OIL POLLUTION EMERGENCY PLAN

Beehive-1 Exploration Drilling

WA-488-P

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Rev 2

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Front cover image: A blowout preventor (BOP) stack on the West Telesto jack-up drill rig. Taken by G. Pinzone, Aventus Consulting, May 2015.

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Acronyms/Abbreviations

Acronym	Definition
AGR DS	AGR Drilling Superintendent
ALARP	As Low as Reasonably Practicable
AMOSC	Australian Marine Oil Spill Centre
AMOSC	Australian Marine Oil Spill Centre
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
APPEA	Australian Petroleum Production and Exploration Association
APPEA	Australian Petroleum Production & Exploration Association
AS/NZS	Australian Standard/New Zealand Standard
ASAP	As Soon As Possible
BIA	Biologically Important Area
BOM	Bureau of Meteorology
BOP	Blow Out Preventer
CHARM	Chemical Hazard and Risk Management
CRT	Crisis Response Team
CSIRO	Commonwealth Scientific and Industrial Research Organisation
Cth	Commonwealth
DAWE	Department of Agriculture, Water and the Environment (Cth)
DIMT	Drilling Incident Management Team
DSV	AGR Drilling Supervisor
EIA	Environmental Impact Assessment
EMBA	Environment that May Be Affected
EP	Environment Plan
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Cth)
EPO	Environmental Performance Outcome
EPS	Environmental Performance Standard
ERA	Environmental Risk Assessment
ERP	Emergency Response Plan
ERT	Emergency Response Team
GPS	Global Positioning System
HQ	Hazard Quotient
HSE	Health, Safety and Environment
HSEMS	Health, Safety and Environment Management System
IAP	Incident Action Plan
IAPP	International Air Pollution Prevention

Acronym	Definition
IC	Incident Commander
ICR	Incident Command Room
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organisation
IMT	Incident Management Team
IOGP	International Oil & Gas Producers Association
IPIECA	International Petroleum Industry Environmental Conservation Association
ITOPF	International Tanker Owners Pollution Federation
IUCN	International Union for the Conservation of Nature
LoWC	Loss of Well Control
MARPOL	International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978
MDO	Marine Diesel Oil
MMscfd	Million standard cubic feet per day
MNES	Matter/s of National Environmental Significance
MNP	Marine National Park
MO	Marine Order
MoC	Management of Change
MODU	Mobile Offshore Drilling Unit
MODU	Mobile Offshore Drilling Unit
MoU	Memorandum of Understanding
N^2O	Nitrous Oxide
NatPlan	Australian National Plan for Maritime Environmental Emergencies
NEBA	Net Environmental Benefit Analysis
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NT	Northern Territory
OHS	Occupational Health and Safety
OIM	Offshore Installation Manager
OPEP	Oil Pollution Emergency Plan
OPGGS	Offshore Petroleum and Greenhouse Gas Storage
OPGGS Act	*Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth)
OSC	On-scene Commander
OSMP	Operational and Scientific Monitoring Program
OSPAR	Oslo-Paris Conventions
OSRA	Oil Spill Response Atlas
OSRO	Oil Spill Response Organisation
OSRT	Oil Spill Response Team

Acronym	Definition
OSTM	Oil Spill Trajectory Modelling
OWR	Oiled Wildlife Response
PMS	Planned Maintenance System
POLREP	Pollution Report
PPE	Personal Protective Equipment
PSI	Pounds per square inch
PSZ	Petroleum Safety Zone
Ramsar	Convention on Wetlands of International Importance especially as Waterfowl Habitat
ROV	Remotely Operated (underwater) Vehicle
SCAT	Shoreline Clean-up and Assessment Technique
SIMOPS	Simultaneous Operations
SIS	Safety Instrumented System
SITREP	Situation Report
SMPEP	Shipboard Marine Pollution Emergency Plan
STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
UK	United Kingdom
VOC	Volatile Organic Carbon
WA	Western Australia/n
WA DoT	WA Department of Transport
WOMP	Well Operations Management Plan
WWC	Wild Well Control
XMT	Christmas Tree

Summary Information for WA DoT

The information presented below meets the requirements of Appendix 6 of the Western Australian Department of Transport's *Offshore Petroleum Industry Guidance Note Marine Oil Pollution: Response and Consultation Arrangements*.

Appendix 6 – Department of Transport Consultation

1. Description of activity, including the intended schedule, location (including coordinates), distance to nearest landfall and map.

Section 1.2 of the Beehive-1 Drilling Oil Pollution Emergency Plan (OPEP) provides a brief description of the activity, including the intended schedule and distance to nearest landfall. Figure 1.1 of the OPEP provides a map of the Beehive-1 well location.

Coordinates for the well location are provided below, noting that this may shift up to 1,500 m from this location based on continuous refinement during the well planning process. The operational area defines the spatial boundary of the proposed activity and for the purposes of this EP, the operational area is set as a 500 m radius around the final well location (which reflects the area of the Petroleum Safety Zone [PSZ] that will be gazetted around the MODU while it is on location).

Location of the proposed Beehive-1 well

Degrees, minutes, seconds		Eastings and northings	
Latitude	Longitude	Easting (m)	Northing (m)
14° 03' 16.41" S	128° 34' 14.54" E	453,651.86	8,446,199.05

GDA2020, UTM 52S.

Further details are provided in Section 2 of the Beehive-1 Exploration Drilling Environment Plan (EP).

2. Worst case spill volumes.

Section 1.3 of the Beehive-1 OPEP details the worst-case spill volumes.

3. Known or indicative oil type/properties.

Based on having an API closest to that expected at Beehive-1, together with being the most conservative in terms of the residual components, EOG elected to use Jabiru crude as the analogue for spill modelling purposes. The physical properties and boiling points of Jabiru crude are provided in the tables below. Further details are provided in the oil spill trajectory modelling (OSTM) report, which forms Appendix 6 of the EP.

Table 1 Physical properties of Jabiru crude

Characteristic	Details
Density (kg/m^3)	813.9 (at 15°C)
API	42.3
Dynamic viscosity (cP)	3.0 (at 20°C)
Pour point (°C)	18
Oil property category	Group II
Oil persistence classification	Light-persistent

Table 2 Boiling point ranges and typical evaporation of Jabiru crude

Component	Volatile (%)	Semi-volatile (%)	Low-volatility (%)	Residual (%)
Boiling point (°C) Chain length	<180 C_4 to C_{10}	180-160 C_{11} to C_{15}	160-380 C_{16} to C_{20}	>380 >C_{20}
% of total	24.2	20.9	33.9	21.0
Typical evaporation time	Up to 12 hours	Up to 24 hours	Several days	Not applicable

4. Amenability of oil to dispersants and window of opportunity for dispersant efficacy.

EOG has received advice from AMOSC and OSRL that Jabiru crude would be amenable to aerial and vessel dispersant use. Aerial surface dispersant use has been selected as a primary strategy for the OPEP; vessel surface dispersant use has been selected as a secondary strategy (see Section 1.6 of the OPEP). Aerial surface dispersants would be used from Day 2 following a spill; vessel surface dispersants from Day 4.

5. Description of existing environment and protection priorities.

The existing environment is described in detail in Section 5 and Appendix 5 of the EP. Priority protection areas are identified in Section 1.7 of the OPEP. Appendix A of the OPEP details the prioritisation process.

6. Details of the environmental risk assessment related to marine oil pollution - describe the process and key outcomes around risk identification, risk analysis, risk evaluation and risk treatment. For further information see the Oil Pollution Risk Management Information Paper (NOPSEMA 2017).

Section 6 of the EP details the Environmental Impact & Risk Assessment Methodology. Sections 8.5, 8.6 and 8.7 detail the risk assessments for Marine Diesel Oil Release, Loss of Well Containment and Major Oil Spill, and Hydrocarbon Spill Response Activities, respectively.

7. Outcomes of oil spill trajectory modelling, including predicted times to enter State waters and contact shorelines.

The OSTM report (Appendix 6 of the EP) provides detailed outcomes for floating oil, shoreline contact, entrained oil and dissolved oil. WA waters are predicted to be contacted by floating oil at the low exposure threshold (>1 g/m^2) as follows:

- Summer (October to February): 91% probability of contact; minimum contact time of 5.63 days
- Transitional (March and September): 90% probability of contact; minimum contact time of 7.33 days
- Winter (April to August): 98% probability of contact; minimum contact time of 8.08 days

WA shorelines are predicted to be contacted at the low exposure threshold (>1 g/m^2) as follows

- Summer: 70% probability of contact; minimum contact time of 14.92 days
- Transitional: 77% probability of contact; minimum contact time of 14.5 days
- Winter: 93% probability of contact; minimum contact time of 9.46 days

8. Details on initial response actions and key activation and mobilisation timeframes.

Section 3 of the OPEP details the initial response actions. Table 3.1 and Table 3.2 of the OPEP provide key activation and mobilisation timeframes for initial responses to MDO or crude oil spills, respectively. Table 3.3 provides key activation and mobilisation timeframes for the Incident Commander (IC) and the Drilling Incident Management Team (DIMT).

Initial responses include notifications (Section 3.2), source control (Section 3.3), the Monitor and Evaluate Plan (Section 3.4), aerial dispersants (Section 3.5), and operational and scientific monitoring (Section 3.6).

9. Potential Petroleum Titleholder Incident Control Centre requirements, facilities and locations.
Section 2 of the OPEP describes EOG's oil spill response arrangements for on-site response (Section 2.2.2), the Perth-based DIMT (Section 2.2.3) and the Houston-based Crisis Response Team (CRT) (Section 2.2.4). Section 6 of the OPEP provides details on resourcing for the DIMT (Section 6.1 and Appendix B), including access to external contractors (Section 6.2), and for a worst-case scenario (Section 6.3 and Appendix C). EOG is currently consulting with AMOSC and OSRL to determine resource requirements, facilities and locations accurately for the OPEP. Detail will be provided in the next revision of the OPEP.
10. Potential Petroleum Titleholder Staging Areas / Forward Operating Base requirements, facilities and locations.
Section 5 of the OPEP contains the Forward Operations Plan, including preliminary plans for marine operations (Section 5.1), shoreline staging areas (Section 5.3), oiled wildlife response (section 5.4), waste transfer (Section 5.5) and logistics (Section 5.6). EOG is currently consulting with AMOSC and OSRL to determine resource requirements, facilities and locations accurately for the OPEP. Detail will be provided in the next revision of the OPEP.
11. Details on response strategies.
Section 3 of the OPEP details the initial response actions (see Response 8 above). Section 4 of the OPEP details the ongoing response actions. Ongoing responses include incident action planning (Section 4.1), vessel dispersants (Section 4.2), containment and recovery (Section 4.3), shoreline protection and deflection (Section 4.4), shoreline clean-up (Section 4.5), oiled wildlife (Section 4.6) and waste management (Section 4.7).
12. Details and diagrams on proposed Petroleum Titleholder and DoT IMT structures and interactions including integration of DoT arrangements as per this Guidance Note.
Section 2.1.4of the OPEP describes the arrangements for cross-jurisdictional spills. Figure 2.1 of the OPEP shows the model for interactions with, and integration between, DoT's IMT and EOG's DIMT. Appendix B of the OPEP describes expanded DIMT requirements including EOG resourcing of potential WA DoT IMT requirements, as per the Offshore Petroleum Industry Guidance Note: Marine Oil Pollution Response and Consultation Arrangements
13. Details on exercise and testing arrangements of OPEP/OSCP.
Table 8.1 of the OPEP provides details on the exercise and training schedule.

1 Introduction

1.1 Purpose and Scope

EOG Resources Australia Block WA-488 Pty Ltd (EOG), as the registered titleholder of petroleum exploration permit WA-488-P, has prepared this Oil Pollution Emergency Plan (OPEP) as part of the Beehive-1 Drilling Environment Plan (EP) (996161-2022-Beehive#1-Drilling-EP) as required under Regulations 14(8) and 14 (8AA) of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (OPGGS(E)).

The OPEP describes the arrangements for responding to and monitoring pollution in the event of a hydrocarbon spill during drilling for the Beehive-1 well (the Activity). The objectives of this OPEP are to:

- Support the timely implementation of pre-determined response strategies as outlined in this OPEP.
- Ensure that the management of the response is consistent with the Commonwealth National Plan for Maritime Environmental Emergencies (NatPlan), the Western Australia (WA) State Hazard Plan: Maritime Environmental Emergencies (MEE), the Northern Territory (NT) Oil Spill Contingency Plan (OSCP) and the Australian Industry Cooperative Oil Spill Response Arrangements (AMOSPlan).
- Ensure effective integration and use of industry/government response efforts and resources.
- Ensure EOG has timely access to appropriately trained people and resources in order to effectively respond to and manage an oil spill response.
- Demonstrate the capability requirements for response activities.

Excluded from the scope of this OPEP are vessels transiting to or from the operational area (as described in the EP). These vessels are deemed to be operating under the Commonwealth *Navigation Act 2012* and not engaged in petroleum-related activity.

1.2 Summary of Proposed Activity

Figure 1.1 shows the location where EOG propose to drill the Beehive-1 exploration well ('the activity') within Commonwealth marine waters in the permit area. Drilling is planned to commence between Quarter 1 (Q1) 2023 and Q3 2023, targeting a light oil (Jabiru crude being the analogue). A jack-up mobile offshore drilling unit (MODU) will be used, with drilling activities estimated to take approximately 55-90 days.

A 500 m radius Petroleum Safety Zone (PSZ) will be established around the well location, which also defines the operational area. Beehive-1 is located 80 km north of the WA coastline and approximately 90 km west northwest of the NT coastline in a water depth of 40 m. The nearest town, Wadeye (Port Keats), is approximately 103 km to the east-southeast.

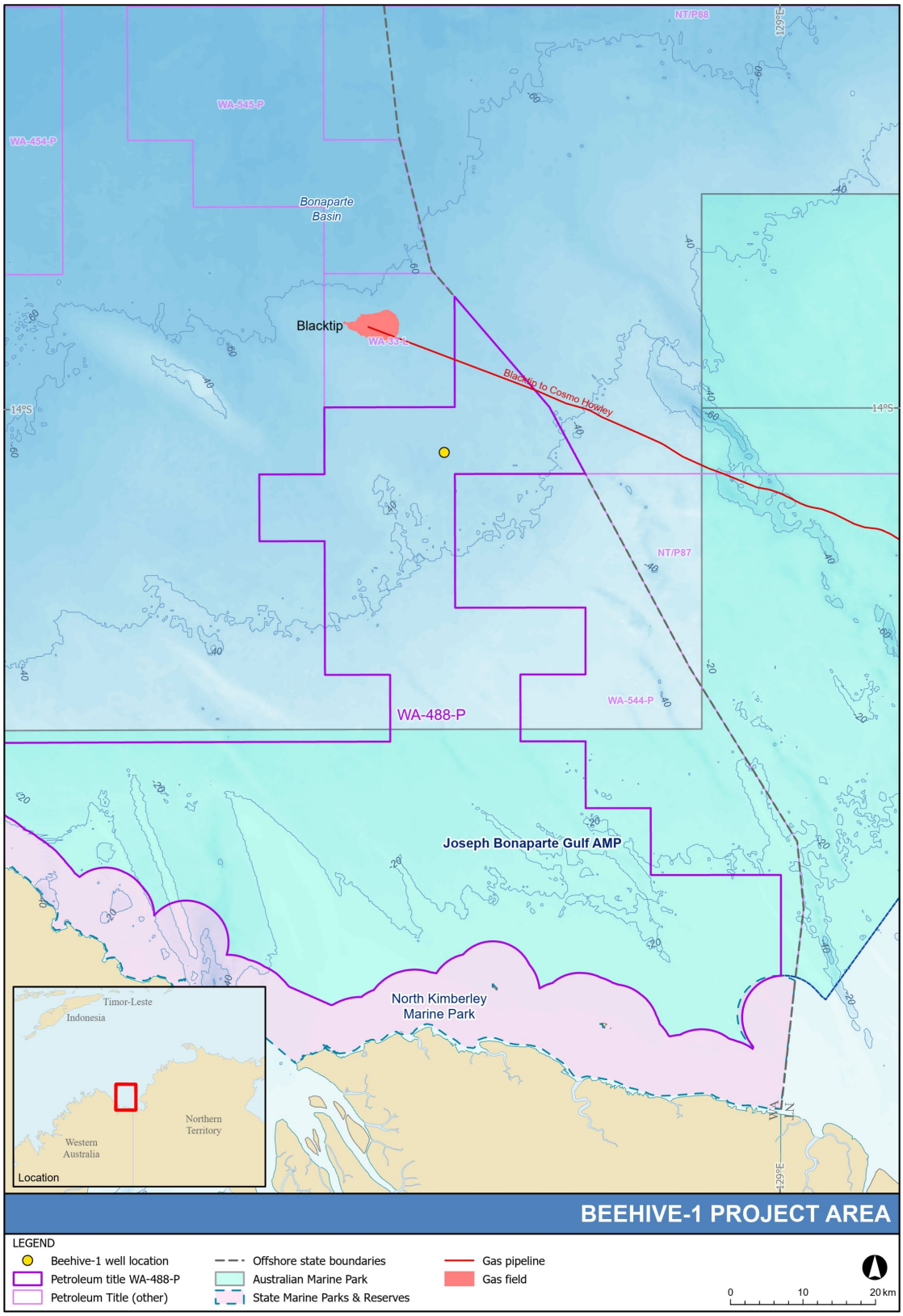

Figure 1.1 Location of the Beehive-1 well

1.3 Spill Risk Scenarios

The EP identifies two worst-case oil spill scenarios that have the potential for this OPEP to be implemented:

- A surface release of marine diesel oil (MDO) to represent a vessel loss of containment, with a worst-case scenario of 160 m^3 over 6 hours (EP Section 8.6).
- A loss of well control (LoWC) event at the MODU, with a worst-case scenario of 786,858 m^3 surface release of crude oil over 77 days (EP Section 8.7).

1.4 Spill Classification

This OPEP uses the NatPlan classification system to assist in guiding agency readiness levels, incident notifications, response actions and potential response escalations. Table 1.1 describes the three levels, which are consistent with national and state incident response plans.

Table 1.1 Spill level classification (adapted from NatPlan)

Characteristic	Level 1	Level 2	Level 3
Management			
Jurisdiction	Single jurisdiction	Multiple jurisdiction	Multiple jurisdictions including international
No. 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
Hazards	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	Isolated impacts with natural recovery in a few weeks	Significant impacts, recovery may take months. Remediation required.	Significant area, recovery may take months. 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

1.5 Spill Response Thresholds

For the purpose of spill response preparedness, outputs relating to floating oil and oil accumulated on the shoreline are most relevant (i.e., oil that can be diverted, contained, collected or dispersed through the use of spill response strategies) for the allocation and mobilisation of spill response resources. Table 1.2 presents the thresholds used in this OPEP.

Table 1.2 Hydrocarbon thresholds for response planning

Hydrocarbon parameter	Threshold (g/m^2)	Description
Surface (floating) oil	>1	Estimated minimum threshold for commencing some scientific monitoring components
	>10	Estimated minimum threshold for commencing operational and/or scientific monitoring components
	>50	Estimated minimum floating hydrocarbon threshold for containment and recovery
	>100	Estimated floating hydrocarbon threshold for effective containment and recovery
Shoreline accumulated oil	>100	Estimated minimum shoreline accumulation threshold for shoreline clean-up

1.6 Selected Spill Response Strategies

A preliminary Net Environmental Benefit Analysis (NEBA) was used to assess and select appropriate spill response strategies and determine whether they would be applied as primary or secondary response options. Appendix 8 of the EP provides further detail on the preliminary NEBA and the 'As Low As Reasonably Practicable' (ALARP) assessment of spill response strategies. The implementation of these ALARP justified responses as control measures are the basis of this OPEP.

In the event of a Level 2/3 spill, operational NEBAs will be regularly undertaken as part of the Incident Action Plan (IAP) development process (see Section 4.1), so that the combination of spill response strategies and their implementation may evolve over time.

Table 1.3 presents a summary of the spill response strategies selected for this OPEP.

1.7 Priority Protection Areas

Priority protection sites were identified based on the risk assessment for a worst-case Level 3 LoWC event (EP Section 8.7). These protection priorities may change based on the nature and scale of the spill and through informed discussions with relevant Hazard Management Agencies/Jurisdictional Authorities.

Table 1.4 provides a summary of the sensitive receptors and priority protection areas. Appendix A provides further detail on the prioritisation process. Appendix 5 of the EP (Figures 5.10 to 5.23) illustrates the shoreline sectors and key shoreline types.

Table 1.3 Selected primary and secondary spill response strategies

Response strategy	Crude spill	MDO spill	Control Measure
Source Control – Relief Well	Primary	N/A	Manage by IAP and third-party contractor requirements.
			Mutual aid MoU plus addition inventory available.
Source Control – Vessel Spill	N/A	Primary	SMPEP.
			Vessel-based spill clean-up equipment.
Monitor and Evaluate	Primary	Primary	Manage by IAP
			Tracking Buoys, Aerial surveillance, Vessel surveillance, Satellite Imagery, Spill Fate Modelling
Surface Dispersant Application – Vessel	Secondary	No	AMOSC and OSRL memberships.
			AMSA MoU.
Surface Dispersant Application – Aerial	Primary	No	AMOSC and OSRL memberships.
			AMSA MoU.
Containment & Recovery	Secondary	No	AMOSC and OSRL memberships.
Shoreline Protection & Deflection	Secondary	No	AMOSC and OSRL memberships.
Shoreline Clean-up	Secondary	No	Shoreline clean-up services via call-off contracts.
			Waste management services provider on contract.
Oiled Wildlife Response	Secondary	Secondary	AMOSC and OSRL agreements.
			AMOSC and OSRL equipment availability.
Operational and Scientific Monitoring (OSM)	Primary	Primary	Managed by DIMT during response, Scientific Monitoring Contractor thereafter.
			Call-off arrangements with service providers.

Table 1.4 Priority protection areas

Location	Key sensitivities
Map sector: Daly	
Daly River mouth	Nationally Important Wetland (Daly-Reynolds Floodplain-Estuary System) Flatback turtle inter-nesting BIA
Headland SW of Daly River	Estuary system
Map sector: Thamarrurr	
Nemarluk estuaries	Estuary system
Thamarrurr	Estuary system
Moyle River	Nationally Important Wetland (Moyle Floodplain and Hyland Bay System) Juvenile largetooth sawfish likely to occur in wet season
Dorcherty Island	Turtles
River at Ditchi/Yelcher Beach (south of Wadeye)	Estuary system
Kumbunbar Creek (and creek north of it)	Estuary system
Whale Flat	Estuary system
Emu Reefs	Reefs
Map sector: Victoria-Daly	
Fitzmaurice River (and surrounds)	Estuary system
Victoria River (and surrounds)	Estuary system
Baines River (and surrounds)	Nationally Important Wetland (Legune Wetlands) Largetooth sawfish pupping known to occur
Clump Island	
Quoin Island	
Turtle Point	

Location	Key sensitivities
Map sector: Wyndham-East Kimberley	
North Kimberley MP	North Kimberley MP, including King Shoals Sanctuary Zone and Cape Domett Special Purpose Zone
Cambridge Gulf (mouth is 21 km wide)	West Kimberley National Heritage coast (west side of gulf) Flatback turtle inter-nesting BIA Largetooth sawfish pupping known to occur
Cape Domett and Lacrosse Island (entrance to Cambridge Gulf)	Flatback turtle nesting BIA (all year, peak July-Sept)
Ord River Floodplain (northern area)	The West Kimberley National Heritage coast North Kimberley Marine Park Ramsar wetland Nationally Important Wetland (Ord Estuary System) Flatback turtle inter-nesting BIA
Drysdale River (east of Kalumburu, near northern tip of WA)	The West Kimberley National Heritage coast North Kimberley Marine Park Largetooth sawfish pupping likely to occur Indo-Pacific humpback dolphin BIA (foraging, significant habitat)
Berkley River	The West Kimberley National Heritage coast North Kimberley Marine Park Tourist lodge (landing strip here) Lesser crested tern breeding BIA
Sir Graham Moore Island (north of Kalumburu)	The West Kimberley National Heritage coast North Kimberley Marine Park Roseate tern breeding

Location	Key sensitivities
Map sector: Mitchell River	
Cassini Island Holothuria Banks	The West Kimberley National Heritage coast North Kimberley Marine Park Green turtle nesting Green turtle inter-nesting BIA Indo-Pacific humpback dolphin BIA (foraging, significant habitat)
Islands west of Kalumburu, north of Mitchell River Tait Bank	The West Kimberley National Heritage coast North Kimberley Marine Park Roseate tern breeding Lesser frigatebird breeding (Mar-Sept)
Bigge Island Robroy Reefs	The West Kimberley National Heritage coast North Kimberley Marine Park Indo-Pacific humpback dolphin BIA (calving, foraging) Lesser crested tern breeding BIA

Location	Key sensitivities
Map sector: Scott Reef/ Browse Island	
Browse Island	Green turtle nesting Flatback turtle nesting Crested tern breeding BIA (western side) Eastern reef egrets Ruddy turnstones Sooty terns
Scott Reef NR	Green turtle inter-nesting BIA (genetically distinct breeding population) Hawksbill turtle inter-nesting BIA Hawksbill turtle nesting BIA Roseate terns Lesser frigatebirds Brown boobies Spinner dolphins

2 Spill Response Framework

2.1 Jurisdictional Authorities and Control Agencies

With respect to a hydrocarbon spill during the activity, the relevant Jurisdictional Authority and Control Agency varies dependent upon the location of the spill (Commonwealth or State/ Territory waters), the nature of the incident (vessel-based or petroleum activity based) and the Spill Response Level. Table 2.1 identifies the Jurisdictional Authorities and Control Agencies relevant to this OPEP.

Table 2.1 Jurisdictional authorities and Control Agencies for Beehive oil spill response

Location	Source	Jurisdictional Authority	Control Agency	
			Level 1	Level 2/3
Commonwealth waters	Vessel	AMSA[1]	AMSA	AMSA
	Petroleum activity	NOPSEMA[2]	EOG	EOG
WA waters and shorelines	Vessel	WA DoT[3]	WA DoT	WA DoT
	Petroleum activity	WA DoT	EOG	WA DoT
NT waters	Vessel	DEPWS[4]	Vessel owner	NT IMT[5]
	Petroleum activity	DEPWS	EOG[6]	EOG[6]
NT shorelines	Vessel	DEPWS	Vessel owner	NT IMT
	Petroleum activity	DEPWS	EOG	NT IMT[7]
International waters	Vessel	If a spill is likely to enter international waters EOG will liaise and work with DFAT[8] and the respective governments to support response operations.		
	Petroleum activity			

Notes to Table 2.1

1. Australian Maritime Safety Authority
2. National Offshore Petroleum Safety and Environmental Management Authority
3. WA Department of Transport
4. NT Department of Environment, Parks and Water Security
5. NT Incident Management Team
6. EOG will be the Control Agency but will request approval of Incident Action Plans (IAPs) from the NT Incident Commander (IC)
7. NT IMT will be the Control Agency but will be supported by the titleholder (with additional support from AMOSC if required)
8. Australian Government Department of Foreign Affairs and Trade

2.1.2 Petroleum Activity Spill in Commonwealth Waters

NOPSEMA is the Jurisdictional Authority for offshore petroleum activity oil spills in Commonwealth waters. Under the OPGGS(E)R and the OPGGS Act 2006, the Petroleum Titleholder (i.e., EOG) is responsible for responding to an oil spill incident as the Control Agency in Commonwealth waters, in accordance with its OPEP.

If NOPSEMA identifies a requirement to delegate control, Control Agency responsibility may be delegated to AMSA who will assume control of the incident and respond in accordance with AMSA's National Plan. In such an occurrence, EOG would act as a Support Agency throughout the response, providing services, personnel, material or advice in support of the Control Agency. EOG would also be required to implement monitoring activities as outlined in the Monitor and

Evaluate Plan (Operational Monitoring) (Section 3.3.1) and Scientific Monitoring Plans (Section 3.5).

2.1.3 Vessel Spills

For a vessel incident originating in Commonwealth Waters, the Jurisdictional Authority and Control Agency is AMSA. AMSA manages the NatPlan on behalf of the Australian Government, working with the WA and NT governments, emergency services and private industry to maximise Australia's marine pollution response capability. The WA DoT is the Control Agency for all level 2/3 vessel-based spills in WA waters. Similarly, the NT IMT would assume the Control Agency role for level 2/3 vessel-based spills in NT waters.

The Vessel Master is responsible for implementing source control arrangements in accordance with the approved vessel specific Shipboard marine pollution emergency plan (SMPEP). EOG will undertake first strike response on behalf of AMSA for vessel-related spills in line with the relevant Oil Pollution First Strike Plans. EOG would act as a Support Agency throughout the response and implement monitoring activities as outlined in the Monitor and Evaluate Plan (Operational Monitoring) (Section 3.3.1) and Scientific Monitoring Plans (Section 3.5) as required.

2.1.4 Cross-Jurisdictional Spills

The management and coordination of cross-border incidents will follow the *National Plan Coordination of Cross-border Incidents Guidance* (NP-GUI-023) (AMSA 2017). If the Control Agency (i.e., EOG or AMSA) determines that a spill in Commonwealth waters is likely to enter WA or NT waters, they notify all Jurisdictional Authorities that may be impacted. The Jurisdictional Authorities, in consultation with their respective appointed Control Agency will then agree to incident coordination arrangements for the entire incident. Where appropriate a 'lead' Jurisdiction Authority and Control Agency should be agreed. Where a lead Jurisdictional Authority and Control Agency is not appropriate, a Joint Strategic Coordination Committee (JSCC) comprising senior representatives from each Jurisdictional Authority and Control Agency should be established to ensure effective coordination across two or more jurisdictions.

If a Level 2/3 Petroleum Activity spill in Commonwealth waters is likely to enter WA or NT waters, the Jurisdictional Authority remains true to the source of the spill (i.e., NOPSEMA for Commonwealth waters). In all cases, EOG would be required to implement monitoring activities as outlined in the Monitor and Evaluate Plan (Operational Monitoring) (Section 3.3.1) and Scientific Monitoring Plans (Section 3.5).

