WA-34-L Pyxis Drilling and Subsea Installation – Oil Pollution First Strike Plan

Security & Emergency Management
Hydrocarbon Spill Preparedness Unit

November 2019
Revision: 2

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WA-34-L PYXIS DRILLING AND SUBSEA INSTALLATION OIL POLLUTION FIRST STRIKE PLAN

SPILL FROM FACILITY INCLUDING SUBSEA INFRASTRUCTURE

(Note: Pipe laying and accommodation vessels are considered a "FACILITY" under Australian Regs).

LEVEL 1
CONTROL AGENCY: WOODSIDE
INCIDENT CONTROLLER: Person In Charge (PIC) with support from Onshore Team Leader (OTL)

LEVEL 2 & 3
CONTROL AGENCY: WOODSIDE
INCIDENT CONTROLLER: CICC DUTY MANAGER

SPILL FROM FACILITY ENTERING STATE WATERS

LEVEL 1
CONTROL AGENCY: WOODSIDE
INCIDENT CONTROLLER: CICC DUTY MANAGER

LEVEL 2 & 3
CONTROL AGENCY: WA DoT
INCIDENT CONTROLLER: WA DoT IC

SPILL FROM VESSEL

(Note: SOPEP should be implemented in conjunction with this document)

LEVEL 1
CONTROL AGENCY: AMSA
INCIDENT CONTROLLER: VESSEL MASTER (with response assistance from Woodside)

LEVEL 2 & 3
CONTROL AGENCY: AMSA
INCIDENT CONTROLLER: AMSA (with response assistance from Woodside)

Guidance to Oil Spill Incident Levels

The most significant characteristic of the below guidance should be considered when determining level or escalation potential.

Characteristic	Level 1 Indicators	Level 2 Indicators	Level 3 Indicators
General Description	Generally able to be resolved within 24-48 hours.	Generally a response is required beyond 48 hours.	Response may extend beyond weeks.
Woodside Emergency Management (EM)/ EM)/Crisis Management Team (CMT) Activation	Onsite Incident Controller (IC) activated. Use of ICC support may be required.	Handover of Control from Onsite IC Corporate Incident Coordination Center (CICC) Duty Manager (DM) in Peth.	Includes Perth based CMT activation.
Number of Agencies	First-response agency and Incident Management Team (IMT).	Multi-agency response.	Agencies from across government and industry.
Environment	Isolated impacts or with natural recovery expected within weeks.	Significant impacts and recovery may take months.	Significant area and recovery may take months. Remediation required.
Economy	Business level disruption (i.e. Woodside).	Business failure or 'Channel' impacts.	Disruption to a sector.
Public Affairs	Local and regional media coverage (WA).	National media coverage.	International media coverage.

For guidance on credible spill scenarios and hydrocarbon characteristics refer to Appendix A.

For Spills Entering State Waters

In the event of a spill where Woodside is the responsible party and the spill may impact State waters/shorelines, Woodside will notify the Western Australian Department of Transport (DoT).

If the spill impacts State waters/shorelines and is a Level 1, Woodside will remain the Controlling Agency. If the spill is a Level 2/3 then DoT will become the Control Agency for the response in State waters/shorelines only. DoT will appoint an Incident Controller and form a separate Incident Management Team to manage the State waters/shorelines response only. The coordination structure for a concurrent hydrocarbon spill in both Commonwealth and State waters/shorelines is shown in ***Appendix E***.

Initially Woodside will be required to make available an appropriate number of suitably qualified persons to work in the DoT IMT (see Appendix G). DoT's role as the Controlling Agency for Level 2 and 3 spills in State waters/shorelines does not negate the requirement for Woodside to have appropriate plans and resources in place to adequately respond to a Marine Hydrocarbon Spill incident in State waters/shorelines or to commence the initial response actions to a spill prior to DoT establishing incident control in line with DoT Offshore Petroleum Industry Guidance Note- Marine Oil Pollution: Response and Consultation Arrangements (September 2018): http://www.transport.wa.gov.au/mediaFiles/marine/MAC_P_Westplan_MOP_OffshorePetroleumIndGuidance.pdf

Woodside's Incident Management Structure for a Hydrocarbon Spill, including Woodside Liaison Officer's command structure within DoT can be seen at Appendix F.

Response Process Overview

<table>
<tr><th colspan="3">Use the below to determine actions required and which parts of this plan are relevant to the incident.</th></tr>
<tr><td colspan="3">For guidance on credible scenarios and hydrocarbon characteristics, refer to Appendix A.</td></tr>
<tr><td rowspan="2">ALL INCIDENTS</td><td colspan="2">Notify the Woodside Communication Centre (WCC) on:
1300 833 333, +61 8 9348 7184 / 4624
or sat phone +881 632 410 392</td></tr>
<tr><td colspan="2">Incident Controller or delegate to make relevant notifications in Table 1-1 (pages 8-11) of this Oil Pollution First Strike Plan.</td></tr>
<tr><td rowspan="3">LEVEL 1</td><td>FACILITY INCIDENT</td><td>VESSEL INCIDENT</td></tr>
<tr><td>Coordinate pre-identified tactics in Table 2-1 (page 13-14) of this Oil Pollution First Strike Plan.
Remember to download each Operational Plan.</td><td>Upon agreement with AMSA: Coordinate pre-identified tactics in Table 2-1 (page 13-14) of this Oil Pollution First Strike Plan.
Remember to download each Operational Plan.</td></tr>
<tr><td colspan="2">If the spill escalates such that the site cannot manage the incident, inform the WCC on 1300 833 333, +61 8 9348 7184 / 4624 or sat phone +881 632 410 392 and escalate to a level 2/3 incident.</td></tr>
<tr><td rowspan="3">LEVEL 2/3</td><td>FACILITY INCIDENT</td><td>VESSEL INCIDENT</td></tr>
<tr><td>Handover control to CICC.

Undertake quick revalidation of the recommended strategies on Table 3-1 (pages 16-17) taking into consideration seasonal sensitivities and current situational awareness.

Undertake validated strategies.</td><td>Handover control to AMSA and stand up CICC to assist.

If requested by AMSA:
Undertake quick revalidation of the recommended strategies on Table 3-1 (pages 16-17) taking into consideration seasonal sensitivities and current situational awareness.

Undertake validated strategies.</td></tr>
<tr><td>Create an Incident Action Plan (IAP) IAP for all ongoing operational periods (LINK).
<u>The content of the IAP should reflect the selected response strategies based on current situational awareness.</u>

For the full detailed pre-operational NEBA see LINK .</td><td>If requested by AMSA:
Create an IAP for all ongoing operational periods (LINK).
<u>The content of the IAP should reflect the selected response strategies based on current situational awareness.</u>

For the full detailed pre-operational NEBA see LINK .</td></tr>
</table>

1. NOTIFICATIONS (ALL LEVELS)

The Incident Controller or delegate must ensure the below notifications (Table 1-1) are completed within the designated timeframes.

For other environmental notifications required refer to the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan.

