Julimar Phase 2 Drilling & Subsea Installation – Oil Pollution First Strike Plan

Security & Emergency Management
Hydrocarbon Spill Preparedness Unit

October 2019
Revision: 2

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JULIMAR DRILLING AND SUBSEA INSTALLATION

OIL POLLUTION FIRST STRIKE PLAN

SPILL FROM FACILITY INCLUDING SUBSEA INFRASTRUCTURE AND DRILLING ACTIVITIES

(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 INCLUDING SUBSEA INFRASTRUCTURE AND DRILLING ACTIVITIES ENTERING STATE WATERS

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

LEVEL 2 & 3
CONTROL AGENCY: **WA Department of Transport (DoT)**
INCIDENT CONTROLLER: **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)**

Oil Spill Incident Levels

The most significant characteristic of the below table is considered when determining oil spill incident 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 response required beyond 48 hours.	Response may extend beyond weeks.
Woodside Emergency Management (EM)/ Crisis Management Team (CMT) Activation	Onsite Incident Controller (IC) activated. Use of ICC support may be required.	Additional support required from Corporate Incident Coordination Centre (CICC) Duty Manager (DM).	Includes Perth based CMT activation.
Number of Agencies	First-response agency and Incident Management Team (IMT) e,g, Burrup field response	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 (Western Australia).	National media coverage.	International media coverage.
Volumes	0-10 m^3.	10-1,000 m^3.	>1,000 m^3.

For guidance on credible spill scenarios and hydrocarbon characteristics refer to APPENDIX A – credible spill scenarios and Hydrocarbon Information

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 Western Australia Department of Transport (WA 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 WA DoT will become the Control Agency for the response in State waters/shorelines only. WA DoT will appoint an Incident Controller (IC) and form a separate IMT 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 – Coordination Structure for a Concurrent Hydrocarbon Spill in Both Commonwealth & State Waters/Shorelines.

Initially Woodside will be required to make available an appropriate number of suitably qualified persons to work in the WA DoT IMT (see APPENDIX G – Woodside liaison officer resources to WA DoT). WA 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 or to commence the initial response actions to a spill prior to WA DoT establishing incident control in line with DoT Offshore Petroleum Industry Guidance Note, Marine Oil Pollution: Response and Consultation Arrangements;

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 WA DoT can be seen at APPENDIX F – Woodside incident management structure**.**

Response Process Overview

Use the below to determine actions required and which parts of this plan are relevant to the incident.

For guidance on credible scenarios and hydrocarbon characteristics, refer to APPENDIX A – credible spill scenarios and Hydrocarbon Information**.**

<table>
<tr><td>ALL INCIDENTS</td><td colspan="2">Notify the Woodside Communication Centre (WCC) on: [redacted]
or sat phone: [redacted]

Incident Controller or delegate to make relevant notifications in Table 1-1 of this document.</td></tr>
<tr><td rowspan="2">LEVEL 1</td><td>FACILITY INCIDENT</td><td>VESSEL INCIDENT</td></tr>
<tr><td>Coordinate pre-identified tactics in Table 2-1: Level 1 Response Summary of this document.
Remember to download each Operational Plan.</td><td>Upon agreement with AMSA:
Coordinate pre-identified tactics in Table 2-1: Level 1 Response Summary of this document.
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: [redacted] or sat phone [redacted] 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 for facility spill including from subsea infrastructure.
OR
Handover control to DoT for facility spill which has entered State waters.

Undertake quick revalidation of the recommended strategies on Table 3-1: Level 2/3 Response Summary taking into consideration seasonal sensitivities and current situational awareness.

Undertake validated strategies.</td><td>Stand up CICC to assist AMSA.

If requested by AMSA:
Undertake quick revalidation of the recommended strategies on Table 3-1: Level 2/3 Response Summary taking into consideration seasonal sensitivities and current situational awareness.

Undertake validated strategies.</td></tr>
<tr><td>Create an Incident Action Plan (IAP) for all ongoing operational periods.

<u>The content of the IAP should reflect the selected response strategies based on current situational awareness.</u>

For the full detailed pre-operational Net Environmental Benefit Analysis (NEBA) see Julimar Phase 2 Drilling and Subsea Installation Pre-operational NEBA.</td><td>If requested by AMSA:
Create an IAP for all ongoing operational periods.

<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 Julimar Phase 2 Drilling and Subsea Installation Pre-operational NEBA.</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 *Julimar Phase 2 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	[redacted] or +[redacted] or Sat phone: +[redacted]	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 office	+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).	APPENDIX B – Forms 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: incidents.environment@dmirs.wa.gov.au	APPENDIX B – Forms **Error! Not a valid result for table.**	
As soon as practicable	OIM or WSR	Woodside	Hydrocarbon Spill Preparedness (HSP) Manager	+[redacted]	Verbally notify HSP Manager of event and estimated volume and hydrocarbon type.	Verbal	

[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	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)	+[redacted]	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.	APPENDIX B – Forms FORM 3	
Additional Level 2/3 Notifications							
As soon as practicable	CICC DM or Delegate	Australian Marine Oil Spill Centre (AMOSC)	AMOSC Duty Manager	+61(0) 438 379 328 amosc@amosc.com.au	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 sent to Woodside from AMOSC upon activation.	APPENDIX B – Forms FORM 4	
As soon as practicable	CICC DM or Delegate	Oil Spill Response Limited (OSRL)	OSRL Duty Manager	Singapore Office +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.	APPENDIX B – Forms Notification: FORM 6a Mobilisation: FORM 6b	

Notification timing	Responsibility	Authority/ Company	Name	Contact Number	Instruction	Form/Template	Mark Complete (✓)
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	+61 8 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.	APPENDIX B – Forms FORM 5	
As soon as practicable if there is potential for oiled wildlife or the spill is expected to contact land or waters managed by WA Dept. of Biodiversity, Conservation and Attractions	CICC DM or Delegate	WA Dept. of Biodiversity, Conservation and Attractions (DBCA)	Duty Officer	+61 8 9219 9108	Phone call notification	Verbal	
As soon as practicable	CICC DM or Delegate	Marine Spill Response Corporation (MSRC)	MSRC Response Manager	[redacted]	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	

Notification timing	Responsibility	Authority/ Company	Name	Contact Number	Instruction	Form/Template	Mark Complete (✓)
As soon as practicable	CICC DM or Delegate	Department of Environment and Energy	Director of National Parks (Director)	+[redacted]	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 strategies and 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 NEBA presented in the Julimar Phase 2 Drilling and Subsea Installation Environment Plan Appendix D: Oil Spill Preparedness and Response Mitigation Assessment.