Level 2 Vessel Spill entering WA or NT Waters

If a Level 2 vessel spill crosses jurisdictions between Commonwealth and State or NT waters, two or three Jurisdictional Authorities may exist (AMSA for Commonwealth waters and WA DoT for WA waters or NT IMT for NT waters). Coordination of Control Agency responsibilities will be determined by WA DoT/NT Government and AMSA, with EOG providing first strike response and all necessary resources (including personnel and equipment) as a Support Agency.

Level 2/3 Petroleum Activity Spill entering WA Waters

In the case of a Level 2/3 Petroleum Activity spill entering WA waters, EOG will remain as Control Agency for responses in Commonwealth waters and the WA DoT will act as Control Agency for responses in WA waters. Upon notification, the WA DoT would assume the role of Control Agency and would activate its Maritime Environmental Emergency Coordination Centre (MEECC), WA DoT Incident Management Team (IMT) and appoint the State Maritime Environmental Coordinator (SMEEC). EOG will conduct initial response actions in WA waters as necessary in

accordance with this OPEP and continue to manage those operations until formal handover of incident control to WA DoT is completed.

EOG and the WA DoT will each establish IMTs with a JSCC established to facilitate effective coordination between the two Control Agencies. EOG will work in partnership with the WA DoT to ensure an adequate response is provided across the entire incident and will be required to provide an appropriate number of appropriately qualified personnel for the WA DoT IMT. The JSCC will be jointly chaired by the SMEEC and EOG's Crisis Response Team (CRT) Manager (or proxy) and will comprise of individuals deemed necessary by the chairs to ensure an effective coordinated response across both jurisdictions. Additional detail on the JSCC's key functions is outlined in the *Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements* (July 2020).

At the request of the SMEEC, EOG will be required to provide all necessary resources, including personnel and equipment, to assist the WA DoT's IMT in performing duties as the Control Agency for State waters response. This includes providing an initial 11 personnel to work within the WA DoT Incident Control Centre in Fremantle, no later than 8 am following the day of the request. It also includes providing personnel to serve in WA DoT's Forward Operating Base (FOB) no later than 24 hours following formal request by the SMEEC. WA DoT will in turn, provide Shell with Liaison Officer/s from WA DoT's command structure to sit within EOG's DIMT. Figure 2.1 shows the cross jurisdictional arrangements and Control Agency structure for a petroleum activity spill entering WA waters.

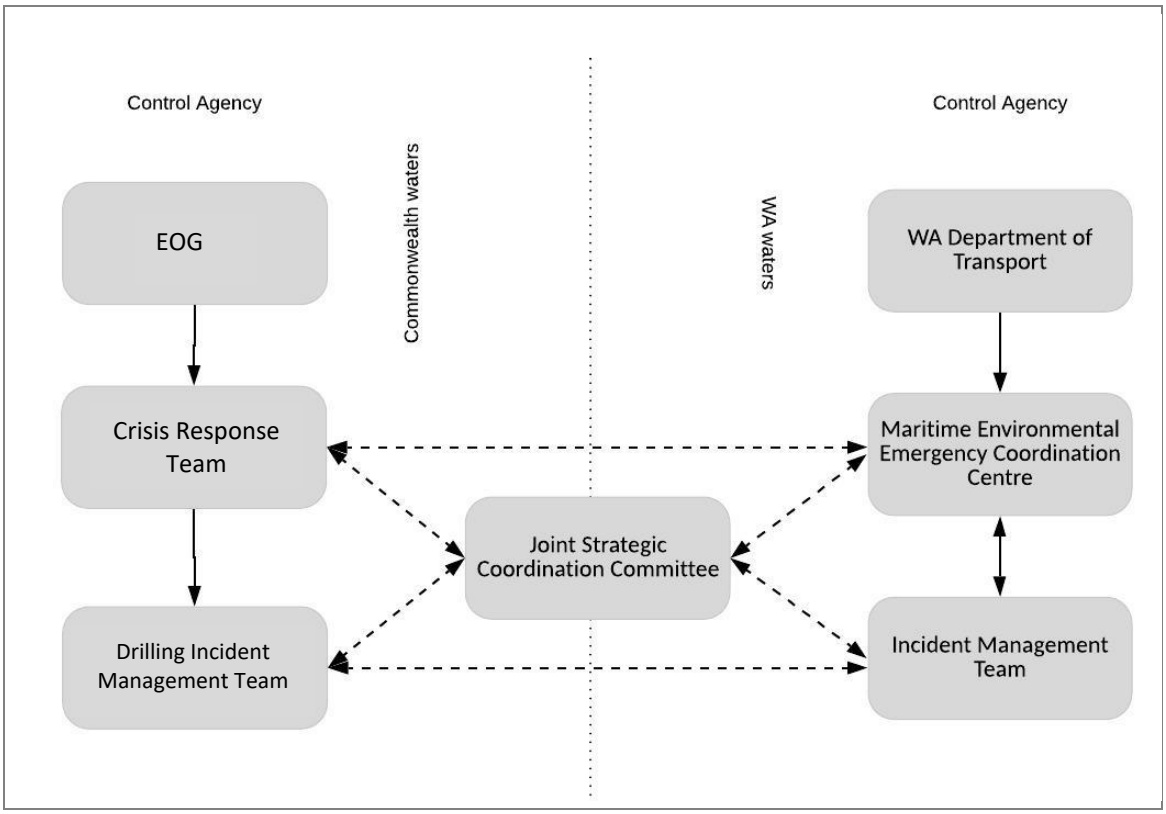

Figure 2.1 Cross-jurisdictional Control Agency arrangements (WA waters)

Level 2/3 Petroleum Activity Spill entering NT Waters

In the case of a Level 2/3 Petroleum Activity spill entering NT waters, EOG will notify the NT Regional Harbourmaster and NT Pollution Hotline as per Table 3.4 who will then contact the

Territory Marine Pollution Controller (TMPC). The TMPC will then establish an NT IC and NT IMT, if required. EOG will remain as Control Agency for responses in Commonwealth waters and for responses in NT waters but will request approval of Incident Action Plans (IAPs) from the NT IC. If the spill is likely to affect NT shorelines the NT IMT will assume the Control Agency role, with EOG acting as Support Agency.

Additional support, if required, will be provided through the Territory Emergency Management Council and the NT Government Functional Groups. EOG will provide Liaison Officer/s to sit within the NT IMT to ensure uniformity between the NT IMT and EOG in the incident response.

Figure 2.2 illustrates the Control Agency and coordination structure for spills entering NT waters and contacting NT shorelines.

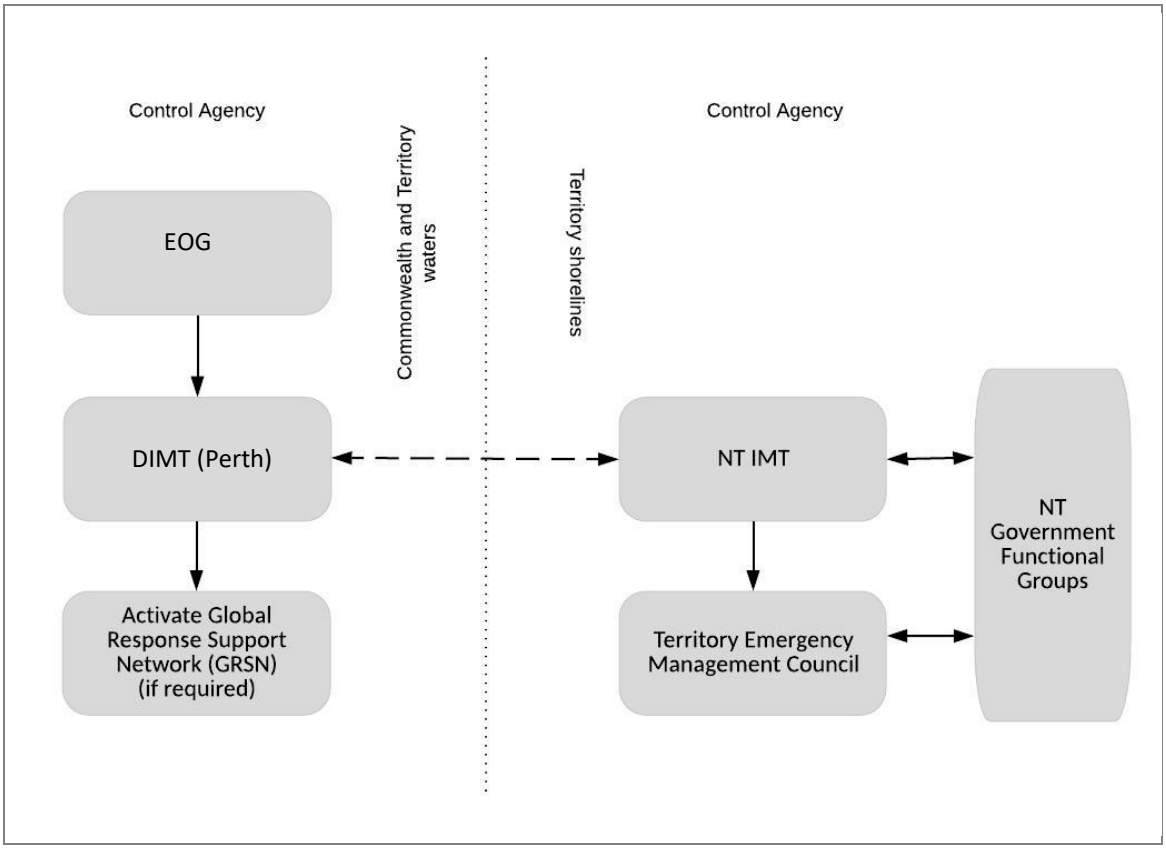

Figure 2.2 Cross-jurisdictional Control Agency arrangements (NT waters)

Level 2/3 Petroleum Activity Spill entering Another Country's Exclusive Economic Zone (EEZ)

The NatPlan *Coordination of International Incidents: Notification Arrangements Guidance* (NP-GUI-007) provides guidance on the arrangements for spills entering another country's territorial waters.

If a level 2/3 petroleum activity spill is affecting, or likely to affect, another country, EOG will contact the Department of Industry, Science, Energy and Resources (DISER) who will contact the Department of Foreign Affairs and Trade (DFAT) as soon as practicable through the contact point advised by DFAT. DFAT will take the necessary steps to meet Australia's international notification obligations and coordinate official communication between the Government of Australia and the foreign government concerned. AMSA maintains contact with counterparts in several neighbouring countries. Where AMSA has bilateral arrangements on marine pollution

preparedness and response with a counterpart in the affected country, AMSA will notify all relevant parties. This notification will be in addition to notification provided by DFAT.

In the event that a pollution incident occurs within Australian waters and the pollution may spill into the Joint Petroleum Development Area (JPDA) in the Timor Sea, DISER (through the Australian Joint Commissioner) will notify the Timor-Leste Government through the Timorese Joint Commissioner, in addition to notifying DFAT.

2.2 EOG's Oil Spill Response Arrangements

2.2.1 Overview

EOG's oil spill response management arrangements align with the Australasian Inter-Service Incident Management System (AIIMS) and have three levels of organisational control: tactical (Tier 1), operational (Tier 2) and strategic (Tier 3). This allows for a standardised and consistent approach to emergency response across EOG, AGR, MODU and vessel contractors, and relevant State, Territory and Commonwealth government agencies. Figure 2.3 outlines the arrangements for this OPEP.

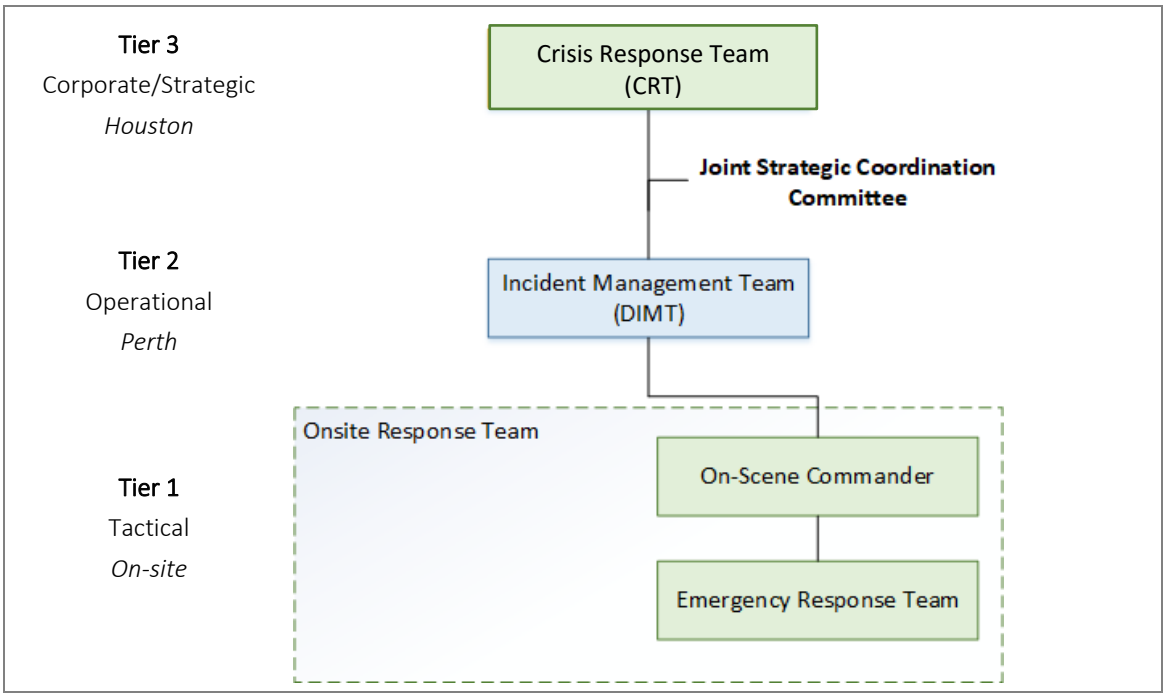

Figure 2.3 Beehive-1 oil spill response management arrangements

2.2.2 On-site Response

The tactical on-site response includes the vessel's and/or MODU's Emergency Response Teams (ERTs). The on-site response teams are responsible for the initial responses to a spill (see Table 3.1 and Table 3.2 in Section 3) and initiation of the OPEP and the vessel SMPEP and/or the MODU ERP. The On-Scene Commander (OSC) (either the Vessel Master or MODU Offshore Installation Manager (OIM)) notifies the AGR Drilling Supervisor (DSV) who notifies the Perth-based Drilling Incident Management Team (DIMT) and maintains ongoing communication.

As the situation escalates, the DIMT would be activated followed by the Houston-based Crisis Response Team (CRT). The DIMT and CRT will be activated in the event of a Level 2/3 hydrocarbon spill regardless of the type of spill or jurisdiction.

2.2.3 Drilling Incident Management Team (DIMT)

After consulting with the OSC, the Incident Commander (IC) will notify the DIMT members to either standby or mobilise to the Incident Command Room (ICR). If the spill is classified as Level 2 or 3, the DIMT will scale appropriately in size and scope (operational and tactical levels, as applicable) to manage the impending response to the incident. The DIMT will conduct all relevant notifications, action any appropriate response plans and mobilise the required resources for the incident. The DIMT is on 24-hour call and can be stood up within 1 hour.

EOG has contracted AGR Australia Pty Ltd (AGR) to provide integrated operations project management services for the Beehive-1 Drilling Program, including emergency response and incident management support. AGR would supply the majority of the Perth-based DIMT as well as a Drilling Supervisor (DSV) on board the MODU.

Figure 2.4 outlines the basic structure of the DIMT. The size and structure of the DIMT is expected to vary throughout the various stages of response and recovery dependant on the complexity of the incident. Table 2.2 outlines the key responsibilities of the DIMT during a response.

The DIMT is organised in accordance with the principles of the International Petroleum Industry Environmental Conservation Authority (IPIECA) Good Practice Guidelines – Incident Management System and designed to be scalable according to the particular response demands of the incident. Appendix B provides further details on the expanded Beehive-1 DIMT, including needs analysis and resourcing assumptions.

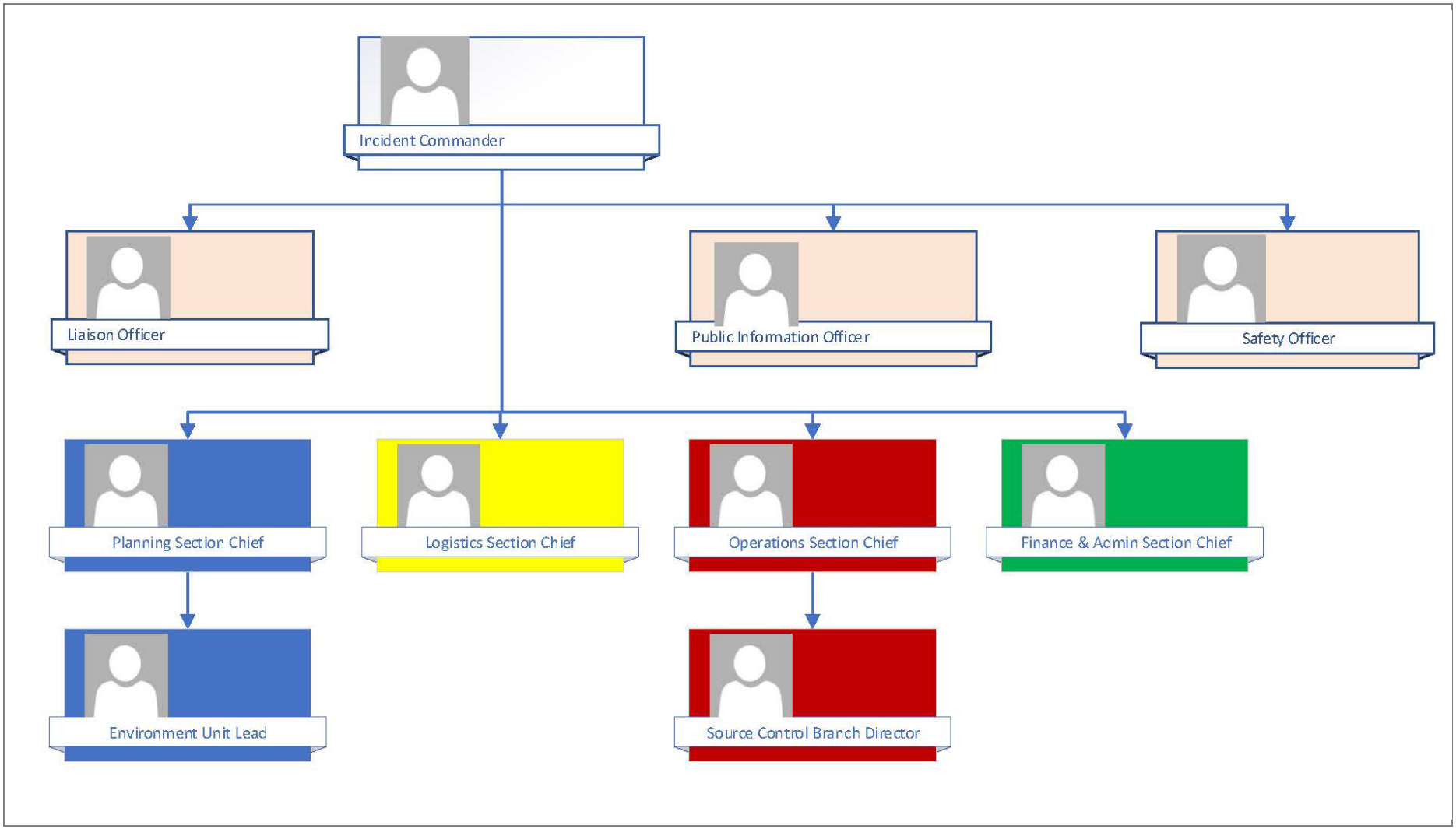

Figure 2.4 Beehive-1 Drilling Incident Management Team (DIMT)

Table 2.2 Key DIMT responsibilities

DIMT Responsibilities
Command Section
Incident Commander (IC) The IC leads the DIMT and is responsible for the overall response operations of the incident including: • Establishing command and taking control of the incident. • Activate the DIMT in accordance with the Beehive-1 OPEP and Bridging ERP. • Monitoring and reviewing safety and welfare. • Developing, implementing and monitoring the IAP. • Notifying CRT. • Notifications as per Notification Plan (Section 3.2). • Activate involvement of additional third parties. • Conclude and review emergency activities. The IC may be assisted by a Deputy IC and may delegate some activities accordingly.
Planning Section
Planning Section Chief The Planning Section is led by the Planning Section Chief who is responsible for: • Collecting, analysing and utilising incident information. • Engage other Section Chiefs to assist in response actions. • Organising incident response mobilisation/demobilisation. • Risk analysis of the incident and provision of specialist information (e.g. weather, spill behaviour). • Ensure that NEBA assessments are carried out appropriately to support the development of IAPs. • Dissemination of incident information including to the media and public where required. • Coordination of surveillance flights. • Maintaining a record of communications and actions including resources requested/allocated/in use. • Liaises with the DBCA OWA (Oiled Wildlife Advisor) through the EOG OWA (provided by AMOSC). The Planning Section Chief may be assisted by a Deputy and may delegate some activities accordingly. **Environmental Unit** The Environmental Unit Leader operates under the Planning Section Chief and will coordinate: • Environmental support. • Environment monitoring. • Technical advice.
Operations Section
Operations Section Chief The Operations Section is led by the Operations Section Chief who is responsible for: • Development of spill response section of the IAP. • Notify most of the relevant organisations in the Notification Plan (Section 3.2). • Coordinating spill response operations. • Engaging with other Section Chiefs to assist in response actions. • Mobilisation of OSRL and AMOSC resources if required. **Source Control Branch** The Source Control/Well Containment Team will operate under the direction of the Operations Section Chief. The Source Control Branch Director's responsibilities include: • Direct assessment and planning for source control actions. • Notifying WWC of the incident as per Notification Plan (Section 3.2). • Development of source control section of the IAP. • Briefing and allocating operations personnel. • Management, supervision and monitoring of source control operations.

DIMT Responsibilities
• Assist in liaison with drilling and support contractors. The Source Control Branch Director may be assisted by a Deputy and delegate some activities accordingly. **Relief Well and Well Kill Group** Operating under the Source Control/Well Containment Branch Director this group will provide: • Relief well planning • Directional drilling planning. • Geophysical and geotechnical (G&G) data procurement and interpretation. • Well kill strategies. **Flow Engineering Group** Operating under the Source Control/Well Containment Branch Director this group will provide: • Flow calculations for intervention planning. • Reservoir engineering information. • Flow assurance.
Logistics Section
Logistics Section Chief The Logistics Section is led by the Logistics Section Chief who is responsible for: • Development of logistics section of the IAP. • Organise resources (e.g. helicopters, vessels). • Waste disposal planning / resources • Estimate future service and support requirements. • Provision of technical advice to the Planning Section Chief.
Finance and Administration Section
Finance and Administration Section Chief The Finance and Administration Section is responsible for ensuring that finances are available to all areas that require the purchasing or hire of goods (e.g. equipment) and services (e.g. personnel, transportation) and to keep financial records of all spill response expenditures. **Procurement Group** The Procurement Group operate under the direction of the Finance and Administration Section Chief. This group will: • Handle administration for procurement and contracting. • Management of imports/exports and customs matters relating to procurement of resources.
DIMT Command and Support Section
DIMT Command Roles • *Liaison Officers* – communicate information to all relevant stakeholders, including ongoing consultation throughout a hydrocarbon spill emergency. • *Safety Officer* – provide HSE services in support of the oil spill response and source control team. Ensure the response operations are undertaken in a safe manner, consistent with workplace safety legislation and also ensures the security of responders, the DIMT and other EOG employees and contractors during a crisis. • *Public Information Officer* - responsible for managing the DIMT related media issues for the response effort, in collaboration with the CRT. • *Legal Officer* - provide legal advice for all actions undertaken or considered by the DIMT in response to the incident. **Third Party Support Resources** Third Party Resources that are a part of the DIMT includes: • *Public Relations Support* - a public relations consultant will be in place for the duration of a major response to support the Public Information Officer and coordinate media releases and statements to ensure information flow is maintained and managed accurately and in a timely manner. EOG will engage a public relations consultant throughout the campaign planning phase.

DIMT Responsibilities
• *Legal Support* – a legal consultant may be appointed into the Legal Officer role to support the DIMT. • *Environmental Specialist Support* - an environmental specialist consultant will be in place for the duration of a major response to support the Environment Unit under the Planning Section Chief. Responsibilities will include the recommendation and implementation of strategies outlined in the Operational and Scientific Monitoring Implementation Plan (OSMIP).

2.2.4 Crisis Response Team (CRT)

The Houston-based Crisis Response Team (CRT) is responsible for strategic management of EOG's response and recovery efforts in accordance with the EOG Crisis Management Plan (CMP). The CRT coordinates and manages threats to the company's reputation and EOG's corporate requirements as a titleholder. It provides overall direction, strategic decision-making as well as providing corporate protection and support to activated response teams, and external communications related to government regulatory bodies, media liaison and related stakeholders.

The CMP will be activated by EOG's Senior Manager on the advice of EOG's Australian Operations Manager when they determine that an ongoing response to an incident has reached a crisis. The Senior Manager will then act as the CRT Manager throughout the duration of the crisis. The CMP outlines a coordinated response designed to provide effective communication within EOG, the families of affected individuals, to the public and to regulatory agencies. It provides a framework to assess and respond to the crisis and document the response. It assigns crisis management responsibilities and provides important contact information for everyone who might be needed for the response. The CRT has access to well control and oil spill response organisations through EOG's existing Master Services Agreements (MSAs) as detailed in the CMP. Figure 2.5 provides an overview of EOG's CRT organisational structure, including those people who are Senior Managers.

Chairman & CEO

Senior Manager/CRT Manager

President
Chief Operating Officer
Executive Vice President, Exploration & Production
President, International Division
Senior Vice President, Investor/Public Relations

Accounting	Communications/Information Systems	Corporate Facilities & Administration
Documentation Clerk	**Finance/Treasury**	**Government Relations**
Human Resources	**Investor Relations**	**Legal Department**
Public/Media Relations	**Purchasing**	**Risk Management**
Safety & Environmental	**Security**	**Technical Operations**

Figure 2.5 EOG's Crisis Response Team (CRT)

2.3 Interface with Other Organisations and Plans

This OPEP interfaces with a number of other organisations and plans as described in Table 2.3 below.

Table 2.3 Interfaces with other organisations and plans

Organisation	Plan	Relevance
External		
Australian Maritime Safety Authority (AMSA)	National Plan for Maritime Environmental Emergencies (NatPlan)	AMSA manages NatPlan and is the designated Combat Agency for oil spills from vessels within Commonwealth jurisdiction. NatPlan sets out the national arrangements, policies, and roles and responsibilities of states, territories and industry in managing maritime environmental emergencies. NatPlan integrates Commonwealth and State government oil spill response framework to facilitate effective response to marine pollution incidents. AMSA manages the National Plan and works with State governments (who manage the equivalent State plans that integrate into the NatPlan). AMSA is to be notified immediately of all ship-source incidents through RCC Australia on +61 2 6230 6811.
Australian Marine Oil Spill Centre Pty Ltd (AMOSC)	Australian Industry Cooperative Spill Response Arrangements (AMOSPlan)	AMOSC is the lead Oil Spill Response Organisation (OSRO) in Australia. AMOSPlan describes mutual aid arrangements of the petroleum industry coordinated by AMOSC. It outlines membership arrangements, activation procedures and interfaces with other plans. EOG will be an Associate Member of AMOSC at the time of drilling and as such will have access to AMOSC's Level 2/3 resources as outlined in the AMOSPlan. AMOSC has contracts with all its member companies to enable the release of Core Group personnel to be made available for any EOG requirements as soon as possible, as outlined in EOG's Master Service Contract with AMOSC.
Department of Agriculture, Water and the Environment (DAWE)	N/A	DAWE is the Jurisdictional Authority for shoreline response and oiled wildlife response in Commonwealth waters and shorelines within Commonwealth waters (i.e., Ashmore Reef, Cartier Island).
WA DoT	State Hazard Plan: Maritime Environmental Emergencies (SHP-MEE)	Details the management arrangements for preparation and response to a marine oil pollution incident occurring in State waters. See Section 2.1.4 for further details on cross-jurisdictional arrangements.
	WA Oil Spill Contingency Plan (WA OSCP)	Outlines the procedures and arrangements for responding to and recovering from Marine Oil Pollution (MOP) emergencies in State waters in accordance with SHP-MEE. See Section 2.1.4 for further details on cross-jurisdictional arrangements.
WA Department of Biodiversity,	WA Oiled Wildlife Response Plan (WAOWRP)	DBCA is the Jurisdictional Authority Oiled Wildlife Response and WA DoT is the Control Agency in WA waters. The WAOWRP defines the steps, personnel, equipment and infrastructure required for the management of wildlife in

Organisation	Plan	Relevance
Conservation and Attractions (DBCA)		an oil pollution response. The DBCA has the primary response role. Each region has a Regional Oiled Wildlife Response Plan that gives further details on sensitivities and available resources.
WA Department of Mines, Industry Regulation and Safety (DMIRS)		Requirement to submit regulatory report for spills >80L petroleum.environment@dmirs.wa.gov.au).
NT Government	Territory Emergency Plan	This plan describes the NT's approach to emergency and recovery operations, the governance and coordination arrangements, and roles and responsibilities of agencies. The plan is supported by regional and local emergency plans; as well as hazard-specific plans and functional group plans.
NT DEPWS		Jurisdictional Authority for spills in NT waters and shorelines.
NT Environmental Protection Authority (NT EPA)		The NT EPA acts as the environmental science coordinator in the NT, and would provide advice to the incident controller during any spill response in the NT.
NT Department of Infrastructure, Planning and Logistics (DIPL)	NT Oil Spill Contingency Plan (NT OSCP)	Outlines the approach to management of marine oil pollution that are the responsibility of the NT Government (the NT OSCP is currently being revised).
NT Parks and Wildlife Commission (PWC)	NT Oiled Wildlife Response Plan (NTOWRP)	An industry prepared plan, which is designed to ensure timely mobilisation of appropriate resources (equipment and personnel) in the event of an incident affecting wildlife in NT waters.
Department of Foreign Affairs and Trade (DFAT)		If a level 2/3 petroleum activity spill is affecting, or likely to affect, another country, EOG will contact the Department of Industry, Science, Energy and Resources (DISER) who will contact the Department of Foreign Affairs and Trade (DFAT) as soon as practicable through the contact point advised by DFAT. DFAT will take the necessary

Organisation	Plan	Relevance
Department of Industry, Science, Energy and Resources (DISER)		steps to meet Australia's international notification obligations and coordinate official communication between the Government of Australia and the foreign government concerned. AMSA maintains contact with counterparts in several neighbouring countries. Where AMSA has bilateral arrangements on marine pollution preparedness and response with a counterpart in the affected country, AMSA will notify all relevant parties. This notification will be in addition to notification provided by DFAT.
Timor-Leste Government		In the event that a pollution incident occurs within Australian waters and the pollution may spill into the Joint Petroleum Development Area (JPDA) in the Timor Sea, DISER (through the Australian Joint Commissioner) will notify the Timor-Leste Government through the Timorese Joint Commissioner, in addition to notifying DFAT.
Oil Spill Response Limited (OSRL)		OSRL is a global OSRO. EOG has access to the 24 hour, 7-days a week OSRL response service. In addition to equipment and personnel resources, OSRL has aircraft on standby to facilitate the movement of equipment from Singapore to Australia. AMOSC and OSRL are both professional response organisations and members of the Global Response Network (GRN) and would work together in support of a member's response.
Australian Petroleum Production and Exploration Association (APPEA)		EOG can request APPEA to engage with other APPEA members to facilitate the Mutual Aid MoU and source assistance from nearby MODUs.
Titleholder		
EOG	Beehive-1 Drilling EP	Describes the activity, evaluates the impacts and risks and details control measures to reduce impacts and risks to as low as reasonably practicable (ALARP) and acceptable levels.
EOG	Beehive-1 Drilling Operational and Scientific Monitoring (OSM) Bridging Implementation Plan	EOG has elected to use the Joint Industry OSM Framework and supporting operational monitoring plans (OMPs) and scientific monitoring plans (SMPs) as the foundation of its OSM approach. The Bridging Implementation Plan (this plan) fully describes how the Framework interfaces with EOG's own activities, spill risks and internal management systems.
EOG	EOG Crisis Management Plan (CMP)	The CMP outlines a coordinated response designed to provide effective communication within EOG, the families of affected individuals, to the public and to regulatory agencies. It provides a framework to assess and respond to the crisis and document the response. Finally, it assigns crisis management responsibilities and provides important contact information for everyone who might be needed for the response.