Table 1-1: Immediate Notifications

Notification timing	Responsibility	Authority /Company	Name	Contact Number	Instruction	Form/ Template	Mark Complete (✓)
Notifications to be made for ALL LEVELS of spill ***(For spills from a vessel the following notifications must be undertaken by a WEL representative).***							
Immediately	Offshore Installation Manager (OIM) or Vessel Master	Woodside Communication Centre (WCC)	Duty Manager (DM)	1300 833 333 or +(61) 893 487 184 / 4624 or Sat phone: +881 632 410 392	Verbally notify WCC of event and estimated volume and hydrocarbon type.	Verbal	
Within 2 hours	OIM or Woodside Site Rep (WSR)	National Offshore Petroleum Safety Environmental Management Authority (NOPSEMA[1])	Incident notification officer	+(61) 8 6461 7090	Verbally notify NOPSEMA for spills >80L. Record notification using Initial Verbal Notification Form or equivalent and send to NOPSEMA as soon as practicable (cc to NOPTA and DMIRS).	App B Form 1	
Within 3 days	OIM or WSR				Provide a written NOPSEMA Incident Report Form as soon as practicable (no later than 3 days after notification) (cc to NOPTA and DMIRS) NOPSEMA: submissions@nopsema.gov.au NOPTA: resources@nopta.gov.au DMIRS: petreps@dmirs.wa.gov.au	App B Form 2	

[1] Notification to NOPSEMA must be from a Woodside Representative.

Notification timing	Responsibility	Authority /Company	Name	Contact Number	Instruction	Form/ Template	Mark Complete (✓)
As soon as practicable	OIM or WSR	Woodside	Hydrocarbon Spill Preparedness (HSP) Manager	+(61) 413 941 307	Verbally notify HSP Manager of event and estimated volume and hydrocarbon type.	Verbal	
As soon as practicable	CICC DM or Delegate	Woodside	Duty Environment	As per roster	Verbally notify Duty Environment of event and seek advice on relevant performance standards from EP.	Verbal	
As soon as practicable	CICC DM or Delegate	Department of Environment and Energy	Director of National Parks (Director)	+(61) 8 6274 2220	The Director is notified in the event of oil pollution within a marine park, or where an oil spill response action must be taken within a marine park, so far as reasonably practicable, prior to response action being taken.	Verbal	
Additional notifications to be made ONLY if spill is from a vessel							
Without delay as per protection of the Sea Act, part II, section 11(1)	Vessel Master	Australian Maritime Safety Authority (AMSA)	Response Coordination Centre (RCC)	1800 641 792 or +(61) 2 6230 6811	Verbally notify AMSA RCC of the hydrocarbon spill. Follow up with a written Marine Pollution Report (POLREP) as soon as practicable following verbal notification.	App B Form 3	
ADDITIONAL LEVEL 2/3 NOTIFICATIONS							
As soon as practicable	CICC DM or Delegate	AMOSC	AMOSC Duty Manager	+(61) 0 438 379 328	Notify AMOSC that a spill has occurred and follow-up with an email from the IC/CICC DM, CMT Leader or Oil Spill Preparedness Manager to formally activate AMOSC. Determine what resources are required consistent with the AMOSPlan and detail in a Service Contract that will be	App B Form 4	

Notification timing	Responsibility	Authority /Company	Name	Contact Number	Instruction	Form/ Template	Mark Complete (✓)
					sent to Woodside from AMOSC upon activation.		
As soon as practicable	CICC DM or Delegate	Oil Spill Response Limited (OSRL)	OSRL Duty Manager	+(65) 6266 1566	Contact OSRL Duty Manager and request assistance from technical advisor in Perth. Send the notification form to OSRL as soon as practicable. For mobilisation of resources, send the Mobilisation Form to OSRL as soon as practicable.	Notification: App B Form 6a Mobilisation: App B Form 6b	
As soon as practicable or if spill is likely to extend into WA State waters.	CICC DM or Delegate	WA Department of Transport (DoT)	DoT Duty Manager	(08) 9480 9924	Marine Duty Manager to verbally notify DoT that a spill has occurred and request use of equipment stored in the Exmouth supply shed at Harold E Holt if required. N.B. This would be additional to Woodside's own equipment stockpiles and those of its primary response contractors. Follow up with a written POLREP as soon as practicable following verbal notification. Additionally, DoT to be notified if spill is likely to extend into WA State waters. Request DoT to provide Liaison to WEL IMT.	App B Form 5	
As soon as practicable if there is potential for oiled wildlife or the spill is expected to	CICC DM or Delegate	WA Department of Biodiversity, Conservation and Attractions (DBCA)	Duty Officer	(08) 9219 9108	Phone call notification	Verbal	

Notification timing	Responsibility	Authority /Company	Name	Contact Number	Instruction	Form/ Template	Mark Complete (✓)
contact land or waters managed by WA Department of Biodiversity, Conservation and Attractions							
As soon as practicable	CICC DM or Delegate	OSRL	OSRL Duty Manager	+(65) 6266 1566	Contact OSRL duty manager and request assistance from technical advisor in Perth. Send the notification form to OSRL as soon as practicable. For mobilisation of resources, send the Mobilisation Form to OSRL as soon as practicable.	Notification: App B Form 6a Mobilisation: App B Form 6b	
As soon as practicable	CICC DM or Delegate	MSRC	MSRC Response Manager	+1-732-417-0175 or +1-703-326-5609	Activate the contract with MSRC (in full) for the provision of up to 30 personnel depending on what skills are required. Please note that provision of these personnel from MSRC are on a best endeavours basis and are not guaranteed.	Verbal	
As soon as practicable	CICC DM or Delegate	Department of Environment and Energy	Director of National Parks	(08) 6274 2220	The Director is notified in the event of oil pollution within a marine park, or where an oil spill response action must be taken within a marine park, so far as reasonably practicable, prior to response action being taken.	Verbal	

2. LEVEL 1 RESPONSE

2.1 Mobilisation of Response Strategies

For the relevant hydrocarbon type, undertake quick revalidation of the recommended pre-identified tactics indicated with a 'Yes' in Table 2-1**.** Undertake all validated pre-identified tactics immediately. These tactics should be carried out using the associated plan identified under Table 2-1 Operational Plan column.

All response strategies and pre-identified tactics have been identified from the pre-operational Net Environmental Benefits Analysis (NEBA) presented in the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, Appendix D.

