

**COMMISSION OF INQUIRY  
MONTARA WELL HEAD PLATFORM  
UNCONTROLLED HYDROCARBON RELEASE**

PTTEPAA

TERM OF REFERENCE NO 7

**ANNEXURE “A”**

**Summary of monitoring undertaken in accordance with the Monitoring Plan**

No.	Monitoring programme title	Summary of purpose of monitoring programme	Triggers	Status of monitoring	Results of monitoring
<b>Operational Monitoring Programme</b>					
O1	<p>Monitoring of Oil Distribution and Marine and Coastal Megafauna.</p> <p>Study O1 consists of the following sub-categories:</p> <ul style="list-style-type: none"> <li>• Aerial surveillance.</li> <li>• Trajectory modelling.</li> <li>• Fauna monitors.</li> <li>• Satellite Imagery.</li> </ul>	<p>The proximity of the oil and response activities to sensitive resources needs to be monitored to reduce potential exposure and determine the extent and possible significance of any exposure.</p> <p>The resources that may be monitored include megafauna (cetaceans, turtles, sea snakes, birds, dugongs, sharks and crocodiles), commercial activities (fishing vessels, pearling and mariculture) and key habitats and communities (corals, island shorelines, marine banks, benthic communities, lagoons and mainland coastlines).</p>	<p>Study O1 was triggered for aerial surveillance, trajectory modelling and satellite imagery.</p> <p>Study O1 was not triggered for fauna monitors.</p>	<ul style="list-style-type: none"> <li>• Aerial surveillance - undertaken by AMSA, the field component is complete analysis was undertaken on a day to day basis.</li> <li>• Trajectory analysis - assigned by AMSA to ASA Pacific, the field component is underway and ongoing, analysis is underway and a report is being prepared.</li> <li>• Satellite Imagery - assigned by AMSA to Asia-Pacific ASA.</li> </ul>	Not finalised.
O2	<p>Monitoring of Oil Character Fates and Effects.</p> <p>Study O2 consists of the following sub-categories:</p> <ul style="list-style-type: none"> <li>• Sampling (field survey).</li> </ul>	<p>Montara oil is a waxy oil with a pour point close to that of ambient sea temperatures. Consequently, it will vary in its physical character according to ambient temperatures and this will significantly influence the effectiveness of some oil spill response strategies.</p> <p>It was proposed to routinely take samples during oil recovery operations logging sampling time,</p>	<p>Study O2 has been triggered for both sampling (field survey) and fluorometry (field).</p>	<ul style="list-style-type: none"> <li>• Samples were taken by various field teams during the response.</li> <li>• Formal Sampling (field survey) - assigned to Leeder Consulting. The field component is complete, analysis is complete and reports have been prepared and submitted to AMSA.</li> <li>• Co-ordination of sample handling and analysis</li> </ul>	Finalised.