Organisation	Plan	Relevance
EOG	EOG Australian Projects Health, Safety and Environment (HSE) Management Plan	Details all aspects of HSE management in support of the activities undertaken by EOG, AGR Australia Pty Ltd (AGR) and the vessel and Mobile Offshore Drilling Unity (MODU) contractors in relation to these Australian-based projects.
EOG	Beehive-1 Well Operations Management Plan (WOMP)	Details well integrity aspects for Beehive-1 and includes EOG's emergency management systems and well intervention strategies.
EOG	Beehive-1 Source Control Emergency Plan (SCERP)	The SCERP includes an initial investigation stage with provision for escalation including the Relief Well Plan (RWP) to undertake relief well activities. The SCERP provides the Source Control Branch within the DIMT with guidance and checklists in the event of a LoWC to implement source control strategies including relief well drilling, hydrostatic well kills and wellhead fluid containment.
EOG	Beehive-1 Drilling Bridging Emergency Response Plan (BREP)	Overarching ERP to link the emergency response protocols of EOG, AGR, the MODU contractor and vessel contractor/s.
Contractor Plans		
AGR	AGR Asia Pacific Emergency Response Plan (ERP)	EOG has contracted AGR Australia Pty Ltd (AGR) to provide integrated operations project management services for the Beehive-1 Drilling Program, including emergency response and incident management support. AGR will supply the DSV and the majority of the DIMT onboard the MODU. The AGR ERP describes their organisational responsibilities, actions, reporting requirements and resources required to manage crises and emergencies.
MODU contractor	MODU Safety Case	The MODU contractor must have a SC accepted by NOPSEMA detailing the Major Accident Event (MAE) and Safety Critical Control details for the safety aspects for the Beehive-1 Drilling Program.
Vessel and MODU contractors	Vessel and MODU Shipboard Marine Pollution Emergency Plan (SMPEP)	A SMPEP is required under the International Convention for the Prevention of Pollution from Ships (MARPOL). The SMPEP includes vessel specifications, procedures to follow for notification and spill response, and a list of spill equipment and locations.

3 Initial Response (First Strike Actions)

Immediate actions for a Level 2 or 3 oil spill have been planned in this section to expedite spill response by the DIMT. These actions are to be undertaken while the Incident Action Plan (IAP) is updated during the subsequent 'Ongoing Response' (Section 4). Immediate actions to be executed by the DIMT include:

- Gain situational awareness of the incident (Section 3.1);
- Execute the Notification Plan (Section 3.2);
- Initiate Source Control Plan (Section 3.3);
- Initiate the Monitor and Evaluate Plan (Section 3.3.1); and
- Initiate the Scientific Monitoring Plan (Section 3.5).

3.1 Situational Awareness

To review the applicability of response strategies within this OPEP to an actual Level 2/3 spill incident's characteristics, and to conduct an Operational NEBA to ensure impacts of selected response strategies are ALARP, the DIMT must initially gain situational awareness by obtaining information from the field immediately after activation. Responsibility for collection of site information at the location of the spill will reside with the OSC.

The spill level will be classified via Table 1.1 to gauge a proportionate response. Where doubt exists over the severity or appropriate response to spill event, the OSC is to discuss the situation with the IC. The principle of prudent over-reaction and rapid de-escalation applies when considering the level of activation as it is easier and usually more effective to scale down an over-reaction than to ramp up an under-reaction.

Table 3.1 and Table 3.2 provide guidance on initial responses in the event of an MDO spill or a crude oil spill, respectively. Table 3.3 provides guidance for IC and the DIMT.

Table 3.1 Initial response guide – MDO spill from vessel

Step	Action	Responsibility	Indicative timing	More information
1	On discovery of a spill from the vessel - notify the Vessel Master	Spill Observer	Immediate	SMPEP
2	Activate SMPEP and this OPEP. Notify AGR DSV.	Vessel Master	Immediate	SMPEP
3	Manage the safety of all personnel Secure sources of ignition and alert all personnel (appropriate to the level of the spill)	Vessel Master	Immediate	SMPEP
4	If safe, stop the spill through source control actions Assess incident and prevent further spillage if possible / safe	Vessel Master	Immediate	SMPEP
5	Determine spill parameters: • What is it - oil type/group/properties? • Where is it - latitude/longitude of leading edge (if known) • How big is it - area/volume? • What is happening to it - status of release i.e., continuing or under control? • Weather conditions at site (wind/currents)	Vessel Master	ASAP	SMPEP
6	Determine Spill Response Level required: Level 1 or 2: • If Level 1: Vessel Master to act as IC and refer to SMPEP • If Level 2: Contact AGR DSV who will contact AGR Drilling Superintendent to request DIMT Leader assume role of IC, with Vessel Master becoming OSC	Vessel Master	ASAP	SMPEP and OPEP
7	Commence vessel surveillance In the event of a Level 2 spill, deploy the oil spill tracking Buoy(s), following the deployment instructions	Vessel Master	ASAP	Section 3.4
8	Complete tasks outlined in Table 3.3 – Initial Response Guide – IC and DIMT	Vessel Master / AGR Drilling Superintendent	ASAP	Table 3.3
9	Continue to assess spill parameters - provide regular reports to the IC regarding appearance and behaviour of surface spill, weather (surface wind speed, direction, sea state, current speed and direction), tidal conditions and any changes to release status	Vessel Master	Ongoing until terminated	SMPEP

Table 3.2 Initial response guide – oil spill from LoWC

Step	Action	Responsibility	Indicative timing	More information
1	On discovery of a hydrocarbon release - immediately notify the OIMW	Spill Observer	Immediate	MODU ERP
2	Activate MODU ERP and this OPEP. Notify AGR DSV.	OIM	ASAP	MODU ERP
3	Manage the safety of all personnel. Secure sources of ignition and alert all personnel (appropriate to the level of the spill).	OIM	Immediate	MODU ERP
4	If safe, stop the spill through source control actions. Assess incident and prevent further spillage if possible / safe.	OIM	Immediate	MODU ERP Section 3.3
5	Determine spill parameters and issue POLREP: • What is it - oil type/group/properties? • Where is it - latitude/longitude of leading edge (if known)? • How big is it - area/volume? • What is happening to it - status of release i.e., continuing or under control? • Weather conditions at site (wind/current)?	OIM or delegate	ASAP	Section 3.2
6	Determine Spill Response Level required: Level 2 or 3: • Contact AGR Drilling Superintendent and confirm he will assume role of IC • Rig OIM assuming role of OSC in consultation with the with AGR DSV.	AGR DSV / OIM	ASAP but within 30 minutes of notification	Section 1.4
7	Issue alerts and initiate spill tracking: • Deploy the Oil Spill Tracking Buoy following the deployment instructions; • Alert support vessels; • Alert supply base; and • Alert helicopters provider.	AGR DSV / OIM or delegate	ASAP	Section 3.2 Section 3.4
8	Complete tasks outlined in Table 3.3 – Initial Response Guide – IC and DIMT.	AGR Drilling Superintendent	see Table 3.3	Table 3.3
9	Initiate Source Control – activate SCERP.	AGR DSV / OIM / IC	ASAP	Section 3.3
10	Provide regular SITREPs to the DIMT IC (as agreed) regarding the appearance and behaviour of surface spill and weather (surface wind speed, direction, sea state, current speed and direction) and tidal conditions	AGR DSV / OIM or delegate	Ongoing as agreed with IC	Section 3.1

Table 3.3 Initial response guide – IC and DIMT

Step	Action	Responsibility	Indicative timing	More information
1	Upon notification from site, determine if IC role being assumed by shoreside (AGR Drilling Superintendent. If yes, Vessel Master / AGR DSV assuming role of OSC in consultation with the Rig OIM. If no, AGR Drilling Superintendent to monitor situation pending change in status of response.	IC.	On notification	Section 2.2
2	Notify DIMT members to standby or mobilise to ICR and advise EOG Duty CRT Manager.	IC.	60 minutes from notification	Section 2.2.3
3	Establish a reliable communications line with the incident site / OSC.	IC.	Following notification	Beehive-1 Bridging ERP
4	Confirm with OSC: • Muster numbers and status of personnel; • POLREP showing current situation with release: o Shutdown and isolation; o Continuing or under control; o Material and quantity released; o Agreed SITREP frequency.	IC.	90 minutes from notification	Beehive -1 Bridging ERP
5	Set up regular briefing of EOG Duty CRT Manager Obtain written authority from CRT for notifications and activations	IC.	ASAP following notification from OSC.	Beehive -1 Bridging ERP Table 3.4
6	Undertake regulatory notifications and other stakeholder notifications (as required).	IC/CRT	Table 3.4	Table 3.4
7	Implement the Beehive -1 Drilling Program Bridging ERP and SCERP. • Establish Incident Command Post • Engage well control specialists and prepare for mobilisation • Activate Operational and Scientific Monitoring provider • Initiate APPEA MoU: Mutual Assistance to facilitate relief rig.	IC.	90 minutes from notification	Beehive -1 Bridging ERP and SCERP
8	Determine spill trajectory – weather conditions and perform initial vector analysis • 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? Activate Monitoring, Evaluation and Surveillance tactics.	IC or DIMT Planning Section.	Within 90 minutes from DIMT activation	Section 3.3.1
9	Based on the preliminary assessment provided by DSV/Vessel Master and operational monitoring data: • Assess response required; and • Implement spill response commensurate to the size and level of risk.	IC.	90 minutes from notification	Section 2.2

Step	Action	Responsibility	Indicative timing	More information
10	If WA DoT/NT IC to assume control as Control Agency, assist in completion of Incident Control Handover Checklist.	IC	As required	Section 2.1.4
11	Notify oil spill response contractor(s) and determine level of support required based on the escalation potential of the incident: • Activate OSROs (AMOSC/OSRL) to support the response; and • Engage Clarksons Vessel Broker to identify additional support / surveillance vessels.	IC or delegate.	ASAP	Table 3.4
12	Prepare for potential evacuation of personnel from the incident site.	IC.	Refer to Bridging ERP	Beehive -1 Bridging ERP
13	Establish spatial context of the spill: • Obtain all necessary maps/modelling from GIS software and establish sensitivity mapping; and • Identify protection priorities and confirm response options via NEBA.	Planning Section Chief (or delegate).	90 minutes from notification	Section 1.7
14	Support incident action plan (IAP) (as required) in consultation with AMOSC and Control Agency (WA DoT/NT IC, if applicable)	IC.	Ongoing	Section 4.1
15	Review Operational and Scientific Monitoring Plan (OSMP) to determine which initiation criteria are triggered, and direct personnel to undertake required assessments.	Planning Section Chief (or delegate).	Refer to OSMP	Section 3.5

3.2 Notification Plan

In the event of a Level 2 or 3 spill the OSC (either the Vessel Master or MODU OIM) is responsible for activating the available onsite initial response for all spills and notifying the site-based AGR Drilling Supervisor (DSV). The AGR DSV would then notify the IC. The IC (or delegate) is responsible for subsequent activations and notifications based on the spill circumstances. Notifications will include:

- All known material information and circumstances regarding the incident.
- Details of any action(s) taken to avoid or mitigate any adverse environmental impacts from the incident.
- Details of any corrective action(s) that has been taken (or proposed) to prevent a similar reportable incident.

Figure 3.1 outlines the notification procedure in the event of a Level 2 or 3 spill and Table 3.4 provides information on key roles and responsibilities for notifications, along with contact details. The environmental performance outcomes (EPO), environmental performance standards (EPS) and measurement criteria for the Notification Plan are provided in Section 8.8 of the EP.

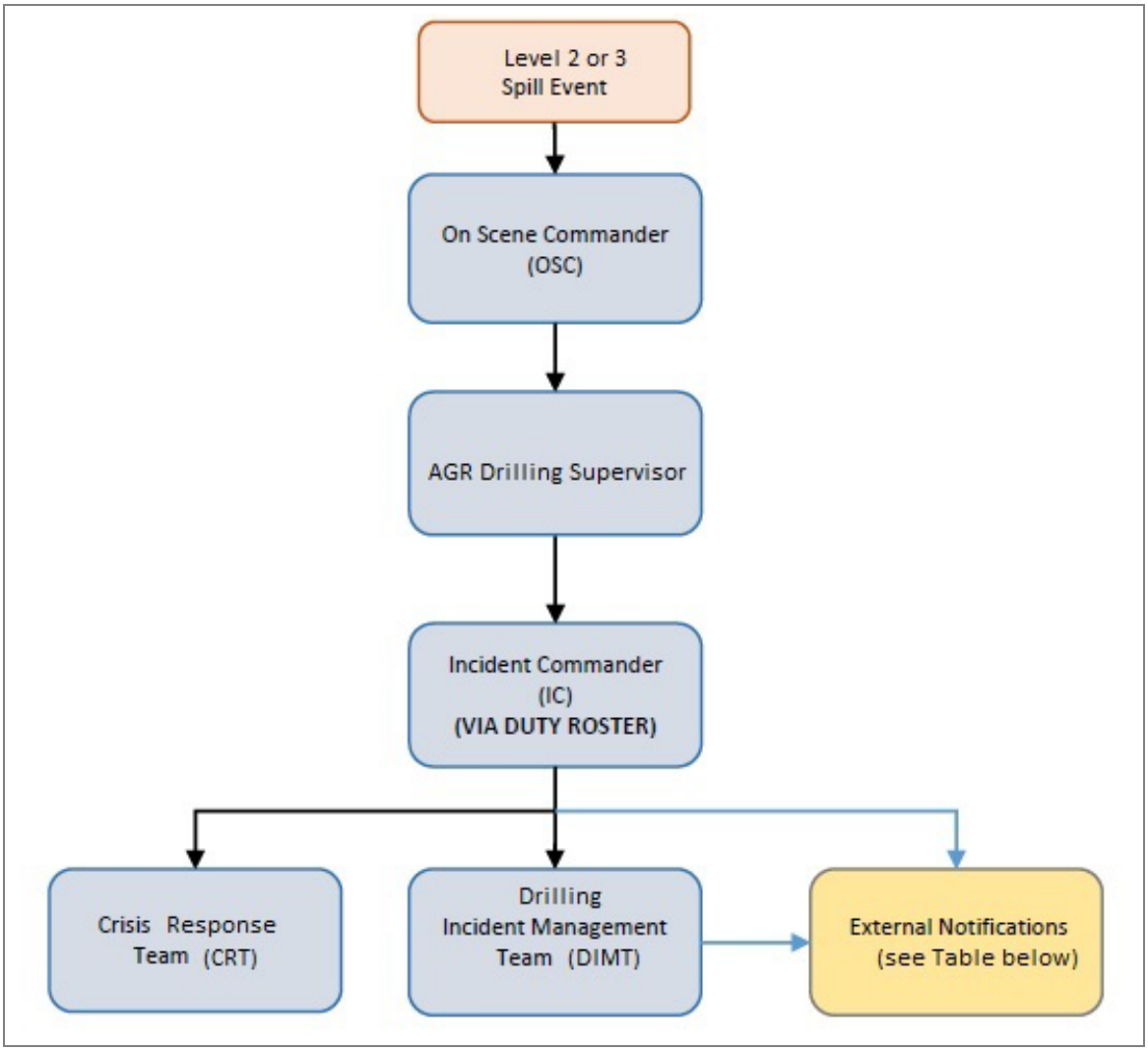

Figure 3.1 Beehive-1 spill notification flowchart

Table 3.4 Notification plan

From	To	Description	Type of notification	Timing
EOG internal notifications				
Vessel Master	AGR DSV	Notify of incident and provide preliminary situational awareness information.	Verbal	As soon as practicable (ASAP) and no later than 30 minutes after incident identification.
AGR DSV	On-duty IC (via Bridging ERP – Duty Roster and DIMT MS Teams site)	Notify IC of incident and provide preliminary situational awareness information.	Verbal. Written – Initial Incident Notification Form	ASAP
IC (or delegate)	DIMT (via Bridging ERP – Duty Roster and DIMT MS Teams site)	Activate DIMT.	Verbal.	ASAP
IC (or delegate)	CRT (via Bridging ERP – Duty Roster and DIMT MS Teams site)	Activate (Level 3) or inform (Level 2) the CRT.	Verbal	ASAP or within 1 hour of DIMT activation
External notifications (*in order of required timing*)				
Vessel Master	AMSA (Rescue Coordination Centre) +1 800 641 792 (24 hrs, in Australia) + 61 2 6230 6811 (24 hrs, outside of Australia) *Do not use this number when testing notification plan.*	Legal requirement to notify in the event of any spill of oil to sea. Notification and request for mobilisation of NatPlan resources. Jurisdictional Authority and Control Agency for all spills from ships in Commonwealth waters.	Verbal	ASAP and no later than 30 minutes after incident identification.
			POLREP (pollution report) (link)	ASAP but no later than 1 day after incident identification.
			SITREP (situation report)	As requested, or every 24 hours
IC/CRT (or delegate)	AMOSC 24 hr number: +61 438 379 328 (NB: IC will require written authority from EOG)	Support for escalated response. Additional resources and personnel will be requested as required via AMOSC through the AMOSPlan arrangements for access to personnel and equipment.	Verbal and written activation via the Service Contract.	ASAP after incident identification.

From	To	Description	Type of notification	Timing
IC/CRT (or delegate)	**Wild Well Control (WWC)** +1 281 784 4700	Industry service provider for source control of well blowout.	Verbal	ASAP after incident identification.
IC/CRT (or delegate)	**Robert D. (Bob) Grace** +1 806-358-6894 –Work +1 806-359-8721 –Cell	Well Control Consultant	Verbal	ASAP after incident identification.
IC/CRT (or delegate)	**Cudd Well Control** +1 281-719-2815	Industry service provider for source control of well blowout.	Verbal	ASAP after incident identification.
IC/CRT (or delegate)	**OSRL** +65 6266 1566 (Singapore Duty Manager) +65 6266 2312 (Singapore Emergency Fax) dutymanagers@oilspillresponse.com (NB: IC will require written authority from EOG)	Industry resource for OPEP implementation.	Verbal. OSRL Mobilisation Authorisation Form.	ASAP after incident identification.
IC (or delegate)	OSMP Service Provider - **RPS** +61 08 9211 1111	Support organisation for scientific monitoring.		ASAP and no later than 2hrs after incident identification.
IC/CRT (or delegate)	**NOPSEMA** (if reportable incident) +1 300 674 472 submissions@nopsema.gov.au (NB: IC will require written authority from EOG)	Jurisdictional Authority for all non-vessel spills in Commonwealth waters (i.e., LOWC spills). Requirement to submit regulatory report. (cc WA Department of Mines, Industry Regulation and Safety (DMIRS) at: petroleum.environment@dmirs.wa.gov.au).	Verbal	ASAP and no later than 2hrs after incident identification.
			Written notification.	ASAP after oral notification.
			Written report (FM0831)	ASAP, but within 3 days of incident identification.
IC (or delegate)	**AMSA** (Rescue Coordination Centre) +1 800 641 792 (24 hrs, in Australia) + 61 2 6230 6811 (24 hrs, outside of Australia) *Do not use this number when testing notification plan.*	Legal requirement to notify in the event of any spill of oil to sea. Notification and request for mobilisation of NatPlan resources. Jurisdictional Authority and Control Agency for all spills from ships in Commonwealth waters.	Verbal	ASAP and no later than 2 hrs after incident identification.
			POLREP (i.e., pollution report) (link)	ASAP but no later than 1 day after incident identification.

From	To	Description	Type of notification	Timing
IC/CRT (or delegate)	**APPEA** Phone: 08 9426 7200 Fax: 08 9321 9778 (NB: IC will require written authority from EOG)	EOG will request APPEA to with members to facilitate the Mutual Aid MoU and source assistance from nearby MODUs.	Verbal	ASAP and within 3 hours of incident identification.
Operations Section Chief (or delegate)	**WA DoT** MEER Duty Officer 08 9480 9924 (24 hrs) marine.pollution@transport.wa.gov.au	If spill enters or is predicted to enter WA state waters. HMA for responses in WA State waters to spills originating in Commonwealth waters. Requirement to submit POLREP for any spill so WA State response agencies can be alerted if required.	Verbal	ASAP and no later than 2hrs of becoming aware that spill is predicted to enter State waters.
			Written WA POLREP form (link)	ASAP after verbal notification.
			Written WA SITREP form (link)	If requested, within 24 hours.
Operations Section Chief (or delegate)	**NT Environmental Protection Authority (EPA)** Pollution Hotline 1800 064 567 pollution@nt.gov.au	Oil pollution incident response in NT waters.	Verbal	Within 2 hours of incident.
Operations Section Chief (or delegate)	**NT Regional Harbourmaster** (08) 8999 3867/8924 7101 rhm@nt.gov.au	Emergency response for NT ports.	Verbal and/or written	Within 2 hours of incident.
DIMT Environment Team Leader	**Australian Fisheries Management Authority (AFMA)**	Reporting of marine oil pollution	Verbal	Within 24 hours of incident.

From	To	Description	Type of notification	Timing
Operations Section Chief (or delegate)	**Commonwealth Director of National Parks** 0419 293 465 (24-hr Marine Compliance Duty Officer)	Responsible for Australian Marine Parks (AMPs). The notification should include: • Titleholder details • Time and location of the incident (including name of marine park likely to be affected) • Proposed response arrangements as per this OPEP (e.g., dispersant application, containment and recovery) • Contact details for the response coordinator	Verbal	ASAP and within 3 hours of spill entering or predicted to enter an AMP.
Operations Section Chief (or delegate)	**WA DPIRD** – Fisheries Senior Management Officer - Fisheries Certification/ Biodiversity (08) 9203 0281 (Primary Contact) 0447 453 677 (Primary Contact) (08) 9203 0281 (Secondary Contact) 0427 234 449 (Secondary Contact) DPIRD Spill Response Officer 0433 151 567 environment@fish.wa.gov.au	State fisheries department – primary contact for all fishermen.	Verbal and written.	Within 24 hours of spill reaching State waters.
Operations Section Chief (or delegate)	**WA DBCA** 08 9219 9108 State Duty Officer (Oiled Wildlife Response)	Provision of advice and support for Oiled Wildlife Response and/ or oiling of shorelines/ waters managed by DBCA.	Verbal.	ASAP if potential for oiled wildlife and/ or oiling of DBCA managed water/ shorelines.
IC (or delegate)	**WA Department of Water and Environmental Regulation** [DWER]) 24/7 Ph: 1300 784 782	If temporary waste storage areas are required	Verbal	ASAP
IC/CRT (or delegate)	**National Offshore Petroleum Titles Administrator (NOPTA)**	Spill in Commonwealth waters that is reportable to NOPSEMA. Provide same written report as provided to NOPSEMA.	Written report (FM0831)	Within 7 days of the initial report being submitted to NOPSEMA.

From	To	Description	Type of notification	Timing
IC/CRT (or delegate)	**WA DMIRS** 0419 960 621 petroleum.environment@dmirs.wa.gov.au	Spill in Commonwealth waters that is reportable to NOPSEMA and is predicted to enter WA waters.	Verbal. Email preferred	ASAP if potential for spill to enter WA waters.
			Written report (link)	Within 3 days after the reportable incident notification
			Provide same written report as provided to NOPSEMA (FM0831)	Within 7 days of the initial report being submitted to NOPSEMA.
IC/CRT (or delegate)	**Department of Agriculture, Water and the Environment (DAWE)** Phone: +61 2 6274 1111 epbcmonitoring@environment.gov.au	Responsible for administration of EPBC Act in Commonwealth waters and to be notified if spill threatening wildlife in Commonwealth waters. This allows for timely response and for DAWE to provide an informed response to enquiries from media and stakeholders.	Written.	ASAP and within 7 days if spill incident injures of kills one or more of the following: • EPBC list threatened, migratory and/or marine species. • Member of EPBC listed Threatened Ecological Community (TEC) • Cetacean.
IC/CRT (or delegate)	**Department of Industry, Science, Energy and Resources (DISER)** +61 2 6213 6000 opicc@industry.gov.au	Lead agency in the event of an incident requiring coordinated strategic response from Government under OPICC Framework (if required) and for liaison with other agencies, including DFAT in the event a MODU spill is likely to impact another country.	Verbal or written	ASAP if spill exceeds EOG's first strike capability and/or response requires State or Commonwealth government support.
IC/CRT (or delegate)	**DFAT** – WA State Office (08) 9231 4499 dfat.wa@dfat.gov.au	Responsible for Australia's international notification obligations and coordinating official communication between the Government of Australia and any foreign government affected by a spill in Australian waters.	Verbal and written.	ASAP if spill predicted to enter foreign waters, including the waters within the Timor-Leste and Indonesian agreement/treaty zones.

From	To	Description	Type of notification	Timing
Operations Section Chief (or delegate)	**Port Authority(ies)** Port authorities details available at: https://www.transport.wa.gov.au/Freight- Ports/port-authorities.asp	Responsible for maintaining water quality and the movement of vessels in Port waters	Verbal	ASAP if spill predicted to enter any Port waters
IC/CRT (or delegate)	Relevant stakeholders	Stakeholder consultation database	Verbal and/or written	ASAP

3.3 Source Control Plan

The initial and highest priority response to an oil spill incident, following the safety of personnel, is to prevent or limit further oil loss into the marine environment. For major hydrocarbon release incidents, the MODU Operator's ERP and the Beehive-1 Bridging ERP outline the initial actions to be taken by onsite personnel to control the source of a hydrocarbon spill and limit the volume released to the environment.

The initial response to a LoWC event is to activate the emergency blow-out preventer (BOP). The primary source control method for a LoWC event is the drilling of a relief well (see Section 3.3.1. EOG has calculated that a relief well would be drilled within 77 days of a LoWC event (see Section 3.3.2). For the ongoing response to a LoWC incident, the SCERP is to be consulted as the overarching source of information for implementing a relief well response noting that the MODU Operator's ERP, Vessel SMPEP and SCERP, where applicable, will provide a higher level of detail for specific incidents.

The Source Control Plan for a Level 2 vessel MDO spill is the vessel's SMPEP. Table 3.5 provides a generic overview. Table 3.6 provides an overview of the Source Control Plan for a Level 3 spill and provides the timeline for its implementation.

Section 8.7 of the EP provides the EPO, EPS and measurement criteria for the Source Control Plan for an MDO spill, with Section 8.8 of the EP providing the equivalent for a LoWC.

Table 3.5 Source control plan for Level 2 vessel MDO spill

Source Control Plan: Level 2 Vessel Spill			
Initiation	Notification of a Level 2 vessel MDO spill.		
Aim	Safely stop loss of MDO from a vessel spill to minimise releases to the marine environment.		
Procedure	**Required Timeframe and Action (if safe)**	**Responsible**	**Done?**
	Day 0 - Implement vessel SMPEP MDO spill reduction measures as appropriate such as: • Reduce ruptured tank head (pressure) driving MDO spill by dropping or pumping tank contents into empty or slack tank; • Consider pumping water into leaking tank to create water cushion to prevent further MDO loss; • If affected tank not easily identified, reduce MDO in tanks in vicinity of suspected area if vessel stability not compromised; • Attempt repair and plugging of hole or rupture; • Evaluate transfer of MDO to other vessels; and/or • Trim or lighten vessel to avoid further damage to intact tanks.	Vessel Master	
	Day 1 after AMSA request - Mobilise support vessel to location if requested by AMSA.	DIMT	
	Ongoing - Use on-board spill kits to clean-up oil from deck. Oily waste will be bagged, labelled and segregated into bunded hazardous waste area. Hazardous wastes to be transferred onshore with licensed waste management contractor and disposed at suitably classed State waste disposal facility.	Vessel Master	
Resources Required	**Resource**	**Available From: (See Section 6.2)**	
	Support vessel	Supplier(s) as per the external services contracting strategy.	
Termination	Direct observation: MDO from spill is secured on the vessel and actions have been taken to prevent any further release, or that no more MDO can be released.		
Documents	Vessel SMPEP. Beehive-1 Drilling OPEP.		