Table 2-1: Level 1 Response Summary

Response Strategies	Hydrocarbon Type			Pre- Identified Tactics	Responsible	ALARP Commitment	Complete ✓	Link to Operational Plans for notification numbers and actions
	Marine Diesel	Crude	Pyxis Cond					
Monitor and Evaluate (Operational Monitoring)	Yes	N/A	Yes	If a vessel is on location consider the need to deploy the oil spill Tracking buoy. Vessels will be quipped with tracking bouys. If no vessel is on location consider the need to mobilise oil spill tracking buoys from the KBSB Stockpile. If a surface sheen is visible from the facility deploy the satellite tracking buoy within 2 hours.	Operations	To be deployed within 2 hours of the identification of the spill. Deploy tracking buoy in accordance with Appendix D		Surveillance and Reconnaissance to Detect Hydrocarbons and Resources at Risk (OM02 of The Operational Monitoring Operational Plan CRN).
	Please consider instructing the CICC DM to activate or implement any of the following Pre-Identified tactics. The following tactics will assist in answering the '7 Questions of Spill Assessment' identified in Appendix C to increase situational awareness.							
	Yes	N/A	Yes	Undertake initial modelling using the Rapid assessment oil spill tool Woodside Maps (Emergency Response) and weathering fate analysis using ADIOS (or refer to the hydrocarbon information in Appendix A).	Intelligence or Environment	Initial modelling available within 6 hours		Predictive Modelling of Hydrocarbons to Assess Resources at Risk (OM01 of The Operational Monitoring Operational Plan CRN). *Planning to download immediately and follow steps*
	Yes	N/A	Yes	Send Oil Spill Trajectory Modelling (OSTM) form (Appendix B Form 7) to RPS APASA. response@rpsgroup.com.au	Intelligence	N/A		
	Yes	N/A	Yes	Instruct Aviation Duty Manager to commence aerial observations in daylight hours. Aerial surveillance observer to complete log in Appendix B Form 8.	Logistics - Aviation	DAY 1: Woodside observers using Aircraft		Surveillance and Reconnaissance to Detect Hydrocarbons and Resources at Risk (OM02 of The Operational Monitoring Operational Plan CRN).
	Yes	N/A	Yes	The Intelligence Duty Manager should be instructed to stand up KSAT to provide satellite imagery of the spill (email emergency@ksat.no and call +47 77 66 12 00).	Intelligence	DAY 1: Access to Satellite Sensing Data		

								Planning to download immediately and follow steps
	Yes	**N/A**	**Yes**	Consider the need to mobilise resources to undertake water quality monitoring (OM03).	Planning or Environment	Deploy resources within 2.5 days		Detecting and Monitoring for the Presence and Properties of Hydrocarbons in the Marine Environment (OM03 of The Operational Monitoring Operational Plan CRN).
	Yes	**N/A**	**Yes**	Consider the need to mobilise resources to undertake pre-emptive assessment of sensitive receptors at risk (OM04).	Planning or Environment	Within 10 days, deployment of 2 specialists from resource pool in establishing the status of sensitive receptors		Pre-emptive Assessment of Sensitive Receptors (OM04 of The Operational Monitoring Operational Plan CRN).
	Yes	**N/A**	**Yes**	Consider the need to mobilise resources to undertake shoreline assessment surveys (OM05).	Planning or Environment	Within 10 days, deployment of 1 specialist in SCAT from resource pool		Shoreline Assessment (OM05 of The Operational Monitoring Operational Plan CRN).

3. LEVEL 2/3 RESPONSE

3.1 Mobilisation of Response Strategies

For the relevant hydrocarbon type, undertake quick revalidation of the recommended pre-identified tactics indicated with a 'Yes' in Table 3-1**.** Undertake all validated pre-identified tactics immediately. These tactics should be carried out using the associated plan identified under Table 3-1 Operational Plan Column.

All response strategies and pre-identified tactics have been identified from the pre-operational Net Environmental Benefits Analysis (NEBA) presented in the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, Appendix D.

Table 3-1: Level 2/3 Response Summary

Response Strategies	Hydrocarbon Type			Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Complete ✓	Link to Operational Plans for notification numbers and actions
	Marine Diesel	Crude	Pyxis Cond					
Monitor and Evaluate (Operational Monitoring)	**Yes**	**N/A**	**Yes**	If a vessel is on location consider the need to deploy the oil spill Tracking buoy. If no vessel is on location consider the need to mobilise oil spill tracking buoys from the KBSB Stockpile. If a surface sheen is visible from the facility deploy the satellite tracking buoy within 2 hours.	Operations	To be deployed within 2 hours of the identification of the spill.		Surveillance and Reconnaissance to Detect Hydrocarbons and Resources at Risk (OM02 of The Operational Monitoring Operational Plan CRN).
	Yes	**N/A**	**Yes**	Undertake initial modelling using the Rapid assessment oil spill tool Woodside Maps (Emergency Response) and weathering fate analysis using ADIOS (or refer to the hydrocarbon information in Appendix A).	Intelligence or Environment	Initial modelling available within 6 hours		Predictive Modelling of Hydrocarbons to Assess Resources at Risk (OM01 of The Operational Monitoring Operational Plan CRN).
	Yes	**N/A**	**Yes**	Send Oil Spill Trajectory Modelling (OSTM) form (Appendix B Form 7) to RPS APASA.	Intelligence	N/A		
	Yes	**N/A**	**Yes**	Instruct Aviation Duty Manager to commence aerial observations in daylight hours. Aerial surveillance observer to complete log in Appendix B Form 8.	Logistics - Aviation	DAY 1: Woodside observers using Aircraft		
	Yes	**N/A**	**Yes**	The Intelligence duty manager should be instructed to stand up KSAT to provide satellite imagery of the spill (email emergency@ksat.no and call +47 77 66 12 00).	Intelligence	DAY 1: Access to Satellite Sensing Data		
	Yes	**N/A**	**Yes**	Consider the need to mobilise resources to undertake water quality monitoring (OM03).	Planning or Environment	Deploy resources within 2.5 days		Detecting and Monitoring for the Presence and Properties of Hydrocarbons in the Marine Environment (OM03 of The

								Operational Monitoring Operational Plan CRN).
	Yes	N/A	Yes	Consider the need to mobilise resources to undertake pre-emptive assessment of sensitive receptors at risk (OM04).	Planning or Environment			Pre-emptive Assessment of Sensitive Receptors (OM04 of The Operational Monitoring Operational Plan CRN).
	Yes	N/A	Yes	Consider the need to mobilise resources to undertake shoreline assessment surveys (OM05).	Planning or Environment			Shoreline Assessment (OM05 of The Operational Monitoring Operational Plan CRN).
Subsea Dispersant	No	N/A	No	Subsurface dispersant would be unlikely to have any appreciable effect on the behaviour or extent of the oil plume. Therefore, subsurface application of dispersant is unlikely to be effective in preventing isolated incidents of accumulation. Additionally, the use of subsea dispersant injection would unnecessarily introduce additional chemical substances to the marine environment while offering minimal environmental benefit. The additional entrainment would also increase exposure of subsea species and habitats to hydrocarbons, which, under normal conditions would potentially evaporate on the surface given the high volatility of the hydrocarbon. With the considerations above, the SSDI response strategy is excluded based on the lack of environmental benefit associated with response implementation, with no expected incremental benefit over natural weathering. It would unnecessarily introduce additional chemical substances to the marine environment and increase exposure of subsea species and habitats to hydrocarbons which would potentially evaporate on the surface.				
Surface Dispersant	No	N/A	No	The effectiveness of the application of surface dispersants is predicted to be very low based on the light, volatile nature of the Pyxis condensate. Therefore, any application of surface dispersant would be unlikely to have any appreciable effect on the behaviour or extent of the oil plume, with no incremental benefit over natural weathering.				
Mechanical Dispersion	No	N/A	No	Mechanical dispersion involves the use of a vessel's prop wash and/or fire hose to target surface hydrocarbons to achieve dispersion into the water column. However, this strategy is of limited benefit in an open ocean environment where wind and wave action are likely to deliver similar advantages.				
Containment and Recovery	No	N/A	No	The effectiveness of containment and recovery is predicted to be very low based on Dampier met-ocean conditions, the inherent inefficiency of containment and recovery operations, and the light, volatile nature of the Pyxis condensate.				
In Situ Burning	No	N/A	No	Due to the conditions in Dampier region it is expected that the ability to contain oil may be limited as the sea state may exceed the optimum conditions. It is preferable that oil is fresh and does not emulsify to maximise burn efficiency and reduce residue thickness. There are health and safety risks for response personnel associated with the containment and subsequent burning of hydrocarbons. It is also suggested that the residue from attempts to burn would sink, thereby posing a risk to the environment. The longer-term effects of burn residues on the marine environment are not fully understood and therefore, no assessment of the potential environmental impact can be determined.				
Shoreline Protection and Deflection	No	N/A	No	Shoreline surface contact above thresholds is not expected to occur. Therefore, shoreline protection and deflection is not considered effective. Localised instances of accumulated hydrocarbons below threshold concentrations (100 g/m^2) are likely				