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	Julimar Condensate					
Monitor and Evaluate (Operational Monitoring)	**Yes**	**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 King Bay Supply Base (KBSB) Stockpile. If a surface sheen is visible from the facility deploy the satellite tracking buoy within 2 hours.	Operations	Tracking buoy deployed within 2 hours		Surveillance and Reconnaissance to Detect Hydrocarbons and Resources at Risk (OM02) of The Operational Monitoring Operational Plan. Deploy tracking buoy in accordance with APPENDIX D – Drifter Buoy Deployment Instructions.
	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	**Yes**	Undertake initial modelling using the Rapid Assessment Oil Spill tool Woodside Maps (Emergency Response) and weathering fate analysis using ADIOS (refer to the hydrocarbon information in APPENDIX A – Credible Spill Scenarios And Hydrocarbon Information	Intelligence or Environment	Initial modelling within 6 hours using the Rapid Assessment Tool. Detailed modelling within 4 hours of APASA receiving information from Woodside.		Predictive Modelling of Hydrocarbons to Assess Resources at Risk (OM01) of The Operational Monitoring Operational Plan. *Planning to download immediately and follow steps*
	Yes	**Yes**	Send Oil Spill Trajectory Modelling (OSTM) form (APPENDIX B – Forms, FORM 7) to RPS APASA response team (email response@apasa.com.au) and call [redacted]	Intelligence			
	Yes	**Yes**	Instruct Aviation Duty Manager to commence aerial observations in daylight hours. Aerial surveillance observer to complete log in APPENDIX B – Forms, FORM 8.	Logistics – Aviation	2 trained aerial observers deployed by day 1. 1 aircraft available for 2 sorties per day from day 1. Observer to compile report during flight and made available to the IMT within 2 hours of each sortie landing		Surveillance and Reconnaissance to Detect Hydrocarbons and Resources at Risk (OM02) of The Operational Monitoring Operational Plan. *Planning to download immediately and follow steps*

Response Strategies	Hydrocarbon Type		Pre- Identified Tactics	Responsible	ALARP Commitment	Complete ✓	Link to Operational Plans for notification numbers and actions
	Marine Diesel	Julimar Condensate					
	Yes	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 [redacted]	Intelligence	Service provider will confirm availability of an initial acquisition within 2 hours. First image received with 24 hours of acceptance of the proposed acquisition plan.		
	Yes	Yes	Consider the need to mobilise resources to undertake water quality monitoring (OM03).	Planning or Environment	Service provider deploy resources within 3 days: - 3 specialists in water quality monitoring - 2 monitoring systems and ancillaries - 1 vessel for deploying the monitoring systems with a dedicated winch, A-frame or Hiab and ancillaries to deploy the equipment.		Detecting and Monitoring for the Presence and Properties of Hydrocarbons in the Marine Environment (OM03) of The Operational Monitoring Operational Plan.
	Yes	Yes	Consider the need to mobilise resources to undertake pre-emptive assessment of sensitive receptors at risk (OM04).	Planning or Environment	10 days prior to predicted impact 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.
	Yes	Yes	Consider the need to mobilise resources to undertake shoreline assessment surveys (OM05).	Planning or Environment	10 days prior to predicted impact deployment of 1 specialist(s) in SCAT from resource pool for each of the Response Protection Areas (RPAs) with predicted impacts[2]		Shoreline Assessment (OM05) of The Operational Monitoring Operational Plan,

3. LEVEL 2/3 RESPONSE

3.1. Mobilisation of Response Strategies

For the relevant hydrocarbon type, undertake quick revalidation of the recommended strategies and 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 Table 3-1under Table 3-1 Operational Plan column.

All response strategies and pre-identified tactics have been identified from the pre-operational NEBA presented in the Julimar Phase 2 Drilling and Subsea Installation Environment Plan Appendix D: Oil Spill Preparedness and Response Mitigation Assessment.

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	Julimar Condensate					
Monitor and Evaluate (Operational Monitoring)	**Yes**	**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 King Bay Supply Base (KBSB) Stockpile. If a surface sheen is visible from the facility deploy the satellite tracking buoy within 2 hours.	Operations	Tracking buoy deployed within 2 hours.		Surveillance and Reconnaissance to Detect Hydrocarbons and Resources at Risk (OM02) of The Operational Monitoring Operational Plan. Deploy tracking buoy in accordance with APPENDIX D – Drifter Buoy Deployment Instructions.
	Yes	**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 – Credible Spill Scenarios And Hydrocarbon Information).	Intelligence or Environment	Initial modelling within 6 hours using the Rapid Assessment Tool. Detailed modelling within 4 hours of APASA receiving information from Woodside.		Predictive Modelling of Hydrocarbons to Assess Resources at Risk (OM01) of The Operational Monitoring Operational Plan.
	Yes	**Yes**	Send Oil Spill Trajectory Modelling (OSTM) form (APPENDIX B – Forms, FORM 7) to RPS APASA.	Intelligence			
	Yes	**Yes**	Instruct Aviation Duty Manager to commence aerial observations in daylight hours. Aerial surveillance observer to complete log in APPENDIX B – Forms, FORM 8.	Logistics – Aviation	2 trained aerial observers available by day 1. 1 aircraft available for 2 sorties per day from day 1. Observer to compile report during flight and made available to the IMT within 2 hours of landing after each sortie.		

Response Strategies	Hydrocarbon Type		Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Complete ✓	Link to Operational Plans for notification numbers and actions
	Marine Diesel	Julimar Condensate					
					Unmanned Aerial Vehicles/ Systems (UAV/UASs) to support tactics and as contingency if required.		
	Yes	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 [redacted]).	Intelligence	Service provider will confirm availability of an initial acquisition within 2 hours. First image received with 24 hours of Woodside confirming its acceptance of the proposed acquisition plan. Service provider to submit report to Woodside per image with polygon of any possible or identified slick(s) with metadata. Data received to be uploaded into Woodside Common Operating Picture (COP daily)		
	Yes	Yes	Consider the need to mobilise resources to undertake water quality monitoring (OM03).	Planning or Environment	Service provider to deploy resources within 3 days: - 3 specialists in water quality monitoring - 2 monitoring systems and ancillaries - 1 vessel for deploying the monitoring systems with a dedicated winch, A-frame or Hiab and ancillaries to deploy the equipment. Daily fluorometry reports will be provided to IMT. Use of Autonomous Underwater Vehicles (AUVs) for hydrocarbon		Detecting and Monitoring for the Presence and Properties of Hydrocarbons in the Marine Environment (OM03) of The Operational Monitoring Operational Plan.

