivity habitat (fine grained beaches, exposed wave-cut platform and exposed rocky shores) which have a rapid recovery period (~ year). Minimal impact to marine life, business, public areas or cultural heritage items.

4.4.2 Tactical Response Plans for Priority Protection Areas

Tactical Response Plans (TRPs) are developed for sensitive sites predicted to be exposed to a hydrocarbon spill where there is limited time to contact (as determined by predictive modelling). It is estimated that it takes approximately 5 days to develop and ground truth a tactical response plan and 24-48 hours to mobilise equipment and personnel to site thus, those areas of high sensitivity within the priority response area with the potential to be exposed to hydrocarbons within 7 days were identified as the priority protection areas.

The priority response planning areas identified for spill scenarios that are relevant to the Gippsland basin assets and activities are detailed in Table 29 along with the appropriate TRP. Table 30 includes the sites identified for activities in the Otway basin. Further TRPs to those identified in these tables will be developed to cover sites and sensitivities in NSW and Tasmania in case it is required. This would be undertaken as a part of incident action planning in the operational response.

In addition to site-specific TRPs, the following Response Plans have been developed:

- Species response plans:
  - Southern right whale
  - Sperm whale
  - White-faced storm petrel
  - Short-tailed shearwater
- TRP – Shoreline Protection & Clean Up. Developed in collaboration with ExxonMobil, the purpose of the TRP is to provide a plan outlining the strategy to be adopted and actions required to undertake safe and effective shoreline protection and clean-up along any shoreline type, in response to a release of hydrocarbons to the marine environment.
- Up to date TRP listings are available at: IMT SharePoint Site – Tactical Response Plans

Table 29 - Priority Response Planning Areas for Scenarios Identified for the Gippsland Basin Assets and Activities

Location	Latitude	Longitude	Summary	TRP
Point Hicks	-37.80	149.27	High biological sensitivity	Point Hicks
Tamboon Inlet	-37.78	149.14	High coastal habitat sensitivity High biological sensitivity	Tamboon Inlet
Sydenham Inlet	-37.78	149.02	High coastal habitat sensitivity High biological sensitivity	Sydenham Inlet
Beware Reef	-37.82	148.79	High biological sensitivity	Beware Reef
Yeerung River	-37.79	148.78	High coastal habitat sensitivity High biological sensitivity	Yeerung River
Snowy River	-37.80	148.55	High coastal habitat sensitivity High biological sensitivity	Snowy River
Gippsland Lakes (east)	-37.86	148.09	High coastal habitat sensitivity High biological sensitivity	Lakes Entrance
Gippsland Lakes (west)	-37.89	147.97	High coastal landform sensitivity High coastal habitat sensitivity High biological sensitivity	Lakes Entrance
Benedore River	-37.69	149.63	High coastal habitat sensitivity	Benedore River
Thurra River	-37.78	149.31	High coastal habitat sensitivity	Thurra River
Mallacoota Inlet	-37.54	149.86	High coastal habitat sensitivity	Mallacoota Inlet
Wingan Inlet	-37.745	149.51	High coastal habitat sensitivity	Wingan Inlet
The Skerries	-37.754	149.51	High biological sensitivity	The Skerries
Tullaburga Island	-37.55	149.84	High biological sensitivity	Tullaburga Island

Table 30 - Priority Response Planning Areas for Scenarios Identified for the Otway Basin Assets and Activities

Location	Latitude	Longitude	Summary	TRP
Warrnambool Bay (and Hopkins River mouth)	-38.37	142.50	Coastal settlement Major tourist hub for coastal activities (fishing, surfing, boating etc.)	Warrnambool Bay
Curdies Inlet	-38.60	142.87	State terrestrial protected area, IUCN Category III High coastal habitat sensitivity High biological sensitivity	Curdies Inlet
Princetown Wetlands (and Gellibrand River mouth)	-38.70	143.16	Coastal settlement Main industries are tourism and fishing (including port for rock lobster fishery)	Princetown Wetlands
Lower Aire River Inlet (and Aire River mouth)	-38.81	143.46	State terrestrial protected area, IUCN Category II High coastal habitat sensitivity High biological sensitivity	Lower Aire River Inlet
Port Campbell	-38.61	142.99	Coastal settlement Amenity beach, tourism, camping, fishing High coastal habitat sensitivity High biological sensitivity	Port Campbell

4.4.3 Pre-spill Net Environmental Benefit Assessment (NEBA)

An assessment of effective spill mitigation techniques and the net benefit they offer to specific environmental sensitivities located in the Otway and Gippsland basin priority protection areas is provided in the following tables Table 31 and Table 32.

NOTE: wildlife response activities will focus on addressing wildlife welfare as a result of the spill regardless of the NEBA. The NEBA is an important tool in decision making, but provided it is safe to do so, all accessible wildlife with welfare needs should be addressed.

Table 31 - Sensitivities within the Gippsland Basin, Response Option Feasibility & Planning NEBA

			Priority Response Planning Area										Response Options							
			Pt Hicks	*Tamboon Inlet*	*Sydenham Inlet*	*Beware Reef*	*Yeerung River*	*Snowy River*	*Gippsland Lakes*	*Benedore River*	*Thurra River*	*Mallacoota Inlet*	**Response Option Effective?**							
Receptor	Sensitivity	Marine	Croajingolong NP Pt Kicks Marine NP	Croajingolong NP	Cape Conran Coastal Park	Beware Reef Marine Sanctuary	Cape Conran Coastal Park	Snowy River National Park	The Lakes National Park	Benedore River	Thurra River	Mallacoota Inlet	Oil Type	Source Control	Monitor & Evaluate	Dispersant Application	Contain & Recover	Protect & Deflect	Shoreline Clean-up	Oiled Wildlife Response
													MDO	Yes	Yes	No	No	Yes	Yes	Yes
													Condensate[3]	Yes	Yes	No	No	NA	NA	NA
													Gas	Yes	Yes	No	No	NA	NA	NA
Marine Ecology																				
Cetaceans	S1	✓												↑	-			NA	NA	NA
Pinnipeds	S2	✓				✓					✓			↑	-			NA	NA	NA
Turtles	S2	✓												↑	-			NA	NA	↑
Fish & Sharks	S2	✓				✓								↑	-			NA	NA	NA
Seabirds	S1	✓						✓				✓		↑	-			NA	NA	↑
Shorebirds	S1							✓				✓		↑	-			NA	NA	↑
Invertebrates	S3	✓				✓								↑	-			NA	NA	NA
Plankton	S3	✓												↑	-			NA	NA	NA
Coastal Habitats																				
Saltmarsh/Seagrass	S1		✓		✓			✓			✓			↑	-			↑	↓	NA
Mangroves												✓		↑	-			↑	↓	NA
Mudflats											✓	✓		↑	-			↑	↓	NA
Kelp Habitats (inter-tidal)	S2					✓								↑	-			NA	NA	NA
Sand Beaches	S3		✓	✓	✓		✓	✓	✓		✓			↑	-			NA	↑	NA
Sub-tidal Reef	S3													↑	-			NA	NA	NA
Inter-tidal Rocky Plat/Headland	S3		✓			✓								↑	-			NA	↑	NA
Wetlands	S1			✓	✓			✓	✓			✓		↑	-			↑	↓	NA
Coastal Ecology																				
Shoreline Birds	S1		✓					✓	✓			✓		↑	-			↑	↑	↑

[1] No shoreline impact or surface sheen identified for gas or condensate spill therefore protection & detection, shoreline clean-up and oiled wildlife response not applicable.

			Priority Response Planning Area										Response Options							
			Pt Hicks	*Tamboon Inlet*	*Sydenham Inlet*	*Beware Reef*	*Yeerung River*	*Snowy River*	*Gippsland Lakes*	*Benedore River*	*Thurra River*	*Mallacoota Inlet*	Response Option Effective?							
Receptor	Sensitivity	Marine	Croajingolong NP Pt Kicks Marine NP	Croajingolong NP	Cape Conran Coastal Park	Beware Reef Marine Sanctuary	Cape Conran Coastal Park	Snowy River National Park	The Lakes National Park	Benedore River	Thurra River	Mallacoota Inlet	Oil Type	Source Control	Monitor & Evaluate	Dispersant Application	Contain & Recover	Protect & Deflect	Shoreline Clean-up	Oiled Wildlife Response
													MDO	Yes	Yes	No	No	Yes	Yes	Yes
													Condensate[3]	Yes	Yes	No	No	NA	NA	NA
													Gas	Yes	Yes	No	No	NA	NA	NA
Pinniped Haul-out Sites	S2		✓			✓								↑	-			NA	NA	↑
Penguin Colonies	S2													↑	-			NA	NA	↑
Protected Area	S2									✓	✓			↑	-			NA	NA	↑
Socio-economic																				
Tourism	S2		✓		✓	✓	✓	✓	✓	✓	✓			↑	-			↑	↑	NA
Amenity beach								✓				✓		↑	-			↑	↑	NA
Ports, Harbours, Yacht Club	S3		✓						✓			✓		↑	-			↑	↑	NA
Commercial Fishing/ Aquaculture	S2	✓							✓					↑	-			NA	↑	NA
Recreational Fishing/Diving	S3		✓	✓	✓	✓	✓	✓	✓			✓		↑	-			NA	↑	NA
Shipwrecks (submerged)	S3					✓					✓	✓		↑	-			NA	NA	NA
Aboriginal Heritage/Cultural	S2		✓	✓	✓	✓	✓	✓	✓	✓	✓			↑	-			↑	↓	NA

Legend:

Benefits Assessment:	*Effectiveness Assessment:*
↑ ***Net Benefit Compared with only Monitor & Evaluate***	*Yes: Option suitable for oil type, few restrictions in implementing*
↓ ***Net Loss Compared with only Monitor and Evaluate***	*Possible: Option suitable for oil type, potential limitations on application*
- ***No net benefit or Loss***	*Not Recommended: Option not suitable for oil type*
NA: Option is not applicable to the Receptor given credible worst-case discharge potential	

Table 32 - Sensitivities within the Otway Basin, Response Option Feasibility & Planning NEBA

			Priority Response Planning Area					Response Options							
			Warrnambool Bay	*Curdies Inlet*	*Princetown Wetlands*	*Lower Aire River Wetlands*	Port Campbell	**Response Option Effective?**							
	Sensitivity	Marine	Hopkins River, Logans Beach	Bay of Islands Coastal Park, Peterborough Coastal Reserve	Port Campbell National Park, Twelve Apostles Marine National Park, Gellibrand Rover	Otway National Park, Aire River Beach, Aire River	Port Campbell Beach Port Campbell Inlet	Oil Type	Source Control	Monitor & Evaluate	Dispersant Application	Contain & Recover	Protect & Deflect	Shoreline Clean-up	Oiled Wildlife Response
								MDO	Yes	Yes	No	No	Yes	Yes	Yes
								Condensate	Yes	Yes	No[4]	No	Yes	Yes	Yes
Receptor								Gas	Yes	Yes	No	No	No	No	No
Marine Ecology															
Cetaceans	S1	✓	✓						↑	-			NA	NA	NA
Pinnipeds	S2	✓							↑	-			NA	NA	↑
Turtles	S2	✓							↑	-			NA	NA	↑
Fish & Sharks	S2	✓			✓				↑	-			NA	NA	NA
Seabirds	S1	✓			✓				↑	-			NA	NA	↑
Invertebrates	S3	✓			✓				↑	-			NA	NA	NA
Plankton	S3	✓			✓				↑	-			NA	NA	NA
Coastal Habitats															
Saltmarsh/Seagrass	S1			✓					↑	-			↑	↓	NA
Kelp Habitats (inter-tidal)	S2								↑	-			↑	NA	NA
Sand Beaches	S3		✓	✓	✓	✓	✓		↑	-			↑	↑	NA
Sub-tidal Reef	S3				✓				↑	-			↑	NA	NA
Inter-tidal Rocky Plat/Headland	S3			✓	✓	✓	✓		↑	-			↑	↑	NA
Wetlands	S1			✓	✓	✓	✓		↑	-			↑	↓	NA
Coastal Ecology															
Shoreline Birds	S1			✓	✓	✓	✓		↑	-			↑	↑	↑
Pinniped Haul-out Sites	S2								↑	-			↑	NA	↑
Penguin Colonies	S2			✓	✓	✓			↑	-			↑	NA	↑
Socio-economic															
Tourism	S2		✓	✓	✓	✓	✓		↑	-			↑	↑	NA
Ports, Harbours, Yacht Club	S3						✓		↑	-			↑	↑	NA

[2] *Dispersant may be required near to a flowing well (Cwth waters) only - to reduce surface VOCs and lower explosive limits, to provide safe access for well control activities.*

Receptor			Priority Response Planning Area					Response Options							
			Warrnambool Bay	*Curdies Inlet*	*Princetown Wetlands*	*Lower Aire River Wetlands*	Port Campbell	**Response Option Effective?**							
	Sensitivity	Marine	Hopkins River, Logans Beach	Bay of Islands Coastal Park, Peterborough Coastal Reserve	Port Campbell National Park, Twelve Apostles Marine National Park, Gellibrand Rover	Otway National Park, Aire River Beach, Aire River	Port Campbell Beach Port Campbell Inlet	Oil Type	Source Control	Monitor & Evaluate	Dispersant Application	Contain & Recover	Protect & Deflect	Shoreline Clean-up	Oiled Wildlife Response
								MDO	Yes	Yes	No	No	Yes	Yes	Yes
								Condensate	Yes	Yes	No[4]	No	Yes	Yes	Yes
								Gas	Yes	Yes	No	No	No	No	No
Commercial Fishing/ Aquaculture	S2	✓					✓		↑	-			↑	↑	NA
Recreational Fishing/Diving	S3		✓	✓	✓	✓	✓		↑	-			↑	↑	NA
Shipwrecks (submerged)	S3			✓	✓		✓		↑	-			NA	NA	NA
Aboriginal Heritage/Cultural	S2			✓			✓		↑	-			↑	↓	NA

Legend:

Benefits Assessment:	*Effectiveness Assessment:*
↑ *Net Benefit Compared with only Monitor & Evaluate*	*Yes: Option suitable for oil type, few restrictions in implementing*
↓ *Net Loss Compared with only Monitor and Evaluate*	*Possible: Option suitable for oil type, potential limitations on application*
- *No net benefit or Loss*	*Not Recommended: Option not suitable for oil type*
NA: Option is not applicable to the Receptor given credible worst-case discharge potential	

5.0 Operational Response

Section 4 presents the predicted response options to a spill, however in the event of a spill, the proposed likely response strategies will be reviewed and verified prior to implementation to ensure that the assumptions made in the planning process are valid and the response strategy will be effective.

5.1 Verification of Response Strategy

The process for reviewing response strategies is illustrated in Figure 5-1. The purpose of including this process in the OPEP is to ensure effective and efficient decision making into selecting response strategies which are suitable to the conditions at the location at the time of the spill event. Outputs from this process are captured through the spill response NEBA process.

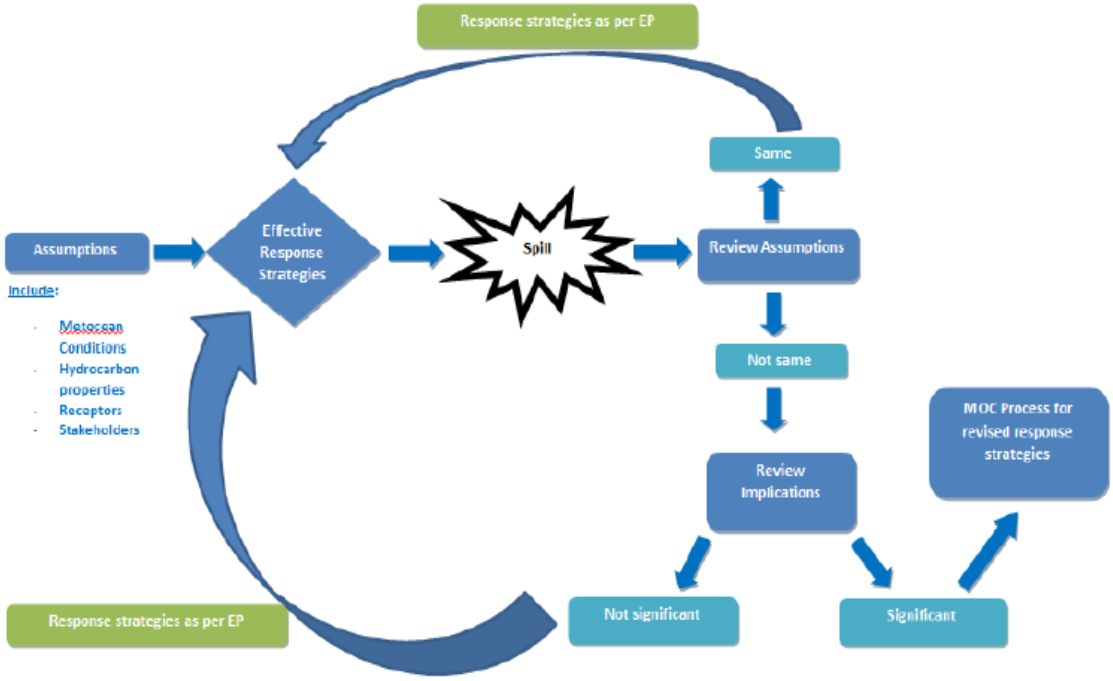


Figure 13 - Process for Reviewing Response Strategy Effectiveness in the Event of a Spill

5.2 Spill Operational NEBA

A NEBA is used to compare the environmental and socio-economic benefits of implementing a response option against a 'do-nothing' (monitor and evaluate) strategy. The process considers the advantages and disadvantages of implementing a response to arrive at a response strategy for the location which results in the lowest overall environmental and socioeconomic impacts.