				to be the result of surface hydrocarbons contacting below threshold concentrations (10 g/m^2) or entrained hydrocarbons resurfacing and becoming stranded on shorelines.				
Shoreline Clean Up	**No**	**N/A**	**No**	No accumulation is predicted above the recommended threshold to commence shoreline assessment operations (100 g/m^2), therefore this strategy is unlikely to reduce environmental impact to sensitive receptors, potentially impacting shoreline environments through clean-up activities.				
Oiled Wildlife Response	**Yes**	**N/A**	**Yes**	If oiled wildlife is a potential impact, request AMOSC to mobilise containerised oiled wildlife first strike kits and relevant personnel. Refer to relevant Tactical Response Plan (TRP) for potential wildlife at risk. Mobilise AMOSC Oiled Wildlife Containers. Consider whether additional equipment is required from local suppliers.	Logistics and Planning			Oiled Wildlife Response Operational Plan CRN
Scientific Monitoring (Type II)	**Yes**	**N/A**	**Yes**	Notify Woodside science team of spill event.	Environment			Oil Spill Scientific Monitoring Programme – Operational Plan CRN
For well integrity event, the following strategies apply:								
Well Intervention	**No**	**N/A**	**Yes**	Hot Stab and/or well intervention using ROV.	Operations and Logistics	**Day 7:** AMOSC Subsea First Response Toolkit Equipment Deployed.		Source Control and Well Intervention Operational Plan CRN
Capping Stack	**No**	**N/A**	**Yes**	Capping stack is feasible at this depth. Due to the high proportion of volities surrounding the release location, safety will be assessed.	Operations (Source Control Unit)	**Day 16:** Capping stack deployed by a chartered construction vessel.		
Relief Well	**No**	**N/A**	**Yes**	As per Well Blowout Contingency Planning Procedure.	Operations and Logistics	Suitable drilling rig/MODU to mobilise to location by day 21.		

						Well kill to be achieved by day 67.		

4. PRIORITY RECEPTORS

Note: WA DoT are the Control Agency to respond to all sites in a Level 2/3 spill into State waters/ shorelines.
Action: Provide WA DoT with all relevant TRPs for any locations predicted to be contacted.

Based on hydrocarbon spill risk modelling results no sensitive receptors are expected to be contacted by hydrocarbon at or above impact threshold levels within 48 hours of a spill. Please note that impact thresholds (>10 g/m^2 surface hydrocarbon concentration, >100 g/m^2 shoreline accumulation, and >500 ppb entrained hydrocarbon concentration) are used to determine the Environment that May Be Affected (EMBA) identified in the Environment Plan and are lower than response thresholds (Table 4-1).

Table 4-1: Response Thresholds

Surface Hydrocarbon (g/m^2)	Description
>10	Predicted minimum threshold for commencing operational monitoring
50	Predicted minimum floating oil threshold for containment and recovery and surface dispersant application [2]
100	Predicted optimum floating oil threshold for containment and recovery and surface dispersant application
100	Predicted minimum shoreline accumulation threshold for shoreline assessment operations
250	Predicted minimum threshold for commencing shoreline clean-up operations

Oil Hydrocarbon modelling results indicate the sensitive receptors listed below have the potential to be contacted by hydrocarbons above impact thresholds (floating, accumulation and entrained) within the EMBA beyond the 48 hours of a spill:

- Montebello Islands MP

Figure 4-1 illustrates the location of regional sensitive receptors in relation to the operational area and identifies priority protection areas. Consideration should be given to other stakeholders (including mariners) in the vicinity of the spill location. A total of 100 replicate simulations were completed for each of the scenarios to test for trends and variations in the trajectory and weathering of the spilled oil, with an even number of replicates completed using samples of metocean data that commenced within each calendar quarter (25 simulations per quarter).

[2] At 50 g/m^2 containment and recovery and surface dispersant application operations are not expected to be effective. This threshold represents a conservative approach to planning response capability and displaying the spread of surface oil.