Response Strategies	Hydrocarbon Type		Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Complete ✓	Link to Operational Plans for notification numbers and actions
	Marine Diesel	Julimar Condensate					
					presence and detection may be used as a contingency.		
	Yes	Yes	Consider the need to mobilise resources to undertake pre-emptive assessment of sensitive receptors at risk (OM04).	Planning or Environment	10 days prior to predicted impact, in agreement with WA DoT, 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.
	Yes	Yes	Consider the need to mobilise resources to undertake shoreline assessment surveys (OM05).	Planning or Environment	10 days prior to predicted impact, in agreement with WA DoT, deployment of 1 specialist(s) in SCAT from resource pool for each of the Response Protection Areas (RPAs) with predicted impacts[2]		Shoreline Assessment (OM05) of The Operational Monitoring Operational Plan.
SubSea Dispersant	No	No	This strategy is not recommended. Modelling predicts that subsea dispersant injection would be unlikely to have any appreciable effect on the simulated behaviour or extent of a rising subsea oil plume. It is expected that SSDI will have no effect on the extent of the gas cloud due to the high gas-to-oil ratio of the expected flow stream. As such, the exclusion zone will be governed by the gas boil at the sea surface and resulting gas plume, thus no safety benefit would be realised through the use of SSDI. Additionally, due to water depth around the well locations and the associated gas plume, subsea dispersant injection is unlikely to be able to be deployed safely.				

Response Strategies	Hydrocarbon Type		Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Complete ✓	Link to Operational Plans for notification numbers and actions
	Marine Diesel	Julimar Condensate					
Surface Dispersant	**No**	**No**	This strategy is not recommended. The weathering data indicates that thicker surface hydrocarbons are likely to rapidly spread, thin and evaporate leading to concentrations of surface hydrocarbons that are not conducive to effective surface dispersant application. In addition, the potential for the plume to breach the surface may cause a health and safety risk to responders.				
Mechanical Dispersion	**No**	**No**	This strategy is not recommended. It is of limited benefit in an open ocean environment where wind and wave action are likely to deliver similar advantages.				
Containment and Recovery	**No**	**No**	This strategy is not recommended. The spill area above threshold will have reduced to 0 km^2 at Day 13 due to rapid spreading, thinning and evaporation which will render containment and recovery operations ineffective. In addition, the potential for the plume to breach the surface may cause a health and safety risk to responders.				
In Situ Burning	**No**	**No**	This strategy is not recommended.				

Response Strategies	Hydrocarbon Type		Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Complete ✓	Link to Operational Plans for notification numbers and actions
	Marine Diesel	Julimar Condensate					
			It requires calm sea state conditions which limits its feasibility in the region. There are health and safety risks for response personnel associated with the containment and subsequent burning of hydrocarbons and the residue from attempts to burn would sink, posing a risk to the environment.				
Shoreline Protection and Deflection	**No**	**Potentially**	Woodside will mobilise and begin the shoreline protection and deflection response to reduce the volume of oil at shorelines by deploying protection and deflection equipment at selected RPA shorelines 5 days prior to impact (first impact predicted to be 18.4 days at Ningaloo Coast Middle World Heritage Area (WHA)). Equipment from Woodside, AMOSC and AMSA Western Australian Stockpiles mobilised. Consideration of mobilisation of interstate/international shoreline protection equipment (i.e. OSRL).	Operations, Logistics and Planning	In liaison with WA DoT, activate relevant Tactical Response Plans 5 days prior predicted impact. In liaison with WA DoT, mobilise teams (2 supervisors plus 10 additional personnel) to RPA's 5 days prior to predicted impact. In liaison with WA DoT, equipment mobilised from closest stockpile 5 days prior to predicted impact at each identified RPA. Supplementary equipment mobilised from State, AMOSC, AMSA stockpiles 5 days prior to predicted impact.		Protection and Deflection Operational Plan *Logistics to download immediately and follow steps* Tactical Response Plans available from: *Oil Spill Portal – Tactical Response Plans* Relevant TRPs: Mangrove Bay Turquoise Bay Yardie Creek Ningaloo Reef - Refer to Mangrove/Turquoise bay and Yardie Creek Rankin Bank & Glomar Shoals Barrow and Lowendal Islands Montebello Island - Stephenson Channel Nth TRP

Response Strategies	Hydrocarbon Type		Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Complete ✓	Link to Operational Plans for notification numbers and actions
	Marine Diesel	Julimar Condensate					
							Montebello Island Champagne Bay and Chippendale channel TRP Montebello Island - Claret Bay TRP Montebello Island - Hermite/Delta Island Channel TRP Montebello Island - Hock Bay TRP Montebello Island - North and Kelvin Channel TRP Montebello Island - Sherry Lagoon Entrance TRP
			Mobilise security provider as per security support plan.				Land Based Security Support Plan
Shoreline Clean Up	**No**	**Potentially**	Equipment from Woodside, AMOSC and AMSA Western Australian Stockpiles and relevant personnel mobilised. Consideration of mobilisation of interstate/international shoreline cleanup equipment and relevant personnel (i.e. OSRL).	Logistics and Planning	In liaison with WA DoT, mobilise teams (2 supervisors plus 10 additional personnel) to each contaminated RPA upon request of IMT. Relevant Tactical Response Plans (TRPs) available for shorelines with predicted contact within 10 days. In liaison with WA DoT, mobilise and deploy 1 shoreline clean-up operation to each site where operational monitoring predicts an accumulation 5 days prior to impact. Access to at least 20-100 m^3 of solid waste storage available within 18 days. Then access to an additional 76-380 m^3 of solid		Shoreline Clean-up Operational Plan *Logistics to download immediately and follow steps*