The NEBA process has been developed to help facilitate the selection of the most appropriate response options to effectively combat an oil spill.

Pre-spill (planning) NEBAs have been undertaken for locations within the respective asset response EMBAs to identify response strategies which may offer a net benefit. In the event of a spill, an operational NEBA will be completed to confirm net benefits based upon the spill volume, spill type, spill location, weather conditions, weathering and trajectory predictions (including any aerial surveillance output), and the sensitivities requiring protection.

If impacts to Victorian state waters or shorelines are predicted, or have occurred, an operational NEBA will be undertaken in consultation with the DoT Liaison Officer or Victorian Environmental and Scientific Coordinator (ESC) to confirm the net benefits for the strategy.

To ensure consistency of approach between Cooper Energy and DoT with respect to NEBAs, Cooper Energy has adopted the Victorian NEBA protocol from Victorian Maritime Emergencies NSR Plan which is consistent with the pre-spill (planning) NEBA undertaken in Section 4. The Victorian Maritime Emergencies NSR Plan NEBA template is provided in **Appendix 3**.

When the operational NEBA is finalised, the IC must endorse the assessment. The NEBA must be used to develop the Incident Action Plan for the spill incident.

Provided it is safe to do so, all accessible wildlife with welfare needs should be addressed DELWP, supported by the Titleholder, regardless of the NEBA.

5.3 Incident Action Plan (IAP)

An Incident Action Plan (IAP) will be prepared at the time of the spill, outlining the short-term operational objectives and activities for the response. It will detail the response mechanisms and priority areas for protection based on the actual circumstances of the event, considering the spill trajectory and weather conditions, but also importantly safety considerations. The IAP will provide details of the operational activities and objectives to be achieved over a specified, short-term period. Initially this may be for the subsequent few hours only, but once the operation is underway it is likely to address the activities required over each of the following 24-hour periods or longer.

The main steps in planning the response and preparing the IAP are:

- Setting the incident objectives – what are we trying to do or what are we trying to protect?
- Describing the strategies – for example, deployment of planes for aerial surveillance.
- Developing the tactics – detail how we will undertake these strategies including responsibilities, logistics, etc.

An IAP is a critical step in the response strategy. It is the responsibility of the Planning Officer to prepare an IAP under the direction of the IC for his endorsement. The Cooper Energy oil spill IMT will implement and monitor the effectiveness of the IAP ensuring regular updates to the plan are made as appropriate.

To ensure that the IAP is appropriate for the nature of the spill, Cooper Energy will seek the advisory support of technical experts or liaison officers from DoT, DELWP (wildlife), AMSA and/or AMOSC.

An IAP template is included in Appendix 1.

5.4 Effectiveness Monitoring

During the incident response, the effectiveness of the response will be assessed using the NEBA process. This assessment must utilise predictive modelling results, received monitoring data in the context of the affected environment, the environmental conditions and the level of hydrocarbons released.

Initially this will be undertaken every 24 hours (as minimum) or when relevant new information is received, until the termination criteria have been met. The NEBA, in consultation with the DoT will be used to inform the decision to terminate the response (refer to Section 5.5).

Outcomes of the effectiveness monitoring will inform the IAP process.

5.5 Response Termination

Generally, the decision to stop the spill response will be made by the Control Agency when response efforts are not returning any tangible benefit. This may include a gradual downsizing of response teams and resources or complete termination of the response. Cooper Energy will undertake a NEBA with the relevant response team members / liaison officers to inform the decision to terminate the response in line with the NEBA format used in formulating the spill response strategy.

Decision factors will include:

- The efficacy and benefit of the response options implemented against natural cleaning
- The significance of the environmental receptor impacted

- Potential for environmental damage caused by further clean-up efforts weighed up against other factors such as response team risk in undertaking the activity
- Any other requirements under national or state plans.

Table 33 provides indicative termination criteria which may be amended because of response team advice and/or the outcomes of stakeholder engagement during a spill event. Although indicative, it provides a guide for the purpose of capability planning.

For spill clean-up operations in Victorian waters, termination of response will be taken by the state Incident Controller.

The IC will ensure that all relevant organisations and personnel are notified to stand down once the termination criteria have been satisfied. Upon conclusion of the response, the Incident Controller must:

- Inform all personnel involved in the response
- Advise all government authorities involved in the response
- Provide an incident brief internally and to all government authorities involved in the response
- Instigate an investigation into the cause of the spill
- Prepare reports and collate all documents including statements concerning the incident; and
- Undertake an inventory of all consumables and prepare accounts for dissemination.

Table 33 - Spill Response Termination Criteria

Response Option	Termination Criteria
Source Control (Vessel/MODU)	Termination criteria varies according to the incident and spill level: • For vessels, the spill source has been eliminated (e.g., fuel tank is secure (tank rupture)) or the leak has been contained and controlled on-board. • For pipeline, the pipeline is verified as isolated from feedstock. • For a well incident, the hydrocarbon release has been contained and well control re-established.
Monitor and evaluate	Termination occurs when the following criteria is fulfilled: • The spill has ceased. • The spill is no longer visible to human observers. Specifically, a silver/grey sheen as defined by the BAOAC is not observable and 24 hrs has elapsed since the last confirmed observation of surface hydrocarbons. • Modeling results (OM1) do not predict surface exposures at visible levels. Termination criteria to be agreed with DoT in state waters.
Chemical Dispersion	Not applicable
Contain and Recover	Not applicable
Protect and Deflect	To be determined in consultation with State CA and aligned with the National Plan Response, Assessment and Termination Guidance (NP-GUI-025). Suggested termination criteria: • The spill is no longer observable to human observers and all oil has impacted shorelines and is unlikely to remobilise. • Slick thickness and characteristics mean that protection/deflection booms will not be effective as determined by the NEBA. • NEBA concludes that continued activity will not produce any net environmental benefit. NEBA has been signed off by State CA IC.
Shoreline Assessment and Clean-up	To be determined in consultation with State CA, and aligned with the National Plan Response, Assessment and Termination Guidance (NP-GUI-025). Suggested criteria: • The hydrocarbon spill has ceased. • No additional response or clean-up of habitat is predicted. • Location areas predicted to be contacted by hydrocarbons have been contacted. • Independent scientific advice indicates that hydrocarbon levels are below 100 g/m^2 or further clean-up activities are unlikely to materially decrease hydrocarbon impacts on environmental sensitivities.
Oiled wildlife response	To be determined in consultation with State CA and relevant State nominated oiled wildlife authority. Suggested criteria: • Is discontinued when all affected/recovered animals are cleaned and rehabilitated to their natural habitat as advised by the Lead Control Agency.

6.0 Source Control

6.1 Response Activities

6.1.1 Vessel Releases (Level 1 & 2)

The performance outcome for vessel-related hydrocarbon releases is provided in

Table 34.

Table 34 - Source Control – Vessels (Level 1 and Level 2 spills)

ID	Environmental Performance Outcome	Control	Environmental Performance Standard	Spill Level	Measurement Criteria
4	Source control, isolation and containment prevent hydrocarbon release to the marine environment.	C5 Vessel SMPEP	In a level 1 or 2 spill, the vessel implements SMPEP to prevent/limit discharge to the environment.	1, 2	Vessel incident report verifies action taken.

Level 1 Spill

Vessels engaged to undertake petroleum activities on Cooper Energy assets operate under Shipboard Marine Pollution Emergency Plans (SMPEPs) (or equivalent to class). In the event of a spill the relevant vessel SMPEP will be implemented to limit the volume of hydrocarbon released to the environment.

Level 2 Spill

In the event of a spill such as a diesel release from a vessel, the vessel master will initiate actions to reduce the fuel to the marine environment as identified in the vessel SMPEP (or equivalent according to class).

While preserving the structural integrity and stability of the vessel, actions include reducing the affected tank inventory by pumping contents into an empty tank, possibly pumping water into the leaking tank to create a water cushion to prevent cargo loss or other measures as listed in the vessel's SMPEP. By immediately implementing these controls the amount of hydrocarbon released to the environment will be reduced.

6.1.2 Subsea Infrastructure Loss of Containment (Level 1)

A subsea infrastructure LOC could occur because of dropped objects, corrosion and other damage, with a volume in the order of 1 m^3.

On notification of an incident associated with a loss of containment resulting from loss of integrity or dropped object, the IC will assess damage and accessibility, and options to minimise the release; this may include plugging of release points.

6.1.3 Pipeline Releases (Level 1 & 2)

Operation of the Otway and Sole subsea facilities is monitored on a 24/7 basis by the respective onshore gas plants (Figure 1). The pipelines contain gas and condensate and in the event of a pipeline release due to an integrity breach a key strategy is the ESD system.

- Individual well shutdown is initiated by the Master Control System (MCS) in the event of a low-low pressure downstream of the production choke valve. This shutdown is independent of the Gas Plant and the Facility Emergency Shutdown (ESD) system.
- Pipeline is continuously monitored from the onshore plant to ensure it is operating within its predefined operating

envelope. Initiation of the pipeline ESD system will shut down production and isolate hydrocarbon inventories in the pipeline if abnormal conditions outside the normal operating envelope are detected.

- Surface controlled subsurface safety valves (SCSSVs) meet the acceptable leak rates defined by API RP 14B and ESD valves according to API RP 14H.
- The ESD system is considered safety critical equipment under the respective Facility Safety Cases. Performance Standards developed for this equipment ensures it functions according to design standards.

6.1.4 Subsea Leak (Level 1 & 2) and LOWC during drilling (Level 2 & 3)

On notification of an incident associated with a loss of well control, the IC will activate the relevant Source Control Emergency Response Plan (SCERP) and notify the Cooper Energy Source Control Team Leader. Upon SCERP initiation, the Source Control Team Leader will mobilise the Cooper Energy Well Construction Team and Well Control Contractors and collectively these resources will assess and determine the appropriate source control option based upon the available surveillance / survey information.

Options to manage well control incidents (intervention, well capping and relief well installation) are to be considered as a means for source control, with vessel and MODU specifications required to implement these source control options identified within the SCERP.

6.1.4.1 Site Survey, Debris Clearance and Intervention – Scope of Activity

Site survey and debris clearance are key preliminary tasks that assist in selecting subsequent source control options. Intervention and is likely the earliest opportunity to stem or stop the release of hydrocarbons. Intervention would include the use of ROVs and tooling which can interface with development wells and project subsea pressure control equipment.

Various options are available for equipment supply. Response specialists such as AMOSC/Oceaneering and Wild Well Control can provide equipment packages. These kits provide a range of applicable survey, debris clearance and intervention equipment including equipment in Table 35.

A high-level response time model for the mobilisation of the SFRT is provided within relevant environment plans.

Table 35 - Survey, Debris Clearance, and Intervention Equipment

Response Options	Campaign equipment applicable to Survey, debris clearance and intervention
Survey *Debris clearance Intervention*	Camera inspection ROV operated ROVs Grinders / super grinders Impact wrenches Multipurpose cleaning tools Remote control units Hydraulic cutters Chop saws Diamond wire cutters Hydraulic power units ROV dredges Torque tools Test jig Pressure control equipment intervention skid and operating equipment Linear valve override tools Manipulator knife Flying lead orientation tool Umbilicals

6.1.4.2 Capping Option - Scope of Activity

Capping provides a means to hydraulically seal a well and stop the flow of oil during a LOWC prior to the completion of a relief well should intervention be unsuccessful. Capping is unlikely to be suitable in most scenarios or under all environmental conditions; relief well drilling remains the primary source control solution in the event of a LOWC.

The timeline to cap the well varies depending on the scenario (CSV mobilisation point). For the offshore Victoria wells, a capping stack, available from Wild Well Control, air-freightable from Scotland and may be suitable.

Cooper Energy also monitors the marine market and access to active vessels with a range of specifications that may be required for cap deployment. Vessels of the type and specification that would be required for this activity can typically be sourced from Singapore. The prerequisites for a capping vessel include:

- CSV type vessel or similar
- DP2 minimum
- Minimum 65T heave compensated crane
- Work class ROV installed
- Australian Safety Case

6.1.4.3 Relief Well – Scope of Activity

The scope of drilling a relief well is the same as drilling a standard well, although the need to keep a safe distance from the release means it will be a deviated well.

Well kill modelling for Cooper Energy wells offshore Victoria shows the wells can be killed via a single relief well. Relief wells are expected to have similar formation strength as existing wells, hence modelling and planning has provided for formation fracture gradients recorded during historical drilling.

Planning for the relief well begins simultaneously with other well intervention options such as well capping. Relief well plans and methodology are provided for within activity WOMPs and respective SCERPS. These documents detail the process for relief well design with the following activities prioritised as part of the immediate response operations:

- Mobilisation of well control and relief well specialists.
- Confirmation of the highest probability of success relief well strategy with well specialist to define vessel requirements (considering aspects such as required kill fluid type/amount).
- Screen available semi-submersible MODU in the region with current NOPSEMA Safety Case and select MODU to execute the strategy.
- Confirm relief well location using geophysical site survey data. This will consider the prevailing weather at the time of the incident, seabed infrastructure in the area and directional drilling requirements for well intersection.
- Confirm location of, and mobilise appropriate ranging tools for relief well strategy; and
- Validate casing design, confirm availability, and mobilise.

6.1.4.4 Subsea Dispersant Application -Scope of Activity

Subsea Dispersant Application involves injecting dispersant into the flow of hydrocarbons at the well. SSD is injected when the oil is fresh and warm, prior to weathering. Contact and mixing between SSD and oil is maximised by injection directly at the source. SSD can be applied 24-hours/day where resources allow.

SSD is applied via specialist materials and equipment including dispersant chemicals, dispersant distribution and routing manifolds, chemical hoses and applicators, Subsea Dispersant equipment packages and technicians are available via several response specialists including AMOSC / Oceaneering, and Wild Well Control.

A vessel with ROV and capability to deploy subsea equipment is required to support SSD, such as a construction support vessel (CSV).

Option Selection Rationale

A loss of well control during development drilling (Otway wells) is predicted to result in a gas plume at the sea surface, resulting in high levels of VOCs near the plume. Additional volumes of condensate transported to the surface are predicted to spread out from the flowing well and contribute to increased levels of VOCs within the air surrounding the flowing well. Condensate spill modelling for Annie-1 indicates surface levels of condensate would not occur at high levels (>25g/m^2). However, moderate concentrations of between 10-25 g/m^2 are predicted at surface and provide an indication of where higher LELs may be encountered. These moderate surface concentrations are limited to within a 1km radius of the flowing well (APASA, 2019).

Dispersant application is included as a safety-related control measure where VOCs from surface oil may exceed lower explosive limits (10% LEL) around well control activities (i.e. drilling a relief well, or deployment of capping stack under a lower flow scenario). Without this safety measure achieving the proximity needed to drill a relief well (nominally within 2km of the flowing well, with closer access needed to run anchors), or capping stack (vertical access) may not be possible.

The methods of dispersant application which might provide benefit for the purposes of LEL reduction are:

- Subsea dispersant application. Relevant to a lower flow / capping scenario. Noting dispersant application subsea is unlikely to be safe (proximity to wellsite) or effective given the shallow water depth, high volumes of gas (and low liquids) that would lift dispersant to surface at a high rate within the gas plume.
- Surface (vessel-based) dispersant application to suppress VOCs near the vessel. Relevant to both high and lower flow scenarios where surface VOCs lead to LELs >10%.

For drilling locations, dispersant application would be limited to the near vicinity of the well control response operations only, and outside of state waters and state or national marine parks.

6.2 Response Resources

6.2.1 Source Control

Cooper Energy maintains contracts/agreements with specialist vendors to supply technical services and guidance for source control operations.

Well source control activities, including methodologies and resources to implement source control and limit the hydrocarbon released to the environment are detailed a Source Control Emergency Response Plan for the respective activity. Table 36 details the planned resource availability as applicable to the drilling activity.