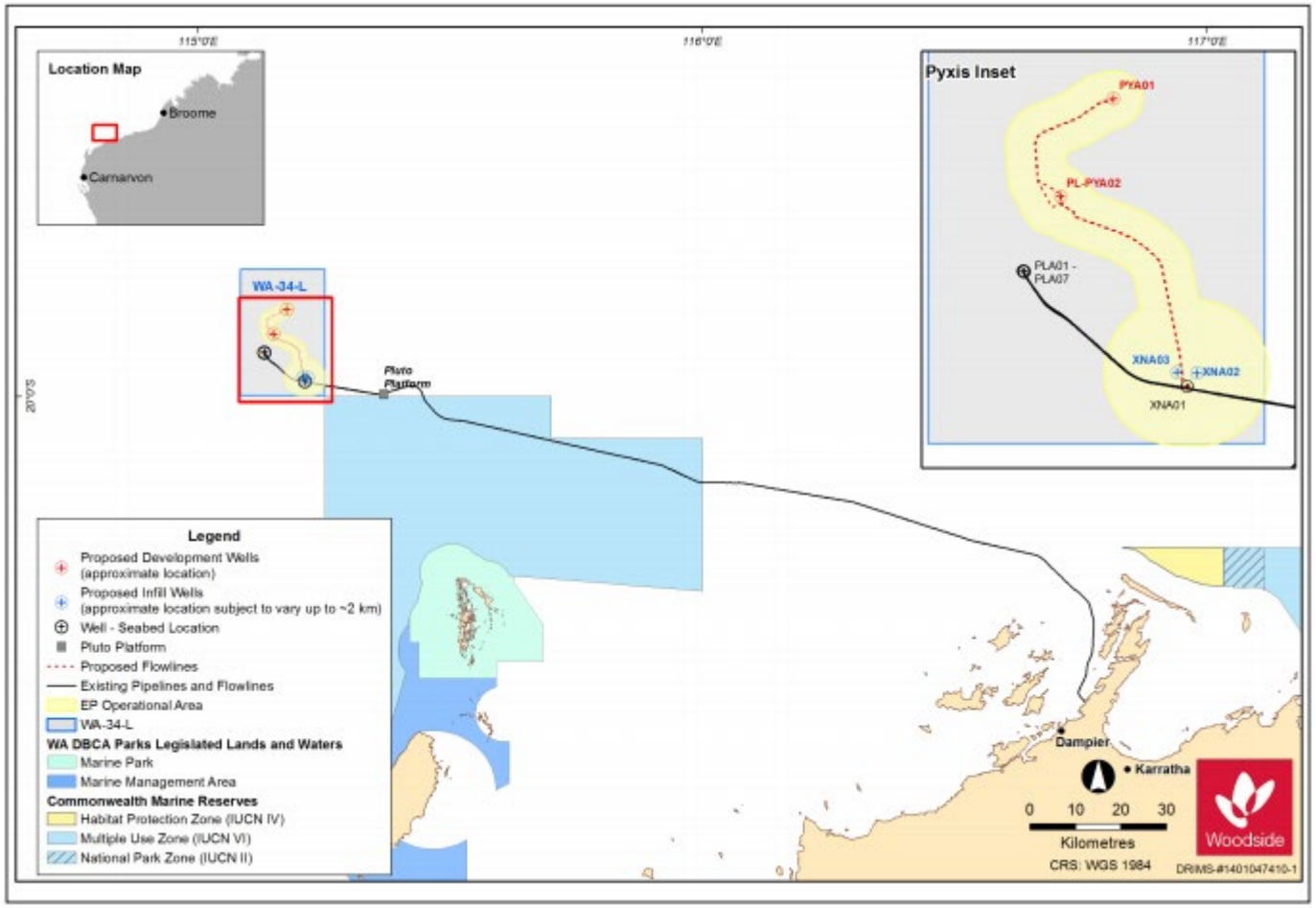


Figure 4-1 Regional Sensitive Receptors – WA-34-L Pyxis Drilling and Subsea Installation Environment Plan

5. DISPERSANT APPLICATION

Dispersant is not considered an appropriate response strategy for this activity as described in Appendix D of the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan.

APPENDIX A – CREDIBLE SPILL SCENARIOS AND HYDROCARBON INFORMATION

For more detailed hydrocarbon information see the
Hydrocarbon Data Directory

Credible Spill Scenarios

Scenario	Hydrocarbon	Maximum Volumes	Suggested ADIOS2 Analogue*
Hydrocarbon release caused by a subsea well loss of containment	Pyxis Condensate	Well loss of containment of 147, 755 m^3 over 67 days	Pyxis Condensate API 41
Instantaneous hydrocarbon release caused by vessel collision.	Marine Diesel	Loss of Marine Diesel from vessel collision of 1000 m^3	Diesel Fuel Oil (Southern USA 1) API of 37.2
Hydrocarbon Release during Marine Diesel fuel bunkering	Marine Diesel	Loss of Marine Diesel from bunkering of 8 m^3	Diesel Fuel Oil (Southern USA 1) API of 37.2

*Initial screening of possible ADIOS2 analogues was done by considering hydrocarbons with similar APIs. Suggested selection was based on the closest distillation cut to WEL hydrocarbon. Only hydrocarbons with distillation cuts that showed results for > 380°C were included in selection process.

Pyxis Condensate

Evaporation rates will increase with temperature, but in general about 11.4% of the Pyxis Condensate (surface) mass has the capacity to evaporate within the first 12 hours (BP <180 °C); a further 38.3% could evaporate within the first 24 hours (180 °C < BP < 265 °C); and a further 30.5% could evaporate over several days (265 °C < BP <380 °C). For the Pyxis Condensate (subsea) oil, 76.1% of the mass has the capacity to evaporate within the first 12 hours (BP < 180 °C); a further 13.5% could evaporate within the first 24 hours (180 °C < BP < 265 °C); and a further 10.3% could evaporate over several days (265 °C < BP <380 °C).

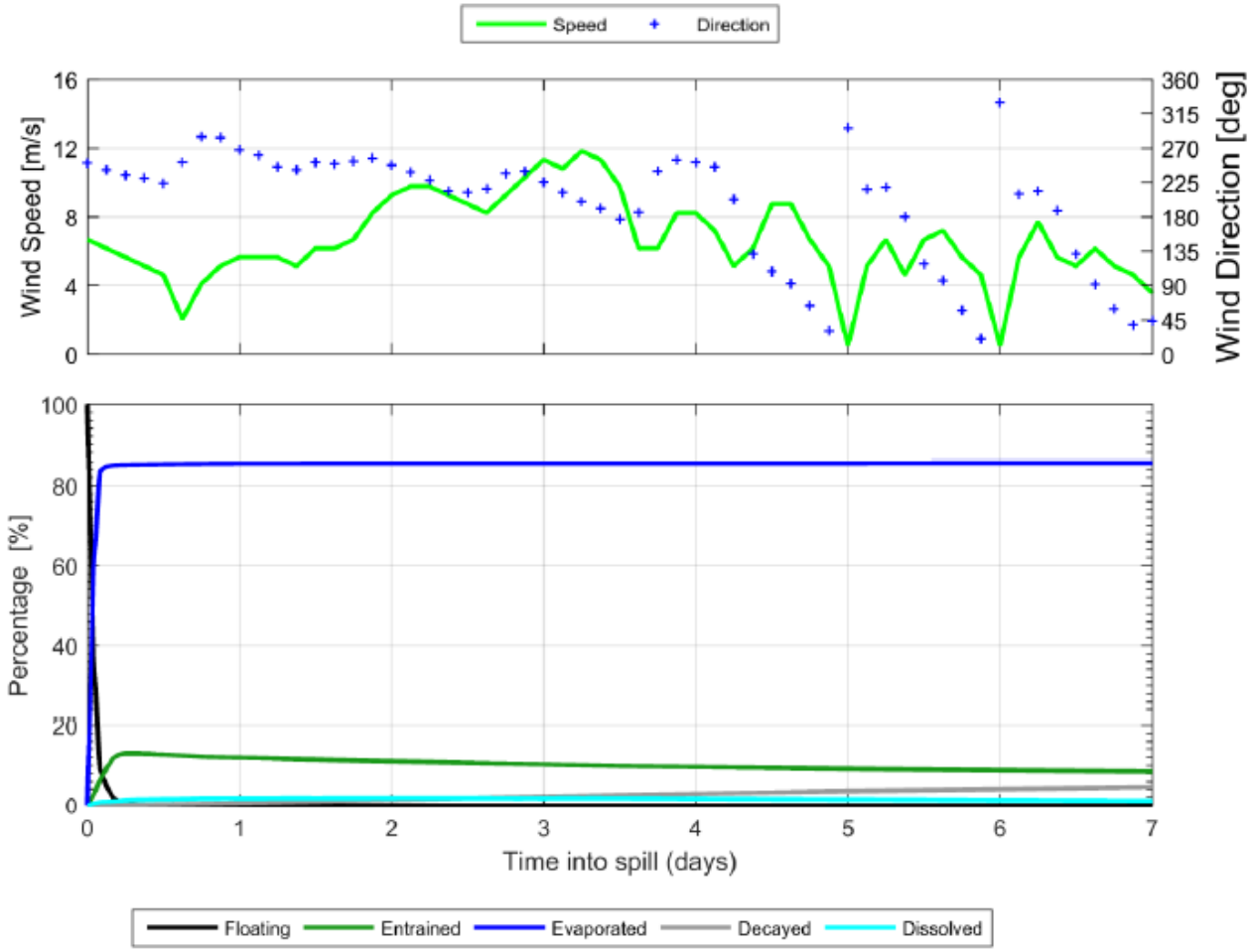


Figure A-0-1 Time series wind speed and percentage mass balance plots for the weathering of Pyxis Condensate (subsea) spilled onto the water column as a one-off release and subject to variable wind at 27 °C water temperature and 25 °C air temperature. *Source: Data available from WEL PYXIS DRILLING EP QSRA , 2019. Spill event oil spil trajectory modelling (OSTM) should be sought*

Marine Diesel (Group 2 Oil)

Marine diesel is a mixture of volatile and persistent hydrocarbons, with approximately 40-50% by mass predicted to evaporate over the first day or two, depending upon the prevailing conditions, with further evaporation slowing over time. The heavier components of marine diesel have a strong tendency to entrain into the upper water column due to wind waves, but can refloat to the surface if wind waves abate.