Response Strategies	Hydrocarbon Type		Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Complete ✓	Link to Operational Plans for notification numbers and actions
	Marine Diesel	Julimar Condensate					
					waste storage within an additional 45 days.		
			Mobilise security provider as per security support plan.				Land Based Security Support Plan
Oiled Wildlife Response	**Potentially**	**Potentially**	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 for potential wildlife at risk. Mobilise AMOSC Oiled Wildlife Containers. Consider whether additional equipment is required from local suppliers.	Logistics and Planning	Facilities for oiled wildlife rehabilitation are operational 24/7		Oiled Wildlife Response Operational Plan
Scientific Monitoring (Type II)	**Yes**	**Yes**	Notify Woodside science team of spill event.	Environment			Oil Spill Scientific Monitoring Programme – Operational Plan
For well integrity event, the following strategies apply:							
Well Intervention	**No**	**Yes**	As per Julimar Phase 2 Drilling and Subsea Installation – Blowout Contingency Plan.	Drilling & Completions (source control)	ROV available on MODU ready for deployment within 48 hours to attempt initial BOP well intervention. Intervention vessel with minimum requirement of a working class ROV and operator – mobilised to site for deployment within 11 days. ROV equipment deployed within 7 days.		Source Control and Well Intervention Operational Plan
Capping Stack	**No**	**Yes – if plume**	As per Julimar Phase 2 Drilling and Subsea Installation – Blowout Contingency Plan.	Drilling & Completions	Identify source control vessel availability within 24 hours and begin contracting process.		

Response Strategies	Hydrocarbon Type		Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Complete ✓	Link to Operational Plans for notification numbers and actions
	Marine Diesel	Julimar Condensate					
		radius ~25 m		(source control)	Vessel mobilised to site for within 16 days for conventional capping – deployment once plume/safety/metocean conditions are suitable. Capping stack on suitable vessel mobilised to site within 16 days.		
Relief Well	**No**	**Yes**	As per Julimar Phase 2 Drilling and Subsea Installation – Blowout Contingency Plan.	Drilling & Completions (source control)	Hot Stab and/or well intervention using Remotely Operated Vehicle (ROV) within 2 days. Identify source control vessel availability within 24 hours. Vessel mobilised to site for deployment within 12 days. Mobile Offshore Drilling Unit MODU mobilised to location within 21 days ROV on MODU ready for deployment within 48 hours, subject to risk assessment and approvals, to attempt initial Blowout Preventer (BOP) well intervention. Relief Well Peer review undertaken immediately prior to spud to identify and screen suitable MODUs for relief well drilling.		

4. PRIORITY RECEPTORS

Note: DoT are the Control Agency to respond to all sites in a Level 2/3 spill into State waters/ shorelines.

Action: Provide DoT with all relevant Tactical Response Plans for any locations predicted to be contacted.

Based on hydrocarbon spill risk modelling results there are no sensitive receptors identified as Response Protection Area (RPA), as they do not have the potential to be contacted by any hydrocarbon at or above 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 100 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[2]
50	Predicted minimum floating oil threshold for effective containment and recovery and surface dispersant application[3]
100	Predicted optimum floating oil threshold for effective containment and recovery and surface dispersant application
250	Predicted minimum threshold for effective shoreline clean-up operations

Table 4-2 Receptors for Priority Protection

Receptor	Distance and Direction from Julimar Drilling and Subsea Installation	Threshold triggered and recommended strategy	Tactical Response Plans (also available within the Data Directory)
No receptors will be contacted above threshold concentrations within 48 hours			

Oil Spill Trajectory Modelling (as per OM02) specific to the spill event will be required to determine the regional sensitive receptors to be contacted beyond 48 hours of a spill.

Preliminary hydrocarbon spill modelling results indicate the sensitive receptors listed below have the potential to be contacted by hydrocarbons above threshold concentrations beyond 48 hours of a spill:

- Ningaloo Coast Middle World Heritage Area (2 m^3, 18.4 days)
- Kimberley Coast & Northern Coast (38 m^3, 63 days)
- Eighty Mile Beach (36 m^3, 36 days)

[2] Operational monitoring will be undertaken from the outset of a spill whether or not this threshold has been reached. Monitoring is needed throughout the response to assess the nature of the spill, track its location and inform the need for any additional monitoring and/or response techniques. It also informs when the spill has entered State Waters and/or control of the incident passes to statutory authorities e.g. WA DoT or AMSA.

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

- Eighty Mile Beach Marine Park and Ramsar Site (5 m^3, 71.2 days)

Tactical Response Plans for a number of these locations can be accessed via the Oil Spill Portal – Tactical Response Plans and are also listed in Table 3-1 of this document.

Figure 4-1 illustrates the location of regional sensitive receptors in relation to the Julimar Drilling and Subsea Installation operational area and identifies priority protection areas. Figure 4-2 illustrates the deterministic modelling results. A total of 100 replicate simulations were completed for the scenarios with an even number of replicates within each calendar quarter (25 simulations per quarter).

Consideration should be given to other stakeholders (including mariners) in the vicinity of the spill location. Table 4-3 indicates the assets within the vicinity of the Julimar Drilling and Subsea Installation operational area.

Table 4-3 Assets in the vicinity of the Julimar Drilling and Subsea Installation operational area.

Asset	Distance and Direction from Julimar Installation	Operator
Pluto Platform	16 km ENE	Woodside
Wheatstone Platform	20 km NE	Chevron
John Brookes	29 km S	Quadrant Energy
East Spar	59 km S	Quadrant Energy
Goodwyn	85 km NE	Woodside
North Rankin	108 km NE	Woodside