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	<ul style="list-style-type: none"> <li>Fluorometry (field).</li> </ul>	location and other data		<p>assigned to Wardrop Consulting.</p> <ul style="list-style-type: none"> <li>Initial Fluorometry (field) - assigned under Study O4 (see below). Also undertaken by Leeder Consulting for Study O2. Field component was terminated by AMSA after Leeder survey. Associated analysis is completed and a report has been prepared and provided to AMSA by Wardrop Consulting.</li> </ul>	
<b>O3</b>	<p>Shoreline Assessment Ground Surveys.</p> <p>Study O3 consists of the following sub-categories:</p> <ul style="list-style-type: none"> <li>Ashmore Cartier.</li> <li>Hibernia Reef.</li> <li>Mainland.</li> <li>Other shorelines.</li> </ul>	<p>If shorelines are threatened, these will be surveyed to obtain baseline data relating to physical, biological and oiling character.</p> <p>Both pre and post impact assessments will be undertaken and existing available information will also be used.</p>	<p>Study O3 has been triggered for Ashmore Cartier and Hibernia Reef.</p> <p>Study O3 has not been triggered for the mainland and other shorelines.</p>	<p>Ashmore Cartier / Hibernia Reef:</p> <ul style="list-style-type: none"> <li>Assessment 1 - assigned to a joint team of PTTEPAA, DEWHA and Geosciences Australia, the field component and analysis are complete and the report has been submitted by AMSA; and</li> <li>Assessment 2 - (follow up and close out assessment) assigned to a joint team of PTTEPAA, DEWHA and Geosciences Australia, the field component is scheduled to comment in January 2010.</li> </ul> <p>Indonesia – although not formally triggered a shoreline / aerial survey has been tentatively scheduled for January 2010 (subject to approvals).</p>	Not finalised
<b>O4</b>	Monitoring of Dispersant Efficiency and Fate of Dispersed Oil	Study O4 supports the visual assessment of dispersant effectiveness. Oil in water will be measured before and after dispersant use using a fluorometer.	Study O4 has been triggered.	Study O4 was assigned to OSR and Leeder Consulting. Also undertaken by Leeder Consulting for Study O2. Field component was terminated by AMSA after Leeder survey. Associated analysis is complete and report has been prepared and provided to AMSA by Wardrop Consulting.	Finalised
<b>O5</b>	Wildlife Impact Monitoring	Study O5 includes an assessment of fauna impacted by oil, determination of cause of death for wildlife carcasses and vessel surveys and ground surveys.	Study O5 has been triggered.	Study O5 was assigned to DEWHA and comprised a megafauna rapid survey and the stationing of wildlife monitors at Ashore Reef. The field component and analysis is complete and a report on the wildlife megafauna survey component is	Megafauna Rapid Survey report available on DEWHA website

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				available on DEWHA's website.. A report on the Ashmore Reef wildlife monitoring is pending.	
<b>Scientific Monitoring Programme</b>					
S1	Marine Megafauna Aerial Assessment Surveys.	Study S1 is designed to assess any disturbance or harm to megafauna in the open sea.	Study S1 was not triggered by observations taken as part of Study O1.	N/A.	N/A.
S2	Shoreline Ecological Assessment Aerial Surveys.	Study S2 is designed to assess any disturbance or harm to shoreline habitats including ecological character of the mainland shorelines and associated islands, Ashmore Reef and other reefs, Ramsar wetlands and other coastal areas that may be disturbed by oil discharge.	<p>Study S2 has been triggered for baseline of the mainland only - trajectory modelling showed a <i>small</i> risk of impact.</p> <p>Further mainland surveys are not triggered as there has been no significant shoreline impact.</p> <p>Possible triggering of reef shorelines will depend on outcome of January 2010 ground surveys (under Study O3).</p>	Study S2 has been assigned to Norm Duke of the University of Queensland (the contract for which was executed on 29 October 2009). A baseline aerial survey of 20 sites between Darwin and Broome has been completed. PTTEPAA has received a preliminary report. The final report is expected in January 2010.	Not finalised.
S3	Assessment of Fish Catch for the Presence of Oil	Study S3 is designed to determine whether commercial fish have been tainted or other undesirable characteristics through contact with the released oil.	Study S3 has been triggered by the exposure of one catch of fish to oil and by media concerns about fish stocks.	Study S3 has been assigned to WA Department of Fisheries. PTTEPAA has received a proposal from WA Department of Fisheries and DEWHA have approved it. The expected commencement date of Study S3 has been postponed until early 2010 due to Tropical Cyclone Laurence.	No results have been obtained.
S4A	<p>Assessment of Effects on Timor Sea Fish and Fishers - current.</p> <p>Study S4A consists of the following sub-categories:</p>	Study S4A is designed to assess any effects on fish species (all life stages) of impacted waters. Study S4A will assess the potential immediate and long-term impacts of the oil spill on State and Commonwealth fisheries.	Study S4A has been triggered for both during and post response.	<ul style="list-style-type: none"> <li>Initial study - assigned to Monique Gagnon of Curtin University (contract executed on 27 October 2009). The field component was completed on 19 November 2009. Analysis is underway and the final report is expected in January/February 2010.</li> </ul>	<ul style="list-style-type: none"> <li>Not finalised for initial study.</li> <li>No results have been</li> </ul>