Table 36 - Source Control Resource Availability (drilling)

Resource	Resource Requirement	Resource Availability / Provider
Survey, Debris Clearance, Intervention		
Engineering support	Well and subsea engineering support services	Available throughout projects and operations.
Vessels	Installation support vessel with knuckle boom crane (nominal >50 tonnes for safe deployment of subsea equipment) and ROV capacity (or ROV can be deployed from separate vessel).	Campaign MODU and vessels available immediately and include capability to run subsea equipment and ROVs. Vessels of opportunity typically available either in the region or elsewhere within Australia and could be mobilised via APPEA MoU or direct agreement.
Offshore Personnel	Vessel crew and response equipment technicians to install, run and monitor equipment.	Vessel Crew provided through vessel operator. Equipment Technicians provided through response specialists. Equipment operator provided through source control contractor or separate offshore engineering contractor.
ROVs and ROV crew	Work Class ROV and crew 24 hrs/day to install and operate subsea equipment.	See ‘Vessels’

Resource	Resource Requirement	Resource Availability / Provider
Equipment	Refer Table 6-2 Survey Clearance and Intervention Equipment.	Survey and debris clearance equipment could be mobilised from equipment providers such as AMOSC (SFRT package within Australia), or Wild Well Control (international).
Capping Equipment (unlikely to be feasible for Otway wells)		
Engineering Support	Well and subsea engineering support services	Applicable to drilling. For additional support, Cooper Energy maintains several contracts and agreements with personnel agencies and engineering houses that can provide technical writer's and risk engineering services to support regulatory documentation workflows, submission, and review process.
Vessels	Construction support vessel with minimum 65T heave compensated crane and ROV capacity (or ROV can be deployed from separate vessel).	Campaign vessels may be appropriate, or option to source additional vessels mobilised to site
Offshore Personnel	Vessel crew and response equipment technicians to install, run and monitor equipment.	Vessel Crew provided through vessel operator. Equipment Technicians provided through response specialists. Equipment operator provided through source control contractor or separate offshore engineering contractor.
ROVs and ROV crew	Work Class ROV and crew 24 hrs/day to install and operate subsea equipment.	See 'Vessels'
Equipment	Light weight capping stack	Light weight capping stack (supplied by WWC) could be mobilised from overseas (Scotland) to site.
Relief Well		
Engineering Support	Well and subsea engineering support services	Available throughout projects and operations. For additional support, Cooper Energy maintains several contracts and agreements with personnel agencies and engineering houses that can provide technical writer's and risk engineering services to support regulatory documentation workflows, submission, and review process.
Relief Well MODU	Technically suitable rig and support vessels (nominally 2 x anchor handling and tow support vessels).	Multiple suitable semi-submersible MODU generally operate offshore Australia; moored rigs would already be operating with AHTS vessels. Memorandum of understanding has been established between Australian operators (including Cooper Energy) to expediate access to suitable MODUs for relief well drilling. If required Cooper Energy can request the use of a MODU that may be under contract to another operator.
Materials	Casing and Wellhead (standard specifications) Drilling fluids Moorings	Multiple materials suppliers to Australia, to enable mobilisation of relief well materials to site inside 50-days of an incident. Multiple providers of drilling fluids with plants either operational or can be set-up in the SE region. MOU moorings or rental moorings.
Offshore Personnel	Vessel crew and response equipment technicians to install, run and monitor equipment.	Vessel Crew provided through vessel operator. Equipment Technicians provided through response specialists. Equipment operator provided through source control contractor or separate offshore engineering contractor.

Resource	Resource Requirement	Resource Availability / Provider
ROVs and ROV crew	Work Class ROV and crew 24 hrs/day to install and operate subsea equipment.	See 'Vessels'
Cooper Energy Relief Well Readiness Form	The Cooper Energy Relief Well Readiness Form is a live document and supports source control preparedness by documenting current information on the availability and location of resources required to manage a LOWC, more specifically: • Available and suitable MODUs and contacts. • Available ISVs and contacts. • Available equipment* required to support a source control response and contacts. *Tracked equipment includes wellhead systems, conductor, surface and intermediate casing, and capping stack status.	The Cooper Energy Relief Well Readiness Form is verified every 6-months during operations, then every 2-months when undertaking well construction activities.
Regulatory Approvals		
Safety Case	Facility Safety Case Revision required for vessels undertaking well activities.	Preferential selection of MODUs and vessels with existing Australian safety cases (monitored via the relief well readiness form). Safety case specialists available within Australia to enable expedition of Safety Case Revision preparation (technical limit to prepare estimated at 3 weeks + 1 week for prioritised regulatory approval).
Subsea Dispersant Application		
Vessels	Installation support vessel with knuckle boom crane (nominal >50 tonnes for safe deployment of subsea dispersant equipment) and ROV capacity (or ROV can be deployed from separate vessel).	Campaign vessels available immediately and include capability to run subsea equipment and ROVs. Vessels of opportunity typically available either in the region or elsewhere within Australia and could be mobilised via APPEA MoU or direct agreement.
Personnel	Vessel crew and response equipment technicians to install, run and monitor dispersant equipment at surface.	Vessel Crew provided through vessel operator. Equipment Technicians provided through response specialists. Equipment operator provided through source control contractor or separate offshore engineering contractor.
ROVS and ROV crew	Work Class ROV and crew 24 hrs/day to install and monitor dispersant equipment subsea.	See 'Vessels'
Subsea dispersant application package	Dispersant distribution and routing manifolds, chemical hoses and applicators, power packs and accumulators	Available in Australia through agreements with AMOSC or alternate internationally.
Dispersant	Dasic Slickgone NS (nominal dispersant for subsea application) in	Available in Australia through existing agreements with AMOSC.

Resource	Resource Requirement	Resource Availability / Provider
	sufficient quantities for the WCD scenario and treatment rate 1:100 (SSD:oil)	
Modelling	Oil slick modelling throughout response.	Available through existing contracts with modelling specialists and AMOSC.
Gas monitors	Existing vessel / rig gas monitoring; additional PGMs / portable gas monitoring as required.	Multiple providers.
Continual interpretation / evaluation of effectiveness	Monitor and evaluate gas LELs vs dispersant application effectiveness (dispersant volumes and treatment rates).	Provided for through equipment technicians and other existing resources available under OSMP service agreements.
Operational and Scientific Monitoring	Mobilisation of Operational and scientific monitoring service providers (e.g. to monitor water quality parameters).	Available through OSMP service agreements.

6.2.2 Subsea Dispersant Application

Depending on the scenario, various resources may be required to reduce LELs to safe working levels. Key components requiring mobilisation / activation and their availability (or accessibility) is described within Table 36. For larger resource components such as the subsea dispersant application package; this equipment can be airfreighted either to Melbourne or to DSV location (e.g. Singapore).

There are several dispersant products stockpiled within Australia, and which are available through AMSA and AMOSC; these are referred to as oil spill control agents (OSCA's). Those which may potentially be effective on light oils include Dasic Slickgone NS and Dasic Slickgone EW; Dasic Slickgone NS is also currently selected in Australia for subsea applications (AMSA, 2019). Given its availability, potential efficacy for gas condensate types detailed within this OPEP and registration as an OSCA, Dasic Slickgone NS is a prime candidate for selection. This does not preclude the use of other OSCA's noting all are selected on the basis of their moderate (or lesser) toxicity (Irving and Lee 2015), and also any product would be assessed prior to use per the Cooper Energy Offshore Chemical Assessment Process.

IPECA 2015 recommends a 1:100 ratio (or lower) may be sufficient to cause substantial additional dispersion. Using a 1:100 application ratio the volume of dispersant required for a total volume of 24,113 m^3 release over 84-days (based on WCD analogue Annie-1, Otway), approximately 241m^3 dispersant may be required. AMOSC hold OSCA dispersant stocks including Dasic Slickgone NS in Geelong, Victoria. Other mutual aid dispersant stockpiles exist within Australia and may be accessed by member companies through AMOSC. Total available stocks of Dasic Slickgone NS within Australia are >660m^3 (at the time of writing).

During a response, initial quantities of subsea dispersant would likely be mobilised from within Victoria and additional stocks mobilised from elsewhere in Australia (e.g. Fremantle stockpile) via road haulage

6.3 Environmental Risk Assessment (Source Control)

An assessment of possible environmental impact and risk associated with source control techniques is undertaken as part of the CHN Operations EP (CHN-EN-EMP-0001).

6.4 Environmental Performance Outcomes (Source Control)

Table 37 provides the performance outcomes, standards and measurement criteria for source control including subsea dispersant application.

Table 37 - Source Control Performance Outcomes and Standards

Performance Outcome	Control	Environmental Performance Standard	Responsible person	Measurement Criteria
Cooper Energy maintains capability to implement the Source Control Emergency Response	**C6 Source Control Emergency Response Planning**	A SCERP aligned to the APPEA Source the Control Guideline will be available and will include (or be supplemented by): • Accepted WOMP and Field Safety Case which provide for source control activities. • Pre-identified quadrant suitable for relief well locations covering all well clusters.* • Nominal mooring analysis for drilling in field from moored MODU.* **Timing:** Established prior to and maintained throughout drilling. Maintained throughout operations and drilling *Drilling only	General Manager Projects and Operations	SCERP in place
	C7 Source Control Emergency Response Personnel	Cooper Energy maintains: - Resourcing plan to enable the implementation of source control strategies defined within the SCERP relevant to the activity scope.* - Agreements or contractor pre-qualifications with specialist service providers, including: • Well control specialist (e.g. Wild Well Control) • Well engineering services providers • Australian safety case expertise • Subsea engineering services • ROV contractors **Timing:** Maintained throughout operations and drilling *Drilling only	General Manager Projects and Operations	Contracts/ agreements demonstrate preparedness.
	C8 Source Control Emergency Response Equipment	Cooper Energy maintains agreements or contractor pre-qualifications with service providers in line with the strategies and equipment defined within the campaign SCERP, including: • Survey equipment • Debris clearance equipment • Intervention equipment • Subsea dispersant and application equipment • Capping • Industry MoU for access to relief well resources including relief well MODU **Timing:**	General Manager Projects and Operations	Contracts/ agreements demonstrate preparedness.

Performance Outcome	Control	Environmental Performance Standard	Responsible person	Measurement Criteria
		Established prior to and maintained throughout drilling.		
	C9 Source Control Response Resources Monitoring	Cooper Energy monitors the location and availability of source control response resources and materials defined within the campaign SCERP, including: • Available and suitable MODUs and contacts. • Available CSVs and contacts. • Available equipment* required to support a source control response and contacts. *Tracked equipment includes wellhead systems, conductor, surface and intermediate casing, and capping stack status. • Readiness is recorded within the Cooper Energy Relief Well Readiness Form. The form is verified 2-months prior to and during drilling, or every 6-months during operations. • SCERP Response Time Models are updated accordingly when drilling. **Timing:** Maintained throughout operations and drilling	General Manager Projects and Operations	Completed Relief Well Readiness Form (verified every 6-months during operations, then every- 2 months during drilling)
	C10 Source Control Response Logistics	Cooper Energy maintains agreements or contractor pre-qualifications with the following specialists: • Freight Services Provider **Timing:** Maintained throughout operations and drilling.	General Manager Projects and Operations	Contracts/ agreements demonstrate preparedness.
		In the event that monitoring indicates a suitable MODU is not available through APPEA MoU, Cooper Energy will: • Develop a mobilisation plan for nominal international MODU. • Identify pathway for biosecurity clearance of a nominal MODU and vessels from southeast Asia prior to commencing drilling. **Timing:** Prior to drilling commencing.	General Manager Projects and Operations	SCR resource monitoring identifies suitable MODUs Mobilisation Plan for international MODU (if needed)
		Cooper Energy will complete an Invasive Marine Species (IMS) Risk Assessment of most suitable relief well MODU. **Timing:** Prior to drilling commencing and updated if MODU changes.	General Manager Projects and Operations	Completed IMS risk assessment
	C11 Source Control Response Exercises	Cooper Energy conducts source control desktop exercise in accordance with the activity SCERP. **Timing:**	General Manager Projects and Operations	Facilitated by third party with report issued in 30 days.

Performance Outcome	Control	Environmental Performance Standard	Responsible person	Measurement Criteria
		Prior to drilling.		
Implement Source Control Emergency Response Plan to regain control of the well and eliminate the release of hydrocarbons to the environment	**C12 Survey Capability**	ROV is mobilised from project vessel or MOU within 1-day (if safe) to gain visual on the well leak and assist with planning. **Timing:** The activity will be completed by implementing suitable options with the shortest response time. This will be facilitated via frequent review and update of SCERP response time models adjusted according to Source Control Response Resource Monitoring (C9).	Cooper Energy Incident Controller	Incident log verifies field mobilisation within this timeframe.
	C13 Source Control Diagnostics	Source control specialists are mobilised to support within 3 days to assist with the diagnosis of the well problem and develop remedial action options. **Timing:** The activity will be completed by implementing suitable options with the shortest response time. This will be facilitated via frequent review and update of SCERP response time models adjusted according to Source Control Response Resource Monitoring (C9).	Cooper Energy Incident Controller	Incident log verifies mobilisation within this timeframe.
	C14 Debris Clearance and Intervention	Debris clearance and intervention activities commence within 5-days (if safe) from MOU or project vessels. If project resources are unavailable, alternate vessel with appropriate tooling mobilised to initiate repairs to well / subsea equipment (as required). **Timing:** The activity will be completed by implementing suitable options with the shortest response time. This will be facilitated via frequent review and update of SCERP response time models adjusted according to Source Control Response Resource Monitoring (C9).	Cooper Energy Incident Controller	Incident log verifies field mobilisation within this timeframe according to SCERP response time models.
	C15 Capping Solution	If considered a suitable option, capping equipment is deployed using project equipment and vessels (if appropriate) as soon as it is safe to do so. If project resources are unavailable, alternate vessel is mobilised to deploy capping stack. **Timing:** The activity will be completed by implementing suitable options with the shortest response time. This will be facilitated via frequent review and update of SCERP response time models adjusted	Cooper Energy Incident Controller	Incident log verifies deployment within best achievable timeframes according to SCERP response time models.

Performance Outcome	Control	Environmental Performance Standard	Responsible person	Measurement Criteria
		according to Source Control Response Resource Monitoring (C9).		
	C16 Relief well	Relief well installation will be completed by implementing suitable options with the shortest response time. This will be facilitated via frequent review and update of SCERP response time models adjusted according to Source Control Response Resource Monitoring (C9).	Cooper Energy Incident Controller	Incident log verifies completion within best achievable timeframes according to SCERP response time models.
No unacceptable risk chemicals used for activities described	**C17 Chemical selection process**	All planned chemical discharges shall be assessed and deemed acceptable before use, in accordance with Cooper Energy's Offshore Environment Chemical Assessment Process (COE-MS-RCP-0042).	Incident Controller	Current database of assessed chemicals will identify dispersants that are acceptable for use during the response.
Dispersant use provides net environmental benefit	**C18 Dispersant Optimisation**	Dispersant use is targeted at the flowing well.	Incident Controller	Daily field report shows where dispersant was applied
		During the response, the following parameters will be monitored and compared at least daily: • Dispersant Product used • Dispersant volumes used • Dispersant dilutions applied • Surface VOCs (LELs) in vicinity of the well • Extent of surface oil. • Volume and extent of shoreline oil.	Incident controller	Daily field reports provide dispersant and LEL monitoring results for the day.
		Dispersant use is terminated if any of the following criteria are met: • Well is controlled • NEBA indicates no net environmental benefit	Incident controller	Incident log verifies where criteria met for termination.

7.0 Monitor and Evaluate

Ongoing monitoring and evaluation of the oil spill is a key strategy and critical for maintaining situational awareness and to complement and support the success of other response activities. In some situations, monitoring and evaluation may be the primary response strategy where the spill volume/risk reduction through dispersion and weathering processes is considered the most appropriate response. Monitor and evaluate will apply to all marine spills. Higher levels of surveillance such as vessel/aerial surveillance, oil spill trajectory modelling and deployment of satellite tracking drifter buoys will only be undertaken for Level 2/3 spills given the nature and scale of the spill risk.

It is the responsibility of the Control Agency to undertake monitoring and evaluation during the spill event to inform the response and assess the impacts.

7.1 Response Activities

Monitoring and evaluation will include the following:

- Spill size estimation:
    - Information regarding the incident (volumes, inventory etc.)
    - Aerial and vessel observations
- Spill movement and behaviour:
    - Aerial and vessel observations
    - Utilisation of satellite tracking drifter buoys
- Spill trajectory prediction:
    - Oil spill trajectory modelling
    - Vector analysis (manual calculation)
    - Automated Data Inquiry for Oil Spills (ADIOS) (a spill weathering model).

Refer to activity-specific EPs for the evaluation of potential impacts and risk and ALARP evaluation associated monitoring and evaluation strategies.

7.1.1 Spill Size Estimation

The spill size may be determined based on:

- the estimated amount of hydrocarbon released from a ‘known’ hydrocarbon inventory
- an estimate of release rates from time of the commencement of the incident, or
- an estimate of the appearance of oil on the sea surface observed during visual observations and based on the likely thickness and type of oil (refer Table 38 and Figure 14).

Table 38 - Guidelines for Estimating Spill Volume

Code	Description of Appearance	Approximate Thickness (µm)	Approximate litres per km²
1	Sheen	0.04 to 0.30	40-300
2	Rainbow	0.3 to 5.0	300-5,000
3	Metallic	5.0 to 50	5,000-50,000
4	Discontinuous true oil colour (heavy oil)	50 to 200	50,000 – 200,000
5	Continuous true colour (heavy oil)	>200	>200,000
Other	Mousse or Emulsion		

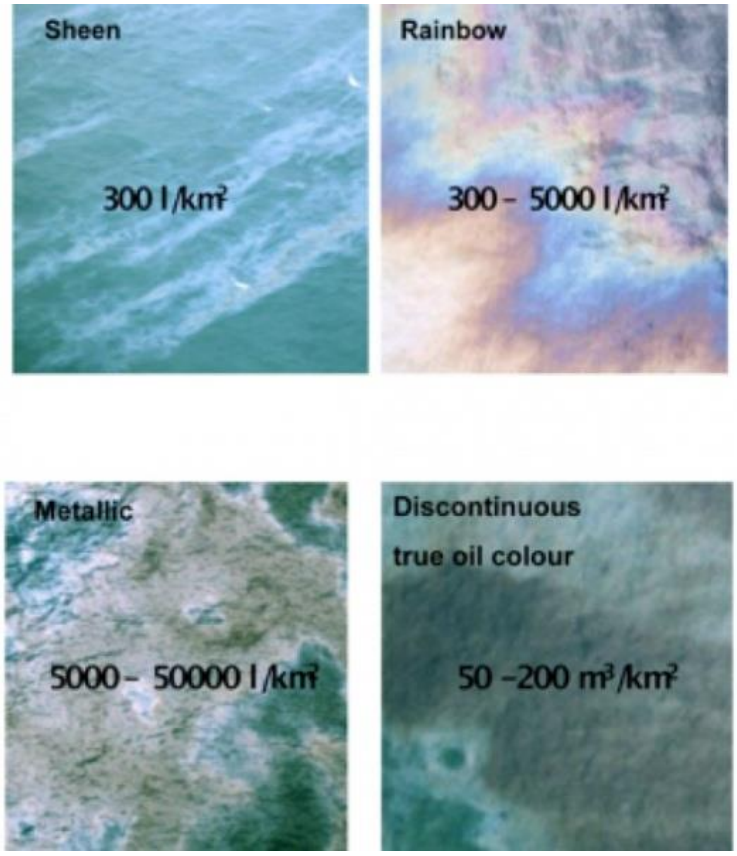


Figure 14 - Bonn Agreement Oil Appearance Code (Examples)

7.1.2 Spill Movement and Behaviour Monitoring

The movement and behaviour of an oil slick may be monitored through several methods:

- Aerial and vessel based visual observations.
- Tracking buoys.