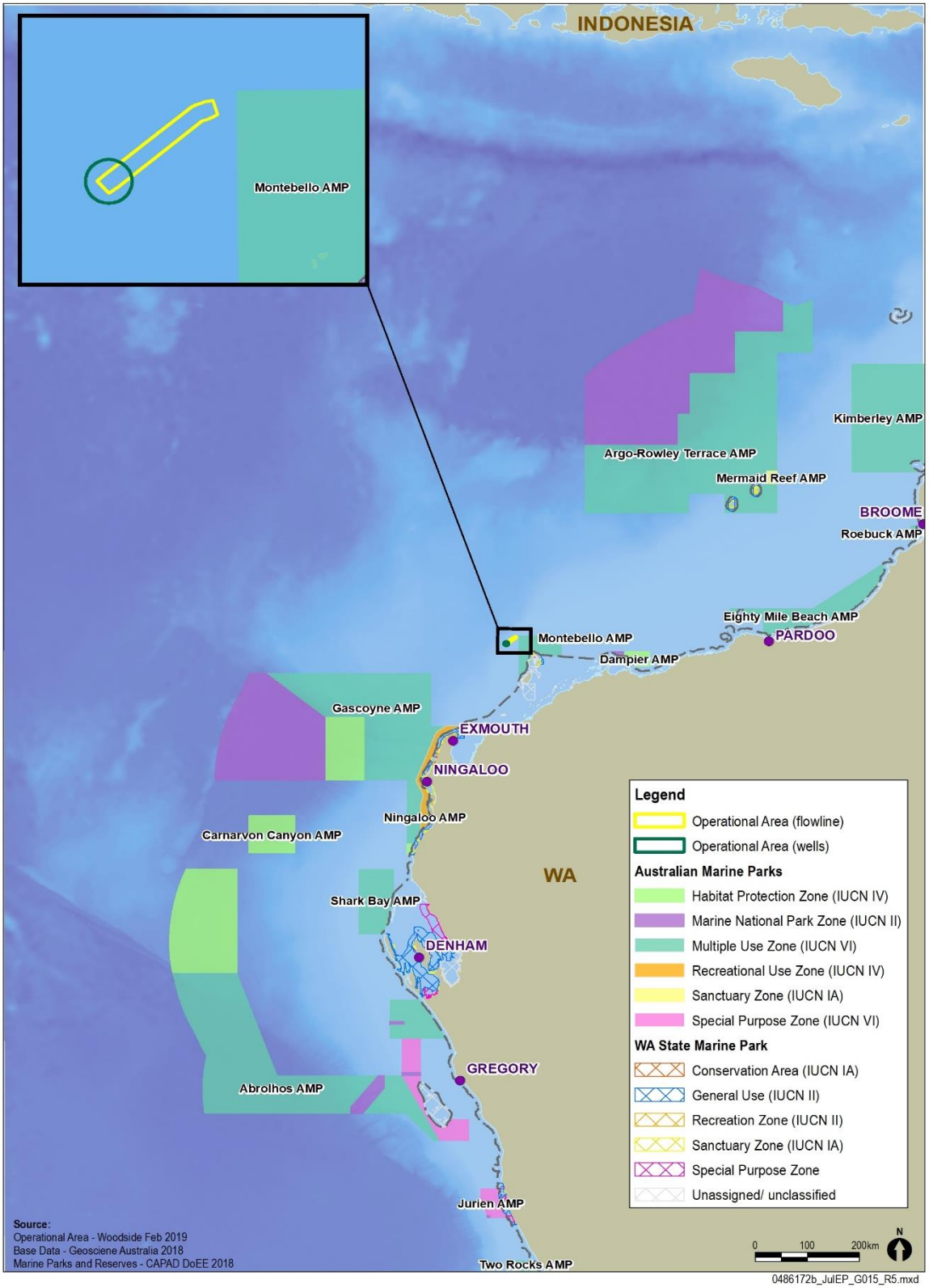


Figure 4-1 Regional Sensitive Receptors – Julimar Drilling and Subsea Installation, Lat: 20° 08' 53.554" S Long: 115° 02' 28.078" E

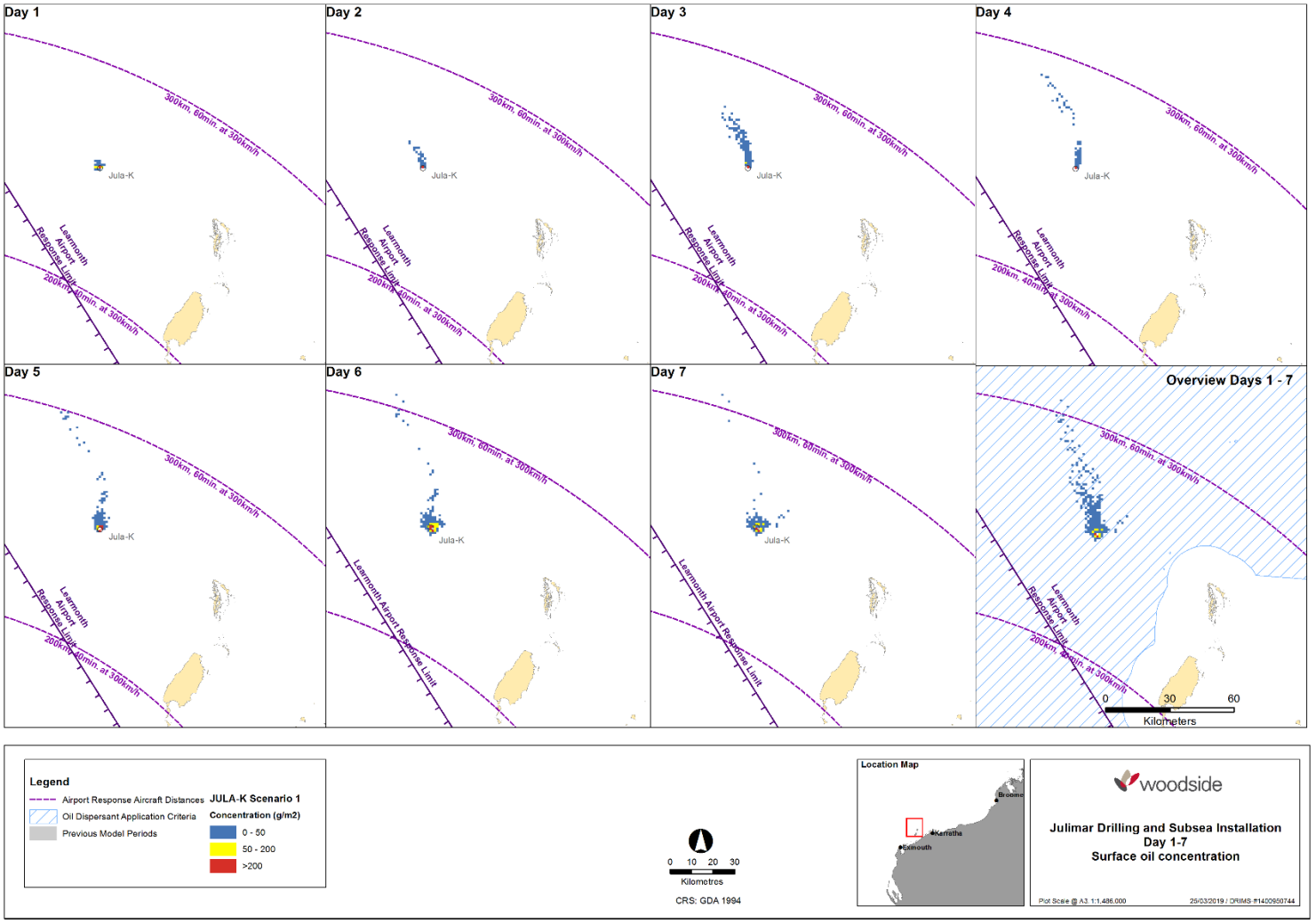


Figure 4-2 Julimar Phase 2 Drilling and Subsea Installation loss of well containment – Day 1-7 – Surface oil concentration