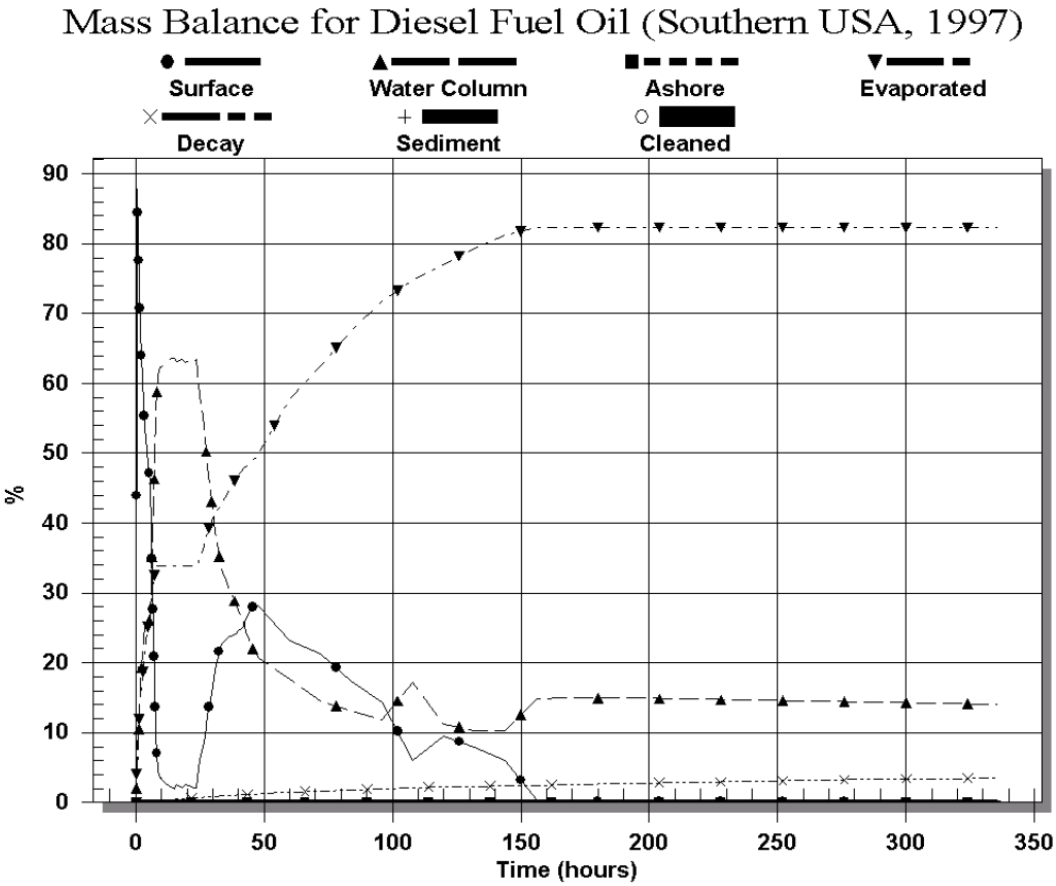


Figure A-0-2 Predictions for the partitioning of oil mass over time through weathering processes for marine diesel fuel oil. Predictions are based on sample environmental conditions.

Source: Data available from the APASA oil database (Diesel Fuel Oil (Southern USA 1997)). NOTE: This information is provided as guidance only. Spill event OSTM should be sought.

APPENDIX B – FORMS

Form No.	Form Name	Link
1	Record of Initial Verbal Notification to NOPSEMA Template	Link
2	NOPSEMA Incident Report Form	Link
3	Marine Pollution Report (POLREP – AMSA)	Link
4	AMOSC Service Contract	Link
5	Marine Pollution Report (POLREP – DoT)	Link
6a	OSRL Initial Notification Form	Link
6b	OSRL Mobilisation Activation Form	Link
7	APASA Oil Spill Trajectory Modelling Request	Link
8	Aerial Surveillance Observer Log	Link

FORM 1

Record of initial verbal notification to NOPSEMA

(NOPSEMA ph: (08) 6461 7090)

Date of call	
Time of call	
Call made by	
Call made to	

Information to be provided to NOPSEMA:

Date and Time of incident/time caller became aware of incident	
Details of incident	1. **Location** _____ 2. **Title**_____ 3. **Hydrocarbon source** □ **Platform**_____ □ **Pipeline**_____ □ **FPSO**_____ □ **Exploration drilling**_____ □ **Well**_____ □ **Other (please specify)** _____ 4. **Hydrocarbon type**_____ 5. **Estimated volume of hydrocarbon** _____ 6. **Has the discharge ceased?** _____ 7. **Fire, explosion or collision?** _____ 8. **Environment Plan(s)** _____ 9. **Other Details**_____
Actions taken to avoid or	

mitigate environmental impacts	
Corrective actions taken or proposed to stop, control or remedy the incident	

After the initial call is made to NOPSEMA, please send this record as soon as practicable to:

1. **NOPSEMA** submissions@nopsema.gov.au
2. **NOPTA** resources@nopta.gov.au
3. **DMP** petroleum.environment@dmp.wa.gov.au