7.1.2.1 Visual Observation - Aerial Surveillance

To gain situational awareness and inform the spill response, observation can be carried out via aerial surveillance.

Trained aerial observers are available and sourced through AMOSC (staff/core group members) and AMSA (NRT Members). The observers will undertake observations over the spill location and any predicted areas of shoreline contact.

From aerial observations, coarse estimates of spill volume can be made based on its appearance at sea, using the area covered and colour of spill (Table 38). Examples of appearance are provided in Figure 14. AMSA also provides guidance called 'Identification of Oil on Water – Aerial Observation and Identification Guide' which can be found at: https://www.amsa.gov.au/forms-and publications/Publications/AMSA22.pdf.

Aerial surveillance observations can only be undertaken in weather conditions deemed safe by the IMT and in good visibility conditions (i.e. 150ft above ground level (AGL) for the Ceiling & 5000m Visibility or 1500ft AGL Ceiling & 1500m Visibility during daylight hours).

Aerial observations should be documented in the Aerial Observer log contained in the Offshore Victoria Operational and Scientific Monitoring Plan (OSMP) Module OP2 – Hydrocarbon Spill Surveillance and Tracking (VIC-ER-EMP-0005).

The resources required for this strategy are summarised in Table 39 with the corresponding performance outcomes, standard and measurement criteria presented in Table 40.

7.1.2.2 Visual Monitoring – Vessel Surveillance

Monitoring and evaluation may involve visual monitoring from vessels of opportunity (as available) immediately following a spill incident. For Level 2/3 spills, visual observations may also be undertaken from specially chartered vessels and aircraft, proposed to be onsite within 24 hours.

Spill observers may include project team members, vessel crew and in the event of a Level 2/3 spill, AMOSC staff/core group members and/or AMSA NRT members.

Vessel-based observations are only effective if the sea-sate conditions are calm.

7.1.2.3 Satellite Tracking Drifter Buoys

Vessels associated with Cooper Energy's activities may carry a satellite tracking drifter buoy for deployment in the event of a significant spill. Instructions are provided for the deployment of the buoy to the vessel master.

At the time of a Level 2 or 3 spill, the drifter buoy will be activated and deployed overboard to allow for real-time satellite tracking of the spill direction and speed. The location of the buoy will be monitored real-time and through regular data downloads.

Satellite tracking buoys currently in use by Cooper Energy have an operating life/endurance which is determined by the reporting frequency. The default endurance is 30 days based on 30-minute reporting frequency. However, this could be extended out to 365 days endurance for a reporting frequency of 24 hours.

7.1.3 Spill Trajectory Prediction

Spill trajectory can be predicted using either:

- Vector calculations.
- Trajectory modelling.

7.1.3.1 Vector Calculations

Manual calculations can commence as soon as the preliminary information on the spill is known. For spills in close proximity to shore and where oil spill tracking buoys are utilised, this method may provide the best option for predicting the likely spill trajectory and timeframes before receptors are impacted.

Prior to commencing the calculation, wind and current data is required. This can be obtained via:

- For currents, Oil Spill Tracking Buoy.
- For winds, Bureau of Meteorology Meteye (http://www.bom.gov.au/australia/meteye)

The calculation is based on the spill moving 100% of the current vector and 3% of the wind vector, as shown in Figure 15.

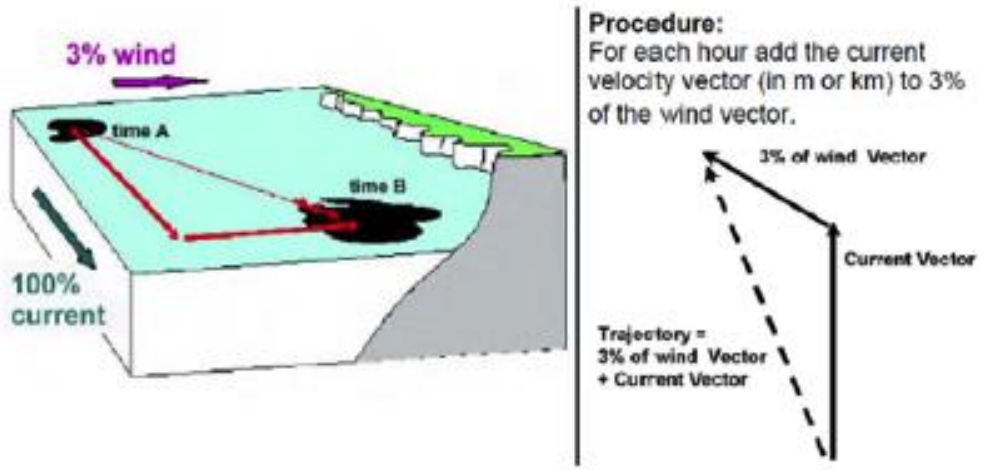


Figure 15 - Spill Vectoring Overview (AMSA Oil Spill Monitoring Handbook)

7.1.3.2 Oil Spill Trajectory Modelling

The movement of a hydrocarbon slick can be estimated in real time using computerised oil spill trajectory modelling available from RPS-APASA. Cooper Energy can utilise an AMOSC agreement with RPS-APASA to provide real-time modelling of an actual spill event. RPS-APASA have previously been utilised to undertake predictive modelling to support the preparation of the asset EPs and this OPEP.

To predict the early movement of larger spills, RPS-APASA will undertake real-time oil spill trajectory modelling. Preliminary modelling results are generally available within 4 hrs following notification of a spill event. RPS-APASA are contracted to AMOSC in a 24/7 emergency capability**.**

For smaller spills closer to shore Cooper Energy may elect not to undertake trajectory modelling due to the limitations of using the model near shore with such small volumes. Satellite tracking drifter buoys together with aerial observations and shoreline assessment may be used to ground truth the spill location.

During the spill, RPS-APASA will utilise all available information from operational surveillance monitoring and from satellite imagery (as available) to validate hydrodynamic forecasts.

7.1.3.3 Spill Fate Prediction

The Automated Data Inquiry for Oil Spills (ADIOS) can be used to provide weathering predictions of hydrocarbon types for spill volumes at different wind speeds and water temperatures. This computer-based oil spill response tool is available to download from http://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/response-tools/downloading-installing-and-running-adios.html

7.1.4 Oil Spill Operational Monitoring

Based on the outcomes of the monitoring of spill characteristics, trajectory and behaviour and prediction of likely trajectory and fate of the spill, operational monitoring will be undertaken as per the Operational and Scientific Monitoring Plan.

7.2 Response Resources

Table 39 details the resources required to undertake monitor and evaluate activities in accordance with the identified required resources above, their availability and hence Cooper Energy's capability to support a 'monitor and evaluate' response.

Table 39 - Monitor and Evaluate Resource Capability

Resource	Resource Requirement	Resource Availability	Comments
Satellite Tracking Buoys	1 x Satellite Tracking Buoy offshore	Buoys available from Australian Marine Oil Spill Centre (AMOSC) or Worley Parsons.	Satellite Tracking Buoy will be located offshore and ready for deployment for the duration of the campaign. Operating instructions which accompany buoy rental will be provided to contracting vessel prior to mobilisation with instruction to deploy from vessel in the event of a significant spill event.
Oil Spill Trajectory Modelling	Access to RPS-APASA via contract to initiate callout on a 24/7 basis.	AMOSC contract with RPS-APASA for immediate call-out.	AMOSC membership allows access to APASA contract which provides for OILMAP results to be provided within 2 hrs and SIMAP results within 4 hours of activation. *AMOSC Service Level Statement confirms access to APASA Trajectory Modelling within 60 minutes.*
Manual Trajectory Calculation	1 x IMT Member (IMO2)	IMT Planning Officer (or equivalent).	Resources available within Cooper Energy.
	Current & Wind Data	Bureau of Meteorology (BOM) “Meteye” Service.	Wind data available online. Current data obtained from satellite tracking buoy.
Satellite Imagery	Access to KSAT Satellite imagery via contract to initiate callout on a 24/7 basis.	AMOSC contract with Kongsberg Satellite (KSAT) Services for immediate call-out.	AMOSC membership allows access to Kongsberg contract which provides access to KSAT Satellite Imagery within 60 minutes of notification. *Imagery to be determined at the time of request will dictate supply timeframes depending on satellite availability.*
Aerial / Vessel Surveillance	1 x Pilot/Aircraft	Pre-qualification with Offshore Services Australasia (formerly Warrnambool Babcock).	Supplier has identified that surplus aircraft are usually available and can be supplied within 24 hours.
	1 x aerial observer	Trained observers via AMOSC.	Available on site – best endeavours eight personnel within 3 hrs and guaranteed terrestrially in 12 hrs (AMOSC Service Level Agreement). AMOSC has 5 trained observers and AMOSC Core Group have 4 trained members available within 24-48 hours. *AMOSC Service Level Statement confirms AMOSC Gore Group (CG) activation – within 1 hour of initial activation.*
	1 x vessels	Vessel contract with Undersea Marine Pty Ltd.	Cooper Energy maintains an agreement with a Marine Services provider to provide vessels and can be supplied in 24 hrs.

7.3 Environmental Risk Assessment (Monitor and Evaluate)

An assessment of possible environmental impact and risk associated with operational monitoring has been undertaken as part of the Environment Plans for the Cooper assets.

Use of vessels and aircraft has the potential to disturb marine fauna. To mitigate these impacts the Cooper Energy oil spill incident controller (or delegate) will ensure the activity control measures identified below are implemented.

7.4 Environmental Performance Outcomes (Monitor and Evaluate)

Table 40 identifies monitoring and evaluation strategy outcomes, performance standards and measurement criteria.

Table 40 - Monitor and Evaluate Performance Outcomes and Standards

Performance Outcome	Control	Performance standard	Responsible person	Measurement Criteria
Cooper Energy maintains capability to implement operational monitoring in a Level 2 or 3 spill event.	**C19: Service Agreements Monitor & Evaluate**	Cooper Energy maintains the following agreements (or contractor pre-qualifications) to maintain operational response capabilities: • AMOSC membership (Aerial Observers, RPS-APASA Contract, Kongsberg Contract). • Aviation support (pre-qualification assessment.) • Marine support services.	General Manager Projects and Operations	Contracts/ memberships/ and pre-qualification records are current.
	C20: Oil Spill Tracking Buoy	An oil spill tracking buoy and instructions for deployment will be located offshore at all times during drilling, construction and IMR campaigns.	General Manager Projects and Operations	Equipment manifest (or equivalent evidence) verifies tracking buoy is available on-board / offshore.
As requested by the relevant CA Cooper Energy implements operational monitoring to inform spill response (Level 2 or 3 spill only).	**C21: Response Aerial Observation**	Operational monitoring is initiated during daylight hours within 24 hrs for aircraft observation. Observation to be undertaken in accordance with OSMP OP2 (Hydrocarbon Spill Surveillance and Tracking).	Cooper Energy Incident Controller	Spill response log notes that aircraft are deployed within 24 hours of spill (or nearest daylight hours immediately post 24 hours). Completed Aerial Observation Logs (as per OSMP OP2) emailed to Cooper Energy IMT.
	C22: Response – Vessel Observation	Operational monitoring from campaign vessels already in-field is initiated immediately (within 2 hours). Observation to be undertaken in accordance with OSMP OP2 (Hydrocarbon Spill Surveillance and Tracking).	Cooper Energy Incident Controller	Spill response log notes that in-field vessels are deployed within 2 hours of spill. Completed Observation Logs (as per OSMP OP2) emailed to Cooper Energy IMT.
	C23: Oil Spill Trajectory Modelling	RPS-APASA provides OSTM results within four hours of spill notification in accordance with OSMP OP1 (Operational Forecast Modelling).	Cooper Energy Incident Controller	Incident records verify operational monitoring timeframes met.
	C24: Response – Oil Spill	Manual vector calculations identify spill impact areas within 2 hrs of spill incident notification.	Cooper Energy Incident Controller	Spill response log verifies manual trajectory calculation is provided

Performance Outcome	Control	Performance standard	Responsible person	Measurement Criteria
	Vector Calculation			within 2 hr of spill notification.
No injuries or death of megafauna resulting from vessel strike within operational area	**C25: Marine Mammal No Approach Zones**	Vessel masters will be briefed on caution and 'no approach zones' and interaction management actions as defined in the EPBC Regulations 2000 – Part 8 Division 8.1 and Victorian Wildlife (Marine Mammals) Regulations 2019.	HSE Advisor	Training records confirm vessel masters have been briefed.
		A vessel master (or delegate) will be on duty at all times.	Vessel Master	Bridge watch records confirm vessel master (or delegate) on duty at all times.
		Vessels adhere to the distances and vessel management practices of EPBC Regulations (Part 8) and Victorian Wildlife (Marine Mammals) Regulations 2019.	Vessel Master	Daily operations reports note when cetaceans were sighted in the caution zone and if actions were implemented.
		Environmental Induction: All vessel crew have completed an environmental induction covering the requirements for marine mammal/vessel interaction consistent with EPBC Regulations 2000 (Chapter 8) and Victorian Wildlife (Marine Mammals) Regulations 2019. This includes a requirement to notify the bridge if marine mammals are sighted in the caution zone.	HSE Advisor	Induction records verify that all vessel crew have completed an environmental induction.
		Fauna observation actions: Trained crew members on active duty will report observations of megafauna located within the cautionary zone (as defined in The Australian Guidelines for Whale and Dolphin Watching) to the vessel master (or their delegate), as soon as it is safe to do so.	Vessel Master	Daily vessel reports note when cetaceans were sighted in the caution zone and if interaction management actions were implemented.
		Fauna Buffer Distances – Aircraft: Surveillance aircraft will ensure buffer distances of 500m (helicopters) and 300m (fixed wing) are maintained to whales and dolphins.	Pilots	Flight reports detail when cetaceans sighted and if buffer distances breached.
Injury or death to listed megafauna from vessel strike will be reported	**C26: Incident reporting**	Any injury to, or mortality of, an EPBC Act Listed Threatened or Migratory Species (including those from a vessel strike) will be recorded on the National Ship Strike database within 72 hours.	Vessel Master	Submission date on the National Ship Strike Database reporting within 72 hours of the incident.

8.0 Shoreline Response: Protect & Deflect

8.1 Response Activities

Booms and skimmers deployed to protect or deflect oil from environmental sensitivities. Noting that the effectiveness of boom operation is dependent on current, wave and wind conditions.

The methods to be used in the response have been proposed for the priority protection areas. These, where applicable, are detailed in the respective Tactical Response Plans, but options may include:

- Installation of a boom system to collect surface oils on incoming tidal events; or
- Placement of a temporary sand barrier/berm across the inlet mouth if the prevailing flow regime (channel width, depth, and flow) is suitable.

8.2 Response Resources

Response resources would be activated via AMOSC in the first instance, with equipment and resources selected on the basis of the TRP activation and subsequent IAPs. AMOSC has undertaken an assessment of response resource needs for this strategy and have determined how these needs will be met.

Protection and deflection equipment and personnel will be accessed from multiple locations, including:

- AMOSC Geelong equipment stockpile. A selection of boom/skimmer types will be mobilised with the equipment to be deployed at the location selected based upon the environmental conditions on the day.
- AMOS Plan Industry Mutual Aid stockpile (Esso Australia) located at Longford and Barry Beach Marine Terminal (BBMT). This equipment may be deployed in addition to the AMOSC equipment due to its closer proximity.
- Gippsland Ports Authority (located at Lakes Entrance) also has boom available, to protect estuary systems. This is the property of DoT and Gippsland Ports, as port authority for the Snowy River would provide a first-strike response in the port. In the event of a rapid response to an oil spill threat, the IC (or delegate) would liaise with DoT and Gippsland Ports for deployment of this equipment.
- Port Authority of NSW maintains its own stockpile of Level Two/Three equipment which is stored at its Level One equipment locations in Sydney and Newcastle. Oil companies also own a quantity of oil spill response equipment which is stored on their individual premises.

Equipment details are provided in Table 41.