APPENDIX A – CREDIBLE SPILL SCENARIOS AND HYDROCARBON INFORMATION

For more detailed hydrocarbon information see the
Hydrocarbon Data Directory

Credible Spill Scenarios

Scenario	Product	Maximum Volumes	Suggested ADIOS2 Analogue*
MEE-01 Hydrocarbon release caused by loss of well containment	Julimar Condensate	269,858 m^3	Julimar 1, API 47.9
MEE-02 Hydrocarbon release due to diesel bunkering loss of containment	Marine diesel	8 m^3	Diesel Fuel Oil (Southern USA 1) API of 37.2
MEE-03 Hydrocarbon release caused by vessel collision: support vessel and third-party vessel	Marine diesel	105 m^3	Diesel Fuel Oil (Southern USA 1) API of 37.2
MEE-04 Hydrocarbon release caused by vessel collision: installation vessel and third-party vessel	Marine diesel	500 m^3	Diesel Fuel Oil (Southern USA 1) API of 37.2
MEE-05 Hydrocarbon release caused by vessel collision: installation vessel and fuel tanker	Marine diesel	2,000 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.

Julimar Condensate (Group 1 Oil)

Julimar Condensate (API 47.9) contains a low proportion (0.4% by mass) of hydrocarbon compounds that will not evaporate at atmospheric temperatures. These compounds will persist in the marine environment. The unweathered mixture has a dynamic viscosity of 1.248 cP. The pour point of the whole oil (-24 °C) ensures that it will remain in a liquid state over the annual temperature range observed on the North West Shelf.

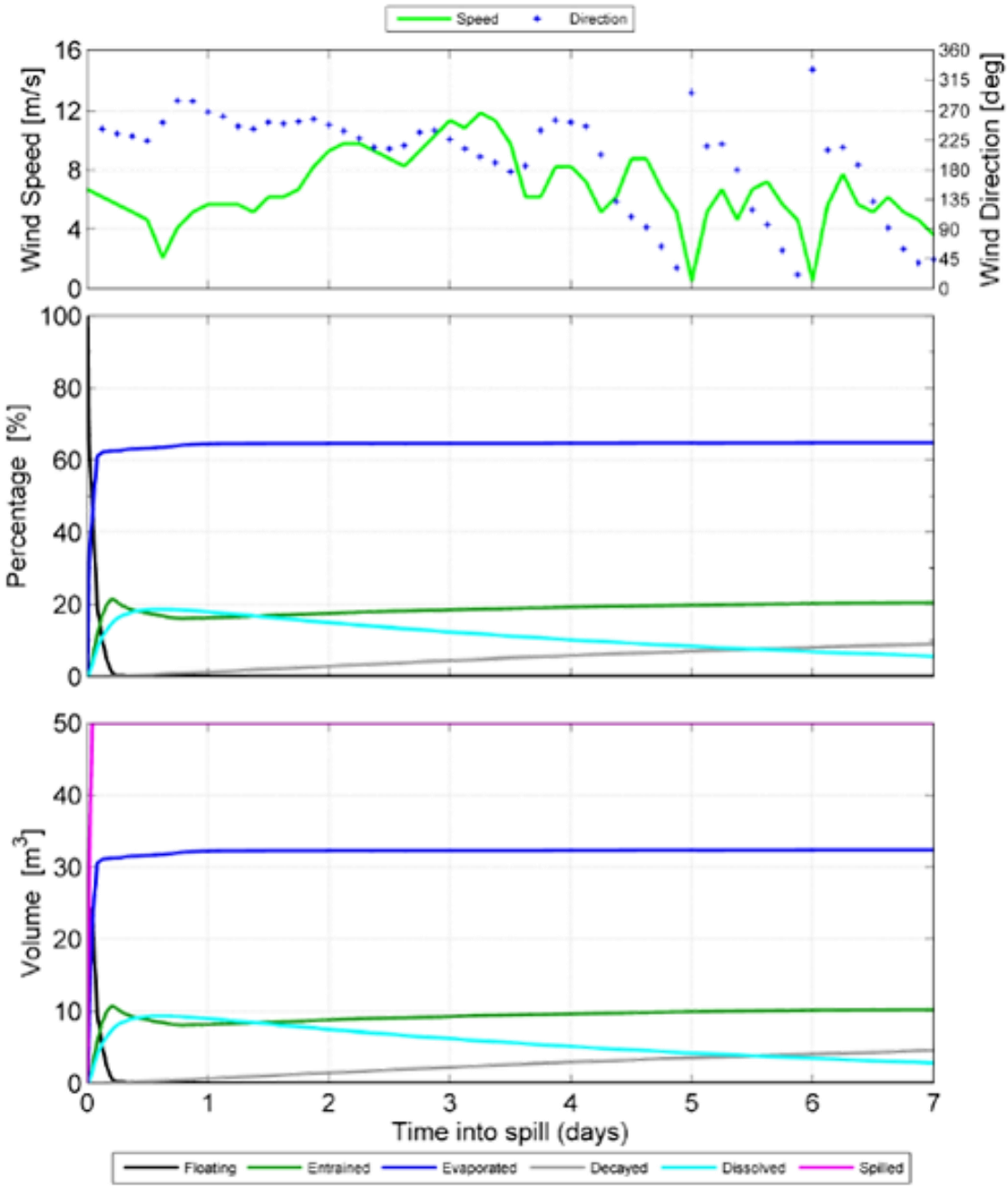


Figure A-1 Mass balance plot representing, as proportion (middle panel) and volume (bottom panel), the weathering of Julimar Condensate spilled onto the water surface as a one-off release (50 m^3 over 1 hour) and subject to variable wind at 27 °C water temperature and 25 °C air temperature.

Source: Data available from the APASA oil database (Julimar 1, 2010). NOTE: This information is provided as guidance only. Spill event oil spill trajectory modelling (OSTM) should be sought.

Modelling results indicate that the wind conditions will have a large impact on the proportion of Julimar Condensate that remains afloat, with very little oil mass predicted to persist on the sea surface (<1% after 24 hours). This is due to wind speeds of >5 knots generating significant entrainment events, with almost all of the oil mass becoming entrained when the wind speed reaches around 7 m/s in the simulation.