Table 3.6 Source control plan for Level 3 crude oil spill

Source Control Plan: LoWC				
Initiation	Notification of a spill incident from a LoWC.			
Aim	**Safely re-establish primary well control to minimise hydrocarbon releases to the marine environment.**			
Procedure	**Required Timeframe and Action (if safe)**		**Responsible**	**Done?**
	Day 0 – Activate SCERP. Activate APPEA Mutual Aid MoU to source assistance from nearby MODU or MODU Mobilisation Plan if no MOU-MODU in Australia. Activate WWC, Cudd Well Control and Well Control Consultant – Table 3.4		IC	
	By day 1 – **Relief well MODU confirmed. Relief well MODU suspends operations and prepares to mobilise to relief well location. Demobilisation of equipment from previous operator. Concurrently, prepare relief well MODU Safety Case Revision and submit to NOPSEMA. Concurrently, prepare relief well design and dynamic kill plan. Prepare relief well WOMP and submit to NOPSEMA.**		Source Control Section Chief (or delegate)	
	By day 16 – **Contract relief well MODU. Concurrently, continue preparations for rig mobilisation. Concurrently, NOPSEMA assessment of relief well MODU SCR and relief well WOMP. Mobilise relief well MODU to location.**		Operations Section Chief (or delegate)	
	By day 24 – SCR accepted. **Relief well MODU on site, ready to spud/commence relief well operations**		Source Control / Relief Well Team Leader (or delegate)	
	By day 77 – Relief well drilled – Casing and wellhead equipment available for a relief well with dedicated standby casing supplies via MITO, additional wellhead equipment via Dril-Quip. In addition, casing required is widely used by Australian Titleholders, with stockpiles maintained in Australia accessible via APPEA MoU provisions.		Source Control / Relief Well Team Leader (or delegate)	
Resources Required	**Resource**	**Available From: (See Section 6.2)**		
	Support vessel(s) with ROV(s)	Two to four support vessels available immediately. Additional vessels via Mutual Aid MoU or vessel brokers / direct. Available unit listing maintained by vessel brokers.		
	Secondary MODU	A MODU may be sourced under direct contract or via the Mutual Aid MoU to facilitate the transfer of drilling units and well site services between operators in Australian administered waters to overcome emergency conditions.		
	Relief well casing and wellhead	Relief well casing and wellhead pre-arranged.		
	ROV(s)	Pre-drill survey of relief well. Supplier(s) as per the external services contracting strategy (if necessary).		
	Well control personnel	AGR, WWC, Cudd Well Control and Well Control Consultant		
Termination	Direct observation: Well control has been permanently re-established with no hydrocarbons flowing or leaking from the well.			
Documents	Beehive-1 SCERP (including RWP) Beehive-1 WOMP Beehive-1 Drilling OPEP.			

3.3.1 Relief Well Plan (RWP)

The SCERP includes a Relief Well Plan (RWP). The RWP will contain relief well planning information, specifically:

- MODU positioning assessment for relief well drilling locations
- relief well tangible equipment requirements and availability
- relief well trajectory analysis and casing design
- dynamic well kill hydraulic simulation results.

To ensure EOG has current MODU availability, it will maintain a register of MODU activity within the region and update this on a monthly basis (via the monthly RWP review). In the event a suitable MODU is not in Australian waters or is not predicted to be in Australian waters at the time of the activity, further work will be completed to identify a regionally suitable MODU, along with a mobilisation plan that demonstrates construction of a relief well within the time frame outlined in Table 3.7 is achievable. Typically, these RWPs are signed 6-8 months prior to spud. Once a rig is allocated as a potential relief well MODU for a project, the rig capability register will be annotated as such. As such, any change to the register on a month-to-month basis that affects a preferred rig will trigger a revision to the RWP. The review will be completed within 4 weeks of identifying the change.

If the preferred relief well MODU/s becomes unavailable during the activity, work will commence on an update on the RWP to identify a suitable replacement MODU regionally along with any required pre-work (contracting/logistics plans etc.).

In order to facilitate and expedite the use of regional MODU for relief well drilling an APPEA Memorandum of Understanding: Mutual Assistance is in place. This agreement provides the mechanism to facilitate the transfer of drilling units and well-site services between operators in Australian and Timor-Leste administered waters in order to respond urgently to emergency source control events.

A Safety Case Revision will be required for the relief well rig to undertake the activity; this cannot be submitted before the event. The Safety Case Revision will be based on existing documents, specifically the Safety Case Revision approved for the drilling of the original well and the Safety Case in force for the relief well rig. A Safety Case Revision would be submitted within 14 days from the well leak, however the critical path time allowed for the actual writing of the document is three days. The remaining estimated time would be used for gathering post-event data, mobilising the workforce and conducting a hazard identification. It is not practicable to reduce the critical path days with additional pre-planning as document revision, final review and approval will still be required after completing the hazard identification.

3.3.2 Relief Well Schedule

An indicative relief well drilling schedule is provided in Table 3.7 based on control of the well by 11 weeks (77 days). This is based on indicative mobilisation durations, relief well planning and operations. It could take up to 24 days to have a MODU onsite ready to spud.

This timeline has been assessed as ALARP based on the current controls/measures in place; however, EOG supports measures to improve on the ALARP response time model through the APPEA Drilling Industry Steering Committee Source Control Response Industry (SCRI) Working Group. The SCRI working group is an APPEA Drilling Industry Steering Committee initiative which has been established to drive collaboration and continuous improvement in source control emergency response planning. The Working Group will explore and act on opportunities to align

and strengthen the Titleholders' source control emergency response capability through "mutual aid" initiatives and drive continuous improvement by implementing fit-for-purpose and effective source control emergency response strategies.

Table 3.7 Relief well drilling activation time

Activity	Duration (days)	Comments
Planning (prior to Beehive-1 drilling)		
Initial relief well planning	>3 months prior to spud	Relief well complexity assessment. Relief well location identification and initial design. MODU and long-lead equipment specification and identification. Signatory to APPEA MoU and Operators equipment access agreements in place as required. Prepare RWP. Regional rig status update (monthly).
Execution (post-blowout)		
Suitable MODU identified	0-1	Provision for relief well aid is confirmed. Detailed relief well design is initiated.
Develop SCR	1-2	Meet NOPSEMA to discuss imminent SCR.
SCR submitted to NOPSEMA	2-16	
SCR review process	16-23	Dialogue with NOPSEMA to optimise assessment process.
MODU mobilised	20-23	Spud equipment loaded onto MODU. Specialised equipment mobilised.
SCR accepted by NOPSEMA	24	
Relief well drilling	24-77	Blowout is killed.
Total	**77**	

3.4 Monitor and Evaluate Plan

Table 3.8 summarises the hydrocarbon surveillance and tracking methods employed in the OPEP and Table 3.9 shows the Bonn Agreement Oil Appearance Code (BAOAC) to assist with OPEP decisions.

Table 3.10 provides the initiation and termination criteria, and the implementation guide for Hydrocarbon Surveillance and Tracking.

Section 8.8 of the EP lists the EPO, EPS and measurement criteria for this strategy.

Table 3.8 Hydrocarbon surveillance and tracking methods

Method	Description
Vessel Surveillance	Direct observations are used to assess the location and visible extent of an oil spill, aid with the verification of modelling and inform the application and effectiveness of response strategies. Vessel surveillance is limited in comparison to aerial surveillance and may also be compromised in rough sea conditions or where fresh hydrocarbons poses safety risks.
Aerial Surveillance	Aerial surveillance is used to record the presence and characteristics of oil at surface and environmental observations including weather conditions, marine fauna and sensitive receptors. Aerial surveillance provides superior coverage over vessel surveillance for estimating the spatial extent of a spill but is generally required only for larger Level 2/3 spills.
Tracking Buoys	Tracking buoys are on the MODU and support vessels. Each buoy acquires GPS data at 20 second intervals and transmits once every 30 minutes.
Satellite Imagery	Suitable imagery may be available through existing contracts with AMOSC and OSRL. The most appropriate images for purchase will be based on the extent and location of the oil spill. Synthetic aperture radar (SAR) and visible imagery may both be of value.
Oil Spill Trajectory Modelling (OSTM)	The spill fate modelling service is to be initiated by the submission of the trajectory modelling request form by the DIMT to AMOSC. RPS is to provide at least daily updates to the DIMT of trajectory model outputs. More frequent updates can be provided if weather conditions are highly variable or change suddenly. Operational surveillance data (aerial, vessel, tracker buoys) is to be provided to RPS to verify and adjust predictions and improve predictive accuracy.

Table 3.9 The Bonn Agreement Oil Appearance Code (BAOAC)

Code	Description/Appearance	Layer Thickness Interval (g/m^2 or µm)	Litres per km^2
1	Sheen (silvery/grey)	0.04 - 0.30	40 - 300
2	Rainbow	0.30 – 5.0	300 – 5,000
3	Metallic	5.0 – 50	5,000 – 50,000
4	Discontinuous True Oil Colour	50 – 200	50,000 – 200,000
5	Continuous True Oil Colour	≥ 200	≥ 200,000

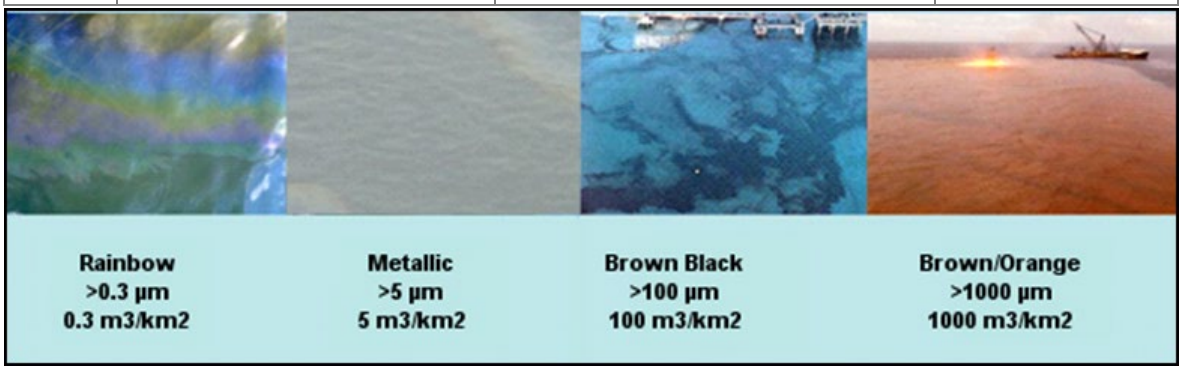

Table 3.10 Monitor and evaluate plan: hydrocarbon surveillance and tracking

Monitor and Evaluate Plan: Hydrocarbon Surveillance and Tracking			
Initiation	Notification of a spill incident from a LOWC or a Level 2 MDO spill.		
Aim	Tracking buoy, satellite imagery, opportunistic and planned vessel and aerial surveillance used to determine the distribution of the slick, validate OSTM, monitor the effectiveness of response strategies on the slick, and identify the presence of marine fauna in the response area.		
Procedure	**Required Timeframe and Action (if safe)**	**Responsible**	**Done?**
	90 minutes – Surveillance with contracted onsite support vessel(s) if not utilised for other tasks (e.g. evacuation of personnel).	OSC	
	90 minutes – Launch tracking buoys from MODU and support vessels.	OSC	
	3 hours – Aerial surveillance by aircraft requested.	DIMT	
	3 hours – Request initiation of satellite imagery surveillance.	DIMT	
	3 hours – Request for mobilisation of trained vessel-based spill and marine fauna observers.	DIMT	
	3 hours – OSTM initiated	DIMT	
	24 hours – Initial aerial (and vessel) surveillance observations carried out with untrained observers.	DIMT	
	24 hours – Initial satellite imagery to DIMT within 24 hours.	AMOSC	
	48 hours – Initial aerial (and vessel) surveillance observations carried out with trained observers.	DIMT	
	Ongoing – Tracking buoy location provided via online web- based portal.	AMOSC	
	Ongoing – Vessel and aerial observations regularly recorded in observer log and reported to the DIMT: • Time, date and person recording the log • Weather and sea-state • Vessel or aircraft location and presence of oil • Appearance of oil (using BAOAC) • Any photos, sketches and videos • Presence of any oiled or non-oiled wildlife • Presence of any marine fauna and actions taken to adhere to Part 8 of the EPBC Regulations 2000, Part 5 of the Biodiversity Conservation Regulations 2018 (in WA state waters) and the Australian Guidelines for Whale and Dolphin Watching (NRMMC, 2005).	Vessel Observer	
	Ongoing – Provision of aerial/vessel observer logs to OSTM provider and monitoring leaders within 3 hours of receipt.	DIMT	
	Ongoing – Provide daily OSTM forecasts to inform response planning	DIMT	
	Ongoing • Request ad hoc satellite imagery as required. • Provision of satellite imagery data to OSTM service provider within 4 hours of receipt.	DIMT	

Resources Required	**Resource**	**Available From: (See Section 6.2)**
	Tracking buoys	AMOSC.
	Support vessels	Supplier(s) as per the external services contracting strategy
	Helicopter	
	Fixed wing aircraft	
	Oil spill observers	AMOSC (core group through AMOSPlan). AMSA (National Response Team [NRT] through NatPlan).
	Ad hoc satellite imagery	AMOSC (via KSAT) and/or OSRL (via MDA).
	OSTM Service Provider	Supplier(s) as per the external services contracting strategy
Response Maintenance	Response to be maintained through rotation of monitoring personnel/vessel crew as required with monitoring action plan reviewed and assessed each operational period as part of IAP revision.	
Termination	Oil source controlled. Surface water does not have an oiled appearance, specifically 'silver/grey' as per BAOAC. NB: Vessel surveillance will terminate if there are unacceptable safety risks associated with volatile hydrocarbons at the sea surface.	
Documents	Appendix A and D of CSIRO Oil Spill Monitoring Handbook. Beehive-1 Drilling OPEP. Operational and Scientific Monitoring Implementation Plan (OSMIP).	

3.5 Surface Dispersant Application Plan – Aerial

Preparedness modelling to evaluate the net environmental benefit of applying dispersant has shown that applying surface dispersants has the potential to reduce sea surface oil and the volume of oil loading onto shorelines, with its effectiveness likely to be limited to the immediate region near the well site where the probability of elevated surface oil concentrations is greater. However, the reduction in surface oil was concomitant with an increase in in-water hydrocarbons near the dispersant release site. A strategic NEBA conducted for the identified Protection Priority areas indicates both a potential positive and negative impact (Appendix 7 of Beehive-1 EP). An Operational NEBA is therefore required to evaluate the use of dispersants based on the incident specifics of the spill.

The Operational NEBA assessment will consider the level of benefit or impact to sensitive receptors of the identified Protection Priority Areas (Section 1.7) and any other locations predicted to be contacted by the spill. This will consider the predicted trajectory of spill with respect to the location of key receptors, and the temporal variation in sensitivity of these receptors, and make use of forecast modelling of the spill with and without dispersants to inform the assessment. Further information is provided in Appendix C.

Table 3.11 provides the initiation and termination criteria, and the implementation guide for aerial surface dispersant use.

Section 8.8 of the EP lists the EPO, EPS and measurement criteria for this strategy.

Table 3.11 Surface dispersant application plan – Aerial

Surface Dispersant Plan – Aerial			
Initiation	Selected as primary response measure by DIMT through IAP process for a Level 2/3 crude oil spill, or as directed by relevant Control Agency		
Aim	• Reduce the amount of hydrocarbons on the surface to mitigate exposure risks of sensitive offshore, inshore and shoreline receptors. • Reduce the amount of hydrocarbons ashore.		
Procedure	**Required Timeframe and Action (if safe)**	**Responsible**	**Done?**
	Ongoing - (Consideration of implementation of response strategy) – Implementation of response strategy considered during IAP process.	DIMT	
	Within 12 hours - (Rapid dispersant efficacy assessment via surface application trial): DIMT to consider results to inform the efficacy of surface application of available chemical dispersant types. Forecasting of environmental benefit from surface application of chemical dispersant types to be carried out via **Monitor and Evaluate Plan** (OSTM). Both the efficacy trial and forecast modelling to inform IAP to optimise the use of available dispersant types.	DIMT	
	If required – (Continued dispersant efficacy assessment via surface application trial and detailed laboratory study(s)): If necessary, further justification for surface dispersant application regarding the amenability and effectiveness of available chemical dispersants on the spilled oil to be carried out to inform the NEBA process with findings to prioritise the use of available dispersant types and to develop an appropriate combat strategy.	DIMT	
	If required – If surface slick approaches (<10 km) shallower areas (<20 m), forecasting of exposure risk to sensitive environmental resources from surface application of chemical dispersant to be carried out via Monitor and Evaluate Plan (OSTM) to inform the NEBA process.	DIMT	
	Ongoing, if required - Suitable locations for fixed wing aircraft chemical dispersant application selected on basis of information from **Monitor and Evaluate Plan**.	DIMT	
	Prior to Aerial Chemical Dispersant Application - Vessel and/or aircraft observers report the following to DIMT: • Identification of surface hydrocarbon sheens likely to be amenable to chemical dispersant application; • Presence of coral spawn; • Presence of any marine fauna and actions taken to adhere to Part 8 of the EPBC Regulations 2000, Part 5 of the Biodiversity Conservation Regulations 2018 and the Australian Guidelines for Whale and Dolphin Watching (NRMMC, 2005); • Vessel and/or aircraft observer log of hydrocarbons; • Water depth and location of the slick; and • Presence of any oiled wildlife.	Aerial and Vessel observers	

	Prior to Fixed Wing Aircraft Chemical Dispersant Application - The DIMT grant permission to begin chemical dispersion if all conditions are confirmed: • There is no coral spawn present; • There are suitable breakaway slicks of surface oil to disperse via fixed wing aircraft chemical dispersant; • The slick is confirmed to not be in water depths <20 m, within 10 km of waters depths <20 m (unless Monitor and Evaluate Plan (OSTM) has demonstrated no/minimal exposure risk to sensitive areas), within exclusion zones for offshore facilities, within a Habitat Protection Zone or National Park Zone of an Australian Marine Park (application considered in the Multiple Use Zone), and within State waters; and • Any marine fauna is sighted moving away from the area.	DIMT	
	Within 1 hour of ceasing daily response - The daily operations report to the DIMT to include: • Time, date and person recording the log; • Weather and sea-state; • Tracked locations of fixed wing aircraft chemical dispersant application (including water depths and distances from shorelines, emergent features and protected areas); • Presence and appearance of oil (using Table 3.9 – BAOAC) before and after dispersion; • Any photos, sketches and videos; • Presence of any oiled or non-oiled wildlife; and • Presence of any marine fauna and actions taken to adhere to Part 8 of the EPBC Regulations 2000 and the Australian Guidelines for Whale and Dolphin Watching (NRMMC, 2005) and that fauna were seen to be moving away from the area before Mechanical Dispersion was continued.	Aerial and Vessel observers	
	Ongoing - DIMT assess aerial chemical dispersant application effectiveness and whether to maintain, escalate or terminate during next IAP.	DIMT	

Resources Required	**Resource**	**Available From: (See Section 6.2)**
	Support vessel	Supplier(s) as per the external services contracting strategy
	Fixed wing aircraft – dispersant	AMOSC Hercules (Johor Bahru, Malaysia [Senai International Airport]) and Boeing 727 (Doncaster Sheffield Airport, UK) via OSRL.
	Observers	Trained observers from AMOSC
	Dispersant	AMOSC stockpiles AMSA stockpiles OSRL stockpiles

	Trained personnel	AMSA air tractors OSRL air tractors AMOSC core group to apply dispersant
Response Maintenance	The external services contracting strategy (Section 6.2) includes fixed wing aircraft, vessels, observers and trained personnel from AMOSC to implement, escalate and maintain chemical dispersant application response measures over the duration of an incident. Regular rotations of vessel and aircraft crews and refuelling runs will be timed appropriately to maintain the response.	
Termination	The strategy is no longer practical and/or beneficial (e.g., poor dispersant amenability, thin surface oil thickness) as a response measure by the DIMT and terminated as per the IAP.	
Documents	NatPlan NP-POL-004: National Plan Register of OSCAs for Maritime Response Use IPIECA Dispersants: surface application, IOGP Report 532, 2016 Revision	

3.6 Operational and Scientific Monitoring Plan

EOG has developed an Operational and Scientific Monitoring (OSM) Bridging Implementation Plan (996161-2022-Beehive#1-OSMIP-Rev0), aligned to the Joint Industry Operational and Scientific Monitoring Plan Framework (APPEA 2021), which will be implemented in the event of a Level 2/3 spill.

A number of Operational Monitoring Plans (OMPs) and Scientific Monitoring Plans (SMPs) form part of the Joint Industry Framework and provide standardised guidance on aims, initiation and termination criteria, monitoring design, resource requirements and reporting procedure. The OSM IP integrates with the Beehive-1 EP and OPEP and describes how the framework applies to EOG's activities and spill risks.

Section 8.8 of the EP lists the EPO, EPS and measurement criteria for this strategy.

4 Ongoing Response

4.1 Incident Action Plan (IAP)

The Incident Action Plan (IAP) process governs the ongoing response following the initial response phase (see Section 3). The IAP process facilitates the determination of appropriate strategies as more information becomes available during a spill event. The Initial IAP facilitates the transition from the Initial Response phase to an Ongoing Response. An IAP is developed for each Operational Period (as defined by the IC) following the initial response. The IAP informs incident personnel of the objectives for that operational period, the specific resources that will be applied, actions taken during the operational period to achieve the objectives, and other specific operational information (e.g., weather, constraints, limitations, etc). Figure 4.1 outlines the IAP process during a spill response. The IAP process is detailed further in the AGR Asia Pacific ERP and Beehive-1 Bridging ERP.

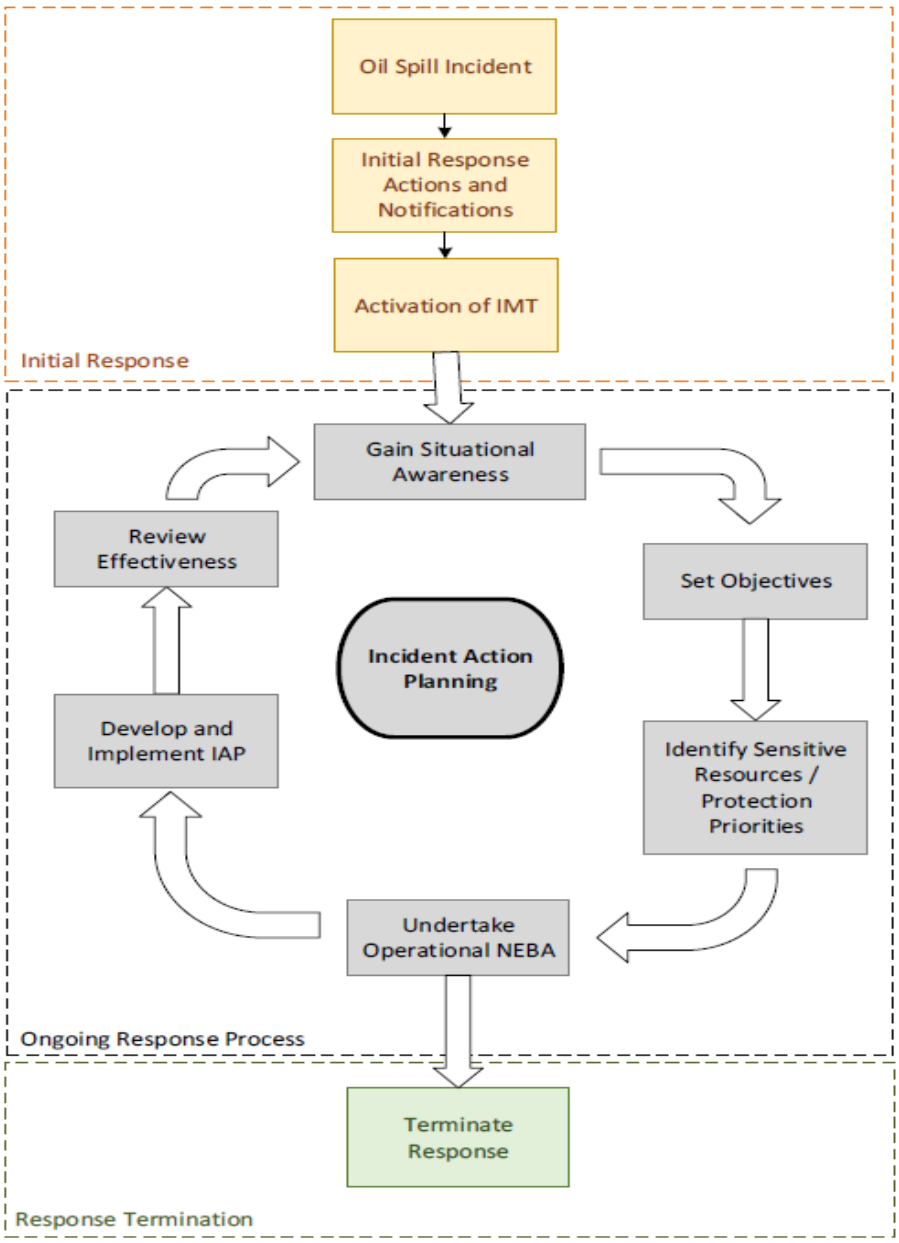

Figure 4.1 Incident Action Plan Process

4.2 Surface Dispersant Application Plan – Vessel

Preparedness modelling to evaluate the net environmental benefit of applying dispersant has shown that applying surface dispersants has the potential to reduce sea surface oil and the volume of oil loading onto shorelines, with its effectiveness likely to be limited to the immediate region near the well site where the probability of elevated surface oil concentrations is greater. However, the reduction in surface oil was concomitant with an increase in in-water hydrocarbons near the dispersant release site. A strategic NEBA conducted for the identified Protection Priority areas indicates both a potential positive and negative impact (Appendix 7 of Beehive-1 EP). An Operational NEBA is therefore required to evaluate the use of dispersants based on the incident specifics of the spill.

The Operational NEBA assessment will consider the level of benefit or impact to sensitive receptors of the identified Protection Priority Areas (Section 1.7) and any other locations predicted to be contacted by the spill. This will consider the predicted trajectory of spill with respect to the location of key receptors, and the temporal variation in sensitivity of these receptors, and make use of forecast modelling of the spill with and without dispersants to inform the assessment. Further information is provided in Appendix C.

Table 4.1 provides the initiation and termination criteria, and the implementation guide for vessel based surface dispersant use.

Section 8.8 of the EP lists the EPO, EPS and measurement criteria for this strategy.

Table 4.1 Surface dispersant application plan – Vessel

Surface Dispersant Plan – Vessel			
Initiation	Selected as secondary response measure by DIMT through IAP process for a Level 2/3 crude oil spill, or as directed by relevant Control Agency		
Aim	• Reduce the amount of hydrocarbons on the surface to mitigate exposure risks of sensitive offshore, inshore and shoreline receptors. • Reduce the amount of hydrocarbons ashore.		
Procedure	**Required Timeframe and Action (if safe)**	**Responsible**	**Done?**
	Ongoing - (Consideration of implementation of response strategy) – Implementation of response strategy considered during IAP process.	DIMT	
	Within 12 hours - (Rapid dispersant efficacy assessment via surface application trial): DIMT to consider results to inform the efficacy of surface application of available chemical dispersant types. Forecasting of environmental benefit from surface application of chemical dispersant types to be carried out via **Monitor and Evaluate Plan** (OSTM). Both the efficacy trial and forecast modelling to inform IAP to optimise the use of available dispersant types.	DIMT	
	If required – (Continued dispersant efficacy assessment via surface application trial and detailed laboratory study(s)): If necessary, further justification for surface dispersant application regarding the amenability and effectiveness of available chemical dispersants on the spilled oil to be carried out to inform the NEBA process with findings to prioritise the use of available dispersant types and to develop an appropriate combat strategy.	DIMT	
	If required – If surface slick approaches (<10 km) shallower areas (<20 m), forecasting of exposure risk to sensitive environmental resources from surface application of chemical dispersant to be carried out via Monitor and Evaluate Plan (OSTM) to inform the NEBA process.	DIMT	
	Ongoing, if required - Suitable locations for vessel based chemical dispersant application selected on basis of information from **Monitor and Evaluate Plan**.	DIMT	
	Prior to Vessel based Chemical Dispersant Application - Vessel and/or aircraft observers report the following to DIMT: • Identification of surface hydrocarbon sheens likely to be amenable to chemical dispersant application; • Presence of coral spawn; • Presence of any marine fauna and actions taken to adhere to Part 8 of the EPBC Regulations 2000, Part 5 of the Biodiversity Conservation Regulations 2018 and the Australian Guidelines for Whale and Dolphin Watching (NRMMC, 2005); • Vessel and/or aircraft observer log of hydrocarbons; • Water depth and location of the slick; and • Presence of any oiled wildlife.	Aerial and Vessel observers	

	Prior to Vessel based Chemical Dispersant Application - The DIMT grant permission to begin chemical dispersion if all conditions are confirmed: • There is no coral spawn present; • There are suitable breakaway slicks of surface oil to disperse via vessel based chemical dispersant; • The slick is confirmed to not be in water depths <20 m, within 10 km of waters depths <20 m (unless Monitor and Evaluate Plan (OSTM) has demonstrated no/minimal exposure risk to sensitive areas), within exclusion zones for offshore facilities, within a Habitat Protection Zone or National Park Zone of an Australian Marine Park (application considered in the Multiple Use Zone), and within State waters; and • Any marine fauna is sighted moving away from the area.	DIMT	
	Within 1 hour of ceasing daily response - The daily operations report to the DIMT to include: • Time, date and person recording the log; • Weather and sea-state; • Tracked locations of fixed wing aircraft chemical dispersant application (including water depths and distances from shorelines, emergent features and protected areas); • Presence and appearance of oil (using Table 3.9 – BAOAC) before and after dispersion; • Any photos, sketches and videos; • Presence of any oiled or non-oiled wildlife; and • Presence of any marine fauna and actions taken to adhere to Part 8 of the EPBC Regulations 2000 and the Australian Guidelines for Whale and Dolphin Watching (NRMMC, 2005) and that fauna were seen to be moving away from the area before Mechanical Dispersion was continued.	Aerial and Vessel observers	
	Ongoing - DIMT assess vessel based chemical dispersant application effectiveness and whether to maintain, escalate or terminate during next IAP.	DIMT	

Resources Required	**Resource**	**Available From: (See Section 6.2)**
	Support vessel	Supplier(s) as per the external services contracting strategy
	Vessels – dispersant	Support vessel/s Supplier(s) as per the external services contracting strategy.
	Observers	Trained observers from AMOSC
	Dispersant	AMOSC stockpiles AMSA stockpiles OSRL stockpiles
	Trained personnel	AMOSC core group to apply dispersant

Response Maintenance	The external services contracting strategy (Section 6.2) includes fixed wing aircraft, vessels, observers and trained personnel from AMOSC to implement, escalate and maintain chemical dispersant application response measures over the duration of an incident. Regular rotations of vessel and aircraft crews and refuelling runs will be timed appropriately to maintain the response.
Termination	The strategy is no longer practical and/or beneficial (e.g., poor dispersant amenability, thin surface oil thickness) as a response measure by the DIMT and terminated as per the IAP.
Documents	NatPlan NP-POL-004: National Plan Register of OSCAs for Maritime Response Use IPIECA Dispersants: surface application, IOGP Report 532, 2016 Revision

4.3 Containment and Recovery Plan

Booms and skimming equipment can be used to create physical barriers on the water surface to contain and recover the oil to remove or minimise the risk of oil contacting environmental, social and cultural sensitivities. This strategy is often used in the nearshore environment. Once contained, an attempt to recover the hydrocarbons from the surface waters can be undertaken.