FORM 2

[insert NOPSEMA Incident Report Form when printing]
Link

FORM 3

[insert Marine Pollution Report (POLREP – AMSA) when printing]
Link

FORM 4

[insert AMOSC Service Contract when printing]
Link

FORM 5

[insert Marine Pollution Report (POLREP – DoT) when printing]
Link

FORM 6a

[insert OSRL Initial Notification Form when printing]
LINK

FORM 6b

[insert OSRL Mobilisation Activation Form when printing]
LINK

FORM 7

[insert APASA Oil Spill Trajectory Modelling Request Form when printing]
LINK

FORM 8

[insert Aerial Surveillance Observer Log when printing]
LINK

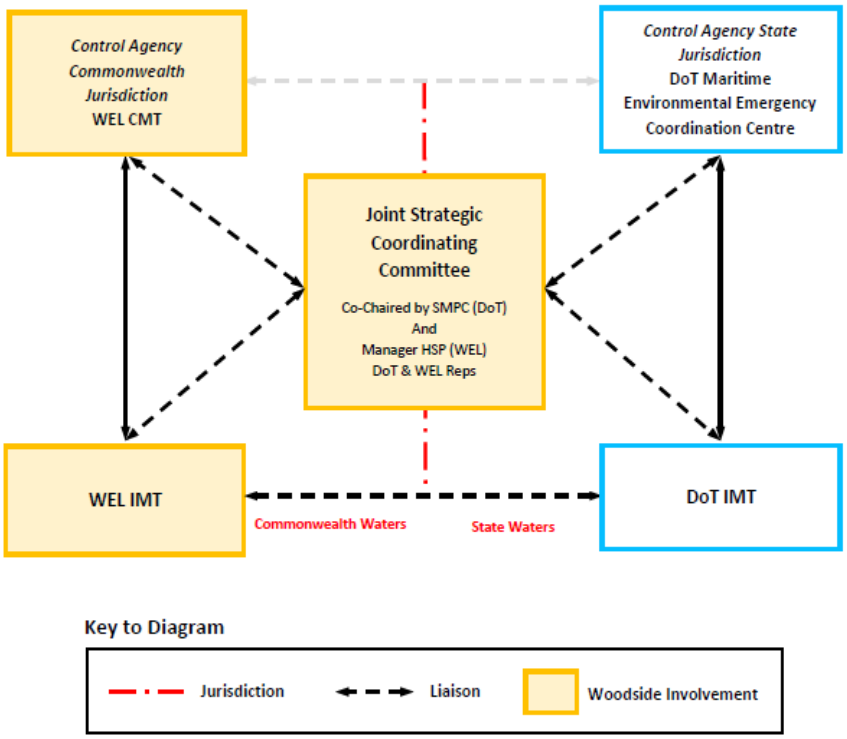
APPENDIX C – 7 QUESTIONS OF SPILL ASSESSMENT

WHAT IS IT? **Oil Type/name** **Oil properties** Specific gravity / viscosity / pour point / asphaltines / wax content / boiling point	
WHERE IS IT? Lat/Long Distance and Bearing	
HOW BIG IS IT? Area Volume	
WHERE IT IS GOING? Weather conditions Currents and tides	
WHAT IS IN THE WAY? Resources at risk	
WHEN WILL IT GET THERE? Weather conditions Currents and tides	
WHAT'S HAPPENING TO IT? Weathering processes	

APPENDIX D – OIL SPILL BUOY DEPLOYMENT INSTRUCTIONS

[Insert when printing]
LINK

APPENDIX E - COORDINATION STRUCTURE FOR A CONCURRENT HYDROCARBON SPILL IN BOTH COMMONWEALTH & STATE WATERS/SHORELINES[3]

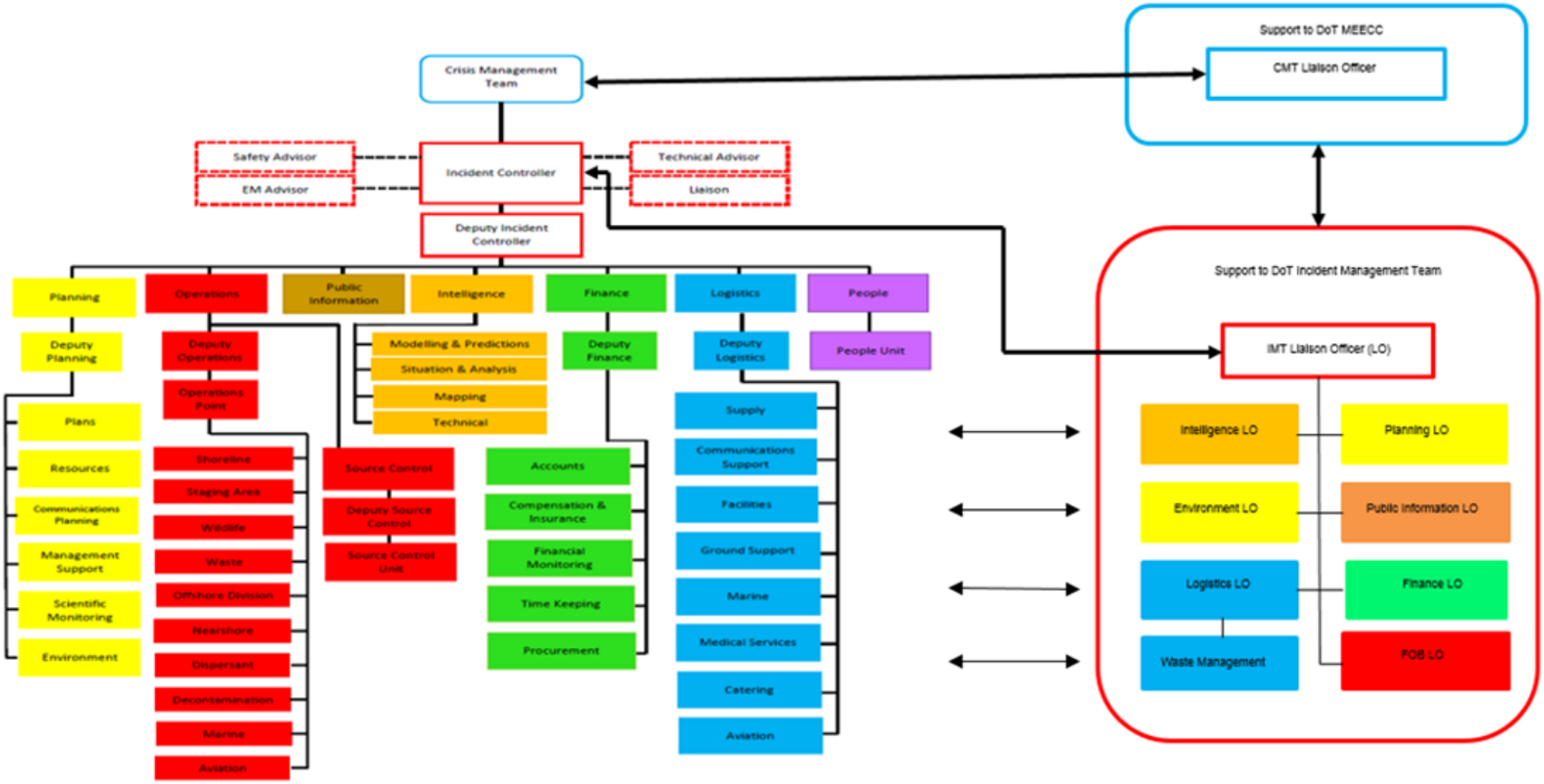


The Control Agency for a Level 1 hydrocarbon spill in State waters/shorelines resulting from an offshore petroleum activity is Woodside (the Petroleum Titleholder). The Control Agency for a Level 2/3 hydrocarbon spill in State waters/shorelines resulting from an offshore petroleum activity is WA DoT. WA DoT will appoint an Incident Controller and form a separate IMT to only manage the spill within State waters/shorelines.

[3] Adapted from WA DoT Offshore Petroleum Industry Guidance Note, Marine Oil Pollution: Response and Consultation Arrangements September 2018. Note: For full structure up to Commonwealth Cabinet/Minister refer to OPEA (Aust) LINK Section 4.3.3.