Modelling also predicts that the subsea discharge will generate a cone of rising gas that will entrain the oil droplets and ambient sea water up to the water surface. The high discharge velocity and turbulence generated by the expanding gas plume is predicted to generate very small oil droplets (<25 µm) that will have very low rise velocities (<0.01 cm/s). These droplets will be subject to mixing due to turbulence, wind and breaking waves, and will tend to remain within the wave-mixed layer of the water column where they can resist surfacing due to their weak buoyancy relative to other mixing processes.

The ongoing nature of the release combined with the potential for the plume to breach the water surface may present other hazards, including conditions that may lead to high local concentrations of atmospheric volatiles. These issues should be considered when evaluating the practicality of response operations at or near the blowout site.

Marine Diesel (Group 2 Oil)

Marine diesel is a mixture of volatile and persistent hydrocarbons with low proportions of highly volatile and residual components. In general, about 6% of the oil mass should evaporate within the first 12 hours (BP < 180 °C); a further 35% should evaporate within the first 24 hours (180 °C < BP < 265 °C); and a further 54% should evaporate over several days (265 °C < BP < 380 °C). Approximately 5% of the oil is shown to be persistent. The aromatic content of the oil is approximately 3%.

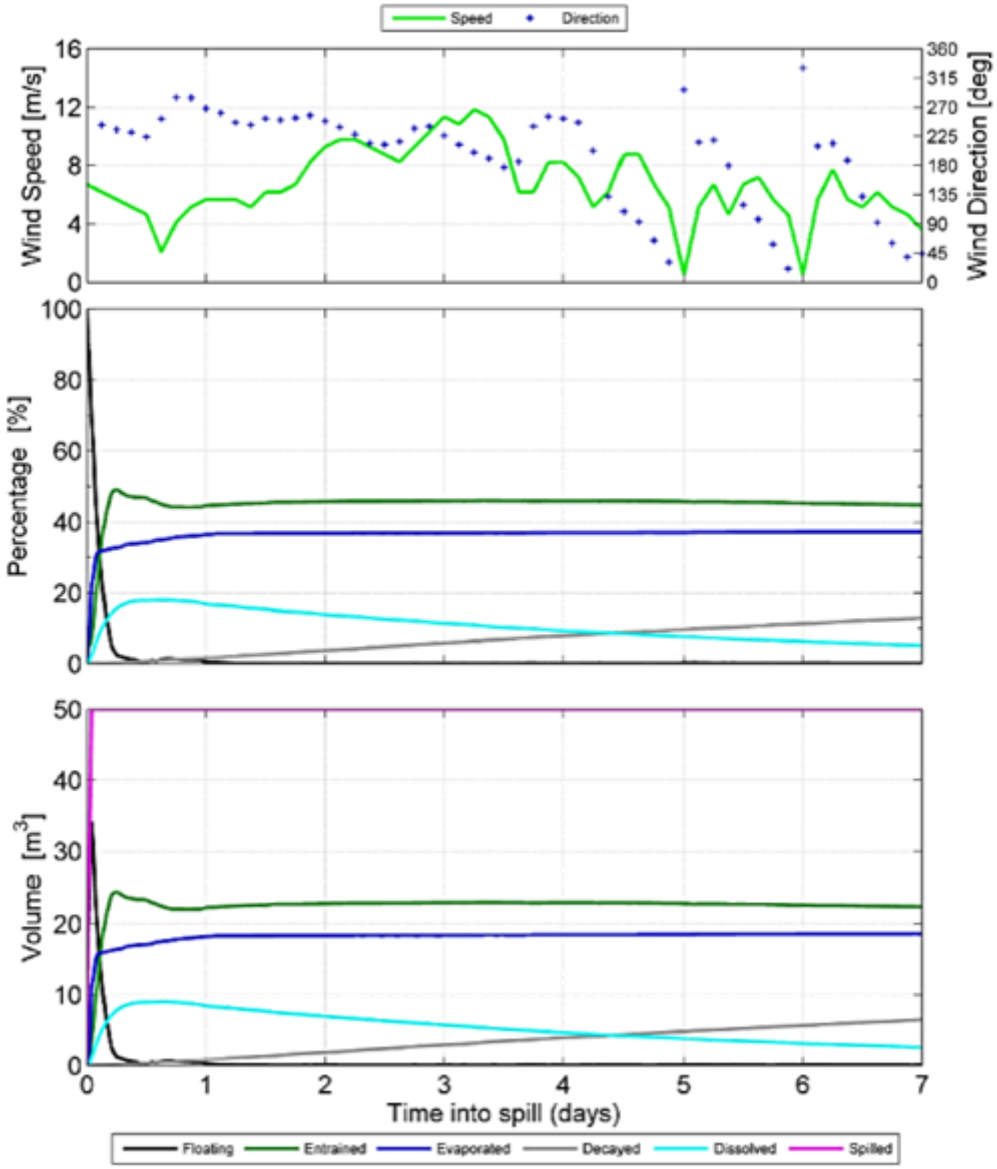


Figure A-2 Mass balance plot representing, as proportion (middle panel) and volume (bottom panel), the weathering of marine diesel spilled onto the water surface as a one-off release (50 m^3 over 1 hour) and subject to variable wind at 27 °C water temperature and 25 °C air temperature.

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 (if available)
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. **DMIRS** **petreps@dmirs.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 when printing]
Link