The Operational NEBA assessment will consider the level of benefit or impact to sensitive receptors of the identified Protection Priority Areas (Section 1.7) and any other locations predicted to be contacted by the spill. This will consider the predicted trajectory of spill with respect to the location of key receptors, and the temporal variation in sensitivity of these receptors, and make use of forecast modelling of the spill with and without dispersants to inform the assessment. Further information is provided in Appendix C.

Table 4.2 provides the initiation and termination criteria, and the implementation guide for surface dispersant use.

Section 8.8 of the EP lists the EPO, EPS and measurement criteria for this strategy.

Table 4.2 Containment and recovery plan – implementation guidance

Containment and Recovery Plan			
Initiation	Selected as secondary response measure by DIMT through IAP process for a Level 2/3 crude oil spill.		
Aim	To reduce the amount of oil impacting sensitive receptors and shorelines		
Procedure	**Required Timeframe and Action (if safe)**	**Responsible**	**Done?**
	Ongoing - Consideration of implementation of response strategy – Implementation of response strategy considered during IAP process.	DIMT	
	Within 1 day of decision to implement - Request support vessels, waste services, containment and recovery equipment, and support personnel (labourers and AMOSC/AMSA trained operators) and the following: • Appropriate offshore vessels to collect oil in proximity to the spill site. Supported by waste transfer vessels sourced from External Services Contracting Strategy. • AMOSC and AMSA equipment (offshore booms, skimmers) stockpiles will be mobilised to Marine Operations Base and the Forward Operations Base. • Equipment and personnel requirements have been reviewed and approved (e.g. offshore booms, skimmers, waste transfer vessels with appropriate storage (IBC, iso-containers, vessel deck storage units, towable storage units).	Operations Section Chief	
	Within 1 week of decision to implement – Containment and recovery operations carried out as instructed by the DIMT with emphasis on slicks where elevated probability of shoreline contact of sensitive areas has been predicted.	DIMT	
	Prior to and during containment and recovery operations - Observers are required to report the following to the OSC (and a summary to be reported to the Operations Section Chief by the OSC in the daily operations report): • Presence of any marine fauna and actions taken to adhere to Part 8 of the EPBC Regulations 2000, Part 5 of the Biodiversity Conservation Regulations 2018 and the Australian Guidelines for Whale and Dolphin Watching (NRMMC, 2005). • Vessel observer log of hydrocarbons. • Visible shallow habitats. • Presence any oiled or non-oiled wildlife.	Observers OSC	
	Ongoing – Recovery and waste transfer vessels will store the recovered oily water in suitable containers that will remain in the collection tanks and will be handled as per the Waste Management Plan (Section 4.7).	Vessel Master	
	Ongoing - DIMT to alert the OWR team (refer to Section 4.6) of the presence of large wildlife (such as birds, cetaceans or turtles) during containment and recovery response operations.	DIMT	

	Ongoing – Containment and recovery response vessels to report the following daily (daily operations report) within 1 hour of ceasing daily response activities: • Vessel location and presence of oil • Summary of oil recovery operations • Volume of oil recovered • Appearance of oil (using Table 3.9 – BAOAC) • Presence of any oiled or non-oiled wildlife • Presence of any marine fauna and actions taken to adhere to Part 8 of the EPBC Regulations 2000, Part 5 of the Biodiversity Conservation Regulations 2018 and the Australian Guidelines for Whale and Dolphin Watching (NRMMC, 2005) • HSE, logistical requirements, any impacts of operation and areas for improvement	Vessel Master	
	Ongoing - The DIMT use the information in the daily operations report to decide the status (maintain, escalate, terminate) of containment and recovery response activities.	DIMT	
	Ongoing - Before vessels (recovery or waste transfer) return to base, containment booms to be set-up around the vessel in open water in proximity to the spill (immediately after they have exited the operational area) and high-pressure water used to wash oil from the hull. Sorbent boom is to be used to recover the oil from within the containment boom.	Vessel Master	
	Ongoing –Booms and skimmers will be cleaned (and repaired if needed) in a dedicated area within the Marine Operations Base that is covered with HDPE plastic that drain into a collection sump augmented with a submersible pump to allow transfer of washdowns to an above ground temporary waste storage tank. Waste contractor will collect the liquid waste and transport it to nominated facility for disposal or recycling as per the Waste Management Plan (Section 4.7).	Waste Contractor	
	Ongoing - Recovered oily water will be transferred onshore when a vessel returns to shore with a licensed waste management contractor and dispose of wastes in a suitably classed State waste disposal site as per the Waste Management Plan (Section 4.7).	Waste Contractor	
	Ongoing - Volumes of recovered oil will be measured during offloading at the Marine Operations Base (likely at Dampier) and recorded into waste manifest as per the Waste Management Plan (Section 4.7).	Waste Contractor	

Resources Required	**Resource**	**Available From: (See Section 6.2)**
	Recovery and waste transfer vessels	Supplier(s) as per the external services contracting strategy
	Containment and recovery equipment (booms, recovery devices, vessel deck / towable storage	AMOSC, AMSA, OSRL, Mutual Aid MOU
	Team Leaders	AMOSC core group OSRL (escalation)
	Observers	AMOSC core group
	Waste Contractor	Supplier(s) as per the external services contracting strategy
	Support personnel	Supplier(s) as per the external services contracting strategy
Response Maintenance	The external services contracting strategy (Section 6.2) includes vessels and trained responders to escalate and to maintain offshore containment and recovery as a response measure over the duration of an incident. The external services contracting strategy also considers the allocation of additional vessels. Regular rotations of vessel crews and refuelling runs will be timed appropriately to maintain the response.	
Termination	The Monitor and Evaluate Plan indicates hydrocarbons no longer predicted or observed to impact sensitive receptors and shorelines, or the strategy is assessed as no longer practical as a response measure by the DIMT and terminated as per the IAP.	
Documents	IPIECA At-sea containment and recovery, IOGP Report 522, 2016 Revision	

4.4 Shoreline Protection and Deflection Plan

Shoreline protection and deflection is part of an integrated nearshore and shoreline response to be controlled by the relevant Control Agency (WA DoT and/or NT IC). EOG will undertake first-strike protection and deflection activities as required and will direct resources (equipment and personnel) for the purposes of shoreline protection to the relevant Control Agency.

The information provided here is included for planning purposes and represents EOG's first-strike response for protection and deflection activities. Table 4.3 provides the initiation and termination criteria, and the implementation guide for shoreline protection and deflection.

Section 8.8 of the EP lists the EPO, EPS and measurement criteria for this strategy.

Table 4.3 Shoreline protection and deflection plan

Shoreline Protection and Deflection Plan			
Initiation	Selected as secondary response measure by DIMT through IAP process for a Level 2/3 crude oil spill, or as directed by relevant Control Agency		
Aim	To reduce the amount of oil impacting shorelines or coastal sensitivities		
Procedure	**Required Timeframe and Action (if safe)**	**Responsible**	**Done?**
	Ongoing - (Consideration of implementation of response strategy) – Implementation of response strategy considered during IAP process.	DIMT	
	Within 1 day of decision to implement - Request support vessels, support aircraft, waste services, booming and skimming equipment and support personnel (labourers, at least one AMOSC and/or AMSA trained boom operators per vessel/ shoreline boom) to Marine Operations Base (Section 5.1) and/or Forward Operations Base (Section 5.2) and the following: • Appropriate vessels (shallow draft) to deliver personnel and equipment to shorelines, and to deploy and retrieve equipment will be required, as well as 4WD vehicles on the mainland. Supported by larger vessels. • AMOSC and AMSA equipment stockpiles will be mobilised with availability of further supplies (if required) from AMSA's and AMOSC's Exmouth, Broome, Fremantle and Geelong stockpiles, and OSRL's Singapore stockpiles if needed. • Equipment and personnel requirements have been reviewed and approved (e.g., nearshore booms include beach guardians, zoom booms, short curtain booms and sorbent booms). • If recovery of oily water is planned, then vessels must come equipped with IBC containers or iso-containers.	DIMT	
	Within 3 days of decision to implement - DIMT to assess deployment locations for booms with information from Monitor and Evaluate Plan, Operational and Scientific Monitoring Plan, IAP procedure and WA DoT/NT IC/AMOSC/AMSA recommendations. DIMT to evaluate use of offshore booms to restrict response impact on highly sensitive shorelines via deflection of hydrocarbons to other less sensitive areas as part of the NEBA. Use of OSRA and SCAT information to develop tactical response plans for key priority sensitivity areas that may be impacted by small, weathered hydrocarbon slicks.	DIMT	
	Within 1 week of decision to implement - Deploy booms as instructed by the DIMT where shoreline contact of sensitive areas has been predicted.	DIMT	
	Prior to and during boom deployment - Observers are required to report the following to the OSC (and a summary to be reported to the Operations Section Chief by the OSC in the daily operations report): • Presence of any marine fauna and actions taken to adhere to Part 8 of the EPBC Regulations 2000, Part 5 of the Biodiversity Conservation Regulations 2018 and the Australian Guidelines for Whale and Dolphin Watching (NRMMC, 2005). • Observer log of hydrocarbons. • Visible shallow habitats.	Observers OSC	

	• Presence any oiled or non-oiled wildlife.		
	Prior to and during boom deployment - The Operations Section Chief (or delegate) will grant permission to deploy 'nearshore' booms if all conditions are confirmed including: • Vessel observers/aerial observers/SCAT confirm that there are no sensitive marine fauna currently utilising the shoreline. • There is suitable habitat to anchor the booms upon (not on seagrass or coral reef). • That Protection and Deflection team will be aware of sensitive shoreline areas with restricted or prohibited access on the basis of SCAT reports and WA DoT/NT IC/AMOSC/AMSA guidance. If required barriers will be erected to guide this.	Operations Section Chief	
	Ongoing - Vessels and shoreline crews will store the recovered oily water in suitable containers that will remain in the collection tanks and will be handled as per the Waste Management Plan (Section 4.7).	Vessel Master	
	Ongoing – Operations Section Chief to alert the OWR team (refer to Section 4.6) of the presence of large wildlife (such as birds, cetaceans or turtles) during protect and deflect response operations.	Operations Section Chief	
	Ongoing - Protect and deflect response vessels to report the following daily within 1 hour of ceasing daily response activities (and a summary to be reported to the Operations Section Chief by the OSC in the daily operations report): • Vessel location and presence of oil • Length, type and amount of booms deployed • Volume of oil recovered • Appearance of oil (using BAOAC) • Presence of any oiled or non-oiled wildlife • Presence of any marine fauna and actions taken to adhere to Part 8 of the EPBC Regulations 2000, Part 5 of the Biodiversity Conservation Regulations 2018 and the Australian Guidelines for Whale and Dolphin Watching (NRMMC, 2005) • HSE, logistical requirements, any impacts of operation and areas for improvement.	Vessel Master OSC	
	Ongoing - The DIMT use the information in the daily operations report to decide the status (maintain, escalate, terminate) of protection and deflection response activities.	DIMT	
	Ongoing - Before vessels return to base, containment booms to be set-up around the vessel in open water in proximity to the spill (immediately after they have exited the operational area) and high-pressure water used to wash oil from the hull. Sorbent boom is to be used to recover the oil from within the containment boom.	Vessel Master	
	Ongoing - Booms will be cleaned (and repaired if needed) in a dedicated area within the Marine Operations Base that is covered with HDPE plastic that drain into a collection sump augmented with a submersible pump to allow transfer of washdowns to an above ground temporary waste storage tank. Waste contractor will collect the liquid waste and	Waste Contractor	

	transport it to nominated facility for disposal or recycling as per the Waste Management Plan (Section 4.7).		
	Ongoing - Recovered oily water will be transferred onshore when a vessel returns to shore with a licensed waste management contractor and dispose of wastes in a suitably classed State waste disposal site as per the Waste Management Plan (Section 4.7).	Waste Contractor	
	Ongoing - Volumes of recovered oil will be measured during offloading at the Marine Operations Base and recorded into waste manifest as per the Waste Management Plan (Section 4.7).	Waste Contractor	

Resources Required	**Resource**	**Available From: (See Section 6.2)**
	Support vessels	Supplier(s) as per the external services contracting strategy
	Booms and skimming equipment	AMOSC, OSRL, AMSA. Mutual Aid MoU
	Team Leaders	AMOSC core group WA SRT and NRT (escalation)
	Vessel Observers	AMOSC core group WA SRT and NRT (escalation)
	Waste Contractor	Supplier(s) as per the external services contracting strategy
	Support personnel	Supplier(s) as per the external services contracting strategy
Response Maintenance	The external services contracting strategy (Section 6.2) includes vessels and trained responders to escalate and to maintain shoreline protection and deflection as a response measure over the duration of an incident. The external services contracting strategy also considers the allocation of additional vessels. Regular rotations of vessel crews and refuelling runs will be timed appropriately to maintain the response.	
Termination	Monitor and Evaluate Plan indicates hydrocarbons no longer predicted or observed to impact the identified priority protection area or the strategy is assessed as no longer practical as a response measure by the DIMT and terminated as per the IAP.	
Documents	OSRA OPEP	

4.5 Shoreline Clean-up Plan

Shoreline clean-up is part of an integrated nearshore/shoreline response to be controlled by WA DoT and/or NT IC as the relevant Control Agency(ies). EOG will undertake first-strike activations as triggered (refer below), until such time as Control Agency/ies assume control. Upon assumption of Control Agency responsibilities, WA DoT and/or NT DIPL will direct resources (equipment and personnel) provided by EOG for the purposes of shoreline clean-up.

Several shoreline types may be impacted by oil, which will require tailored cleaning methods. The most appropriate clean-up method will be assessed and identified by the DIMT, WA DoT, NT IC and response team members (e.g., AMOSC) in the IAP at the start of each operational round.

Each shoreline clean-up response activity will be assessed via a NEBA at each potentially impacted sensitive shoreline with inputs from relevant organisations (e.g., DBCA, WA DoT, AMOSC, AMSA), the Monitor and Evaluate Plan (operational monitoring) information and known key shoreline sensitivities and receptors as described in the EP and Oil Spill Response Atlas (OSRA). The decision to undertake shoreline clean-up for a particular shoreline segment will be documented within the operational NEBA and incorporated into the IAP if undertaken. The personnel, timeframes and resources detailed in Section 6.3 represent a worst-case scenario for a Level 3 spill and are to be used as a guide only.

Table 4.4 provides the initiation and termination criteria, and the implementation guide for shoreline clean-up.

Section 8.8 of the EP lists the EPO, EPS and measurement criteria for this strategy.

Table 4.4 Shoreline clean-up plan

Shoreline Clean-up Plan			
Initiation	Selected as secondary response measure by DIMT through IAP process for a Level 2/3 crude oil spill, or as directed by relevant Control Agency.		
Aim	Removal of hydrocarbons from impacted shorelines: • To accelerate shoreline recovery • To reduce further impacts to the environment including wildlife and humans • To reduce re-mobilisation of hydrocarbons to marine waters from the shore due to tides and waves		
Procedure	**Required Timeframe and Action (if safe)**	**Responsible**	**Done?**
	Ongoing - (Consideration of implementation of response strategy) – Implementation of response strategy considered during IAP process.	DIMT	
	Within 1 day of DIMT decision to implement - Request support vessels, support aircraft, waste services, skimming and pumping equipment and support personnel (labourers, marine ecologists, AMOSC Core Group Members, Wildlife Specialists) to Marine Operations Base. AMOSC and AMSA equipment stockpiles at Broome, Dampier and Exmouth will be mobilised. Additional stockpiles at Perth and Geelong are available for escalation.	DIMT	
	Within 2 days of DIMT decision to implement - Operations Section Chief to direct Shoreline Assessment and Clean-up Teams (SCATs) to locations of potential shoreline clean-up response on the basis of information from Monitor and Evaluate Plan and Control Agency advice. Initiate mobilisation of shoreline clean-up resources.	Operations Section Chief	
	Within 1 week of DIMT decision to implement – Shoreline clean-up activities initiated where: • If required, establishment of Shoreline Staging Area(s) and/or Forwards Operation Base(s) (to be determined in consultation with relevant Control Agency) for possible shoreline clean-up activities at shorelines likely to be contacted. • Appropriate vessels (shallow draft) to deliver personnel and equipment to shorelines and to deploy and retrieve equipment. 4WD vehicles will also be used for mainland sites. Larger vessels to support shoreline clean-up response measures as appropriate. • For island shoreline clean-up operations waste transfers (if required), vessels must come equipped with intermediate bulk container (IBC) containers or iso- containers for recovered oily water provided by waste contract manager.	DIMT	
	Ongoing - SCAT shoreline evaluation log to OSC (and summary to Operations Section Chief by the OSC in the daily operations report) detailing within 2 hours of completion of shoreline assessment the following to provide inputs for NEBA of shoreline clean-up response: • Shoreline habitats • Shoreline substrates	SCAT OSC	

	• Observed or evidence of sensitive marine fauna or flora • Areas that require restricted or prohibited access (in terms of time or area) • Recommendations for shoreline clean-up methods • Effectiveness of shoreline clean-up response activities		
	Ongoing - SCAT team members will be responsible for preparing field maps and forms detailing the area surveyed and make specific clean-up recommendations. Team members will verify the effectiveness of clean-up, modifying guidelines as needed if conditions change through provision of SCAT shoreline evaluation logs. The SCAT team responsibilities include: • Evaluate oiling conditions; • Factor in shoreline types; • Identify sensitive resources; • Determine need for clean-up; • Recommend clean-up methods and endpoints; and • Place constraints on clean-up if necessary, due to safety, ecological, economic or cultural concerns.	SCAT	
	Within 1 hour of completion of daily operations - Each shoreline clean-up team and vessels conducting transfers are required to report the following to the OSC and DIMT in the Daily Operations Report: • Presence of any marine fauna and actions taken to adhere to Part 8 of the EPBC Regulations 2000, Part 5 of the Biodiversity Conservation Regulations 2018 and the Australian Guidelines for Whale and Dolphin Watching (NRMMC, 2005) • Presence of any oiled or non-oiled wildlife • Appearance of oil (using BAOAC) • Volume of oil recovered • Volume of oily wastes collected • Types of oiled habitats and oiled substrates present • Methods in which oiled habitats/substrates were cleaned • Areas that have prohibited or restricted entry	SCAT team/ Vessel Master	
	Ongoing - The DIMT need to alert the OWR team (Section 4.6) of the presence of large wildlife (such as birds, cetaceans or turtles)	DIMT	
	Ongoing – If required, liquids will be transferred into IBCs for transport to a less sensitive area with temporary bunding installed for storage of IBCs, pending one of three potential operations: • IBCs will be directly loaded onto tray/tautliner trucks for removal from the area; • IBCs will be decanted into iso-containers and sent back to the shoreline for ongoing use; and/or • IBCs will be drained with licensed vacuum tankers, and sent back to the shoreline for ongoing use.	Waste Contractor	

	Ongoing - Recovered oily wastes will be transferred from the shoreline by vessel/freight using a licensed waste management contractor and dispose of wastes in a suitably classed waste disposal site, as per the Waste Management Plan (Section 4.7).	Waste Contractor	
	Ongoing - Volumes of recovered oil will be measured during offloading onshore. Recovered volumes will be recorded into EOG waste manifest.	Waste Contractor	
	Ongoing - The DIMT use the information contained in the Daily Operations Report, monitor and evaluate information and further SCAT reports to decide on further shoreline clean-up responses or escalation of response depending on its effectiveness.	DIMT	

Resources required	**Resource**	**Available From: (See Section 6.2)**
	Support vessel(s)	Supplier(s) as per the external services contracting strategy
	4WD vehicles	Local Suppliers
	Boom and skimming equipment	AMOSC, AMSA, OSRL
	Team Leaders	AMOSC core group WA SRT and NRT (escalation)
	Waste Contractor	Supplier(s) as per the external services contracting strategy
	Support personnel	
	Shoreline staging area(s)	
	Forward Operations Base(s)	
	Machinery and tools	
Response maintenance	The external services contracting strategy (Section 6.2) will be followed to secure vessels and trained responders to escalate and to maintain shoreline clean-up as a response measure over the duration of an incident. The external services contracting strategy also considers the allocation of additional vessels, personnel, equipment and service providers. Regular rotations of personnel will be timed appropriately to maintain the response. EOG has access to AMOSC and OSRL personnel and equipment though valid contracts and MoUs to escalate the response if required.	
Termination	Clean-up activities can have no further benefit to reducing long lasting impacts to environmental and social sensitivities caused by the spill. This criteria will only be met with consultation from stakeholders and the relevant Control Agency.	
Documents	OSRA mapping Beehive-1 Drilling OPEP Beehive-1 OSMIP	

4.6 Oiled Wildlife Response Plan

Table 4.5 lists the agency classifications for OWR.

Table 4.5 OWR jurisdictional responsibilities

Jurisdiction	Control Agency	Jurisdictional Agency
Commonwealth waters	EOG	Not applicable
WA waters	WA DoT*	DBCA
NT waters		DEWPS

* Lead IMT for OWR when spill occurs in both Commonwealth and WA waters.

The key plan for OWR in WA is the WA Oiled Wildlife Response Plan (WAOWRP). The WAOWRP has been developed by DBCA and AMOSC to define the minimum standards for OWR in WA. The WAOWRP can also be used for guidance to OWR in Commonwealth and/or Territory waters. If the WAOWRP is activated a Wildlife Division Coordinator (WDC) will be established by WA DoT and will liaise with the DIMT to identify and coordinate the necessary OWR functional units of the Oiled Wildlife Division (OWD). The OWAs and WDC will provide advice to the DIMT on the level of OWR required and will ensure provision of resources to support OWR operations.

For OWR in WA/NT waters, EOG will provide all necessary resources to assist the WA DoT and/or the NT IC as the Control Agencies (initially through its access to AMOSC oiled wildlife resources). AMOSC (through AMOSPlan) has a combination of owned and operated equipment, call-off contracts with suppliers and Oiled Wildlife Advisors (OWAs). Industry responders are also available through AMOSC mutual aid arrangements.

For spills contained solely in Commonwealth Waters, AMOSC would provide the above resources to the DIMT and be supported by the WA DCBA and/or the NT DEWPS. The decision to implement OWR will be made by the DIMT with advice from OWAs based on information from the Monitor and Evaluate Plan, Operational and Scientific Monitoring Plan and the operational NEBA.

Table 4.6 provides the initiation and termination criteria, and the implementation guide.

Section 8.8 of the EP lists the EPO, EPS and measurement criteria for this strategy.

Table 4.6 Oiled wildlife response plan

Oiled Wildlife Response Plan			
Initiation	Selected as secondary response measure by DIMT through IAP process for a Level 2/3 crude oil spill, or as directed by relevant Control Agency		
Aim	Safely and effectively capture oiled wildlife for treatment and subsequent rehabilitation and release. Prioritise treatment of priority species of conservation value and to carry out humane triage operations when necessary and resources are limited. Prevent (e.g., through hazing) oiling of wildlife threatened by slicks.		
Procedure	**Required Timeframe and Action (if safe)**	**Responsible**	**Done?**
	Ongoing - Consideration of implementation of response strategy – Implementation of response strategy considered during IAP process.	DIMT	
	Within 1 day of decision to implement – OWA(s) mobilised (if required) through notification of DBCA, DEWPS and AMOSC.	DIMT	
	Within 1 day of decision to implement – Request AMOSC to mobilise OWR initial response equipment (if required) situated in Exmouth, Karratha and Broome, and containerised washing facility in Perth.	DIMT	
	Within 1 day of decision to implement – Notify WA DoT MEER unit and DBCA that OWR equipment is being mobilised (if required).	DIMT	
	Within 1 day of decision to implement – Request AMOSC to establish Oiled Wildlife Division (OWD) and WDC (if required).	DIMT	
	Within 1 week of decision to implement – Request AMOSC to mobilise trained OWR responders and resources (if required).	DIMT	
	Ongoing* - Pre-emptive capture of turtles (particularly juvenile life stages) if shoreline contact occurs during turtle nesting season should be considered on a case-by-case basis and decided upon following consultation with State regulatory agencies. Auditory hazing techniques may also be used for moving large flocks of shorebirds out of 'at risk' areas.	DIMT	
	Ongoing* - Oiled wildlife recovery teams deployed to assigned shoreline segments as described in the IAP. Oiled wildlife to be transported from oiled location to a staging area, and then onwards to the wildlife washing and rehabilitation facility.	DIMT	
	Ongoing* - Staging sites will be opportunistically established at existing beach access points along the WA coastline (multiple access points may be available). To minimise the impact on economic activities in the area, staging sites should be established away from National Park camping grounds unless closed to the public due to oiled beaches. DBCA will be the lead agency for these decisions.	DIMT	
Resources Required	**Resource**	**Available From: (See Section 6.2)**	
	OWA and WDC	DBCA. AMOSC core group.	

	Trained OWR (operations) personnel to act as field supervisors of OWR recovery and rehabilitation teams	AMOSC core group. WA SRT and AMSA NRT (escalation).
	Support personnel	Supplier(s) as per the external services contracting strategy
	DBCA and veterinarians	Guidance on basis of WAWORP.
	OWR kits	AMOSC at Broome and Exmouth. OSRL Singapore (escalation). AMSA at Fremantle and Karratha.
	OWR container cleaning station	AMOSC mobilised from Fremantle and Geelong. OSRL Singapore (escalation).
	Support aircraft	Suppliers as per the external services contracting strategy
	Support vessels	
	Waste contractor	
Response Maintenance	EOG is a member of OSRL and AMOSC with access to OWR equipment as per the external services contracting strategy in Section 6.2. EOG can also request additional AMOSC resources through the AMOSPlan if required. If even greater escalation is required then additional resources can be accessed through the NatPlan via AMSA.	
Termination	Relevant Jurisdictional Authority is satisfied that OWR efforts are no longer required and accepts DIMT request to terminate the response.	
Documents	Western Australian OWR Plan (WAOWRP) (DPaW, 2014a). AMOSPlan NatPlan	

* Ongoing response will likely be implemented as per the WAOWRP once activated and this specific response may or may not be required.

4.7 Waste Management Plan

The implementation of spill response strategies may generate significant amounts of waste that will require rapid management, storage, transport and disposal. Appropriate waste management is required during implementation of spill response options to not inhibit clean-up activities or further impact the environment. Types of waste to be managed in the event of a Level 2/3 spill will likely include:

- Contaminated hard waste (sand, rocks, vegetation, etc.)
- Liquids (hydrocarbons and contaminated water)
- Contaminated materials, personal protective equipment (PPE) and other consumables.

All solid wastes will be managed, containerised and transported onshore for recycling and disposal by licensed waste contractors. All hazardous waste materials will be stored in appropriate containers as per requirements of the material safety data sheet (MSDS or SDS) for each substance, and in line with all applicable regulations. The type and amount of waste generated during a spill response will vary depending on the spill type/characteristics, volume released, and response strategies implemented. To account for this potential variability, waste management (including handling and capacity) needs to be scalable to allow a continuous response to be maintained.

Where EOG is the Control Agency (i.e., in Commonwealth waters), or at the request of the designated Control Agency, EOG will engage its contracted Waste Service Provider (WSP) to provide sufficient waste receptacles to store collected waste and manage oily waste collection, transport and disposal associated with spill response activities. The WSP will arrange for all personnel, equipment and vehicles to carry out these activities from nominated collection points to the final disposal points.

Where the WA DoT is the Control Agency, EOG will provide a Facilities Support Officer to the WA DoT IMT Logistics Unit to support in coordinating waste management services. Where the NT IC is the Control Agency, EOG will provide support to the NT Waste Management Coordinator.

Table 4.6 provides the initiation and termination criteria, and the implementation guide.

Section 8.8 of the EP lists the EPO, EPS and measurement criteria for this strategy. Appendix C provides further guidance.