APPENDIX F – WOODSIDE INCIDENT MANAGEMENT STRUCTURE

Woodside Incident Management Structure for Hydrocarbon Spill (including Woodside Liaison Officers Command Structure within WA DoT IMT if required)



APPENDIX G – WOODSIDE LIASON OFFICER RESOURCES TO WA DOT

Once WA DoT activates a State waters/shorelines IMT, Woodside will make available the following roles to WA DoT.

Area	WEL Liaison Role	Personnel Sourced from[4]:	Key Duties	#
DoT MEECC	CMT Liaison Officer	CMT Duty Managers Roster	• Provide a direct liaison between the CMT and the MEECC. • Facilitate effective communications and coordination between the CMT and State Maritime Environment Emergency Coordinator (SMEEC). • Offer advice to SMEEC on matters pertaining to PT crisis management policies and procedures.	1
DoT IMT Incident Control	WEL IMT Liaison Officer	CICC Duty Managers Reserve List Roster	• Provide a direct liaison between the PT IMT and DoT IMT. • Facilitate effective communications and coordination between the PT IC and the DoT IC. • Offer advice to the DoT IC on matters pertaining to PT incident response policies and procedures. • Offer advice to the Safety Coordinator on matters pertaining to PT safety policies and procedures, particularly as they relate to PT employees or contractors operating under the control of the DoT IMT.	1
DoT IMT Planning-Intelligence/ Mapping	Intelligence Liaison Officer	AMOSC Staff Member or AMOSC Core Group	• Facilitate the provision of relevant modelling and predications from the PT IMT. • Assist in the interpretation of modelling and predictions originating from the PT IMT. • Facilitate the provision of relevant situation and awareness information originating from the DoT IMT to the PT IMT. • Facilitate the provision of relevant mapping from the PT IMT. • Assist in the interpretation of mapping originating from the PT IMT. • Facilitate the provision of relevant mapping originating from the DoT IMT to the PT IMT.	1
DoT IMT Planning-Plans/ Resources	Planning Liaison Officer	AMOSC Core Group/CICC Planning Coordinator Reserve List and Planning Group 3	• Facilitate the provision of relevant IAP and sub plans from the PT IMT. • Assist in the interpretation of the PT OPEP from the PT. • Assist in the interpretation of the PT IAP and sub plans from the PT IMT. • Facilitate the provision of relevant IAP and sub plans originating from the DoT IMT to the PT IMT. • Assist in the interpretation of the PT existing resource plans. • Facilitate the provision of relevant components of the resource sub plan originating from the DoT IMT to the PT IMT.	1

[4] See Combined CICC, KICC, CMT roster & Preparedness Schedule DRIMS / AMOSC Service Contract DRIMS

Area	WEL Liaison Role	Personnel Sourced from[5]:	Key Duties	#
DoT IMT Planning-Environment	Environmental Liaison Officer	CMT Environmental FST Duty Managers Roster	• Assist in the interpretation of the PT OPEP and relevant TRP plans. • Facilitate in requesting, obtaining and interpreting environmental monitoring data originating from the PT IMT. • Facilitate the provision of relevant environmental information and advice originating from the DoT IMT to the PT IMT.	1
DoT IMT Public Information-Media/ Community Engagement	Public Information & Media Liaison Officer	CMT Reputation {Media} FST Duty Manager Roster	• Facilitate effective communications and coordination between the PT and DoT media teams. • Assist in the release of joint media statements and conduct of joint media briefings. • Assist in the release of joint information and warnings through the DoT Information & Warnings team. • Offer advice to the DoT Media Coordinator on matters pertaining to PT media policies and procedures. • Facilitate effective communications and coordination between the PT and DoT Community Liaison teams. • Assist in the conduct of joint community briefings and events. • Offer advice to the DoT Community Liaison Coordinator on matters pertaining to the PT community liaison policies and procedures. • Facilitate the effective transfer of relevant information obtained from through the Contact Centre to the PT IMT.	1
DoT IMT Logistics-Supply	Logistic Liaison Officer	CMT Services FST Logistics Team 2 Roster	• Facilitate the acquisition of appropriate supplies through the PTs existing OSRL, AMOSC and private contract arrangements. • Collects Request Forms from DoT to action via PT IMT.	1
DoT IMT Logistics-Waste	Waste Management Liaison Officer	CMT Services FST Logistics Team 2 and WEL Waste Contractor Roster	• Facilitate the acquisition of appropriate services and supplies through the PTs existing private contract arrangements related to waste management. • Collects Request Forms from DoT to action via PT IMT.	1

[5] See Combined CICC, KICC, CMT roster & Preparedness Schedule DRIMS / AMOSC Service Contract DRIMS

Area	WEL Liaison Role	Personnel Sourced from[6]:	Key Duties	#
DoT IMT Finance-Accounts/ Financial Monitoring	Finance Liaison Officer	CICC Finance Coordinator Roster	• Assist the DoT Finance Officer in time keeping and the setting up and payment of accounts for those services acquired through the PTs existing OSRL, AMOSC and private contract arrangements. • Facilitate the communication of financial monitoring information to the PT to allow them to track the overall cost of the response.	1
DoT FOB Operations Command	FOB Liaison Officer	AMOSC Core Group	• Provide a direct liaison between the PT FOB and DoT FOB. • Facilitate effective communications and coordination between the PT FOB Operations Commander and the DoT FOB Operations Commander. • Offer advice to the DoT FOB Operations Commander on matters pertaining to PT incident response policies and procedures. • Assist the Senior Safety Officer deployed in the FOB in the performance of their duties, particularly as they relate to PT employees or contractors. • Offer advice to the Senior Safety Officer deployed in the FOB on matters pertaining to PT safety policies and procedures.	1
			Total Woodside Personnel Initial Requirement to DoT IMT	10

[6] See Combined CICC, KICC, CMT roster & Preparedness Schedule / AMOSC Service Contract

WA DoT Liaison Officer Resources to Woodside

Once WA DoT activates a State waters/shorelines IMT, WA DoT will make available the following roles to Woodside.

Area	DoT Liaison Role	Personnel Sourced from:	Key Duties	#
WEL CMT	DoT Liaison Officer	DoT	• Provide a direct liaison via CICC HSP Advisor between the CMT and the MEECC. • Facilitate effective communications and coordination between the CMT Leader and SMEEC. • Offer advice to CMT Leader on matters pertaining to DoT and wider government emergency management policies and procedures. • Provide a direct liaison between the PT IMT and DoT IMT. • Facilitate effective communications and coordination between the PT IC and the DoT IC. • Offer advice to the PT IC on matters pertaining to DoT and wider government incident response policies and procedures. • Facilitate requests for specific tasks from PT IMT related to Aviation and Waste Management.	1
WEL Reputation FST (Media Room)	DoT Media Liaison Officer	DoT	• Provide a direct liaison via Reputation FST Media Team between the PT Media team and DoT IMT Media team. • Facilitate effective communications and coordination between the PT and DoT media teams. • Assist in the release of joint media statements and conduct of joint media briefings. • Assist in the release of joint information and warnings through the DoT Information & Warnings team. • Offer advice to the PT Media Coordinator on matters pertaining to DoT and wider Government media policies and procedures.	1
			Total WA DoT Personnel Initial Requirement to Woodside	2