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	<ul style="list-style-type: none"> <li>• During response.</li> <li>• Post response</li> </ul>			<ul style="list-style-type: none"> <li>• Post response study - assigned to Monique Gagnon of Curtin University. A proposal has been prepared and will be submitted to DEWHA for approval. The field component has not yet been mobilised.</li> </ul>	obtained for post-response.
<b>S4B</b>	<p>Assessment of Effects on Timor Sea Fish and Fishers - long-term.</p> <p>A phased approach to the study has been determined.</p> <ul style="list-style-type: none"> <li>• Preliminary risk assessment</li> <li>• Development of study design</li> <li>• Implementation of study design.</li> </ul>	<p>Study S4B is designed to assess any effects on fish species (all life stages) of impacted waters and the potential contamination of sediments or waters.</p>	<p>Study S4B has been triggered for both preliminary risk and assessment phase.</p>	<p>Study S4B has been assigned to WA Department of Fisheries. Proposal received from WA Department of Fisheries has been annotated by PTTEPAA and returned to WA Fisheries for comment.</p>	No results have been obtained.
<b>S5</b>	<p>Offshore Banks Assessment Survey.</p>	<p>Study S5 is designed to determine whether there has been any impact of, or effect on, the marine banks in the region.</p>	<p>Awaiting results from Study O2 (Monitoring of Oil Character Fates and Effects) and modelling Studies under Study S7 to determine if Study S5 has been triggered.</p> <p>PTTEPAA and DEWHA to determine if Study S5 has been triggered based on available data. A Proposal has been received from AIMS.</p>	N/A.	N/A.
<b>S6</b>	<p>Shoreline Ecological</p>	<p>Study S6 is designed to quantify any effects on coastal fauna or flora. As a priority, Study S5</p>	<p>Study S6 has been triggered for reefs, turtles, sea snakes,</p>	<ul style="list-style-type: none"> <li>• Turtles / sea snakes / sea birds / coral - not assigned. Invitations to tenders have been sent to</li> </ul>	No results have been obtained for

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	<p>Ground Surveys.</p> <p>Study S6 consists of the following components:</p> <ul style="list-style-type: none"> <li>• Turtles.</li> <li>• Sea snakes.</li> <li>• Sea birds.</li> <li>• Corals.</li> <li>• Whales.</li> <li>• Dugongs.</li> <li>• Mainland.</li> </ul>	<p>will look at resources and areas identified as sensitive.</p>	<p>sea birds and corals. A baseline of mainland shorelines has been undertaken (see S2).</p> <p>Study S6 has not been triggered for whales or dugongs.</p>	<p>experts and proposals have been received and are to be reviewed by PTTEPAA.</p> <ul style="list-style-type: none"> <li>• Mainland - preliminary study completed by Norm Duke</li> </ul>	<p>turtles / sea snakes / sea birds / corals.</p> <p>Not finalised for mainland.</p>
S7	<p>Oil Fate and Effects Assessment.</p> <p>Study S7 consists of the following components:</p> <ul style="list-style-type: none"> <li>• Trajectory analysis.</li> <li>• Sediment plume modelling.</li> <li>• Dispersed oil modelling.</li> <li>• Sediment, water and biota sampling for mainland.</li> <li>• Sediment, water and</li> </ul>	<p>Study S7 extends the operational monitoring Study O2 and investigates the distribution, weathering fates and effects of residual (post response) oil at sea. It encompasses an assessment of untreated oil and dispersant treated oil and oil in waters and sediment (if any).</p>	<p>Study S7 has been triggered for trajectory analysis, sediment plume modelling and dispersed oil monitoring.</p> <p>Study S7 has not been triggered for sediment, water and biota sampling for the mainland, impact area and shorelines.</p>	<p>Trajectory analysis / sediment plume modelling / dispersed oil modelling - assigned to Asia-Pacific ASA. Proposal received and to be accepted by PTTEPAA.</p> <p>Leeder Consulting have been engaged to undertake analysis of sediment, water and biota samples if this component of Study S7 is triggered.</p>	<p>No results have been obtained.</p>

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	biota sampling for impact area.  Sediment, water and biota sampling for shorelines (ie Ashmore / Cartier)				

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