Table 4.7 Waste management plan

Waste Management Plan			
Initiation	Selected as response measure by DIMT through IAP process for a Level 2/3 crude oil spill, or as directed by relevant Control Agency		
Aim	Removal of waste hydrocarbons generated from various oil spill responses (e.g. source control, containment and recovery, protection and deflection and shoreline clean-up): • To support spill site and shoreline clean-up recovery • To reduce further impacts to the environment including wildlife and humans • To reduce re-mobilisation of hydrocarbons to marine waters from the shore due to tides and waves		
Procedure	**Required Timeframe and Action (if safe)**	**Responsible**	**Done?**
	Ongoing - Consideration of implementation of response strategy – Implementation of response strategy considered during IAP process.	DIMT	
	Within 1 day of decision to implement - Request support vessels, waste services (e.g. trucks, IBCs, clean-up equipment, disposal receptacles) and support personnel (labourers) to Marine Operations Base (Section 5.1), Forwards Operation Base (Section 5.2) and/or Shoreline Staging Area(s) if readily accessible (Section 5.3) and the following: • If required, establish additional Shoreline Staging Areas for possible waste management activities for the likely shoreline to be contacted along the mainland coasts. • Waste transfer vessels sourced according to the external services contracting strategy supporting offshore vessels collecting oil in proximity to the spill site • Appropriate vessels (shallow draft) to deliver waste management personnel and waste storage equipment to shorelines and to deploy and retrieve stored waste material. 4WD vehicles will also be used for mainland sites. Larger vessels (sourced according to the external services contracting strategy) to support waste management response measures as appropriate. • Depending on how much oil is likely to be at the spill site and to reach shorelines, refer to Appendix C for worst-case shoreline loading estimates to guide waste management resources needs. • For marine containment and recovery operations, appropriate vessel deck and/or towable storage units for recovered oily water provided by waste contractor from existing stockpiles and procured. • For island shoreline clean-up operations waste transfers (if required), vessels must come equipped with IBC containers or iso-containers for recovered oily water/solids provided by waste contractor or, existing stockpiles and procured.	DIMT	
	Within 1 day of decision to implement - Initiate mobilisation of waste management resources.	DIMT	
	Within 1 week of decision to implement – Waste management activities initiated.	DIMT	
	Ongoing – OSC (and a summary to be reported to the Operations Section Chief by the OSC in the daily operations report) detailing within 2 hours of completion of shoreline assessment the following to provide inputs for waste management	SCAT OSC	

	response: • Recommendations for waste management methods • Effectiveness of waste management response activities		
	Within 1 hour of completion of daily operations - Each waste management team and vessels conducting waste transfers are required to report the following to the OSC: • Volume of oil recovered • Volume of oily wastes collected	SCAT team/ Vessel Master	
	Ongoing – If required, liquids will be transferred into IBCs for transport to a less sensitive area with temporary bunding installed for storage of IBCs, pending one of three potential operations: • IBCs will be directly loaded onto tray/tautliner trucks for removal from the area; and/or • IBCs will be drained with licensed vacuum tankers and sent back to the shoreline for ongoing use.	Waste Contractor	
	Ongoing - Recovered oily wastes will be transferred from the shoreline by vessel/freight using a licensed waste management contractor and dispose of wastes in a suitably classed State waste disposal site, as per this Waste Management Plan.	Waste Contractor	
	Ongoing - Volumes of recovered oil will be measured during offloading at port. Recovered volumes will be recorded into waste manifest.	Waste Contractor	
	Ongoing - The DIMT use the information contained in the Daily Operations Report, containment and recovery/shoreline protection and deflection/shoreline clean-up reports to decide on further waste management responses or escalation of response depending on its effectiveness.	DIMT	

Resources Required	**Resource**	**Available From: (See Section 6.2)**
	Support vessel(s)	Supplier(s) as per the external services contracting strategy
	4WD trucks and vehicles	Local Suppliers
	Waste Contractor	Supplier(s) as per the external services contracting strategy
	Support personnel	
	Shoreline staging area(s)	
	Forward Operations Base	
	Machinery and tools	
Response Maintenance	The external services contracting strategy will be followed to secure waste transport vessels, waste transport vehicles and trained waste personnel to escalate and to maintain waste management as a response measure over the duration of an incident. It also considers the allocation of additional waste transport vessels, waste transport vehicles, personnel, equipment and service providers. Regular rotations of personnel will be timed appropriately to maintain the response.	

	EOG has access to further personnel and equipment though valid contracts and MoUs to escalate the response if required.
Termination	Waste management activities no longer required as oil spill response arrangements (containment and recovery, shoreline protection and deflection, and shoreline clean-up) have no further benefit to long lasting impacts to environmental and social sensitivities caused by the spill. This criterion will only be met with consultation from stakeholders and the WA DoT.
Documents	OSRA. AMSA Marine Order 32 – Cargo Handling Equipment 2011. IMO MSC/Circ.860 Guidelines for the Approval of Offshore Containers Handled in Open Seas. IPIECA Guidelines for Oil Spill Waste Minimisation and Management (IPIECA-OGP, 2014). DNV 2.7-1 certified units.

5 Forward Operations Plan

5.1 Marine Operations Base

If instructed by the DIMT, the Marine Operations Base contractor (see Section 6.2) will assist EOG in the establishment, maintenance and removal of the Marine Operations Base, and will subcontract services to provide required services (e.g. catering facilities, power, ablutions). A Waste Management Contractor (see Section 6.2) will set up the non-oily and oily waste management infrastructure, and associated logistics at the Marine Operations Base. Supplies to the Marine Operations Base will be provided by (or the responsibility of) the Marine Operations Base contractor (see Section 6.2).

5.2 Forward Operating Base(s)

For a significant Level 2/3 response requiring coordination of resources deployed to the field, EOG will set up a Forward Operating Base (FOB) in Darwin. Although Darwin is 300 km from the Beeehive-1 location, it is the closest centre with sufficient resources to support a spill response (e.g., accommodation for a large number of personnel). Towns nearest to Beehive-1 (e.g., Wadeye, Wyndham, Kununurra, Kalumburu) are too small and remote to readily support the personnel required for a response to a LoWC, though Wyndham may be a backup location for vessel-based activities as it has a jetty.

For a Level 2/3 spill crossing from Commonwealth to WA and/or NT waters, the WA DoT and /or the NT IC will establish a FOB. Appendix B details the requirements for EOG providing personnel to a WA DoT and/or NT IMT FOB.

If instructed by the DIMT, the FOB contractor (see Section 6.2) will assist EOG in the establishment and maintenance of the FOB, and will subcontract services to provide required services (e.g., catering facilities, power, ablutions). A Waste Management Contractor (see Section 6.2) will set up the non-oily and oily waste management infrastructure, and associated logistics at the FOB. Supplies to the FOB will be provided by the FOB contractor (see Section 6.2).

5.3 Shoreline Staging Area(s)

If instructed by the DIMT, the Shoreline Staging Area contractor (see Section 6.2) will set up and maintain the shoreline staging area(s) closer to response activities (location TBD with WA DoT and/or NT IMT at time of incident response) and supply the shoreline clean-up equipment. Shoreline clean-up equipment and other supplies to the Shoreline Staging Area(s) will be transported by the Shoreline Staging Area contractor. The Waste Management Contractor (see Section 6.2) will set up cold, warm and hot zones and control points between the zones established as per industry-standard Standard Operating Procedures (SOPs).

5.4 Oiled Wildlife Response Centre(s)

In addition to the AMOSC OWR container, OWR operations require significant space with freshwater supply, wastewater and solid waste handling, lighting, power, crib room and toilets. The OWR Centre will be established and maintained initially at the FOB(s) as appropriate under instruction by the DIMT to decrease transit times of oiled wildlife. The OWR Centre(s) will be established and supported by AMOSC initially via OWR kits located in Exmouth and mobilisation of an OWR container from Fremantle. AMSA also have an OWR kit and container that could be mobilised by road and/or vessel to the FOB.

5.5 Waste Transfer Station(s)

Ideally, waste material will be dispatched immediately to the final waste processing plants. Industry experience with previous spills has shown that delays in the establishment of waste handling supply chains and resultant secondary contamination can result in additional clean-up effort when waste is not handled properly and timely. Given the predicted potential for significant waste volumes to be generated (Appendix C), the set-up of a proper fit-for-purpose waste handling supply chain is critical in the event of substantive response efforts in terms of shoreline clean-up, offshore containment and recovery, and protection and deflection measures. As mentioned previously, a waste transfer station will be established at the Marine Operations Base, and if required at the FOB(s). Waste transfer stations will also be established at Shoreline Staging Areas so that waste can be properly handled by the Waste Management Contractor.

5.6 Logistics

Table 5.1 summarises logistical considerations for the Marine Operations Base, FOB(s), OWR Centre(s) and Waste Transfer Station(s). Depending on the location of the shoreline staging area(s) in terms of proximity to towns some of these services may be required, which will be set up by the Shoreline Staging Area(s) contractor.

Table 5.1 Logistical considerations

Consideration	Details
Transport, Mobile Plant	• Transportation on shoreline locations will be supported by 4x4 vehicles and all-terrain vehicles. These can be supplied by locally and nationally through hire/purchase 3rd parties. • Mobile plant and equipment for mechanical clean-up in initial response can be provided from suppliers in Darwin or Perth as required. • Transport provided by vessel contractors and their tenders, fixed wing contractors and helicopter contractors where possible • Mainland transport contractor for freight
Accommodation	• Where possible local facilities will be utilised to accommodate response personnel, however transportable accommodation and messing facilities can be supplied through contract suppliers if required. • Accommodation on support vessels. • EOG has access to transportable accommodation and messing facilities supplied through specialist facilities management companies. • Where additional support and remote accommodation is required, EOG would engage the services of integrated logistics and materials management service companies, who provide a complete service for remote messing and accommodation, inclusive of transportation, laundry, potable water, etc. • Transportation to respective work sites would be facilitated via modal and multimodal transport solutions, dictated by the geographical constraints of each site. Under current contractual arrangements, EOG has access to transportation providers for Land, Air and Marine operations. In general, transport between accommodation locations and operational areas would be via road using the services of a third-party supplier. Should additional services be required to meet the demand, this would be engaged under a Service Agreement as determined and authorised by the DIMT.
Communications	• EOG would utilise the services of a specialist communication provider, mutual aid arrangements, or control agency arrangements to access hand-held and vehicle mounted UHF radios to support response and clean-up personnel. Portable

Consideration	Details
	deployed repeater stations (battery or mains powered) can be positioned along the shoreline to provide a 'voting' system for transmitting and receiving during the clean-up operation. • Use of satellite phones • Provision of laptops, wireless internet hubs, routers, printers, generators • Use of a local high gain antenna with a mobile phone repeater station • Photographic equipment and data pads with geo- referencing capabilities • Use of a SPOT tracker to send instant coordinates
Office facilities	• Operate from support vessels • Hire of local space on mainland • Converted accommodation or shipping containers
PPE	• Specialist providers of PPE for clean-up operations. All PPE would be sourced in Perth and transported to the forward operating centres. • In the event of a spill incident, EOG would engage the services of a third party to provide and maintain inventory for the duration of oil spill operations.

6 OPEP Resourcing

6.1 Drilling Incident Management Team (DIMT)

A response to a Level 2 or Level 3 spill will require specialist skills for an extended period. Table 6.1 shows the first response DIMT will be fulfilled by personnel from EOG, AGR and other contracted organisations along with provision of additional support to provide full cover of DIMT positions. The potential peak DIMT resourcing requirements to manage the response in the event of a 'worst case discharge' scenario, and demonstration of the resourcing capacity to meet those requirements are described in Appendix B.

Table 6.1 Initial DIMT structure

Role	First response fill	Surge	Additional support
Incident Commander	AGR	AGR	AGR Consultancy Services Pool
Liaison Officer	AGR / EOG	EOG / AMOSC / OSRL	AMOSC
Public Information Officer	EOG	EOG	Specialist Third Party providers
Safety Officer	AGR Consultancy Services Pool	AGR Consultancy Services Pool	Specialist Third Party providers
Planning Section Chief	AGR	AGR	AGR Consultancy Services Pool
Environment Unit Lead	AGR / Aventus	AGR / Aventus	Specialist Third Party providers
Operations Section Chief	AGR	AGR	AGR Consultancy Services Pool
Source Control Branch Director	AGR	AGR Consultancy Services Pool	Wild Well Control (WWC), Specialist Third Party providers
Logistics Section Chief	AGR	AGR	AGR Consultancy Services Pool
Finance & Admin Section Chief	AGR	EOG / AGR	Specialist Third Party providers

6.2 External Services Contracting Strategy

A large spill may require deployment of substantive spill response resources for an extended period. These resources will be obtained from third party contractors, industry support groups and government support agencies (collectively referred to as 'external services'). Table 6.2 lists the key external services organisations, summary roles and service provision arrangements. An up-to-date contact list will be maintained by EOG/AGR on their networks and in hardcopy in the emergency control centre (ECC). In the event of a Level 2 or Level 3 spill and activation of relevant external resources, the DIMT will request and receive up to date equipment inventories from each contractor.

Table 6.2 External services contracting strategy

Scope of Work	Supplier/contractor	Contract	Contract timing	General contract specifications and notes	Timeframes
Relief well drilling Associated personnel and technical services	WWC global call off agreement.	TBA	In place 6 weeks prior to start of activity.	The SCERP will be prepared in conjunction with WWC 3 months prior to commencement of the Activity and will include logistics strategies to meet the required deployment timeframes. The logistics plan included in the SCERP will also include timelines for mobilisation of personnel to provide operational support. Personnel will be available prior to arrival of relief MODU and related equipment.	As per Section 3.3 (Source Control Plan)
Initial hydrocarbon surveillance	Primary rig support vessels plus Clarkson's.	TBA	In-place 6 weeks prior to start of Activity	Initial (immediate) hydrocarbon surveillance	Immediate assessments
Vessel support for Relief Well rig	Vessel contractors via Clarkson's and/or APPEA MoU.	TBA	Contracted as required.	Vessels to support relief well operations. Vessel specifications will be as per SCERP	As per Section 3.3 (Source Control Plan)
Well control personnel and technical services	WWC. Cudd Well Control Well control consultant	TBA	In place 6 weeks prior to start of activity. In place 6 weeks prior to start of activity. In place 6 weeks prior to start of activity.	The SCERP will be prepared in conjunction with WWC 3 months prior to commencement of Activities and will include logistics strategies to meet the required deployment timeframes.	As per Section 3.3 (Source Control Plan)
Oil spill response vessels (large, no VSC)	Vessel contractors via Clarkson's.	TBA	Additional vessels call off option in place with primary vessel supplier prior to drilling or contracted when required via Mutual Aid MoU or vessel brokers / direct.	Vessels to support following spill response efforts: • Surface dispersant application • Containment and recovery • Offshore waste management Adequate vessels will be sourced to meet the plant requirements	As per Section 4.5 – Shoreline Clean-Up, Section 4.2 –Containment and Recovery and Section 4.7 – Waste Management.
Oil spill response vessels (small, no VSC)	Vessel contractors via Clarkson's.	TBA	Additional vessels call off option in place with primary vessel supplier prior to drilling or contracted when required direct from local suppliers.	Vessels to support following spill response efforts: • Operational and scientific monitoring. • Oiled wildlife response • Shoreline protection and deflection • Shoreline clean-up • Shoreline waste management Transport personnel and equipment to/from remote locations, and response use in shallow, nearshore environments Adequate vessels will be sourced to meet the plant requirements	As per Section 3.6 – OSMP, Section 4.7 – Waste Management, Section 4.4 - Shoreline Protection and Deflection, Section 4.5 – Shoreline Clean-up and Section 4.6 – Oiled Wildlife Response.
Relief well MODU.	As available.	TBA	Contracted when required via APPEA Mutual Aid MoU or direct.	NOPSEMA-accepted MODU Safety Case Technical specification to meet requirements of relief well.	As per Section 3.3 (Source Control Plan)
Casing and well head for relief well.	Agreement in place with Santos	Yes	Agreement is in place.	Agreement from Santos to supply EOG with relief well equipment if required.	As per Section 3.3 (Source Control Plan)
	MITO - Casing Dril-Quip - Wellhead	TBA	In place and available 6 weeks prior to start of Activity.	Technical specification to meet requirements of relief well. The wellhead will be the same specification as the primary wellhead. The casing will meet the specifications of the dynamic well kill requirements as a minimum.	As per Section 3.3 (Source Control Plan)
ROVs	Industry specialist provider to meet the technical specifications (to be selected).	TBA	Primary supplier in-place 6 weeks prior to start of Activity. Additional suppliers contracted as necessary.	Technical specification to meet requirements of response role.	As per Section 3.3 (Source Control Plan)
1 satellite tracking buoy on MODU during activity and 1 on each support vessel. Further tracking buoys to call-off as necessary.	Fastwave and/or AMOSC	TBA	In-place 6 weeks prior to start of activity.		As per Hydrocarbon Surveillance and Tracking Plan
Oil Spill Observers	AMOSC service agreement	TBA	In place 6 weeks prior to start of activity	Trained observers and sampling of spilled oil and water column.	As per Hydrocarbon Surveillance and Tracking Plan
Helicopter services for spill monitoring	Helicopter provider(s)	TBA	In-place 6 weeks prior to start of activity.	Dedicated helicopter will be available if not otherwise required, for safety reasons.	As per Hydrocarbon Surveillance and Tracking Plan

Scope of Work	Supplier/contractor	Contract	Contract timing	General contract specifications and notes	Timeframes
Fixed-wing aircraft services for spill monitoring	Aircraft from qualified contractors.	TBA	Call off/MoU arrangement via primary aerial services provider 6 weeks prior to start of activity.	Provision of fixed wing aircraft for aerial observation will meet Appendix D deployment timeline and number of aircraft.	As per Hydrocarbon Surveillance and Tracking Plan
Satellite imagery	AMOSC service agreement OSRL membership	TBA	In place 6 weeks prior to start of activity In place 6 weeks prior to start of activity	May be accessed direct or via AMOSC and/or OSRL.	As per Hydrocarbon Surveillance and Tracking Plan
Oil Spill Trajectory Modelling	RPS via AMOSC	TBA	In place 6 weeks prior to start of activity	Provision of OSTM and 3D modelling during spill.	As per Hydrocarbon Surveillance and Tracking Plan
Shoreline Clean-up and Assessment Teams	OSMP standby consultants AMOSC service agreement OSRL membership WA DoT (via WA State Hazard Plan)	TBA	In-place 6 weeks prior to start of Activity. In place 6 weeks prior to start of activity In place 6 weeks prior to start of activity N/A	Trained in beach profiling and shoreline assessment.	As per Section 3.6 – OSMP
Land vehicles for shoreline response	Various car rental firms	TBA	Hired when required.	-	As per Section 3.6 – OSMP
Operational and scientific monitoring personnel and equipment	Environmental consultancy	TBA	Access to trained personnel and equipment necessary for scientific monitoring via a dedicated scientific monitoring standby contract in-place 6 weeks prior to start of Activity.	Demonstrated capability and capacity to implement Scientific Monitoring Plan including: • nominated personnel with expertise in relevant disciplines that meet the minimum qualifications and experience requirements for key OSMIP roles • confirmed local (i.e., WA) resourcing (personnel and equipment) capacity sufficient to meet immediate OSMIP implementation requirements • experience coordinating and implementing scientific monitoring studies for oil and gas operators in WA.	As per Section 3.6 – OSMP
OWR personnel OWR kits OWR container OWR Centres	AMOSC service agreement OSRL membership WA DBCA (via WA State Hazard Plan) AMSA (via National Plan)	TBA	In place 6 weeks prior to start of activity In place 6 weeks prior to start of activity N/A. N/A	Trained in the implementation of oiled wildlife response plan including long-term care, relocation and remediation of marine fauna.	As per Section 4.6 – OWR Plan and Section 5.4 - OWR Centre(s).
Dispersants	AMOSC service agreement OSRL GDS membership AMSA (via National Plan)	TBA	In place 6 weeks prior to start of activity In-place 2-3 months prior to start of activity N/A.	Dispersant stockpiles from AMOSC within Australia (>250m^3) and OSRL global stockpiles (~5,000m^3), supplemented by AMSA stockpiles from around Australia (>350m^3) meet the dispersant volume and availability requirements	As per Sections 3.5 and 4.2 – Aerial and Vessel Surface Dispersant Plans
Trained personnel and equipment for dispersant operations	AMOSC service agreement OSRL membership	TBA	In place 6 weeks prior to start of activity In place 6 weeks prior to start of activity	AMOSC Core Group of trained responders in the DIMT and field. OSRL for surge resources.	As per Sections 3.5 and 4.2 – Aerial and Vessel Surface Dispersant Plans
Fixed-wing aircraft for dispersant application.	AMOSC service agreement OSRL membership	TBA	In place 6 weeks prior to start of activity In place 6 weeks prior to start of activity	Adequate aircraft can be sourced to meet the requirements	As per Section 3.5 - Surface Dispersant Plan – Aerial
Marine oil spill response equipment Associated personnel and technical services	OSRL membership AMOSC service agreement AMSA (via National Plan) Equipment suppliers	TBA	In place 6 weeks prior to start of activity In place 6 weeks prior to start of activity N/A. Sourced as required.	Includes equipment for offshore containment and recovery, and shoreline protection and deflection.	As per Section 4.2 –Containment and Recovery and Section 4.4 - Shoreline Protection and Deflection
Shoreline oil spill response equipment Associated personnel and technical services	OSRL membership AMOSC service agreement WA DoT (via WA State Hazard Plan) AMSA (via National Plan) Equipment suppliers	TBA	In place 6 weeks prior to start of activity In place 6 weeks prior to start of activity N/A. N/A. Sourced as required.	Trained shoreline clean-up personnel, able to brief and lead shoreline clean-up teams provided. Experienced clean-up personnel to train clean-up labourers as required. Appropriate PPE to be provided as required.	As per Section 4.5 – Shoreline Clean-up
Waste Management equipment and services	Licensed waste management contractor	TBA	In-place 6 weeks prior to start of activity.	Set up secure temporary waste storage/laydown areas in proximity to clean-up operations, manage collection, transport and delivery of wastes to licensed facilities, and maintain all relevant waste documentation. Waste will include hazardous and non-hazardous solid and liquid wastes.	As per Section 4.7 – Waste Management

Scope of Work	Supplier/contractor	Contract	Contract timing	General contract specifications and notes	Timeframes
Shoreline Staging Area equipment and personnel	AMOSC service agreement Equipment suppliers	TBA	In place 6 weeks prior to start of activity Sourced when required.	Secure temporary areas for labour in proximity to shoreline clean-up operations (e.g., generators, accommodation, sewage/grey water facilities, catering)	As per Section 4.5 – Shoreline Clean-
DIMT support services	AMOSC service agreement OSRL membership WWC global framework agreement Global Risk Solutions (GRS) Environmental consultancy Agency hire	TBA	In place 6 weeks prior to start of activity In place 6 weeks prior to start of activity In place 6 weeks prior to start of Activity In-place 6 weeks prior to start of Activity In place 6 weeks prior to start of Activity In place 6 weeks prior to start of Activity In place 6 weeks prior to start of Activity In place 6 weeks prior to start of Activity	Support services from specialist third party providers to support the DIMT resourcing for a LoWC scenario	Immediate
CMT support services	Legal consultancy Media consultancy	TBA	In place 6 weeks prior to start of activity In place 6 weeks prior to start of activity	Support services from specialist third party providers to support CMT resourcing for a LoWC scenario	Immediate
General labour hire	Labour hire contractors	TBA	Sourced when required.	Primarily for shoreline clean-up, but also for other spill response activities (e.g. protection and deflection deployment working under the guidance of team leaders) or other specialist workforce (e.g. forklift drivers, security).	As per Section 4.5 – Shoreline Clean-up
Mainland Transport Contractor	Logistics and transport contractor	TBA	In-place 6 weeks prior to start of Activity.	Vehicles and drivers (with controlled waste licences), hotshot services, transport of personnel mobilised during response.	Immediate.
Marine Operations Base	TBC	TBA	In-place 6 weeks prior to start of Activity.	Likely established at primary supply port (Darwin). Storage, laydown and biosecurity areas, forklifts, office space warehouses, lifting equipment, cleaning and servicing facilities.	Immediate.
Forward Operations Base	Contractor to be selected	TBA	In-place 6 weeks prior to start of Activity.	If required, likely established at locations to be agreed with WA DoT and/or NT IMT depending on occurrence of substantive shoreline loadings. Storage, laydown and biosecurity areas, forklifts, office space warehouses, lifting equipment, cleaning and servicing facilities.	Immediate.

Contract Type	Notes
A: EOG dedicated contract B: EOG call-off agreement C: EOG Global call-off agreement D: Assignment from other Titleholders/Operators E: No contract arrangement needed	1. Contract scopes of work will match EP and OPEP commitments 2. MODUs conducting relief well drilling require a NOPSEMA-accepted Vessel Safety Case (VSC) and activity specific safety case revision. Presence of such MODUs in Australian waters is dependent on activities of other Titleholders at any given time. MODUs are likely to be active in the Southeast Asia region and can be mobilised to Australia, in which case close liaison with NOPSEMA (Safety Division) will be required. EOG/AGR maintains a register of MODUs active in the region so can be ready to contact operators.

6.3 Resources for Implementation of OPEP Responses (Worst-Case)

EOG has been working with AMOSC and OSRL to determine resource requirements for worst case spill scenarios. Additional oil spill modelling has been commissioned which includes:

- Stochastic and deterministic analyses of the use of dispersants in line with AMOSC and OSRL advice.
- Finer detail on the impacts on shorelines using the WA DoT shoreline cells provided in ***DOT307215 Provision of Western Australian Marine Oil Pollution Risk Assessment - Protection Priorities*** *Protection Priority Assessment for Zone 1: Kimberley - Draft Report.*

At the time of writing, EOG is consulting further with AMOSC and OSRL to determine the resource requirements for this OPEP, which will be provided in the next revision.

Estimates of spill response resources to implement the OPEP are provided in Appendix C. These OPEP resource requirements will be based on likely response strategies to combat the predicted worst-case loading on shorelines for a Level 3 LoWC incident (see EP Section 8.7).

6.4 Availability and Mobilisation of Spill Response Resources

The availability of key spill response plant, equipment and personnel from external organisations (e.g., WWC, OSRL, AMOSC, OSRL) and mobilisation timeframes (first strike escalation) stipulated in this OPEP will be confirmed and related contracts/arrangements/agreements will be in place prior to the Beehive-1 well drilling campaign.

7 Spill Response Termination

The decision to terminate the spill response is made in consultation with the relevant Control Agency/s, Jurisdictional Authorities and other Statutory Authorities that play an advisory role. This decision will be made with consideration of the following factors:

- The efficacy and benefit of current response options;
- Any potential for additional pollution;
- Any potential for additional environmental damage caused by further clean-up efforts; and
- An assessment of prevailing weather conditions that can increase risk to response teams or increase the efficacy in weathering hydrocarbon.

A NEBA will be conducted to inform the decision-making process. Termination criteria are defined within each section of contingency response activities defined within the OPEP.
Upon conclusion of the spill response activity, the DIMT will complete the following tasks:

- Prepare detailed reports and collate all documents;
- Report on the performance objectives of each individual spill response that was mobilised;
- Undertake an inventory of consumables and prepare accounts;
- Arrange for the return of equipment;
- Arrange for the refurbishment of consumed equipment;
- Conduct an investigation into the cause of the incident and report to relevant authorities; and
- Assess long-term environmental monitoring requirements.

8 OPEP Administration

8.1 OPEP Training

All personnel onboard the MODU and support vessels are trained (inducted) in the application of the relevant SMPEP. Regular SMPEP drills and exercises are carried out on the MODU in accordance with the SMPEP to maintain the crew's knowledge of response equipment and incident response procedures. This verifies emergency response efficiency, effectiveness of procedures and detects any failure in equipment. These drills include, but are not limited to, spill response, collision, grounding, fire and explosion. All drills are documented, debriefings held and corrective actions identified (including revisions to the SMPEP) and tracked to completion by the MODU OIM.

All nominated DIMT personnel in this OPEP will be trained to an appropriate level to undertake their role in its implementation. EOG personnel and support resources that will fill DIMT roles are outlined in Table 6.1 and Appendix B (Table B.1). EOG personnel receive spill response training commensurate with their nominated DIMT roles as listed in Appendix B (Table B.2) where:

- IMO is the International Maritime Organisation ranking for oil spill response training.
- IPIECA is the Incident Command/Management System EOG has adopted.
- The relevant training levels/courses are aligned with the Australian PMA Chemical, Hydrocarbons and Refining Training.

Classroom training will be supported by OPEP exercises to ensure that competencies are maintained (see Section 8.2). This OPEP relies on the supply of trained response personnel from other response organisations (e.g., AMOSC, OSRL, AMSA, WA DoT); EOG will not be responsible for their training. The minimum training requirements in Appendix B (Table B.2) will apply to DIMT support personnel from external organisations to assure competencies. Competency requirements for key roles associated with OSMP implementation are detailed in Section 11.3 of the Joint Industry OSM Framework. Competency requirements for the Source Control Team will be specified in the SCERP and will be developed in conjunction with WWC.

A briefing on the Bonn Agreement oil appearance code (BAOAC) will be provided to relevant response personnel such as helicopter pilots that can assist with the initial assessment of a spill in the event of an incident.

8.2 OPEP Testing

Table 8.1 shows the exercise and training schedule. A desktop exercise to test this OPEP will occur prior to the start of drilling operations. Testing will occur when (but not be limited to):

- The OPEP is introduced;
- Not later than 12 months after the most recent test; or
- In the event that the OPEP is significantly amended.

A Level 3 spill incident desktop exercise will be used to evaluate the effectiveness of oil spill incident response by simulating the first several hours of an incident. It is anticipated that local (Perth) project personnel will partake in the exercise along with key external OPEP contractors. Any improvements identified during exercises will be incorporated into the OPEP.