Table 41 - Protection and Deflection Response Resource List

Resource	Resource Requirement	Resource Availability	Comments
Trained oil spill response personnel	2 x boom deployment personnel 2 x skimmer and recovery personnel	Trained personnel available from AMOSC/AMOSPlan Core Group	As part of AMOSC's Service Level Agreement on a best endeavour's basis, 8 AMOSC personnel can be deployed to site within 12 hours. AMOSPlan Core Group are IMO trained for field deployment of spill equipment and are available on an 'as soon as practicable' basis. 25-30 personnel from this group would be available within 24-48 hours. These personnel are available through Cooper Energy's membership with AMOSC.
Boom and ancillary equipment	200m x zoom boom 200m beach guardian boom 4 x anchor kits (including ropes and floats)	AMOSC Equipment Supply	Transit time to Peterborough from Geelong is 3 hours however loading time is also required. It is unlikely that boom deployment could occur within 4-5 hours to meet shortest timeframes for sheen from nearshore MDO spill. Boom deployment timeframes for a significant offshore MDO spill should meet the predicted shortest time to shore of 24-48 hours.

Resource	Resource Requirement	Resource Availability	Comments
Boom Deployment Vessel	1 x Zodiac & Trailer 1 x Coxswain	AMOSC Equipment supply Cooper Energy Marine Services Provider	As above resource availability is expected to meet boom deployment timeframes for a significant offshore MDO spill (24-48 hrs).
Boom Deployment Vessel (Contingency)	1 x Vessel (Dinghy 30 HP Trailable)	VIC DOT (Williamstown)	Equipment may be made available on request to VIC DOT.
Skimmer and ancillary Equipment	1 x Multi-head Caradyne Skimmer 1 x Lamor Powerpack 1 x Hose reel	AMOSC Equipment Supply	All equipment can be placed on the back of a Utility and can be carried by personnel. Does not need mechanical equipment to transfer. Availability is expected to meet boom deployment timeframes for a significant offshore MDO spill (24-48 hrs).
Temporary Water Storage	2 x Fastank 1 x Transfer Pump and Hose	AMOSC equipment Supplies	Availability is expected to meet boom deployment timeframes for a significant offshore MDO spill (24-48 hrs).
Waste Management Contractor	Waste Management Provider	Cooper Energy has contract with waste management provider in Victoria	Contractor is available on a 7-day basis to assist with emergency waste management issues.
Mechanical Equipment	1 x Mini-Excavator & Driver	Coates Hire (Warrnambool)	Equipment and operator available onsite within 5 hrs. Coates Hire has 24/7 call-out and can supply a driver to Peterborough.

8.3 Environmental Risk Assessment (Protect & Deflect)

An assessment of possible environmental impact and risk associated with protect and deflect activities has been undertaken as part of the Environment Plan preparation for the Cooper Energy assets.

Boom deployment and associated waste management activities has the potential to cause disturbance to vegetation and aboriginal heritage; disturb sensitive estuarine habitats; restricting access to the shoreline; and may lead to secondary oil spill impacts. To mitigate these impacts the IC (or delegate) will ensure the activity control measures identified below are implemented.

8.4 Environmental Performance Outcomes (Protect & Deflect)

Table 42 provides the performance outcomes, standards and measurement criteria for the “protect and deflect” response option.

Table 42 - Protect and Deflect – Performance Outcomes and Standards

Performance Outcome	Control	Performance standard	Responsible person	Measurement Criteria
Tactical response planning undertaken for priority protection sites	**C27 Tactical Response Plans (TRPs)**	TRPs exist for priority protection areas identified in Section 4.4.2 prior to undertaking activities that have the potential to impact these locations.	General Manager Projects and Operations	TRPs developed prior to petroleum activities that could impact priority protection areas identified in Section 4.4.2.
Cooper Energy maintains capability to	**C28 Service Agreements Protect & Deflect**	Cooper Energy maintains the following agreements to maintain shoreline assessment/protect and deflect capabilities:	General Manager	Agreements/memberships are current. NATPLAN

Performance Outcome	Control	Performance standard	Responsible person	Measurement Criteria
implement protect and deflect in a Level 2 or 3 spill event.		• AMOSC membership (equipment, personnel, CORE Group. Mutual aid). • AMOS Plan Industry Mutual aid (equipment) • AMSA support obligations under the National Plan (equipment, personnel). • Scientific resource support agreement (GHD or equivalent). • Marine support services • Vessel of Opportunity listing • Waste management contract.	Projects and Operations	
Cooper Energy implements or supplies resources for shoreline protection and deflection (Level 2 or 3 spill), appropriate to the nature and scale of predicted shoreline impacts.	**C29 Shoreline Assessment – Resource Deployment**	SCAT teams deployed and available onsite within 24 hours of spill event (daylight hours permitting) in consultation with the State CA. SCAT information provided to the Planning function of the IMT for NEBA preparation, which will form part of the IAP.	Cooper Energy Incident Controller	Incident management records verify that SCAT teams are deployed to site within the designated timeframe.
	C30 Operational NEBA	An operational NEBA is undertaken to determine net benefits with State CA to confirm implementation of the response strategy.	Cooper Energy Incident Controller	Operational NEBA is available, approved and was undertaken prior to shoreline protect and deflect.
Impacts to cultural heritage and social values are prevented	**C31 Consultation with Traditional owners**	In consultation with State CA, engage with Traditional Owners to facilitate site surveys and tagging out and protection of identified areas or importance.	Cooper Energy Incident Controller	Incident records verify consultation has occurred and controls implemented.
	C32 Land and Waterway Manager Consultation	In conjunction with State CA, consultation is undertaken with land and waterway manager prior to deployment of equipment to establish recreational user controls along affected coastline.	Cooper Energy Incident Controller	Incident records verify consultation has occurred and controls implemented.
Impacts to native vegetation and fauna are prevented.	**C33 Site survey for critical habitat**	Surveys are undertaken to identify, mark out and protect nesting and critical habitat**.** Existing tracks and paths are used where possible to minimise disturbance footprint.	Cooper Energy Incident Controller	Incident records verify surveys have occurred and controls implemented.
	C34 Trained Fauna Handlers	Only trained and accredited teams deployed by the Lead Agency for oiled wildlife will approach and handle fauna.	Cooper Energy Incident Controller (as directed by the Lead Agency)	Shoreline induction reinforces this constraint. Induction records.

9.0 Shoreline Response: Clean-up

Shorelines in the Gippsland region are predominantly sand with rocky inter-tidal platforms and headlands. Shorelines associated with the Otway assets are predominantly shore platforms backed by cliffs with small sections of interspersed sand beaches.

Based on modelling of the spill scenarios associated with the operation of Cooper Energy assets, the potential hydrocarbon exposure to shorelines from a hydrocarbon release is limited to less than 250 m^3 (peak volume ashore).

As per Section 2.2, a State IMT would be established in response to a Level 2/3 spill, actionable shoreline oil contact (>100 g/m^2) is predicted to impact only Victorian coastline. As such, the CA would be DoT for managing shoreline response and/or at-sea response within State waters. Cooper Energy will remain actively engaged in the response until stood down by the DoT Incident Controller and will place a Cooper Energy liaison Coordinator within the state incident management team. Cooper Energy remains responsible for managing the origin of the spill outside Victorian coastal waters.

DoT will place a Liaison Officer within the IMT to act as the interface with other State government agencies and to ensure ongoing consultation and coordination of Maritime Emergencies resources.

9.1 Response Activities

9.1.1 Shoreline Assessment

Cooper Energy will support shoreline assessment and/or clean-up activities as directed by DoT.

If spill residues are predicted to reach the shoreline or aerial observations show oil has reached the shoreline, an assessment of the area will be undertaken using the Shoreline Clean-up and Assessment Technique (SCAT).

SCAT execution is described in Appendix 5.

9.1.2 Shoreline Clean-up

If oil is observed on the shoreline a NEBA will be prepared in consultation with DoT to determine whether a clean-up response will be implemented.

Based upon predictions of MDO and condensate fate and behaviour for an Otway Basin scenario, clean-up response would involve the manual removal of minimal amounts of weathered condensate or MDO from exposed sandy shorelines. No mechanical removal would be required however mechanical washing may be a suitable option for diesel residues where machinery access to the beach is possible.

Based upon predictions of MDO and light crude oil fate and behaviour for Gippsland scenario, clean-up response would involve the manual removal of actionable (> 100 g/m^2) and weathered MDO on shorelines. Mechanical washing may be a suitable option for hydrocarbon residues where machinery access to the beach is possible.

To understand the response equipment and personnel associated with shoreline clean-up response, Cooper Energy identified the quantity and type of equipment and personnel required for a single response team (Table 43). This information is based upon the assumption that each manual clean-up team has the treatment capacity of 10 m^3 per day (based upon a single person collecting 1 m^3 per day); and each mechanical collection team had a treatment capacity of 2.4 m^3 per hour (based upon bucket size of 0.04 m^3 and a single excavation per minute).

Table 43 - Single shoreline Clean-up Team Equipment and Personnel Requirements

Equipment/personnel	Requirements
Manual clean-up	
Support personnel	10
Team supervisor	1
Waste storage (per team)	10 m^3 per day
Mechanical collection	

Equipment/personnel	Requirements
Equipment (single excavator/machine)	1
Operator	1
Waste storage (per team)	25 m^3 per day

Cooper Energy identified the estimated waste types associated with shoreline clean-up response techniques to provide a conservative indication as to the level of waste that may be required to be managed during a response. Based upon a bulking factor of 10 m^3 per day for each 'shoreline clean-up team', Cooper Energy has estimated that the volume of waste that may need to be managed could be up to 2,500 m^3 based on spill modelling suggesting maximum volume of hydrocarbons ashore is 250 m^3 and volume of collected oil based on multiplying by a factor of ten (AMSA, 2017).

9.1.3 Laboratory Analysis

SCAT resources will obtain samples of any oil on shorelines and send to a NATA accredited laboratory for the analysis of hydrocarbon properties (including BTEX and PAH) and the physical properties of the oil (including wax content).

9.2 Response Resources

The number and tasks of personnel will vary according to the quantity of spill debris, its rate of delivery to the site and the disposal method chosen. Response resources would be activated via AMOSC in the first instance, with equipment and resources selected based on the TRP activation and subsequent IAPs. Table 44 details the resources required to undertake shoreline clean-up activities and their availability to support a 'shoreline clean-up' response.

Table 44 - Shoreline Assessment and Clean-up Resource Requirements and Capability

Resource	Resource Requirement	Resource Availability	Comments
Shoreline Assessment			
Trained SCAT Crew	2 x Teams Shoreline Assessment Specialists: 1 x Wildlife specialist 1 x marine specialist 1 x oil spill specialist	AMOSC/ AMOSC Core Group Additional resources from GHS (OSMP support group), VIC DOT or AMSA National Response Support Team	As part of AMOSC's Service Level Agreement on a best endeavour's basis, 8 AMOSC personnel can be deployed to site within 12 hours. AMOSPlan Core Group are IMO trained for field deployment of spill equipment and are available on an 'as soon as practicable' basis. 25-30 personnel from this group would be available within 24-48 hours. These personnel are available through Cooper Energy's membership with AMOSC. Cooper Energy contract GHD for scientific specialists allows for deployment to field within 24 hours of notification.
Shoreline Clean-up			
Shoreline Clean-up Team Leaders	2 x trained shoreline team leaders (2 teams provided)	AMOSC AMOSC Core Group	Resourcing as above for SCAT crew deployment.
Shoreline Clean-up Responders	20 persons (2 teams)	AMOSC AMOSC Core Group	Resourcing as above for SCAT crew deployment.
Waste Management Support Services	Waste Management Contractor	Cooper Energy has contract with waste management provider in Victoria	Cooper Energy waste contracts to support waste disposal from shoreline clean-up activities.

Resource	Resource Requirement	Resource Availability	Comments
Beach Clean-up Kit/Trailer	1 x Beach Clean-up Kit (Geelong)	AMOSC	AMOSC deployment and arrival at site expected within 12 hours.
	2 x Beach Clean-up Kits (Williamstown North) 1 x Beach Clean-up Kit (Port Fairy)	VIC DOT Port of Portland	Access to equipment via VIC DOT and Port of Portland
Decontamination Kit	1 x Decontamination Kit (Geelong)	AMOSC	AMOSC deployment and arrival at site expected within 12 hours.
	1 x Decontamination Kit (Williamstown North) 1 x Decontamination Kit (Portland)	VIC DOT Port of Portland	Access to equipment via VIC DOT and Port of Portland
Waste Bags	20 L Plastic Bags	AMOSC	AMOSC deployment and arrival at site expected within 12 hours.
Mechanical Equipment (surf washing)	Mini-excavators	Third Party Equipment Hire (e.g. Coates Hire) or local excavation Contractors	Availability of equipment within 5 hours.

9.3 Environmental Risk Assessment (Shoreline Clean-up)

An assessment of possible environmental impact and risk associated with shoreline assessment and clean-up activities has been undertaken as part of the Environment Plan collation for the Cooper assets.

Shoreline assessment and clean-up activities have the potential to cause disturbance to vegetation, fauna habitats and aboriginal heritage; restricting access to the shoreline; and may lead to secondary oil spill impacts. To mitigate these impacts the IC will ensure the control measures identified below are implemented.

9.4 Environmental Performance Outcomes (Shoreline Clean-up)

Table 45 provides the performance outcomes, standards and measurement criteria for shoreline clean-up.

Table 45 - Shoreline Response – Performance Outcomes and Standards

Environmental Performance Outcome	Control	Environmental Performance standard	Responsible person	Measurement Criteria
Cooper Energy maintains capability to implement SCAT and shoreline clean-up in a Level 2 or 3 spill event.	**C35 Service Agreements Shoreline Clean-up**	Cooper Energy maintains the following agreements to maintain shoreline assessment/clean-up response capabilities: • AMOSC membership (equipment, personnel, CORE Group. Mutual aid). • AMOS Plan Industry Mutual aid (equipment) • AMSA support obligations under the National Plan (equipment, personnel). • Scientific resource support agreement (GHD or	General Manager Projects and Operations	Agreements/memberships are current. NATPLAN

Environmental Performance Outcome	Control	Environmental Performance standard	Responsible person	Measurement Criteria
		equivalent). • Waste management contract. • Labour hire provider		
Cooper Energy implements or supplies resources for shoreline assessment and clean-up (Level 2 or 3 spill), appropriate to the nature and scale of predicted shoreline impacts.	**C36 Shoreline Assessment – Resource Deployment**	SCAT teams deployed and available onsite within 12 hours of spill event (daylight hours permitting) in consultation with the DoT. SCAT information will be provided to Planning function of the IMT for NEBA preparation, which will form part of the IAP.	Cooper Energy Incident Controller	Incident management records verify that SCAT teams are deployed to site within the designated timeframe.
	C30 Operational NEBA	An operational NEBA is undertaken to determine net benefits with DoT to confirm implementation of the response strategy.	Cooper Energy Incident Controller	Operational NEBA is available, approved and was undertaken prior to shoreline clean-up.
Impacts to cultural heritage and social values are prevented	**C31 Consultation with Traditional owners**	In consultation with State CA, engage with Traditional Owners to facilitate site surveys and tagging out and protection of identified areas or importance.	Cooper Energy Incident Controller	Incident records verify consultation has occurred and controls implemented.
	C32 Land and Waterway Manager Consultation	In conjunction with DoT, consultation is undertaken with land and waterway manager prior to deployment of equipment to establish recreational user controls along affected coastline.	Cooper Energy Incident Controller	Incident records verify consultation has occurred and controls implemented.
Impacts to native vegetation and fauna are prevented.	**C33 Site survey for critical habitat**	Surveys are undertaken to identify, mark out and protect nesting and critical habitat. Existing tracks and paths are used where possible to minimise disturbance footprint.	Cooper Energy Incident Controller	Incident records verify surveys have occurred and controls implemented.
	C34 Trained Fauna Handlers	Only trained and accredited teams deployed by the Lead Agency for oiled wildlife will approach and handle fauna.	Site Representative	Shoreline induction reinforces this constraint. Induction records.

10.0 Oiled Wildlife Response

10.1 Wildlife Sensitivities

Based upon the environmental sensitivities present in the OSRA (Appendix 2) and the asset EPs fauna which may be affected by hydrocarbon residues include seabirds, shorebirds, pinnipeds and whales. The potential for hydrocarbon impact to these species is detailed in respective asset EPs.

10.2 Notification and Response Arrangements

Each State has a dedicated agency responsible for responding to wildlife affected by a marine pollution emergency in State waters. If a small incident which affects wildlife occurs in Commonwealth waters, AMSA may request support from relevant State agency to assess and lead a response if required. State agency response to oiled wildlife is undertaken in accordance with the State specific Wildlife Response Plan (or equivalent).

Cooper Energy will provide support for the response through the provision of resources. The equipment which Cooper Energy can supply or coordinate through external assistance (such as AMOSC) includes:

- Vessels for transport of wildlife and equipment
- Oiled Fauna Kits
- Wildlife intake and triage; and
- Wildlife cleaning and rehabilitation kits.

Personnel may also be deployed under the direction of State agency to undertaken wildlife response activities. Only trained resources may interact with oiled fauna species in accordance with the Victorian Wildlife Act 1975.

1. Notify the relevant State Duty Officer or State Agency Commander for wildlife within the jurisdiction 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 and provide accurate directions. Maintain observation until State agency can deploy staff to the site.
4. Take response actions only as advised by State agency 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 accredited wildlife teams have arrived.
    - Avoid handling or treating injured wildlife as this may cause further stress and injury and poses a safety risk to untrained handlers.

10.3 Response Activities

Oiled wildlife response can be broken down into three stages; primary, secondary and tertiary (refer Table 46).