FORM 8

[insert Aerial Surveillance Observer Log when printing]
Link

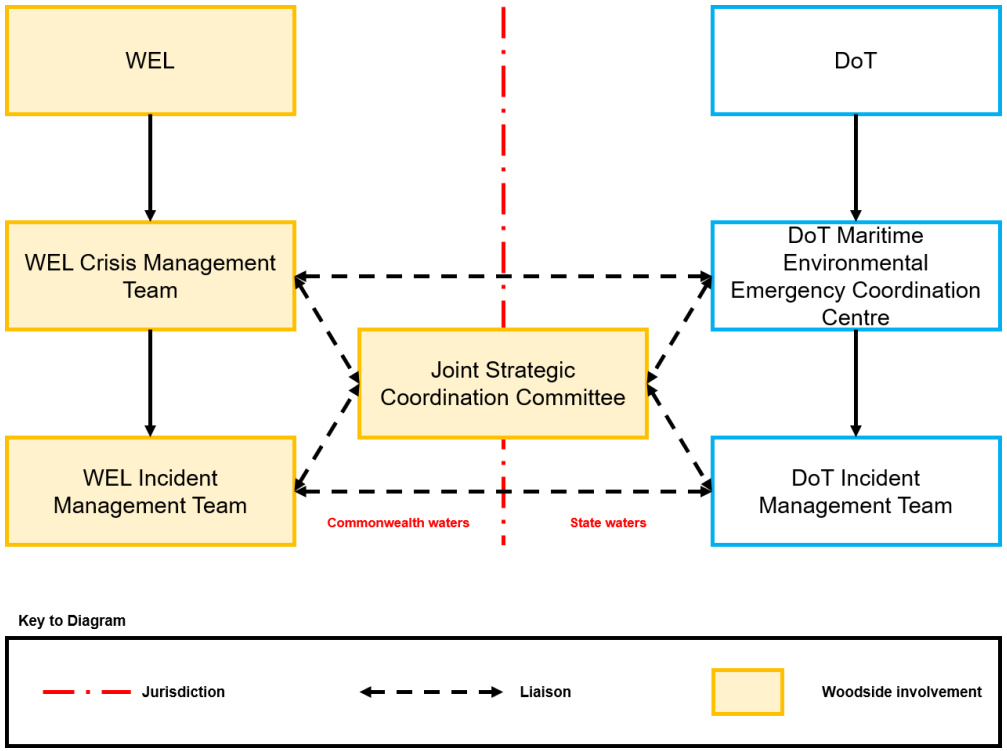
APPENDIX C – 7 QUESTIONS OF SPILL ASSESSMENT

WHAT IS IT? Oil Type/name Oil properties Specific gravity / viscosity / pour point / asphaltenes / 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 – DRIFTER BUOY DEPLOYMENT INSTRUCTIONS

(Insert instructions when printing)

APPENDIX E – COORDINATION STRUCTURE FOR A CONCURRENT HYDROCARBON SPILL IN BOTH COMMONWEALTH & STATE WATERS/SHORELINES4

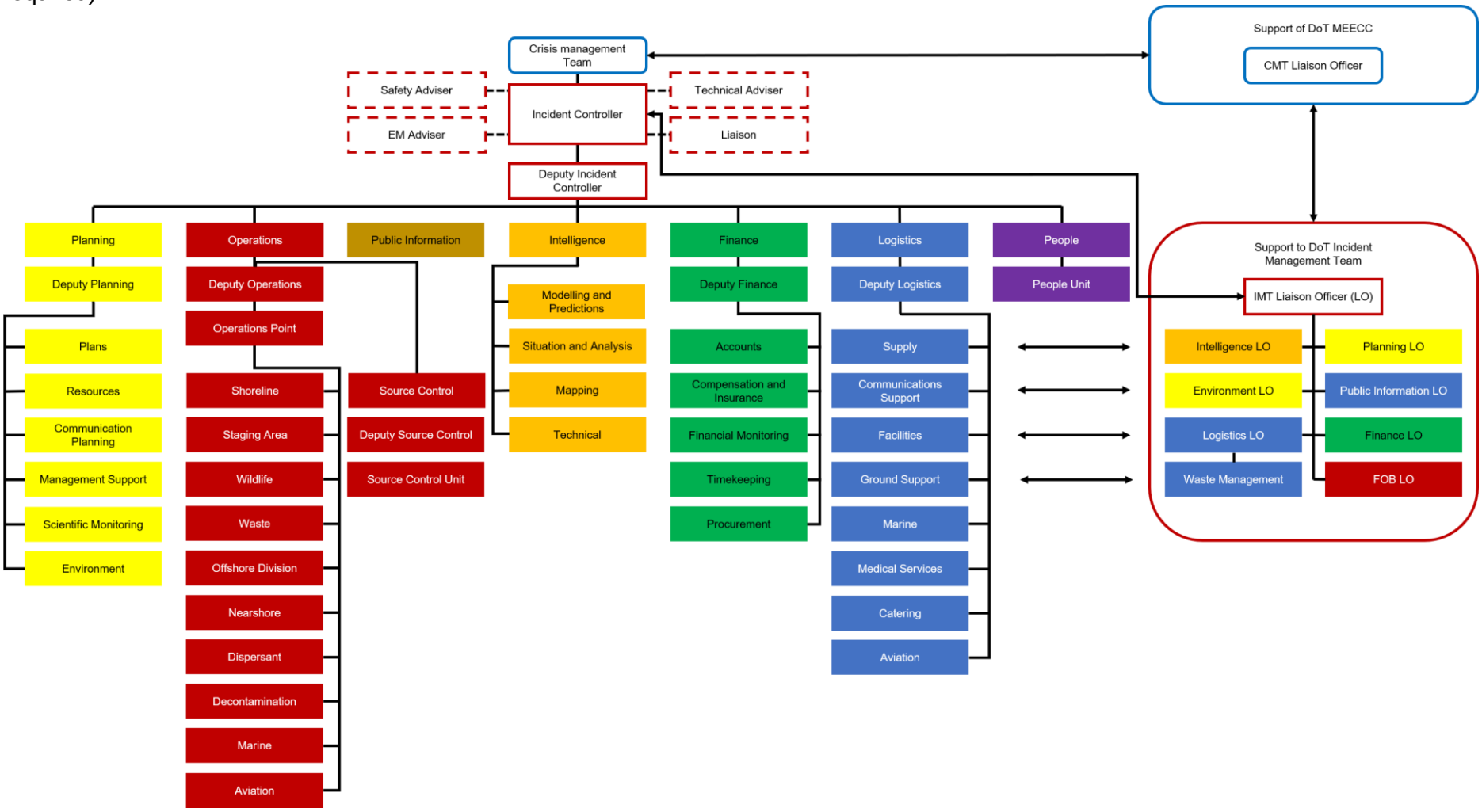


The Control Agency for a hydrocarbon spill in Commonwealth waters/shorelines resulting from an offshore petroleum activity is Woodside (the Petroleum Titleholder). The Control Agency for a hydrocarbon spill in State waters/shorelines resulting from an offshore petroleum activity is DoT. DoT will appoint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

[4] Adapted from 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 Marine Oil Pollution: Response and Consultation Arrangements Section 6.5, Figure 4.

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 LIAISON 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[5]:	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
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.	1

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

			• Facilitate the provision of relevant environmental information and advice originating from the DoT IMT to the PT IMT.	
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
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

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