Table 8.1 OPEP exercise and training schedule for oil spill response personnel

Timing	Type of test	Objective	Team
6 months prior to drilling	Familiarity training	Familiarisation sessions with DIMT, CRT, AMOSC, OSRL, source control personnel and OSM Service Provider on call-out, mobilisation and integration.	Perth DIMT Command and Section Chiefs
4 months prior to drilling	Computer based	Test of hubbed DIMT support including remote DIMT Members, AMOSC, OPSRL hubbed Support.	DIMT / CRT / AMOSC / OSRL IMT
3 months prior to drilling	Emergency contact checks	Check currency of emergency contact numbers to ensure they are up to date. Test DIMT call-out and messaging process for key contacts.	DIMT/CRT
2 months prior to drilling	Familiarity training	DIMT duties related to Beehive-1 and/or associated emergency response training exercises as appropriate for DIMT roles.	DIMT
	Training	Oil spill response training for DIMT members to a level equivalent to IMO II (or IMO III for IC).	DIMT
2 months prior to drilling	Exercise	Beehive-1 LoWC exercise with focus on initial reactive phase response actions. Test notifications of internal / external supports including OSMP provider. Equipment / personnel logistics plans and charters etc with regards to COVID19 to be tested if applicable. Validate familiarity with response procedures of personnel involved in the Activity.	CRT / DIMT / AMOSC / OSM Provider
Pre-spud.	Exercise	Communication & notification to test call-out response from MODU, including internal and external support. Test availability timeframes (within COVID restrictions if applicable).	DIMT MODU IMT

8.3 OPEP Review and Updates

This OPEP will be reviewed and updated as necessary in response to one or more of the following:

- When major changes occur that may affect the spill response coordination or capabilities;
- Changes to the EP that affect oil spill response coordination or capabilities (e.g,. a significant increase in spill risk);
- If improvements are identified after routine testing of the OPEP;
- After an actual Level 2 or 3 spill; and/or
- If not reviewed beforehand, 3-6 months prior to the activity.

The extent of changes made to the OPEP and resultant requirements for regulatory resubmission will be informed by the OPGGS(E).

EOG will submit a revised OPEP to NOPSEMA as soon as practicable where there are significant changes to the content of the OPEP or capability to respond to an incident. Any significant changes in the content of the OPEP or capability to respond to an incident will be captured through EOG's Management of Change (MoC).

9 References

AMOSC (2011). Oil pollution emergency plan: guidelines for the Australian marine petroleum exploration and production industry. Prepared by the Australian Marine Oil Spill Centre, November 2011.

AMOSC (2014). Western Australian Oiled Wildlife Response Plan. 18 August 2014.

AMSA (2015). Technical guidelines for preparing contingency plans for marine and coastal facilities. Prepared by the Australian Maritime Safety Authority, January 2015.

AMSA (2017). Australian Government Coordination Arrangements for Maritime Environmental Emergencies. Prepared by the Australian Maritime Safety Authority, October 2017.

ANZECC/ARMCANZ (2000). Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 4. Prepared by the Australian and New Zealand Environment and Conservation Council and the Agriculture and Resource Management Council of Australia and New Zealand.

FESA (2018). State Hazard Plan: Hazardous Materials Emergencies. The State:-HAZMAT. Prepared by the Fire Emergency Services Authority of Western Australia, December 2018.

RPS (2022). Beehive-1 Oil Spill Modelling Report. January 2022.

ITOPF (2011). ITOPF Members Handbook 2011/12. Prepared by the International Tanker Owners Pollution Federation Ltd. http://www.itopf.com/news-and-events/documents/itopfhandbook2011.pdf (Accessed: 2 December 2011).

NOAA (2013). Characteristics of Response Strategies: A Guide for Spill Response Planning in Marine Environments. https://response.restoration.noaa.gov/sites/default/files/Characteristics_Response_Strategies.pdf

NOPSEMA (2012). Preparation of Oil Spill Contingency Plans. Guidance Note – Consultation Draft. Prepared by the National Offshore Petroleum Safety and Environmental Management Authority. N-04700-GN0940 Rev 1, March 2012.

NRMMC 2005. The Australian National Guidelines for Whale and Dolphin Watching. (Natural Resource Management Ministerial Council).

NT DoT (2012). Northern Territory Oil Spill Contingency Plan.

WA DoT (2015) Oil Spill Contingency Plan 2015. Available to download from: https://www.transport.wa.gov.au/mediaFiles/marine/MAC-P-OSCP-OilSpillContingencyPlan2015.pdf

WA DoT (2017). WA DoT Offshore Petroleum Industry Guidance Note – Marine Oil pollution: Response and Consultation Arrangements (January 2017).

WA DoT (2018a). State Hazard Plan: Maritime Environmental Emergencies. Prepared by the Western Australian Department of Transport, December 2018.

WA DoT (2018b). DOT307215 Provision of Western Australian Marine Oil Pollution Risk Assessment (WAMOPRA) – Protection Priorities. Protection Priority Assessment for Zone 1: Kimberley – Draft Report. 18 May 2018. Report No. 301320-09591-EN-REP-0003.

Appendix A Prioritisation of Protection Locations and Sensitivities

As part of oil spill response planning, it is necessary to identify environmental priorities for protection in the event of an oil pollution incident. The most sensitive receptors are considered to be:

- Sandy beaches that provide nesting habitat for marine turtles;
- Mangroves;
- Foraging/nesting/breeding shorebird habitat;
- Emergent reefs;
- Commercial fisheries and aquaculture.

Those most sensitive locations with the highest probability of oiling and highest volumes of stranded oil are (see shoreline habitat mapping in Appendix 5 of the EP):

- Mitchell River sector (up to 99% probability of contact, peak volume of 415 m^3);
- Wyndham-East Kimberley sector (up to 93% probability of contact at ecological threshold, peak volume up to 415 m^3);
- Victoria-Daly sector (up to 73% probability of contact at ecological threshold, peak volume of 258 m^3);
- Thamarrur sector (up to 74% probability of contact at ecological threshold, peak volume of 271 m^3);
- Daly sector (up to 57% probability of contact at ecological threshold, peak volume of 200 m^3); and
- Browse Island (up to 20% probability of contact at ecological threshold, peak volume of 64 m^3).

A number of offshore islands and reefs are also at risk of shoreline oil contact, but the probability of contact and/or maximum shoreline loads are so low that it they do not warrant identification as priority locations, other than Browse Island, Ashmore Reef, Cartier Island and Scott Reef south.

Table A.1 summarises the locations (and corresponding map sector) and key sensitivities (moving east to west along the spill EMBA) of the shoreline at risk of oiling. The shoreline receptor maps in Appendix 5 of the EP illustrate the habitat types and for each season present the OSTM data for peak volume on shoreline, maximum probability of shoreline loading, minimum time before shoreline accumulation and maximum length of shoreline contacted.

Table A.1. Priority shoreline oil spill response locations

Location	Map sector	Key sensitivities	Shoreline types	Summer	Winter	Transition
NT shorelines (east to west)						
Dundee Beach	Cox-Finniss	Holiday park and accommodation Flatback turtle inter-nesting BIA Olive Ridley turtle inter-nesting BIA Largetooth sawfish likely to occur in wet season	Sand		X	
Fog Bay (Finniss River)	Cox-Finniss	Nationally Important Wetland (Finniss Floodplain and Fog Bay Systems) Largetooth sawfish pupping known to occur	Mangrove, rock, sand	X		
Peron Island North & South	Cox-Finniss	Flatback turtle inter-nesting BIA	Mangrove, rock, sand			X
Daly River mouth	Daly	Nationally Important Wetland (Daly-Reynolds Floodplain-Estuary System) Flatback turtle inter-nesting BIA	Mangroves	X		
Headland SW of Daly River	Daly	Estuary system	Mangroves, sand	X		
Nemarluk estuaries	Thamarrurr	Estuary system	Mangroves, mudflats	X		
Thamarrurr	Thamarrurr	Estuary system	Mangroves, mudflats, sand		X	X
Moyle River	Thamarrurr	Nationally Important Wetland (Moyle Floodplain and Hyland Bay System) Juvenile largetooth sawfish likely to occur in wet season	Mangroves, sand, mudflats	X		
Dorcherty Island	Thamarrurr	Dugong	Mangroves, sand, mudflats			X
River at Ditchi/Yelcher Beach (south of Wadeye)	Thamarrurr	Estuary system	Mangroves, sand	X	X	X
Kumbunbar Creek (and creek north of it)	Thamarrurr	Estuary system	Mangroves, mudflats	X		X
Fitzmaurice River (and surrounds)	Victoria-Daly	Estuary system	Mangroves, mudflats	X		

Location	Map sector	Key sensitivities	Shoreline types	Summer	Winter	Transition
Victoria River (and surrounds)	Victoria-Daly	Estuary system	Mangroves, mudflats	X	X	X
Baines River?? (and surrounds)	Victoria-Daly	Nationally Important Wetland (Legune Wetlands) Largetooth sawfish pupping known to occur	Mangroves, mudflats	X	X	X
WA shorelines (east to west)						
Cape Dommett and Lacrosse Island (entrance to Cambridge Gulf)	Wyndham-East Kimberley	Flatback turtle nesting BIA (all year, peak July-Sept) Cape Domett Special Purpose Zone (North Kimberley Marine Park). Surrounding waters provide habitat for sawfish, Australian snubfin dolphins and include mangroves.	Sand, mangroves, mudflats	X		X
Cambridge Gulf (mouth is 21 km wide)	Wyndham-East Kimberley	The West Kimberley National Heritage coast (west side of gulf) Flatback turtle inter-nesting BIA Largetooth sawfish pupping known to occur	Mangroves, mudflats, rocky (western side)	X	X	X
Ord River Floodplain (northern area)	Wyndham-East Kimberley	The West Kimberley National Heritage coast North Kimberley Marine Park Ramsar wetland Nationally Important Wetland (Ord Estuary System) Flatback turtle inter-nesting BIA	Mangroves, mudflats	X	X	X
Drysdale River (east of Kalumburu, near northern tip of WA)	Wyndham-East Kimberley	The West Kimberley National Heritage coast North Kimberley Marine Park Largetooth sawfish pupping likely to occur Indo-Pacific humpback dolphin BIA (foraging, significant habitat)	Mangroves, rock, sand	X	X	X
Berkley River	Wyndham-East Kimberley	The West Kimberley National Heritage coast North Kimberley Marine Park Tourist lodge (landing strip here) Lesser crested tern breeding BIA	Sand, rock, mangroves	X	X	X

Location	Map sector	Key sensitivities	Shoreline types	Summer	Winter	Transition
Offshore islands and reef (east to west)						
King Shoals Sanctuary Zone		North Kimberley Marine Park Coral reefs. Sawfish and flatback turtle foraging.				
Sir Graham Moore Island (north of Kalumburu)	Wyndham-East Kimberley	The West Kimberley National Heritage coast North Kimberley Marine Park Roseate tern breeding	Sand, rock, mangroves	X	X	X
Cassini Island	Mitchell River	The West Kimberley National Heritage coast North Kimberley Marine Park Green turtle nesting Green turtle inter-nesting BIA Indo-Pacific humpback dolphin BIA (foraging, significant habitat)	Rocky cliff, sand	X	X	X
Islands west of Kalumburu, north of Mitchell River	Mitchell River	The West Kimberley National Heritage coast North Kimberley Marine Park Roseate tern breeding Lesser frigatebird breeding (Mar-Sept)	Sand, rock, mangroves	X	X	X
Bigge Island	Mitchell River	The West Kimberley National Heritage coast North Kimberley Marine Park Indo-Pacific humpback dolphin BIA (calving, foraging) Lesser crested tern breeding BIA	Rock, mangroves, sand	X	X	X
Cartier Island	Ashmore Reef/Cartier Island	Australian Marine Park Green turtle inter-nesting BIA (all year, peak in Dec-Jan) Hawksbill turtle foraging BIA Lesser frigatebird breeding BIA (Mar-Sept) Red-footed booby breeding BIA Wedge-tailed shearwater breeding BIA White-tailed tropicbird breeding BIA Lesser sand-plovers	Sand (surrounded by coral reef flats in lagoon)		X	

Location	Map sector	Key sensitivities	Shoreline types	Summer	Winter	Transition
		Eastern reef egrets Ruddy turnstones Crested terns Bridled terns Roseate terns				
Ashmore Reef	Ashmore Reef/Cartier Island	Australian Marine Park Ramsar wetland Green turtle inter-nesting BIA (all year, peak in Dec-Jan) Hawksbill turtle foraging BIA Hawksbill turtle inter-nesting BIA Hawksbill turtle nesting BIA Roseate tern breeding Lesser frigatebird breeding (Mar-Sept) Greater frigatebird breeding Lesser crested tern breeding BIA Red-footed booby breeding BIA Wedge-tailed shearwater breeding BIA White-tailed tropicbird breeding BIA Common noddies (second largest colony in Australia) Sooty terns (largest colony in WA) Crested terns	Sand (surrounded by coral reef in lagoon)		X	
Browse Island	Scott Reef/ Browse Island	Green turtle nesting Flatback turtle nesting Crested tern breeding BIA (western side) Eastern reef egrets Ruddy turnstones Sooty terns	Coral reef, sand	X	X	X
Scott Reef	Scott Reef/ Browse Island	Green turtle inter-nesting BIA (genetically distinct breeding population) Hawksbill turtle inter-nesting BIA	Coral reef	X	X	X

Location	Map sector	Key sensitivities	Shoreline types	Summer	Winter	Transition
		Hawksbill turtle nesting BIA Roseate terns Lesser frigatebirds Brown boobies Spinner dolphins				

Appendix B Expanded DIMT

The DIMT structure is designed to be scalable to meet the requirements of any credible spill scenario during the drilling campaign. Figure B.1 shows the expanded (peak) DIMT structure to manage the 'worst case' (i.e., maximum shoreline loading scenario) spill response (Appendix C). Figure B.2 shows the expanded Planning Section; Figure B.3 shows the expanded Operations Section; and Figure B.4 shows the expanded Logistics Section and Finance & Administration Section. The DIMT will use an ICS structure and a planning process to execute field activities consistent with the requirements of this OPEP, including for source control.

To ensure adequate personnel availability for the peak DIMT structure, the maximum resourcing requirements are being evaluated in consultation with AMOSC and OSRL. The evaluation includes a conservative consideration of the work outputs (tasks), management of people/platforms/process, and leadership of the field operations necessary to combat a worst-case scenario (Appendix C) by the functional sections of the DIMT, overseen by a command element, on a 24/7 cycle. This process established the required DIMT team size, and from this a total required pool of resources was determined (considering shift work and team swings across the duration of the response).

This manning level assumes that offshore operations (e.g., containment and recovery, dispersant application, etc.) continue at maximum effort coincident with maximum nearshore/shoreline operations over the duration of the response. The total number of personnel includes EOG resourcing of potential WA DoT IMT requirements, as per the *Offshore Petroleum Industry Guidance Note: Marine Oil Pollution Response and Consultation Arrangements*, potential NT IMT requirements (assuming the same requirements as for WA DoT's IMT) and incorporates Covid-19 considerations in accordance with the *APPEA Disease Management Plan*.

Assuming a protracted response requiring two rotational DIMT teams with a day and night shift for each team, the total resourcing requirement for the peak DIMT is estimated at 128 persons. EOG's internal resourcing and external contracting strategy provides access to a pool of at least 128 appropriately qualified personnel. Further resources are available from AGR's global network. Table B.1 shows the predicted allocation of resources to the peak DIMT structure positions. Support from AMOSC will be contracted to fulfil key peak DIMT functional roles on a devolved basis. Table B.2 shows the competency requirements for each DIMT role.

EOG's training and exercise program (OPEP Sections 8.1 and 8.2) will ensure the availability of a trained pool of personnel to resource the expanded (peak) DIMT structure, with confirmed access to the required numbers of competent personnel for the first rotational (i.e. 'on duty') team in place prior to the commencement of drilling activity. Additional training (if necessary) and/or quarantine requirements (if applicable) for the second rotational team would be achieved within its stand-up timeframe. Table B.3 provides a summary of the key responsibilities and outputs for each of the roles within a peak DIMT structure.

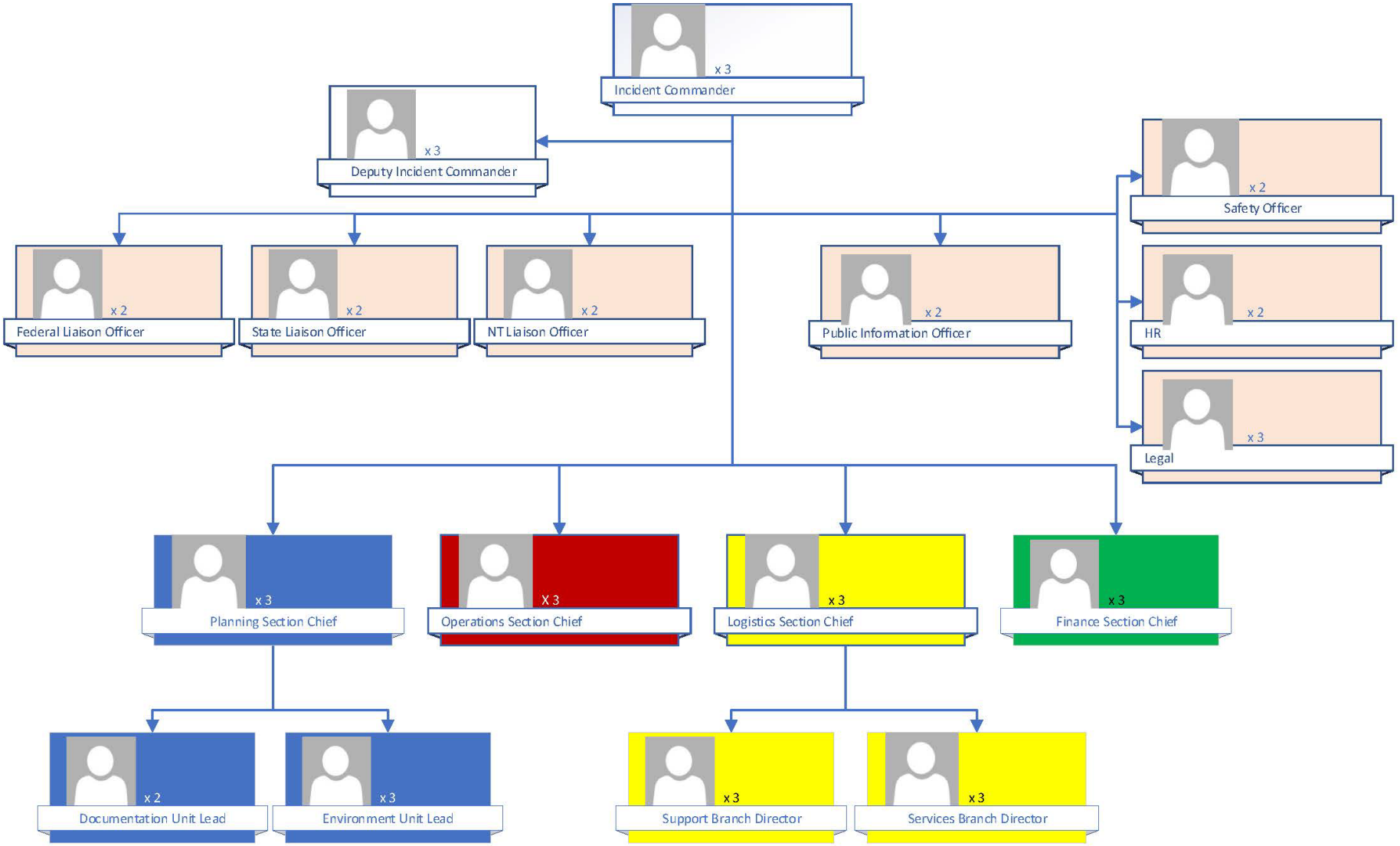

Figure B.1 Beehive-1 Expanded DIMT

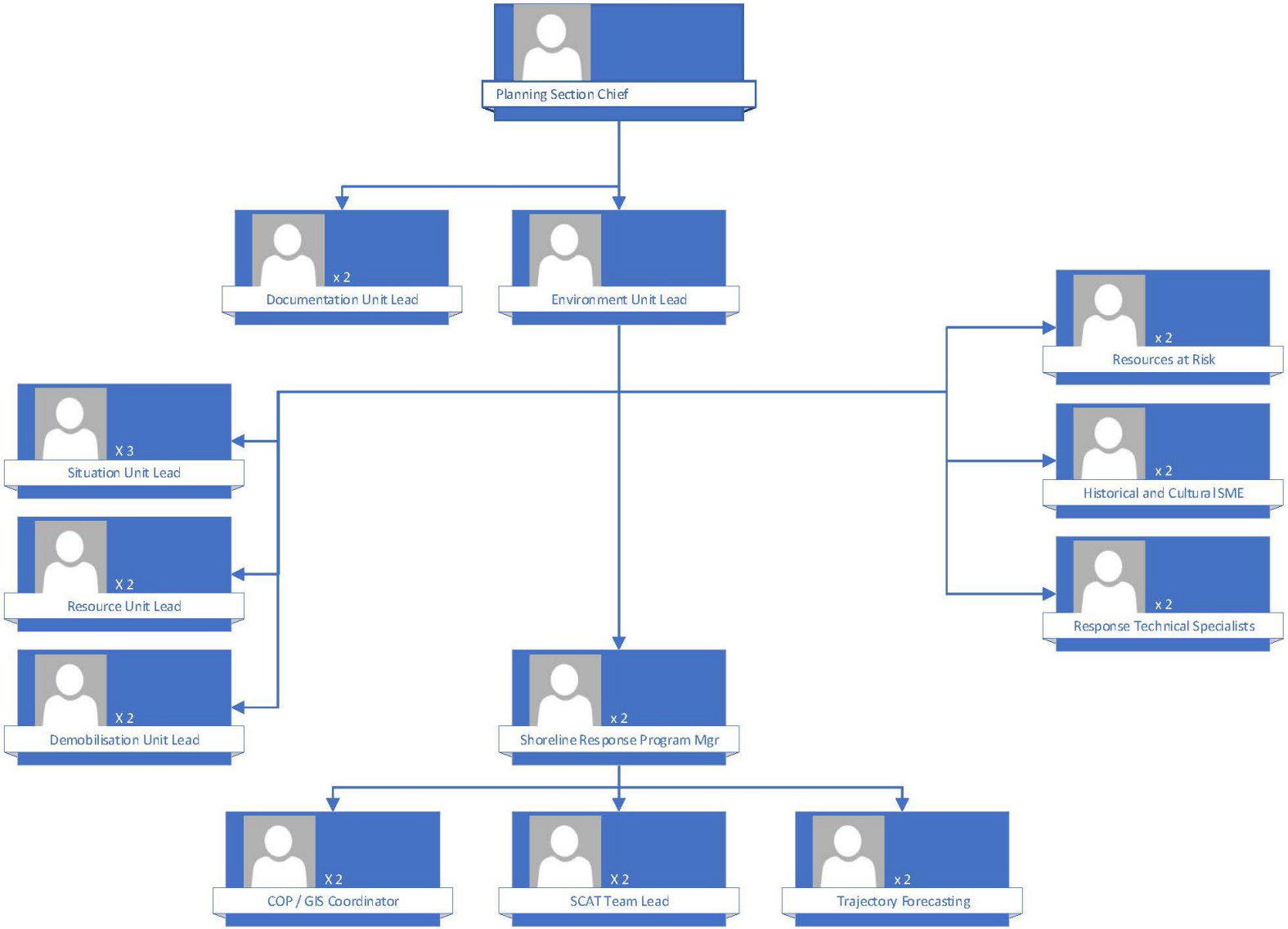

Figure B.2 Beehive-1 Expanded DIMT – Planning Section

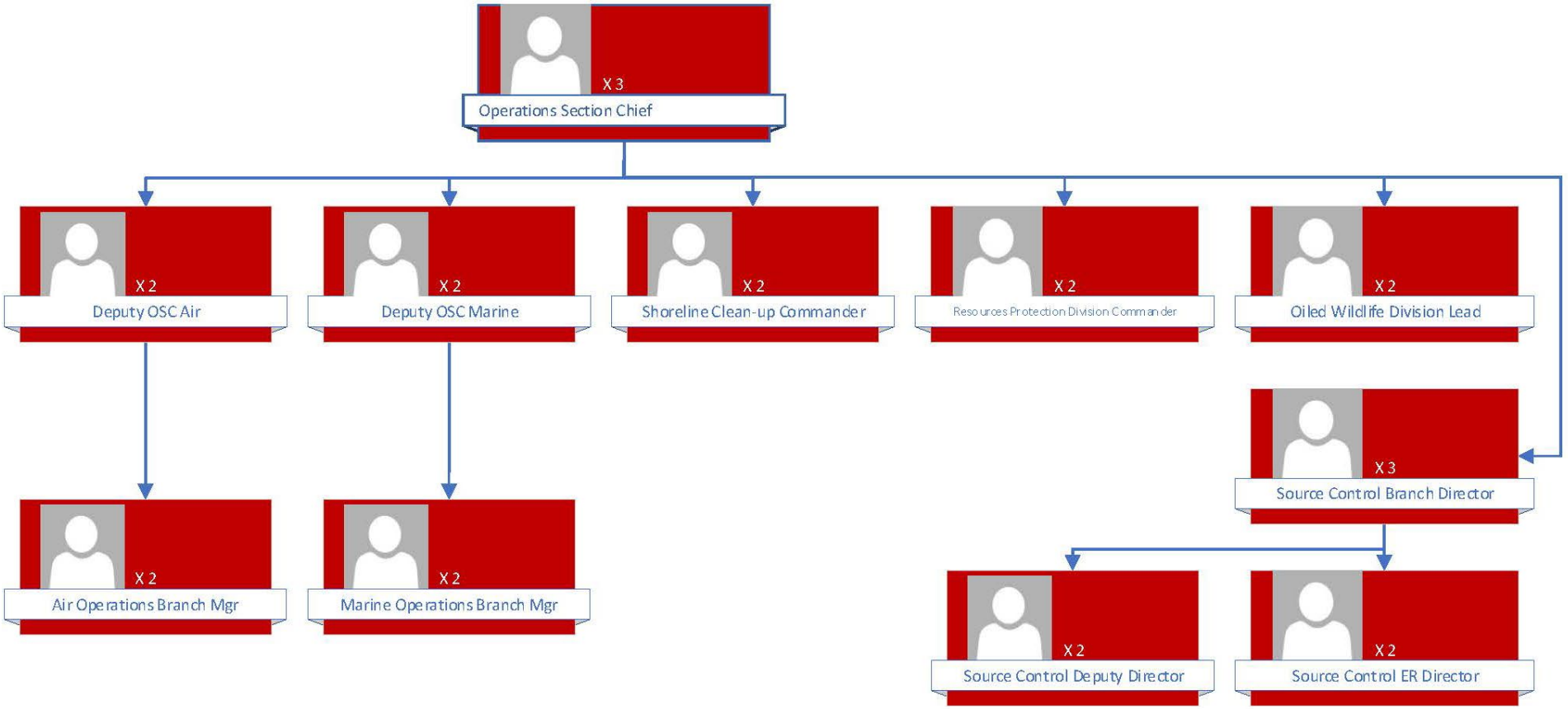

Figure B.3 Beehive-1 Expanded DIMT – Operations Section

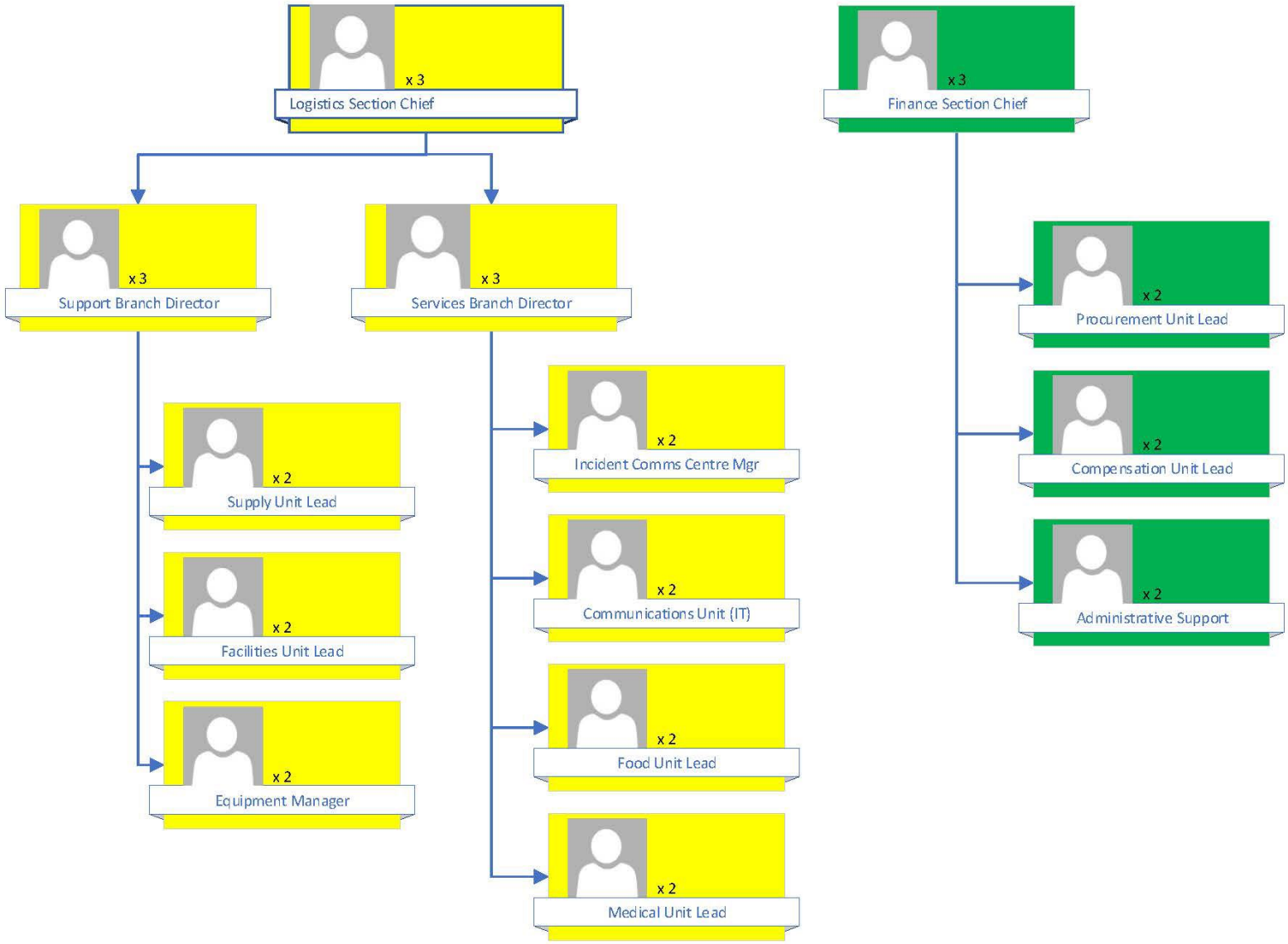

Figure B.4 Beehive-1 Expanded DIMT – Logistics and Finance & Administration Sections