Table 46 - Oiled Wildlife Response Phases

Response Phase	Response Activity Description
Primary Response	This response is associated with hydrocarbon recovery and removing the threat of oil to wildlife. For this OPEP this involves source control, deflection and protection of high protection priority (estuaries) and shoreline assessment and clean-up as discussed in Section 8.0 and Section 8.4.
Secondary Response	This response uses hazing and pre-emptive capture techniques. Hazing techniques include systems to keep wildlife away from areas where impact is expected through a system of artificial threats (including noise and visual devices). The decision to undertake this within Victoria would be determined by DELWP as the Lead Agency for oiled wildlife. Pre-emptive capture involves: • The isolation and/or capture of wildlife from contaminated sites by either physical barriers preventing access or exclusion to contaminated sites. • Transferring the wildlife well away from contaminated sites and releasing them; or

Response Phase	Response Activity Description
	• Holding the wildlife in short-term captivity, while the contamination threat is removed. Secondary responses are unlikely to be required.
Tertiary Response	Tertiary response will be applied as required by oil spill trained and accredited teams deployed by the Lead Agency. Tertiary response includes capturing, cleaning, rehabilitation, transportation, and stabilisation of contaminated wildlife for release.

10.4 Response Resources

Oiled Wildlife Waste Management

The hydrocarbons associated with the Otway and Gippsland activities are volatile, and non-persistent. The ecological EMBA associated with any single spill scenario is also limited. Whilst there is potential for oiled wildlife to occur, the numbers of individuals potentially impacted would likely be small. Based on the WA Oiled Wildlife Response Plan (WA DBCA DoT, 2022) impact rating guide (for resource estimation), the wildlife impact rating for the release scenarios in this OPEP is assessed as Low-Medium, accounting for a relatively low level of response over a protracted period.

Although high numbers of oiled wildlife would not be expected as a result of the scenarios described, response resources would be activated. AMOSC would be activated in the first instance, in consultation with DoT and DELWP, with equipment and resources selected on the basis of the TRP activation and subsequent IAPs.

Cooper Energy will not deploy any resources without first receiving a formal deployment request from relevant State agency.

Table 47 - Oiled wildlife response resource list

Resource	Resource Requirement	Resource Availability	Comments
Specialist Oiled Wildlife Response Capability	Wildlife Response Commander	To be provided by Lead Agency for oiled wildlife	In accordance with State specific Wildlife Response Plan (or equivalent).
Oiled Wildlife recovery team supervisor	1 per team	To be provided by Lead Agency for oiled wildlife	In accordance with State specific Wildlife Response Plan (or equivalent)
Oiled wildlife response personnel	Trained Group of first response personnel	Lead Agency for oiled wildlife	In accordance with State specific Wildlife Response Plan (or equivalent)
	AMOSC Industry Team (mutual aid): 10 personnel trained to Level 2-4 [WA Department of Parks and Wildlife]	AMOSC	Industry team trained for field deployment of spill equipment and are available on an 'as soon as practicable' basis. This group would be expected to be available within 24-48 hours of call-out. These personnel are available through Cooper Energy's membership with AMOSC upon request from the Lead Agency. *AMOSC Service Level Statement confirms: AMOSC Core Group (CG) activation – within 1 hour of initial activation.*
	AMOSC developed relationship with: • Blue Planet Marine (Capacity 10-20 OWR responders) • Massey University (Capacity 4-6 OWR responders) • International Bird Rescue (Capacity 4 OWR responders)	AMOSC	AMOSC deployment and arrival at site expected on an 'as soon as practicable' basis following formal request from the Lead Agency. *These resources are not expected to be required but can be accessed in a spill event.*
	National Plan:	AMSA	Access via AMSA NATPLAN.

Resource	Resource Requirement	Resource Availability	Comments
	• Additional response personnel, including management and operational staff		*NRT Resources are not expected to be required.*
OWR Facility establishment and management	1 x Facilities Establishment Group (Dwyertech)	AMOSC Call-off Contract	Current call-off contract has service available within 24 hours of call-out.
Oiled Wildlife Response Kits	1 x OWR Kit (Geelong) 1 x OWR Kit (Fremantle)	AMOSC	Kits can process 50 units per day and Geelong kit available at site within 24 hours of call-out.
	1 x OWR Kit (Bairnsdale) 1 x OWR Kit (Colac) 1 x OWR Kit (Port Phillip) 1 x OWR Kit (Warrnambool) 1 x State-wide Trailer	DELWP	Each kit can process approximately 50 units. To be provided by DELWP.
Oiled Wildlife Response Containers	1 x Container (Geelong) 1 x Container (Fremantle)	AMOSC	Each container can process approximately 100 units per day. Geelong container available onsite within 24 hours of call-out.
	1 x Container (Dampier) 1 x Container (Darwin) 1 x Container (Townsville)	AMSA	Available through NATPLAN. Containers process 100 units per day. *Equipment is not expected to be required. Deployment of such resources would be expected to take 48-72 hrs (road travel) from time of request.*
	1 x Container (Sydney)	NSW Maritime	Available through NATPLAN request via AMSA. Container can process 100 units per day. *Equipment is not expected to be required. Deployment of such resources would be expected to take 48-72 hrs (road travel) from time of request.*
Vessel Support	1 x Vessel/Master	Undersea Marine Supply-time Agreement with Cooper Energy	Cooper Energy maintains an agreement with Undersea Marine (formerly COMCHART Marine) to provide vessel surveillance activities and can be supplied in 24 hours from call-out.
	Vessels of Opportunity	Cooper Energy Vessel Listing	Cooper Energy maintains a list of vessels suitable for surveillance.
Waste Management Support Services	Waste Management Contractor	Cleanaway	Cooper Energy waste contracts to support waste disposal from OWR activities. Availability on-site within 12 hours of call-out.

10.5 Environmental Risk Assessment

An assessment of possible environmental impact and risk associated with oiled wildlife response has been undertaken as part of the Environment Plans which relate to these activities.

Oiled wildlife response has the potential to cause disturbance, injury or death to fauna if handlers are not appropriately trained. To mitigate these impacts the Cooper Energy Operations Officer (or delegate) will ensure the control measures identified below are implemented.

10.6 Environmental Performance Outcomes (Oiled Wildlife Management)

Table 48 provides the performance outcomes, standards, and measurement criteria for oiled wildlife management.

Table 48 - Oiled Wildlife Response – Performance Outcomes and Standards

Environmental Performance Outcome	Controls	Environmental Performance standard	Responsible person	Measurement Criteria
Cooper Energy maintains capability to support oiled wildlife management in a Level 2 or 3 spill event.	**C37 Service Agreements Oiled Wildlife Response**	Cooper Energy maintains the following agreements to maintain OWR response capabilities: • AMOSC membership (equipment, personnel) • Waste management contract. • Vessel of Opportunity listing	General Manager Projects and Operations	Contracts/memberships verify currency of membership.
Cooper Energy provides resources to support oiled wildlife response strategies as directed by State Control Agency.	**C38 Notification to State Agency or Oiled Wildlife**	Relevant state Control Agency is notified as soon as possible after the sighting of oiled wildlife has occurred or if it is considered wildlife likely to be impacted.	Cooper Energy Incident Controller	Incident management records verify that verbal and/or written notification was provided to relevant State agency as soon as possible after the sighting was noted.
	C39 Oiled Wildlife Response Kits	AMOSC OWR kits are deployed to site within timeframes as directed by State Agency.	Cooper Energy Incident Controller	Incident records verify oiled wildlife response kits are deployed to site as directed by State Agency.
	C40 Oiled Wildlife Resource Resourcing	Cooper Energy meets State Agency resourcing needs throughout the response, meeting IAP performance outcomes.	Cooper Energy Incident Controller	Incident log verifies requested Cooper Energy resources met required IAP outcomes for oiled wildlife response.
Wildlife is only approached or handled State Agency trained oiled wildlife responders unless formal direction is received from the State Government IMT.	**C41 Oiled Wildlife Response Induction**	Cooper Energy personnel are inducted into wildlife interaction restrictions.	Cooper Energy Incident Controller State Government Incident Controller	Incident records verify no interaction by Cooper Energy personnel and wildlife without formal direction and induction by the State Government IMT.
Impacts to native vegetation and fauna are prevented.	**C33 Site survey for critical habitat**	Surveys are undertaken to identify, mark out and protect nesting and critical habitat. Existing tracks and paths are used where possible to minimise disturbance footprint.	Incident controller	Incident records verify surveys have occurred and controls implemented.
Impacts to cultural heritage and social values are prevented	**C31 Consultation with Traditional owners**	In consultation with State CA, engage with Traditional Owners to facilitate site surveys and tagging out and protection of identified areas or importance.	Incident controller	Incident records verify consultation has occurred and controls implemented.

11.0 Decontamination and Waste Management

11.1 Waste types and volumes from a Spill Event

Waste types generated through spill response activities may include sand with oil residue, oily water, wash-waters from oiled wildlife clean-up and possible oiled carcase disposal (noting State agency will lead this aspect). It is noted that MDO and light crude oil residues reaching shorelines will still be relatively mobile residues and will penetrate shoreline sediments due to the low viscosity of the oil and will not be as visually obvious as other hydrocarbons such as heavy fuel or crude oils.

Credible spill scenarios and associated hydrocarbon release volumes are described in Table 2. By taking the worst-case liquids volume released for each scenario, respective maximum waste volumes have been estimated (Table 49).

Table 49 - Estimated Oil Waste Volumes

Asset	Worst Case Spill Scenario	Maximum Hydrocarbon Shoreline Volume	Waste Type	Waste Volume**
Otway Subsea Facilities	Vessel Release State waters	250 m^3*	Oily water Sand with oil residue	2,500 m^3
Otway Subsea Facilities	Pipeline release State waters	50 m^3*	Oily water Sand with oil residue	500 m^3
Otway Subsea Facilities	LOWC (drilling) Cwth waters	200 m^3	Oily water Sand with oil residue	2,000 m^3
Otway Subsea Facilities	Subsea leak Cwth waters	None	-	-
Gippsland – Sole / PB	Vessel Release State waters	250 m^3*	Oily water Sand with oil residue	2,500 m^3
Gippsland – PB	Pipeline release State waters	5 m^3*	Oily water Sand with oil residue	50 m^3
Gippsland - BMG	Subsea leak Cwth waters	None	-	-
Gippsland - BMG (decommissioning)	MDO Spill	64.8 m^3	Oily water Sand with oil residue Weathered debris	648 m^3
General	Oiled Wildlife Waste	-	Waste water	1 m^3 per unit (1 bird = 1 unit)
		-	PPE	5kg per unit per day
	Decontamination stations	-	Wash-water	~1 m^3 /d
		-	PPE	

**Assumes 100% spilled hydrocarbons ashore. Does not account for weathering. Considered to be conservative.*

***Assumes a 10-fold increase in volume of stranded oil due to additional volume of oily water and sand.*

11.2 Waste Management

11.2.1 Decontamination

In the event that shoreline clean-up is activated, decontamination stations must be placed at control points to prevent the spread of oil residues. Hot and cold zones must be clearly identified at the decontamination station and all response personnel should be briefed on the decontamination procedures before entering the Hot Zone. The decontamination zone should be constantly attended and kept as neat as organised as possible.

Suppliers of decontamination kits are identified in Table 47.

11.2.2 Regulatory Requirements/Characterisation

Waste generated as part of shoreline clean-up activities will be handled by Cooper's Waste Management Contractor who will be activated in a Level 2/3 event to collect and manage waste generated.

The waste management contractor must ensure:

- Suitable receptacles are provided for waste materials into ensure its correct segregation into appropriate regulatory classifications,
- Wastes are manifested to ensure they are sent to appropriately licensed treatment or disposal facilities; and
- Transported via correctly permitted vehicles to those locations in accordance with Victorian Environment Protection Authority (EPA) requirements.

All waste manifests, to ensure recovered oil residues are tracked, must be sent by the Waste Contractor to the Logistics Officer as soon as possible.

11.2.3 Interim Storage & Segregation Requirements and Resources

All requirements for interim storage arrangements must be discussed with Cooper's waste management contractor and a site waste management plan developed in consultation with the EPA, State CA and the appropriate land manager.

The site waste management plan must ensure that all interim storage and handling arrangements are fully bunded, isolated from the public and site activities supervised. All interim storages must have suitable spill kits available to limit spill residues.

Waste storage resources, in addition to Cooper's waste management contractor resources, can be found on the AMSA, AMOSC and relevant State government websites referenced in Section 3.

11.3 Environmental Risk Assessment

Risks associated with waste management have been addressed in Section 8.0 (Protection and Deflection) and Section 8.4 (Shoreline Assessment and Clean-up).

12.0 Scientific Monitoring

The Offshore Victoria Operational and Scientific Monitoring Plan (OSMP) (VIC-ER-EMP-0002) provides a comprehensive framework for the monitoring programs that may be implemented in the event of a Level 2 or Level 3 hydrocarbon spill.

12.1 Consultation to Support Operational and Scientific Monitoring

In the event of a L2/3 spill, Cooper Energy will consult with Commonwealth and State authorities for all areas potentially exposed to hydrocarbons, including Australian Marine Parks (AMPs) to ensure that scientific monitoring is undertaken to the satisfaction of the Commonwealth and State. The State CA will coordinate the whole of State Government advice on the focus, scope and duration of the scientific program.

Cooper Energy will notify these relevant authorities on a level 2/3 spill event and provide operational data to these authorities relevant to the spill level. Cooper will consult with these authorities at the commencement of a Level 2/3

spill on any proposed baseline/scientific studies and control sites to allow for feedback and OSMP study implementation plan modification[5] to fulfil all State requirements (e.g. 'on-the-day sampling design, modified scope).

Operational monitoring results will continue to be provided throughout the response to allow for continued feedback and modification of baseline/scientific requirements. Other critical liaison points will be established between relevant authorities through the spill consultation process.

13.0 Demobilisation

There are specific tasks that are required to be undertaken by various response personal on the demobilisation of the response. Some of these are detailed in the sections to follow.

13.1 Demobilisation tasks for the IC

Upon conclusion of the spill activity, the following tasks will be undertaken by the IC (or delegate):

- Advise all relevant contractors and Cooper Energy personnel.
- Advise all relevant government authorities.
- Prepare detailed reports on the response activities and outcomes and collate all documents for secure storage and/or submission to regulators.
- Undertake an inventory of consumables and prepare accounts.
- Arrange for the return and/or refurbishment of equipment.
- Investigate the cause of the incident and report to relevant authorities.
- Assess environmental monitoring requirements.

13.2 Demobilisation tasks for the Operations Officer

Upon completion of the oil pollution response operation, the Operations Officer (or delegate) will:

- Arrange recovery of all equipment and unused materials.
- Ensure that all equipment is cleaned, to the extent that available facilities allow.
- Ensure that all equipment is returned to the owner by the quickest possible means (having regard to costs).
- Upon its return to the owner, equipment must be thoroughly serviced or replaced in accordance with equipment maintenance schedules prior to being stored.

With regards to marine operations, upon receipt of response termination, the IMT will ensure:

- All equipment is recovered and cleaned.
- All vessels return to their respective berths.
- All personnel are accounted for.
- Equipment is safely offloaded and transported to a site for cleaning or repair.
- All equipment returned is logged.
- All equipment is returned to the correct owner/ location.

For shoreline response activities, the Operations Officer (or delegate) will ensure:

- All equipment is retrieved and stowed away.
- All equipment is retrieved and returned to the relevant location for cleaning and redistribution.

[5] OSMP currently provides for study modules with expected scopes. These will be modified accordingly.

- Any equipment not collected is secured.
- All clean-up team members are transported back to the contractor's base for demobilisation.
- All shorelines are left free of litter or other refuse.

13.3 Response Debrief/Critique

The IC will hold a post-spill debriefing for any spill for which a response was activated. De-briefing should address:

- Spill causes (if known).
- Speed of response activation.
- Effectiveness of tactics and strategies.
- Equipment suitability.
- Health and safety issues (if any).
- Communications.
- Integration of OPEP and procedures with other agencies.
- Lessons learned for implementation in future responses.