Table B.1 Expanded DIMT resourcing and availability

IMT Functional Role	Total Peak Required	AGR	EOG	AMOSC, OSRL, WWC	Specialist service providers	Agency personnel	Comment
Incident Commander	3	3					AGR Staff / Consultants
Deputy IC	3		1		2		TBC/EOG
Safety Officer	2				2		AGR consultancy pool
Federal LO	2		**1**	1			AMOSC
State LO	2		**1**	1			AMOSC
NT LO	2		**1**	1			AMOSC
Public Information Officer	2		1		1		EOG Consultant
HR	2		1			1	AGR consultancy pool
Legal	3		1		2		EOG Consultant
Planning Section Chief	3	3					AGR Staff / Consultants
Documentation Lead	2			2			AMOSC / OSRL
Environmental Unit Lead	3				3		Aventus Consulting
Trajectory Forecasting	2				2		APASA
Resources at Risk	2			1	1		AMOSC / OSRL
Historical and Cultural SME	2					2	EOG Consultant
Response Technical Specialists	2			2			AMOSC / OSRL
Shoreline Response Program Manager	2			2			AMOSC Core Group
SCAT Team Lead	2			2			AMOSC Core Group
Situation Unit Lead	3			1	2		AMOSC Core Group
COP / GIS Coordinator	2				1	1	AMOSC Core Group
Resource Unit Lead	2			2			AMOSC / OSRL

IMT Functional Role	Total Peak Required	AGR	EOG	AMOSC, OSRL, WWC	Specialist service providers	Agency personnel	Comment
Demobilisation Unit Lead	2			2			AMOSC / OSRL
Operations Section Chief	3	3					TBC
Deputy Operations Section Chief Air	2			2			AMOSC / OSRL
Deputy Operations Section Chief Marine	2			2			AMOSC / OSRL
Air Operations Branch Manager	2			2			AMOSC / OSRL
Marine Operations Branch Manager	2			2			AMOSC / OSRL
Shoreline Clean-up Commander	2			2			AMOSC Core Group
Resources Protection Division Commander	2			2			AMOSC Core Group
Oiled Wildlife Division Lead	2				2		AMOSC / State DoT Contractor
Source Control Branch Director	3					3	AGR consultancy pool
Source Control Deputy Director	2			2			WWC
Source Control ER Advisor	2			2			WWC
Logistics Section Chief	3	3					AGR Staff / Consultants
Support Branch Director	3					3	AGR consultancy pool
Supply Unit Lead	2					2	AGR consultancy pool
Facilities Unit Lead	2					2	AGR consultancy pool
Equipment Manager	2					2	AGR consultancy pool
Services Branch Director	3					3	AGR consultancy pool
Communications Unit (IT)	2					2	AGR consultancy pool
Incident Comms Centre Mgr.	2					2	AGR consultancy pool

IMT Functional Role	Total Peak Required	AGR	EOG	AMOSC, OSRL, WWC	Specialist service providers	Agency personnel	Comment
Food Unit Lead	2					2	AGR consultancy pool
Medical Unit Lead	2					2	AGR consultancy pool
Finance Section Chief	3	2	1				AGR Staff / Consultants
Procurement Unit	2					2	AGR consultancy pool
Compensation Unit	2					2	AGR consultancy pool
Administrative support (to sections above)	2					2	AGR consultancy pool
Totals	106	14	8	33	18	**33**	
WA DOT IGN (full complement)	11		**1**	**10**			
NT DOT	**11**		**1**	**10**			
Grand Total	**128**	**14**	**10**	**53**	**18**	**33**	

Table B.2 Expanded DIMT competency

Position	OSPR Intro – Specific to OPEP	AMOSC Oil Spill Mgt Course (or Equivalent to IMO II) or PMAOMIR 320/322 or ICS300	AMOSC Oil Spill C&C Course (or Equivalent to IMO III) or PMAOIR 418 or ICS 300	Function specific sessional training/ workshop
Incident Commander	Yes		Yes	Yes
Deputy Incident Commander	Yes		Yes	Yes
Safety Officer	Yes	Yes		
Public Information Officer	Yes			Yes
Federal LO	Yes	Yes		Yes
State LO	Yes			Yes
Local LO	Yes			Yes
HR	Yes			Yes
Legal	Yes			Yes
Planning Section Chief	Yes	Yes		Yes
Documentation	Yes			Yes
Environment Unit Lead	Yes	Yes		Yes
Trajectory Forecasting	Yes			Yes
Historical & Cultural SME	Yes			Yes
Response Technical Specialist	Yes	Yes		Yes
Resources at Risk	Yes	Yes		Yes
Situation Lead	Yes	Yes		Yes
COP Display / GIS Expert	Yes			Yes
Shoreline Response Programme Manager	Yes	Yes		Yes
SCAT Team Lead	Yes	Yes		Yes
Planning Resource Unit Lead	Yes			Yes
Planning Demobilisation Unit Lead	Yes			Yes
Operations Section Chief*	Yes	Yes		Yes
Deputy Operations Section Chief (Air)	Yes	Yes		Yes
Deputy Operations Section Chief (Marine)	Yes	Yes		Yes
Air Operations Branch Manager*	Yes	Yes		Yes

Position	OSPR Intro – Specific to OPEP	AMOSC Oil Spill Mgt Course (or Equivalent to IMO II) or PMAOMIR 320/322 or ICS300	AMOSC Oil Spill C&C Course (or Equivalent to IMO III) or PMAOIR 418 or ICS 300	Function specific sessional training/ workshop
Marine Operations Branch Manager*	Yes	Yes		Yes
Shoreline Clean-up Commander	Yes	Yes		Yes
Resource Protection Division Commander	Yes	Yes		Yes
Oiled Wildlife Division (LEAD)	Yes	Yes		Yes
Source Control Branch Director	Yes	Yes		Yes
Source Control Deputy Director	Yes	Yes		Yes
Source Control Emergency Response Advisor	Yes	Yes		
Logistics Section Chief*	Yes	Yes		Yes
Support Branch Director*	Yes			Yes
Supply Unit Lead*	Yes			
Facilities Unit Lead	Yes			
Equipment Manager	Yes			
Service Branch Director	Yes			Yes
Communications Unit and (IT) Manager	Yes			
Incident Comms Centre Manager	Yes			
Food Unit Lead	Yes			
Medical Unit Lead (includes infection control – COVID)	Yes			Yes
Finance Section Chief*	Yes	Yes		Yes
Procurement Unit	Yes			
Compensation Unit	Yes			
Administration & Records	Yes			

Table B.3 Expanded DIMT roles and responsibilities

IMT Role	Job description	Outputs
1. Incident Commander*	Overall management of incident response operations.	Response operations tailored to the scenario and conditions presented at the time, consistent with the OPEP, EP, company policies and requirements of the National Plan.
2. Deputy Incident Commander	Deputises for the IC as required, directly supervises work of section chiefs and oversees the smooth implementation of the IMS. Oversees a particular portion of the response organisation.	As directed by the IC at the time.
3. Safety Officer*	Provides support to the site safety officers; oversights the preparation, distribution and execution of the response safety plan; undertakes investigations of near misses/incidents; ensures technical expertise such as industrial hygienists, air monitoring specialists, etc – are deployed as needed.	Site risk assessments are in place and safety plan is in force across all of the response.
4. Public Information Officer	Working with Liaison Officers, manage all external affairs for the response. Strong link with Crisis Management teams and external reach out to State and Commonwealth media/public affairs teams.	Key stakeholder groups identified and regularly updated – specific and holding statements are prepared and disseminated to relevant company spokespeople.
5. Federal Liaison Officer	Responsible for the management of company liaison into Commonwealth Government structures – OPICC, DIIS, relevant Minister's offices (Primary portfolio focus is Resources, secondary focus on Environment & Transport).	Facilitate the two way exchange of critical situational and crisis management information b/w the title holder and commonwealth government. Daily one-on-one briefings & meetings as determined by the commonwealth.
6. WA/NT Liaison Officers	Responsible for the management of company liaison into State Government structures – State Control Agency and the Premier/Chief Minister's office.	Facilitate the two way exchange of critical situational, crisis and incident management information b/w the title holder and state government. Daily one-on-one briefings & meetings as determined by the state.
7. Local Liaison Officer	Responsible for the management of company liaison into Local Government, local land managers, commercial, heritage and indigenous groups.	Facilitate the two way exchange of critical situational, crisis and incident management information b/w the title holder and local bodies within the zone of predicted impact. Daily one-on-one briefings, town hall and small group

IMT Role	Job description	Outputs
		meetings as determined as needed.
8. HR	Provide HR advice to the logistics section and the IC.	HR factors are considered and managed consistent with EOG systems. HR risks are minimised through the response.
9. Legal	Provide legal advice to the planning, operational, and logistic sections (as needed) and the IC.	Legal consideration is used to guide the activities of the response and minimise risks.
10. Planning Section Chief*	Lead the planning section	Ensure that the planning process is adhered to, an IAP comprising all relevant sections (List here ICS documentation) is produced,
11. Documentation	Implement a record keeping and archival system to capture all documents, consistent with organisational and legal requirements.	Establish and maintain record keeping system including decision making logs (minutes of meeting, personal notes) and provide forms/formats of records as required by the organisation.
12. Environment Unit Lead*	Ensures that environmental consequences are mitigated (managed in accordance with the EP/OPEP) and the operational & scientific monitoring plan is executed.	OSMP is enacted; SIMA/NEBA completed/up-to- date, response is undertaken in accordance with the OPEP.
13. Trajectory Forecasting	Monitors and predicts the fate and weathering of the oil.	Regular (twice/three times daily) mapping data that displays predictions of future oil locations, and how the oil may change in chemical make up (weathering).
14. Historical & Cultural SME	Based on the trajectory and field observations, provides specialist advice around sensitivity impact for the deterministic NEBA/SIMA.	Up to date NEBA/SIMA; validate oil spill response strategies chosen; provide advice to operations teams on strategy selection.
15. Response Technical Specialist	Works with the enviro team to provide data on oil spill response strategy impacts on sensitivities; and that new/emerging technology is considered as part of the response.	Quality assure tactical strategy execution.

IMT Role	Job description	Outputs
16. Resources at Risk	Based on the trajectory and field observations, completes the deterministic NEBA/SIMA.	Up to date NEBA/SIMA; validate oil spill response strategies chosen; provide advice to operations teams on strategy selection.
17. Situation Lead	Receipt and manage the information/data that is used to produce the COP and other information tools/displays.	Up to date COP; future COP. IMS system (computer or paper based) status boards and other records are on display as needed for decisions making.
18. COP Display / GIS Expert	Operates the GIS system that produces the COP	Up to date COP; future COP
19. Resource Unit Lead	Tracks resources that have been ordered/receipted/ dispatched	Up to date resource tracking available at any time.
20. Demobilisation Unit Lead	Development of a demobilisation plan that considers equipment, people and platform remediation and return/repair.	Production of a bespoke demobilisation plan.
21. SCAT Team Lead	Leads the analysis of field data and the production of a shoreline treatment plan (STRs), along with the end point criteria for clean up operations.	Shoreline treatment recommendations for affected/potentially affected shorelines are developed and disseminated to operations units.
22. Shoreline Response Programme Manager	Leads the development of the SRP plan, with the DoT. Ensures that inwards data flows are objectively analysed and appropriate STRs are developed and communicated to logistics/operational teams for execution.	Creating the SRP plan (with the DoT), acting as the single point of contact for the IMT on all shoreline- related issues.
23. Operations Section Chief*	Lead the operations function.	Execute operations inline with the daily IAP. Draft the IAP for the following operational period.
24. Deputy Operations Section Chief (Air)	Lead the aviation activities	Tailored ICS 204, 204s and 204e, for each aviation strike team/tasking. Input to the safety documentation. Production of maps and displays for operations. Work with Sit; Plan; Doc to provide current information.

IMT Role	Job description	Outputs
25. Deputy Operations Section Chief (Marine)	Lead the marine activities	Tailored ICS 204, 204s and 204e, for each marine strike team. Input to the safety documentation. Production of maps and displays for operations. Work with Sit; Plan; Doc to provide current information.
26. Air Operations Branch Manager*	Lead aviation operations. Draft and execute plans from the previous day (204s/Operational Briefing).	Draft and execute Air operations Plan (ICS220); aerial dispersant plan (AMSA/AMOSC JSOP plan). Coordinate aerial assets in the field.
27. Marine Operations Branch Manager*	Lead marine activities. Draft and execute plans from the previous day (204s/Operational Briefings/Operational Risk management plans).	Draft and execute marine operations plan (s) as they relate to the operations at the time. Coordinate marine assets in the field.
28. Oiled Wildlife Response Commander	In conjunction with the relevant state authorities, lead the implementation of industry equipment, materials and personnel for a OWR response. Work with planning to identify fauna that may be impacted by oiling (or response operations) and reduce / prevent the consequences on fauna.	Field activities, resourcing and facility support provided in aid of the OWR response.
29. Shoreline Clean-up Commander	In conjunction with the DoT, plan and lead the shoreline response operations	Tailored ICS 204, 204s and 204e (STRs) for each shoreline type by segment. Provide input to the safety documentation. Input into the production of maps and displays for operational teams. Work with Sit; Plan; Doc to provide current information. Monitor volumes of waste and concentrations of hydrocarbons to hard wastes.

IMT Role	Job description	Outputs
30. Resource Protection Division Commander	In conjunction with the DoT, lead/provide input to the execution of nearshore protection activities (marine and shoreline). Draft and execute plans from the previous day (204s/Operational Briefings/Operational Risk management plans).	Draft and execute nearshore protection planning and execute plans from the previous day (204s/Operational Briefings/Operational Risk management plans).
31. SC Branch Director*	As per SC planning and guidance.	
32. SC Deputy Director*		
33. SCER Advisor*		
34. Logistics Section Chief*	Ensures development of logistics section of IAPs and provision of all facilities, services, support, persons and materials required for the response. Particular focus on the provision of vessels and aircraft for spill response activities, spill response equipment and specially trained personnel for these tasks.	Equipment, materials and other resources are appropriately sourced, deployed, maintained and serviced as required by the response.
35. Support Branch Director*	The support branch is in charge of the logistics plans for the daily incident action plan. These plans cover the operations of Supply, Facilities, Ground and Vessel Support units.	Daily logistics planning completed.
36. Supply Unit Lead*	Procurement of resources for the response (personnel, equipment & supplies).	Procurement matches the need identified by operations for daily taskings.
37. Facilities Unit Lead	Setup, maintenance and demobilisation of incident facilities. Includes the provision of accommodation and sanitation facilities.	Ensure that operating bases; the ICP; accommodation and other facilities are provided as needed and fit fir purpose.
38. Equipment Manager	Service, repair, and fuel for all equipment and gear.	Supply for the operation of (OSPR in particular) equipment and platforms.
39. Service Branch Director	Manages and runs the service aspects of the response - Communications, Medical and Food Units.	Service units operate effectively and efficiently as per the need at the time.
40. Communications Unit (IT) Manager	Run the communication networks and IT infrastructure critical for the response.	Effective communications from the IMT to the field, and intra-field communications. Ensure that all computer devices, networks, printers, etc work as they should.
41. Incident Command Centre Manager	Manage the Incident Command Centre	Works closely with facilities' management to ensure that the ICC is fit for purpose for an ongoing response.

IMT Role	Job description	Outputs
42. Food Unit Lead	Put in place all of the catering and potable water requirements for the response.	Food and water as needed to the operational and management force.
43. Medical Unit Lead (includes infection control – COVID)	Provide expertise on medical issues as a result of the response; drafts and advises on operational issues from the execution of the Covid19 response plan.	Medical staff and expertise to assist develop and execute the safety risk management plan.
44. Finance Section Chief*	All financial, administrative and cost aspects of the incident, and management of the team.	Accurate financial records keeping and daily cash 'burn rate' is tracked. Appropriate financial DOA is working amongst the IMT. Financial software/tracking system is in place with line items and cost centres established.
45. Procurement Unit (marine & aviation asset contracting)	Provides contractual support, leases and agreements with external parties.	Contractually enables the control agency to bring together all of the necessary third-party contractors to support the response.
46. Compensation Unit	Responsible for the administration of the claims process (collation of data and logging of claim) from third parties who may be affected by the response.	System in place to engage with affected parties so that they may log their claims (compensation).
47. Administration & Records	Provide administrative services (systems and facilities) to the IMT.	IMS software/paper-based system is used by all sections. Access to other software – databases, spreadsheet, internal SharePoint systems, etc, are in place.

Appendix C Additional Resources Details

C-1 Worst Case Shoreline Loading Scenario

The worst-case shoreline loading across all shorelines was 704.7 m^3 (Figure C.1). This deterministic simulation was used to estimate the maximum spill response resources required at peak escalation. The time series of oil weathering is shown in Figure C.2.

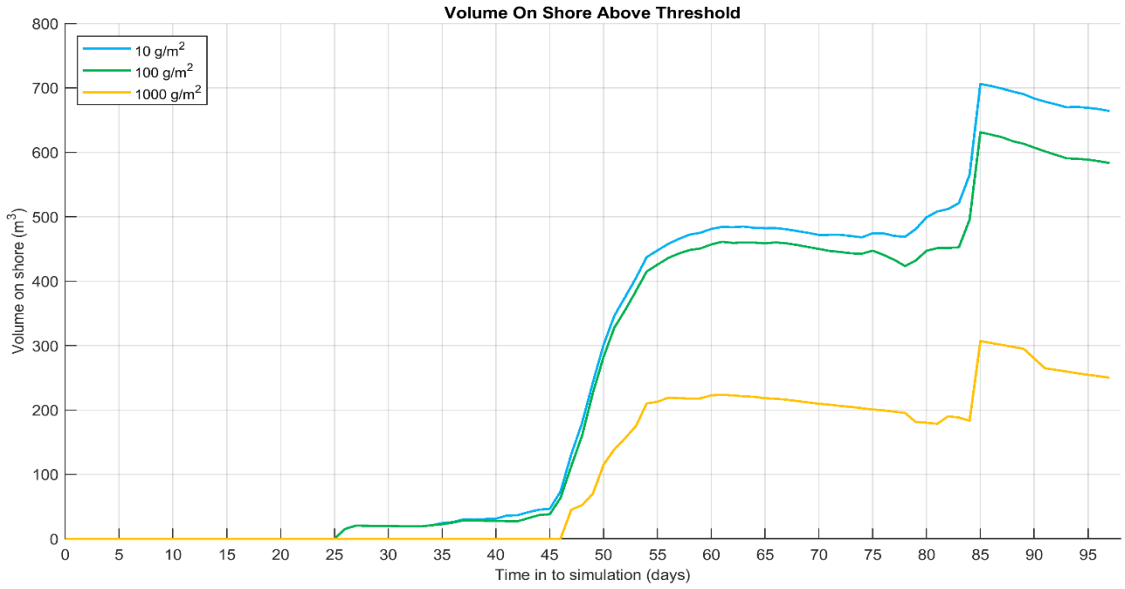

Figure C.1 Time series of the volume of oil accumulating on shorelines at the low (10 g/m^2), moderate (100 g/m^2) and high (1,000 g/m^2) thresholds for the trajectory with the largest volume of oil ashore

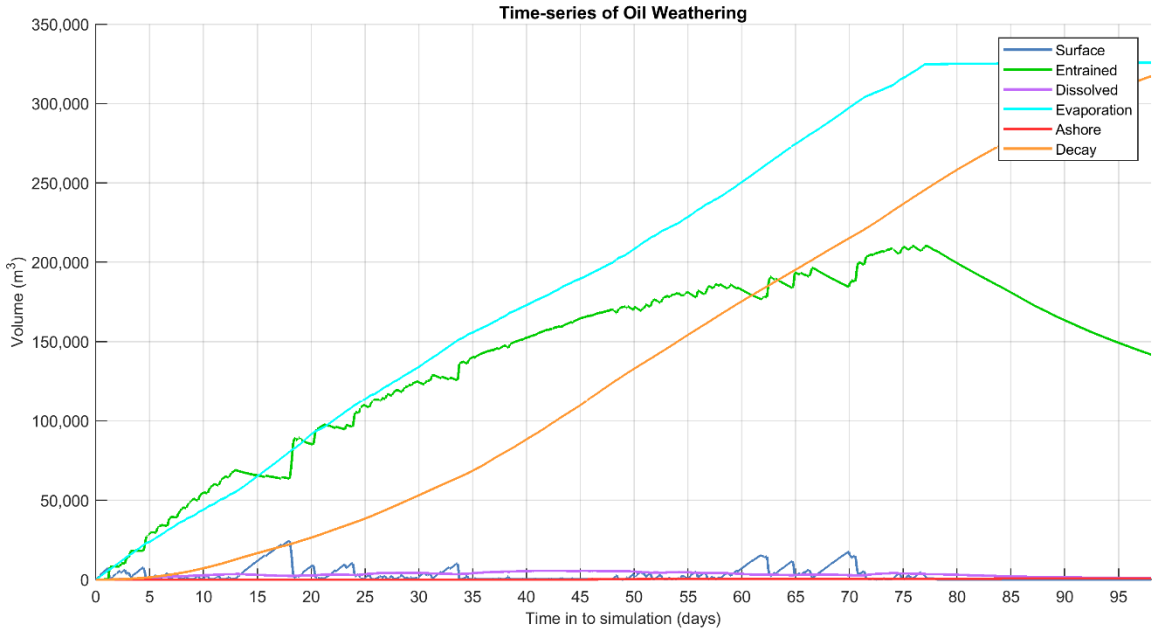

Figure C.2 Predicted weathering and fates graph for the trajectory with the largest volume of oil ashore

C-2 Surface Dispersant Requirements

The assumptions used to estimate the dispersant requirements were validated by AMOSC and OSRL and include:

- Blowout is successfully killed at day 77.
- AMOSC's Fixed Wing Aerial Dispersant Capability (FWADC) contract would be activated using the "Northern Aerial Operations Plan V1.1". Truscott Airfield (YTST) would be used as primary airfield; Mitchell Plateau Airfield (YMIP) as backup. Dispersants would be mobilised to Truscott from Exmouth, Broome, Fremantle and North Geelong. Air attack supervisor (and platform), aircraft loading officer, AFR liaison and AMOSC personnel could be onsite within 24 hours. Based on these figures, within 24 hours, we would have personnel (AMOSC and AFR), a small stockpile of dispersant, an airbase management container with dispersant transfer equipment, Air Tractors and AAS platform onsite. We would theoretically be ready to spray dispersant (pending flight plans and aerial dispersant operational plan development by the IMT) by day 2.
- 2 x fixed wing aircraft (AT802) supplied by AMOSC - 12 m^3/day/each (4 sorties of 3 m^3 each). 1 fixed wing aircraft supplied by OSRL - 24 m^3/day by C130 (2 sorties of 12 m^3 each)
- The surface dispersant application was assumed continuous for 10 hours during daylight hours only, starting from 24 hours after the initial release until the end of the spill duration. The initially available dispersants are shown in Table C.1. Upon request to AMOSC and/or OSRL an additional 100 m^3/day of Corexit EC9500 dispersant can be manufactured within 14 days and 50 m^3/day of Dasic Slickgone NS within 7 to 10 days to achieve ongoing capacity.
- A vessel could apply 11 m^3/day in theory - 15 hrs from Darwin means only 1 run every 2 days. AMOSC confirm 6 m^3 per two days per vessel is valid. There are 8 vessel-mountable dispersant spray systems available from AMOSC (2 each in Exmouth, Broome, Fremantle & Geelong). Assumed we could get 3 vessels applying from day 4 and 5. OSRL & GRN can supply more.
- Dispersant to oil ratio - 1: 20 (confirmed by AMOSC & OSRL). Dispersant effectiveness - 50% minimum, more likely 60%, according to AMOSC. Assume 60%.
- Weathering analysis by AMOSC: 21% persistent component in crude = 2,145 m^3/day crude at sea surface. At 1:20 dispersant: oil ratio, need 107 m^3/day of dispersant. Mass balance forecast by AMOSC: 1% floating on the oil after 24 hrs (i.e. 102 m^3/day crude on sea surface). This small volume remaining as surface oil would suggest 48-60 m^3/day dispersant application is justified (initial estimate was 33 m^3/day dispersant application).
- Floating oil and shoreline analysis by AMOSC: Intervention strategies to reduce shoreline stranding justify the use of dispersant.

Table C.1 Volumes of dispersant available

Source	Volume (m^3)	Type	Notes
AMSA	178	Slick Gone NS	Stockpiles in Darwin, Dampier, Fremantle, Horn Island, Cairns, Mackay, Gladstone, Bris, Newcastle, Syd, Pt Kembla, Geelong, Adel, Devonport, Hobart
	177	Slickgone EW	
AMOSC	163	Slick Gone NS	
	89	Corexit 9500	
OSRL	779	Various	
	5,000	Various	AMOSC has confirmed these figures to be correct at 21 April 2022.
Total	**6,386**		

Three aircraft and three vessels would be used for dispersant application. The assumptions behind the predicted aerial and vessel dispersant application are shown in Table C.2. The daily application rates are shown in Figure C.3, ramping up over seven days and continuing for 77 days.

Table C.2 Dispersant application assumptions

Aspect	Details
Aircraft	
Assumed air base	Truscott (northwest WA)
AMOSC stockpile activation	4 hrs from notification
18 m^3 of dispersant from Geelong to Truscott	24 hours
C-130 Hercules deliveries to Truscott per day	1 (can hold up to 20 m^3)
Day 1 of aerial application	Day 2 of blowout
Sorties (applications) per day per aircraft	4 (2 hrs 20 mins per sortie)
Runs per day per aircraft (from Truscott)	3
Total dispersant application per aircraft per day	12 m^3
Vessels	
Assumed port	Darwin
Cruising speed	12 knots
Steaming time Darwin to drill site (185 nm)	15.5 hrs
Application rate	1,000 litres every 50 mins
Total dispersant application per vessel per day	Maximum of 11 m^3/day

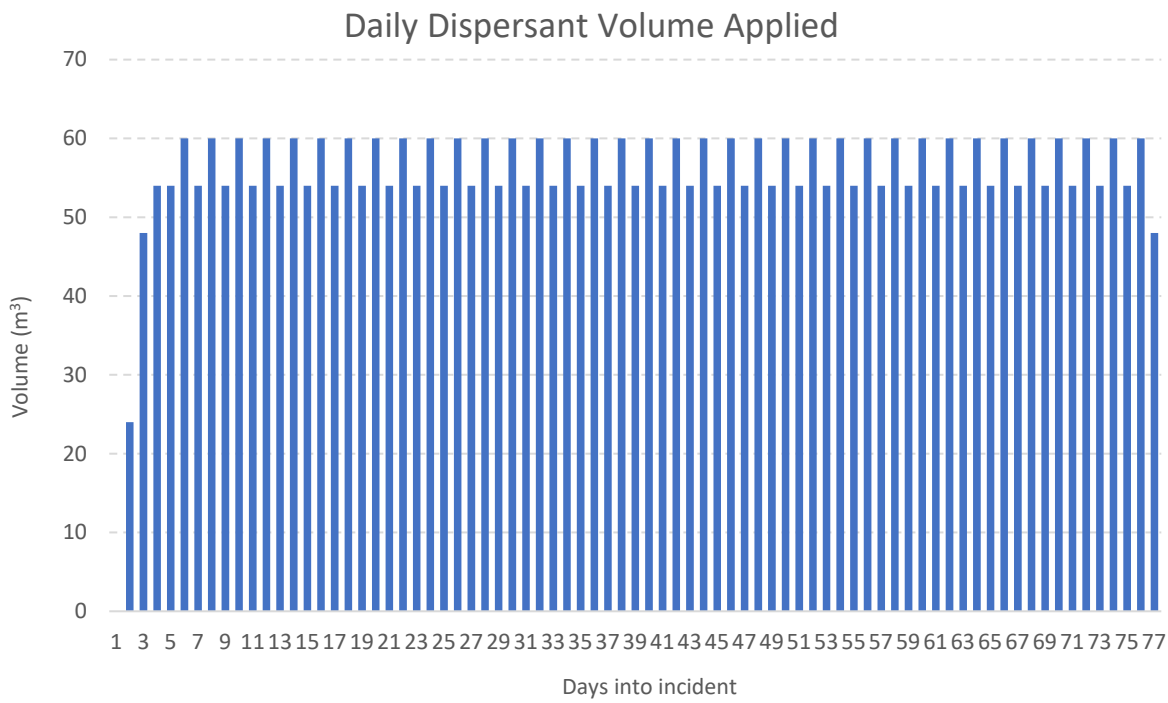

Figure C.3 Daily dispersant application

C-3 Waste Management Requirements

Table C.3 summarises the total oily water and oily solid waste estimates based on 80% of the waste estimates used for comparable worst-case shoreline loading of approximately 1,000 m^3. (NB: EOG's worst case shoreline loading was estimated as 704.7 m^3). Note that EOG is working with AMOSC to further refine these estimates, which will be included in the next revision of the OPEP.

Table C.3 Oily water and oily solid waste estimates

Estimate	Total (m3)
Oily water waste volume	
Offshore C&R marine operations (m^3)	8,400
Stage 1 Shoreline Operations (m^3)	7,420
Total oily water waste (m^3)	**15,820**
Solid Waste Volume	
Stage 2 mechanical recovery shoreline operations (m^3)	not undertaken
Stage 2 manual removal shoreline operations (m^3)	2,968
Stage 3 polishing shoreline operations (m^3)	891
Nearshore P&D marine operations (m^3)	2,744
PPE from all response operations (m^3)	960
Total oily solid waste (m^3)	**7,563**

Appendix D Forms

The following forms are available on AGR's MS Teams DIMT Site

- AMSA POLREP & SITREP
- Action Tracker Register
- DIMT Emergency Contact Register
- Incident Action Plan
- Logistics Resources Board
- WA Dot Shoreline Assessment Form
- Operational NEBA Worksheet
- Vessel Surveillance Observer Log
- Aerial Surveillance Observer Log
- Aerial Surveillance Surface Slick Monitoring Template
- Aerial Surveillance Marine Fauna Sighting Record