14.0 Revision History

Rev	Issue Date	Revision summary	Originator	Reviewer	Approver
7f	18/07/2022	Updated figures, references, SCERP details, reconciled facility spill scenarios, added appendix *'systems, forms, templates, tools'*	Xodus Group	JJM	MJ
7e	30/08/2021	Annual review and update; inclusion of relevant Vic State Gov Review comments for BMG P&A scope.	JJM	JH	MJ
7d	03/04/2020	Update to Notification contact details and AMOSC activation DoA.	JH	JJM	IM
7c	28/06/2019	Update to reflect new response contracts and additional Vic State comments.	OGW	OGW	IM
7b	30/04/2019	Updated to address Vic State review comments & minor revisions post-exercise.	PR	OGW	IM
7a	04/02/19	Issued to NOPSEMA for assessment	PR	OGW	IM
7	20/01/19	Revision to include Otway Basin exploration drilling	PR	OGW	IM
6	27/12/18	Revised to incorporate BMG activities	PR	OGW	IM
5	12/9/18	Revised to reflect updates to the CEMT and additional input to incorporate Sole infrastructure installation	PR	OGW	IM
4	13/4/2018	Internal review and revision to reflect update to CEMT and incorporate Sole infrastructure	JE	RL	IM
3	15/8/17	Revised for terminology changes	JM	RL	IM
2	31/05/17	Revised for NOPSEMA RFFWI	LC	JH	IM
1	15/03/2017	Issued to NOPSEMA and DEDJTR ERR for Acceptance	LC	DC, JH	IM
0	24/02/17	Updated from AMOSC and DEDJTR EMD Comments	LC	JH	IM

15.0 Definitions & Acronyms

Acronym	Definition
ADIOS	Automated Data Inquiry for Oil Spills
AGL	Above Ground Level
AHTS	Anchor Handling and Tow Support
AIIMS	Australasian Inter-service Incident Management System
ALARP	As low as reasonably practicable
AMOSC	Australian Marine Oil Spill Centre
AMOS Plan	Australian Marine Oil Spill Plan
AMSA	Australian Maritime Safety Authority
APASA	Asia-Pacific Applied Science Associates
API	American Petroleum Institute
ASAP	As soon as possible
ASX	Australian Securities Exchange
BAOAC	Bonn Agreement Oil Appearance Code
bbl	Barrels
BBMT	Barry Beach Marine Terminal
BMG	Basker Manta Gummy
BOM	Bureau of Meteorology
BOP	Blow Out preventer
BTEX	Benzene, Toluene, Ethyl-benzene, Xylene
CA	Control Agency
CHN	Casino-Henry-Netherby
COE	Cooper Energy Limited and its subsidiaries
CMP	Crisis Management Plan
CMT	Crisis Management Team
CP	Centipoise
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DELWP	Department of Environment, Land Water and Planning (Victoria)
DJPR	Department of Jobs, Precincts and Regions (formerly DEDJTR) (Victoria)
DoT	Department of Transport (Victoria)
DP	Dynamic Positioning
EHU	Electro-hydraulic umbilical
EMBA	Environment that may be affected
EMLO	Emergency Management Liaison Officer
EMV	Emergency Management Victoria
EP	Environment Plan

Acronym	Definition
EPA	Environment Protection Authority
EPBC	Environment Protection and Biodiversity Conservation
EPO	Environmental Performance Outcome
ERP	Emergency Response Plan
ERR	Earth Resource Regulation
ERT	Emergency Response Team
ESC	Environmental and Scientific Coordinator
ESD	Emergency Shutdown
ESI	Environmental Sensitivity Index
FOB	Foreword Operating Base
FSP	First Strike Plan
GDA	Geocentric Datum of Australia
GOR	Gas Oil Ratio
HAZMAT	Hazardous Materials
HDD	Horizontal Directional Drill
HIPPS	High Integrity Pressure Protection System
Hrs	Hours
HSE	Health Safety & Environment
HSEC	Health Safety Environment & Community
IAP	Incident Action Plan
IC	Incident Controller
ICC	Incident Control Centre
IMO	International Maritime Organization
IMP	Incident Management Plan
IMR	Inspection, Maintenance and Repair
IMT	Incident Management Team
IPIECA	International Petroleum Industry Environmental Conservation Association
ISV	Installation Support Vessel
ITOPF	Formerly known as International Tanker Owners Pollution Federation
IUCN	International Union for Conservation of Nature
IWCF	International Well Control Forum
JHA	Job Hazard Analysis
JSCC	Joint Strategic Coordination Committee
Km	Kilometer
LEL	Lower Explosive Limit
LOC	Loss of Containment

Acronym	Definition
LOWC	Loss of well control
M^3	Cubic metres
MCS	Master Control System
MEG	Mono-ethylene glycol
MDO	Marine Diesel Oil
Min	Minute
Mm	Millimetre
MMscf	Million Standard Cubic Feet
MMscfd	Million Standard Cubic Feet per Day
MOC	Management of Change
MODU	Mobile Offshore Drilling Unit
MoU	Memorandum of Understanding
MOU	Mobile Offshore Unit
MUTA	Main Umbilical Termination Assembly
N/A	Not Applicable
NATA	National Association of Testing Authorities
NATPLAN	National Plan for Maritime Environmental Emergencies
ND	Nominal Diameter
NEBA	Net Environmental Benefit Assessment
Nm	Nautical miles
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NOPTA	National Offshore Petroleum Titles Authority
NP	National Park
NPP	Non-Production Phase
NRT	National Response Team
NSR	Non search and rescue
OM	Operational Monitoring
OPEP	Oil Pollution Emergency Plan
OPGGS	Offshore Petroleum and Greenhouse Gas Storage
OPGGS(E) Regulations	Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations
OSMP	Operational and Scientific Monitoring Plan
OSRA	Oil Spill Response Atlas
OSTM	Oil Spill Trajectory Modelling
OWR	Oiled Wildlife Response
PAH	Poly-aromatic hydrocarbons
PB	Patricia Baleen

Acronym	Definition
PLEM	Pipeline End Manifold
POLREP	Marine Pollution Report
PPE	Personal Protective Equipment
PS	Performance Standards
RCC	Rescue Coordination Centre
RFFWI	Request For Further Written Information
ROV	Remotely Operated Vehicle
RP	Recommended Practice
SCAT	Shoreline Clean-up Assessment Technique
SCERP	Source Control Emergency Response plan
SCME	State Controller Maritime Emergencies
SCSSV	Surface controlled subsurface safety valves
SCT	Source Control Team
SEC	Site Emergency Controller
SFRT	Subsea First Response Toolkit
SITHP	Shut-in Tubing Head Pressures
SITREP	Situation Report
SMEAC	Situation, Mission, Execution, Administration and (Logistics), Command (and Communication)
SMPEP	Shipboard Marine Pollution Emergency Plan
SSD	Subsea Dispersant
Stb	Stock tank barrel
SUTU	Subsea Umbilical Termination Unit
TasPlan	Tasmanian Marine Oil Spill Plan
TBD	To Be Determined
TRP	Tactical Response Plan
UTM	Universal Transverse Mercator
VMRA	Victorian Marine Pollution Risk Assessment
VOCs	Volatile Organic Compounds
VSCP	Victoria Source Control Plan
WWC	Wild Well Control

16.0 References

Document code	Title
Internal Documents	
CMS-HS-STD-0001	MS09 – HSEC Management
CMS-ER-STD-0001	MS10 – Incident and Crisis Management
COE-ER-ERP-0001	Cooper Energy Incident Management Plan
COE-ER-ERP-0003	Cooper Energy Crisis Management Plan
VIC-DC-ERP-0001	Offshore Victoria Source Control Emergency Response Plan
VIC-ER-EMP-0002	Offshore Victoria Operational & Scientific Monitoring Plan
CHN-EN-EMP-0001	Otway Operations (Casino Henry Netherby) Environment Plan
VIC-EN-EMP-0002	Gippsland Offshore Operations Environment Plan
CHN-HS-SMP-0001	Casino Henry Netherby Safety Case
SOL-HS-SMP-0007	Sole Pipeline Safety Case
SOL-DC-WMP-0001	Sole Well Operations Management Plan
PBN-HS-SMP-0001	Patricia Baleen Pipeline Safety Case
BMG-HS-SMP-0001	Basker Manta Gummy Field Safety Case
BMG-ER-EMP-0004	BMG Closure Project (Phase 1) Oil Pollution Emergency Plan
CMS-ER-PRO-0002	Incident and Crisis Management Protocol
CMS-TS-PRO-0002	MS08 – Technical Management and the Management of Change General Protocol
CMS-IM-PCD-0002	Document and Records Management Procedure
CMS-PB-STD-0001	MS05 – Management Standard Five – External Affairs
Joint Industry / AMOSC Tactical Response Plans: Tactical Response Plans	
Modelling Reports – all offshore facilities: Modelling	
Oil Profiles – all offshore facilities: Oil Profiles - ADIOS	
External Documents	
Plans	
Australian Marine Oil Spill Centre Plan (AMOS Plan)**: https://amosc.com.au/amosplan/**	
AMSA NATPLAN: https://www.amsa.gov.au/marine-environment/national-plan-maritime-environmental-emergencies	
New South Wales Marine Estate Threat and Risk Assessment Report Final Report (2017): https://www.marine.nsw.gov.au/__data/assets/pdf_file/0010/736921/NSW-Marine-Estate-Threat-and-Risk-Assessment-Final-Report.pdf	
Victorian Maritime Emergencies (non-search and rescue) Plan: https://www.emv.vic.gov.au/responsibilities/semp-sub-plans/semp-maritime-emergencies-non-search-and-rescue-sub-plan	
Victorian Marine Pollution Risk Assessment (VMRA11) (DoT, 2011)	
Department of Biodiversity, Conservation and Attractions. Department of Transport. 2022. Western Australia Oiled Wildlife Response Plan for Maritime Environmental Emergencies. Revision 4. https://www.dpaw.wa.gov.au/images/WA%20Oiled%20Wildlife%20Response%20Manual.pdf	
Tasmanian Marine Oil and Chemical Spill Contingency Plan (2022): https://epa.tas.gov.au/Documents/TasPlan.pdf	
Tasmanian Oiled Wildlife Response Plan (2006): https://epa.tas.gov.au/Documents/WildPlan_final.pdf	

Appendix 1 - Systems, Forms, Templates and Tools

Systems / Forms / Templates
Cooper Energy IMT Response System Includes: Incident Status Boards, External Reporting Forms, Planning Templates

Tools
Weather and Tides http://www.bom.gov.au/ / **https://www.windy.com**
Trajectory/velocity calculator, Oil Volume estimator, marine travel calculator: Spill Response Tools
Oil Spill Tracking Buoy online tracking access: Oil Spill Tracking Buoy
Victoria CoastKit – A tool developed by DELWP to provide an online data repository for the community to explore and use Victoria's marine and coastal information: https://mapshare.vic.gov.au/coastkit/
Victoria EstuaryWatch. A citizen science program that supports the monitoring and recording of estuary health: http://www.estuarywatch.org.au/
Tasmania LISTmap. Hosted by the Tasmanian government. Listmap is publicly accessible, searchable geospatial tool providing access to a wide range of information including oil spill sensitivity layers, shoreline types, species presence and seasonal sensitivity: https://maps.thelist.tas.gov.au/listmap/app/list/map
Oil Spill Response Atlas (OSRA). GIS based system which compiles relevant Australian geographic information for oil spill response management: Oil Spill Response Atlas (OSRA).pdf
Response Planning Map Layers: Oil Spill Response Map Layers **Login to Perth IMT or Adelaide IMT to use the Response Map**

Appendix 2 - Net Environmental Benefit Assessment (NEBA) Template

The NEBA template is available on Cooper Energy IMT Response System 

Purpose

Net Environmental Benefit Analysis (NEBA) is a simple tool intended to rapidly assess the risks posed by an oil spill to a specific location as well as facilitate and simultaneously document the decision-making process to most effectively deploy resources and minimise environmental impacts. This provides evidence to justify priority setting and response option selection.

Impacts are ranked from slight - severe and recovery time is considered from slow – rapid using an assessment (below). Protection priority of resources is ranked numerically. This includes the assessment of whether the sensitivity (impact) ranking of various spill response options would increase, decrease or remain the same when compared with no action (natural recovery i.e. monitor and evaluate).

This process should be conducted by the IMT Planning Officer (or delegate) in consultation with appropriately qualified experts from AMOSC, AMSA, DoT and other agencies (as required). Resources required include the respective asset Environment Plans, this OPEP, OSRA maps, OSTM/vectors for the spill event and marine charts. Local knowledge of the resources at stake is highly desirable to inform the assessment.

Instructions

1. Identify which of the sensitive resources occur in the affected area and list details. Resources are grouped into 3 categories (water surface, shoreline, water column) and may have biological/ecological (emphasis), economic or social/cultural significance. Use OSTM in conjunction with an OSRA / MIGS[6] map of the projected impact area.
2. Rank sensitivity (Low/Medium/High) using the Resource Oil Sensitivity Matrix (below) to give a qualitative measure of likely impact if no response actions are taken (Natural Recovery i.e. Monitor and Evaluate). Sensitivity can be assessed by selecting a potential impact rank (Slight/Minor/Major/Severe) and recovery time (>10 years/5-10 years/2-5 years/<1 year). For particular shoreline types, use the Environmental Sensitivity Index (ESI) rankings in (below) (shoreline types) as a guide. Record this information for each resource in the NEBA.
3. Assign priority protection numbers (1-n) for each resource based upon sensitivity rankings assuming no response actions are taken (Natural Recovery i.e. Monitor and Evaluate). Highest priority resources should be assigned ‘1’ – n is lowest priority. Resources may be ranked equally. Record this information for each resource in Table A4-1.
4. Assess whether the sensitivity (impact) ranking would increase (🡅), decrease (🡇) or remain the same (–) for each of the 3 remaining response strategies (Dispersant Application, Offshore Containment and Recovery, Protection and Deflection & Shoreline Clean-up). *The Oiled Wildlife Response Strategy is adopted for all Level 2/3 spills*.
5. Select which overall response strategy (Natural Recovery i.e. Monitor and Evaluate, Dispersant Application, Offshore Containment and Recovery, Protection and Deflection and Shoreline Clean-up) would reduce or increase the sensitivity (impact) ranking for the highest priority shorelines/resources for protection. I.e. what response option provides net environmental benefit.

[6] *Maritime Incident Geospatial Support*

			RECOVERY TIME			
			SLOW ⟷ RAPID			
			>10 years	5 – 10 years	2 – 5 years	< 1 year
			1	2	3	4
Potential Impact Rank	Severe	A	High 1A	High 2A	High 3A	Medium 4A
	Major	B	High 1B	High 2B	Medium 3B	Low 4B
	Minor	C	High 1C	Medium 2C	Medium 3C	Low 4C
	Slight	D	Medium 1D	Low 2C	Low 3D	Low 4D

	ESI	High	ESI	Medium	ESI	Low
Shoreline Types	9	Sheltered tidal flats	5	Mixed sand and gravel beaches	1	Exposed Rocky Shores
	10	Salt marshes and mangroves	6	Gravel beaches	2	Exposed Wave-Cut Platform
			7	Exposed tidal flats	3	Fine-medium grain sand beaches
			8	Sheltered rocky-rubble coasts	4	Coarse grain sand beaches

Figure 16 - Resource sensitivity assessment matrix and shoreline type sensitivity ranks

Table 50 - Net Environmental Benefit Analysis - Environmental Effects of Response Options Risk Analysis Matrix

Receptor Type	Details (seasonality, life cycle etc)	Protection Priority Ranking			Expected impact under each scenario					
		Priority Site 1 (insert location)	Priority Site 2 (insert location)	Priority Site 3 (insert location)	Monitor and Evaluate	Chemical Dispersant	Offshore Containment and Recovery	Protect & Deflect	Shoreline Assessment/ Clean-up	Oiled Wildlife
Environmental Receptors										
Saltmarshes										
Coastal Vine Thickets										
Soft Sediment										
Seagrass										
Algae										
Coral										
Seabirds and Shorebirds (feeding, roosting, nesting)										
Marine Invertebrates										
Fish and Sharks (including spawning/nursery areas)										
Marine Reptiles										

Receptor Type	Details (seasonality, life cycle etc)	Protection Priority Ranking			Expected impact under each scenario					
		Priority Site 1 (insert location)	Priority Site 2 (insert location)	Priority Site 3 (insert location)	Monitor and Evaluate	Chemical Dispersant	Offshore Containment and Recovery	Protect & Deflect	Shoreline Assessment/ Clean-up	Oiled Wildlife
Marine Mammals (Seals /Dolphins /Whales)										
Estuaries										
Marine Parks/Sanctuaries										
Sheltered tidal flats										
Sheltered rocky/rubble coasts										
Exposed tidal flats										
Gravel beaches										
Mixed sand and gravel beaches										
Coarse grain sand beaches										
Fine-medium grain sand										
Exposed wave-cut platform										
Exposed rocky shores										
Benthic systems										

Receptor Type	Details (seasonality, life cycle etc)	Protection Priority Ranking			Expected impact under each scenario					
		Priority Site 1 (insert location)	Priority Site 2 (insert location)	Priority Site 3 (insert location)	Monitor and Evaluate	Chemical Dispersant	Offshore Containment and Recovery	Protect & Deflect	Shoreline Assessment/ Clean-up	Oiled Wildlife
Seagrass										
Rocky reef										
Other										
Commercial Receptors										
Shipping channels										
Commercial port										
Aquaculture										
Commercial water intakes										
Commercial Fisheries										
Abalone										
Rock Lobster										
Fin fish										
Aquaculture										
Recreational and Cultural Receptors										
Tourism/Recreational facilities										
Recreational marinas										

Receptor Type	Details (seasonality, life cycle etc)	Protection Priority Ranking			Expected impact under each scenario					
		Priority Site 1 (insert location)	Priority Site 2 (insert location)	Priority Site 3 (insert location)	Monitor and Evaluate	Chemical Dispersant	Offshore Containment and Recovery	Protect & Deflect	Shoreline Assessment/ Clean-up	Oiled Wildlife
Amenity beaches										
Archaeological sites										
Heritage sites										
Geological sites										
Recreational fisheries										
Recommended Response Strategies										

Approved by (Name):		Signature:	Company/ Agency (if required)	
Position:	**Incident Controller (or delegate)**	**Phone/Mobile:**	**Fax/Email:**	

Appendix 3 - Cooper Energy Oil Spill Team Duty Cards

Cooper Energy Oil Spill IMT Lead Roles:

- IC
- Operations Officer
- Planning Officer
- Finance Officer
- Logistics Officer

COE INCIDENT CONTROLLER (DUTY CARD 1)

ROLE [Incident Controller]

The Cooper Energy Incident Controller has overall responsibility for the management of the Cooper Energy's response and integration with government response agencies.

RESPONSIBILITIES

- ☐ Activate and lead the overall management of the IMT
- ☐ Notify and keep the CMT/ IMT Liaison Coordinator informed as appropriate
- ☐ Determine strategic objectives & general direction for managing the situation
  - ☐ Establish the immediate priorities
  - ☐ Ensure that adequate safety measures are in place
  - ☐ Ensure that the needs of any people affected by the emergency are handled appropriately
  - ☐ Establish an appropriate organization and coordinate support as required
- ☐ Maintain a personal log
- ☐ Direct provision of appropriate responses to affected contractors
- ☐ Approve and authorise the implementation of an Incident Action Plan
- ☐ Terminate response activities when appropriate

SPECIFIC TASKS

Initial Actions

- ☐ Activate and lead the overall management of the IMT
- ☐ Obtain briefing on emergency from the SEC or ERT contact and review initial assessment
  - ☐ Use the emergency Information Capture Form
  - ☐ Activate the necessary members of the IMT
- ☐ Proceed to the IMT Room
  - ☐ Ensure Room is fully set-up before response commences
- ☐ Obtain status report
- ☐ Communicate with CMT/ IMT Liaison Coordinator as appropriate
  - ☐ Advise CMT/ IMT Liaison Coordinator of any requirement for immediate support
  - ☐ Arrange schedule for ongoing contact

Determine strategic objectives & general direction for managing the situation

- ☐ Establish the immediate priorities:
  - ☐ Define IMT objectives
  - ☐ If necessary, confer with operator or government agencies to agree on common objectives and priorities
- ☐ Chair initial IMT briefing
  - ☐ Communicate priorities to the team
  - ☐ Confirm ongoing means of communications with SEC has been established to Operations Officer
  - ☐ Confirm which regulatory agencies need to be notified
  - ☐ Confirm with Planning Officer that all appropriate log-keeping, issues and actions, and status boards are maintained.

ROLE [Incident Controller]

Ongoing Actions

- ☐ Refer to and follow the IMT Process
- ☐ Hold regular IMT updates
  - ☐ Time out, phones switched to time out mode
  - ☐ Every 30 minutes initially (as a guide)
  - ☐ Monitor effectiveness of response and review issues & actions and priorities.
  - ☐ With Planning Officer, establish short-term/long-term recovery goals, milestones, and resource requirements
  - ☐ Brief CMT/IMT Liaison as required
- ☐ Delegate Responsibilities
  - ☐ Allow yourself to focus on setting strategic objectives for next operational period
- ☐ Determine duration and structure of response operations
  - ☐ Decide duration of current operational period (start thinking of when to stand down or next day operations)
  - ☐ Identify additional personnel needs to maintain 24-hour support.

Stand Down

- ☐ Communicate end of IMT response to all relevant internal and external parties
- ☐ Provide copies of all emergency related documents and logs to the Log Keeper
- ☐ Stand down those people not required in managing ongoing recovery process
- ☐ Hold debrief of IMT, specialist advisors, support teams and receive feedback
- ☐ Review any capability gaps and opportunities for improvement in the response
- ☐ Review and approve the emergency report
- ☐ Commission post-emergency investigation
- ☐ Ensure accepted recommendations have been incorporated into the IMP

COE OPERATIONS OFFICER (DUTY CARD 2)

ROLE [Operations Officer]

Reports to IC and is responsible for monitoring and supervising operational response operations in the field. Implements the operational plans to achieve response objectives and protect people, the environment and property

RESPONSIBILITIES

- Maintain two-way communication with scene
- Establish facts/needs
- Coordinate immediate response
- Identify key issues
- Provide/resource technical support for IC

SPECIFIC TASKS

Initial Actions

☐ Identify the SEC and where located - obtain all available information on the situation
☐ Agree call schedule with the SEC or ERT
☐ Use the emergency Status Board/ Form
☐ Assess emergency, including emergency potential
☐ Start a personal log

Ongoing Actions

☐ Propose and agree immediate priorities with the IC
☐ Update Planning Officer on situation for development of the Action Plan
☐ Work with ERT to identify logistical support requirements
☐ Identify issues and actions required for the next period - mark and track on Issues board
☐ Source and provide technical information and support required by the response teams.
☐ Develop strategy (i.e., what we are attempting to achieve)
☐ Identify tactics/breaking down tactics into manageable tasks (i.e., how we are going to implement strategy)
☐ Confer with response contractors / consultants for equipment and techniques
☐ Allocate tactical resources based on strategy requirements
☐ Provide updates to the situation board to reflect current operations in the field
☐ Resource additional technical support as required

Stand Down

☐ Attend the IMT debrief
☐ Provide copies of all emergency related documents and logs to the Log Keeper
☐ Monitor the demobilization of response teams

COE PLANNING OFFICER (DUTY CARD 3)

ROLE [Planning Officer]

Reports to the IC and manages the IMT related planning functions and information capture for the response

RESPONSIBILITIES

- Responsible for the collection, evaluation, dissemination, and use of emergency information
- Oversees the display of information on the status boards
- Oversees environmental support for the response operations
- Development of recovery planning options
- Collection and retention of emergency plans and documents
- Activates and manages the Log Keeper

SPECIFIC TASKS

Initial Actions

- ☐ Assist the IMT-Leader to maintain and use the Brainstorming/Planning Board/ Form
- ☐ Mobilize any additional resources or specialist advisors immediately required to commence recovery planning
- ☐ Ensure Log Keeper is in place and the IMT is maintaining an auditable trail
- ☐ Provide immediate notifications to regulatory authorities as required under legislation or as per accepted regulatory documentation (note: on-going communication with regulatory authorities is undertaken by the MT)
- ☐ Consider need to activate Environmental Support
- ☐ Setup and maintain a document retention process for all response documentation
- ☐ Start a personal log

Ongoing Actions

- ☐ Drive and monitor the IM process
- ☐ Prepare the Action Plan – compile data from display boards and use SMEAC guide for format:
- ☐ Identify environmental issues and where necessary seek advice and support from environmental technical authorities/ environmental specialists
- ☐ Establish time for next operational period (generally starting the next morning for 24-hour duration)
- ☐ Create strategic objectives for next operational period and submit to IMT-Leader for approval
- ☐ Create meeting schedule and advise IMT-Leader on planning process issues
- ☐ Develop plans for recovery operations to implement tomorrow, the next day, next week etc.
- ☐ Consolidate the Action Plan and assemble for final approval and signoff

Stand Down

- ☐ Ensure team members and supports complete any outstanding log/record keeping
- ☐ Ensure all log sheets are collected before the team leaves the room. (All notebooks to be copied and / or originals to be retained)
- ☐ Arrange for copies of all email traffic and emergency files to be collated and stored.
- ☐ Consider need to photograph ICC and key display boards before it is tidied
- ☐ Contribute to the development of the post emergency report.

COE FINANCE & ADMIN OFFICER (DUTY CARD 4)

ROLE [Finance & Admin Officer]

Reports to the IC and manages IMT related HR and Financial aspects of the response

RESPONSIBILITIES

- Coordinate all general administrative support requirements for the IMT and response activities overall
- Handle accounting services and financial record-keeping, track, and report on emergency costs
- Manage HR issues and emergency contact notifications.

SPECIFIC TASKS

Initial Actions

☐ Determine if additional Finance & Admin support personnel are needed. Coordinate their activation and manage their activities
☐ Activate additional telephone responders if required
☐ Use the Medical Planning Board/ Form – to capture and display casualty management information
☐ Start a personal log

Ongoing Actions

☐ Establish procedures for use in establishing financial controls
☐ Establish & communicate pre-approved spending authorities for the IMT
☐ Establish contact and coordinate finance-related activities with other agency finance personnel
☐ Coordinate with the IMT-Leader and Sections to determine immediate financial needs
☐ Provide the IMT-Leader with information on the financial implications of major and/or costly actions taken or being considered by IMT, contractor, government agency, etc.
☐ Coordinate with appropriate Company and contractor or government agency personnel to receive timely and accurate information on the costs that they incur.
☐ Ensure that insurers have been notified and provided with accurate facts concerning the emergency
☐ Set up appropriate financial reviews and controls for all contracts, agreements and other legally binding documents used by the IMT during the response, as appropriate.

Stand Down

☐ During demobilization, ensure that any outstanding IMT related costs or other financial issues have been resolved, insurance requirements have been met and there is a system is in place to receive and process any remaining claims
☐ Prepare a final report accounting for all costs incurred during the response
☐ Attend the IMT debrief
☐ Provide copies of all emergency related documents and logs to the Planning Function

COE LOGISTICS OFFICER (DUTY CARD 5)

ROLE [Logistics Officer]

Reports to the IC and manages Logistics. Coordinates the provision, storage and transportation of supplies and resources required for the emergency response and recover

RESPONSIBILITIES

- Coordinate all logistic requirements for the IMT and response activities overall
- Liaise with Finance to establish normal expenditure control and any necessary insurance controls
- Manage logistic issues and emergency contact notifications.
- Negotiate with contractors, consultants, external enterprises, and agencies

SPECIFIC TASKS

Initial Actions

- ☐ Obtain a full briefing on the emergency, paying attention to marine and air logistics considerations in supporting the response or actions in place
- ☐ Evaluate the logistics ramifications of the current response and any planned actions
- ☐ Identify existing or potential international and macro logistics issues
- ☐ Consult with other ESG members to calculate the levels and identify the sourcing of additional resources and services needed to support response operations
- ☐ Start a personal log

Ongoing Actions

- ☐ Provide logistics support to the affected site in accordance with tactical plans developed by the IMT
- ☐ Assess the local availability of equipment and personnel suitable to support the response and recovery activities
- ☐ Negotiate with contractors, consultants, external enterprises, and agencies for supply of personnel, equipment, and services
- ☐ Coordinate reception, assembly, storage, and deployment in liaison with the IMT and Site Logistics Officer
- ☐ In conjunction with IMT Information Officer, ensure a logistics status board is maintained showing all support resources, aircraft and marine movements supporting the operation.
- ☐ Maintain an overview of weather conditions and their effect on aircraft and marine movements. Relay information as required
- ☐ Ensure inventories are kept of all equipment, materials, services, and supplies purchased, rented or borrowed or obtained during the response operation
- ☐ Liaise with Finance Officer to establish normal expenditure control and any necessary insurance controls which may be required
- ☐ Document all emergency actions on log sheets pass to Information Officer

Stand Down

- ☐ During demobilisation, ensure that any outstanding IMT related costs or other financial issues have been resolved, insurance requirements have been met and there is a system is in place to receive and process any remaining claims
- ☐ Prepare a final report accounting for all costs incurred during the response
- ☐ Attend the IMT debrief
- ☐ Provide copies of all emergency related documents and logs to the Planning Function

Appendix 4 - SCAT Execution

To undertake the assessment, the shoreline predicted to be contacted will be divided into segments within which the shoreline character is relatively homogenous in terms of physical features and sediment type. Methods adopted to describe State shoreline segments have been derived based on relevant State Agency processes; namely the Victorian Marine Pollution Risk Assessment (VMRA11) (DoT, 2011) for Gippsland Basin and the NSW Marine Threat and Risk Assessment (TARA) (BMT WBM, 2017) for New South Wales coastline. There is no specific shoreline clean-up process for Tasmania, therefore any response would follow the process described in the Tasmanian Marine Oil Spill Contingency Plan (Section 16.0).

Once the SCAT is onsite, the following tasks will be conducted:

1. Undertake a Job Hazard Analysis (JHA) with the team to identify hazards and put controls in place where possible;
2. Conduct a segment overview or full site walk over to gain the overall perspective of the survey area and verify the pre-determined segment boundaries are correct;
3. Complete observations and measurements of the segment. The following shoreline characteristics should be documented during the baseline assessment:
    - Shoreline description including shoreline type (beach, cliff, reef, dune etc.), substrate (bedrock, boulder, pebble, gravel, sand etc.) and energy (high or low).
    - Biological character of the shoreline – flora and fauna inhabiting the shoreline.
    - In addition, the following information about the site under assessment should be documented:
    - Site access (e.g. road or track access);
    - Site hazards and constraints (e.g. steep cliffs, slippery rocks);
    - Sensitive areas (e.g. bird nesting areas);
    - Features and landmarks (natural or man-made); and
    - Potential decontamination and waste storage areas.
4. Take photos and videos wherever possible;
5. Annotate or draw maps and beach profiles;
6. Fill in Shoreline Assessment Form.

The Shoreline Assessment form as contained in the OSMP Module OP4B – Coastal Shoreline Assessment (Gippsland) will be used to record the shoreline assessment results. The assessment will be communicated to the IMT and used to inform the NEBA to determine whether the implementation of shoreline clean-up activities will be of net benefit. The daily NEBA outcome will be used to inform the IAP.

Post Exposure Shoreline Assessment

In the event that oil reaches the shoreline, the SCAT will undertake a post exposure assessment. This includes recording the following description of the oiling:

- Oil Character (colour, viscosity, stickiness).
- Percentage oil cover and position.
- Oil thickness and depth.

The SCAT must immediately notify the Cooper Energy Operations Officer of any observed, or at-risk oiled wildlife, to inform the potential Oiled Wildlife Response if required.

In the event a shoreline clean-up response is activated, the SCAT must be undertaken twice daily to document the effectiveness of the clean-up response measures implemented. This information will be provided to the Cooper Energy Operations Officer.

Appendix 5 - Response Resources Needs Assessment

Cooper Energy's IMT structure is designed to be scalable to meet the particular requirements of any credible spill scenario associated with Cooper Energy's offshore Victorian assets and activities. Analysis of personnel requirements vs the resource pool accessible via agreement in place during the activity indicates a sufficient level of trained and competent people.

Figure 17 shows the process used by Cooper Energy to determine response needs. Against these needs, resource pools are assigned from Cooper Energy and response parties.

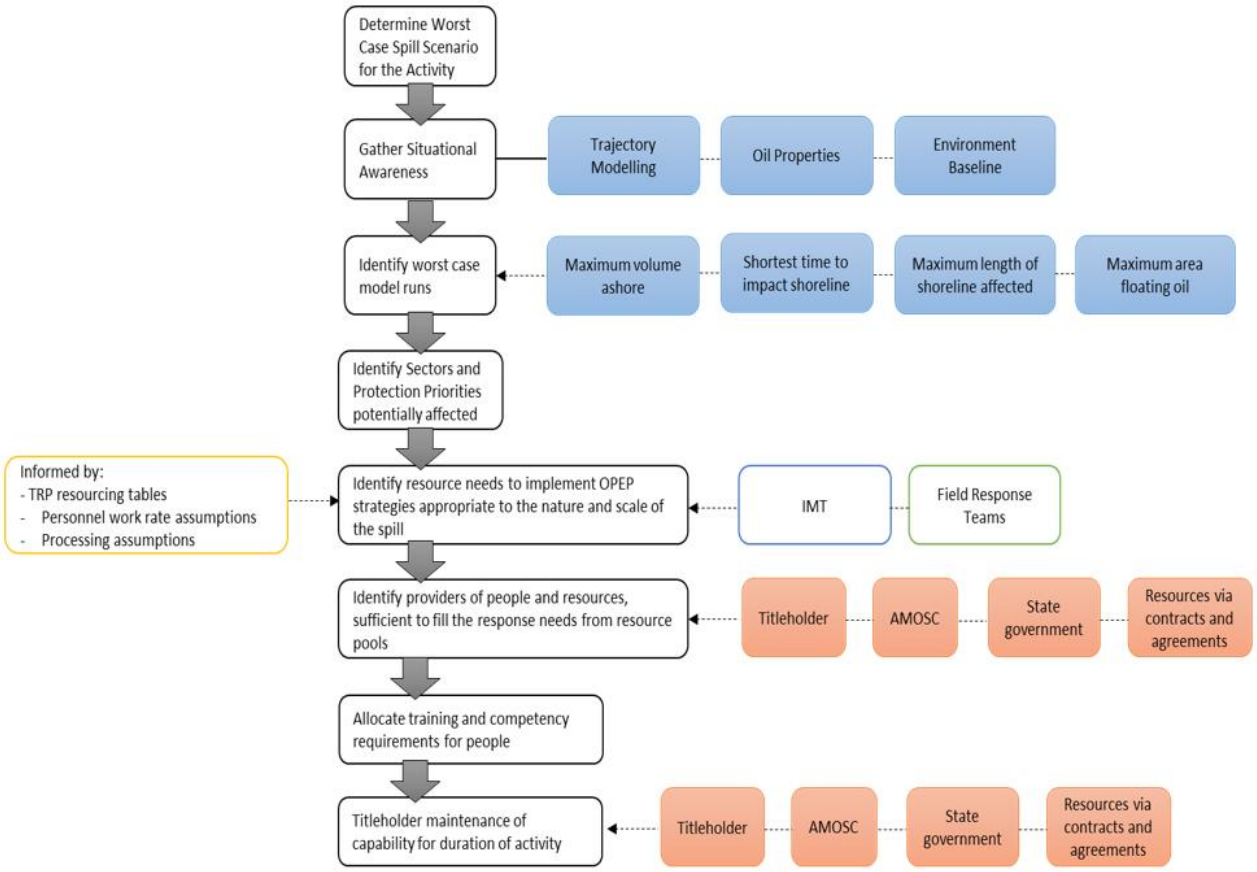


Figure 17 - Response Resource Assessment Process