NATIONAL ENERGY RESOURCES AUSTRALIA

Creating connections for growth

Collaborative Seismic Oil Spill Response and Monitoring Bridging Plan Template

Revision	Date	Reason for issue	Reviewers	Approvers
A	22 March 2021	Internal review	CSEP Environment Specialist	CSEP PM
B	20 April 2021	Issued to WA DoT, NT DEPWS and AMSA	Santos, Shell, INPEX	CSEP PM
C	11 May 20222	Issued to WA DoT, NT DEPWS and AMSA	Santos, Shell, INPEX	CSEP PM
0	5 August 2022	Submission to NOPSEMA	CSEP Environment Specialist	CSEP PM

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Acronyms

Term/Acronym	Definition
ADIOS2	Automated Data Inquiry for Oil Spills 2.0.12
AIIMS	Australasian Inter-Service Incident Management System
AMOSC	Australian Marine Oil Spill Centre
AMSA	Australian Marine Safety Authority
CMT	Crisis Management Team
CS	Collaborative Seismic
CSR	Client Site Representative
DoT	Department of Transport
EMBA	Environment that May Be Affected
ERP	Emergency Response Procedure
EOC	Emergency Operations Centre
EP	Environment Plan
IAP	Incident Action Planning
ISC	Incident Command System
IMO	International Maritime Organisation
IMT	Incident Management Team
IRT	Incident Response Team
MDO	Marine Diesel Oil
NOPSEMA	National Offshore Petroleum Safety and Environment Management Authority
OPEP	Oil Pollution Emergency Plan
OPGGS Act	Offshore Petroleum and Greenhouse Gas Storage Act
OPGGS (Env) Regulations	Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009
OSRO	Oil Spill Response Organisations
SIMA	Spill Impact Mitigation Analysis
SIMAP	Spill Impact Mapping and Analysis Program
SMP	Scientific Monitoring Plan
SOPEP	Shipboard Oil Pollution Emergency Plan

HOW TO USE THIS DOCUMENT

This document is designed to provide titleholders with a template from which to prepare their survey specific Oil Spill Response and Monitoring Bridging Plan, so that it effectively links their survey to the Collaborative Seismic Environment Plan and Oil Pollution Emergency Plan.

This document will need to outline how the titleholder will meet the applicable requirements of the OPGGS (Environment) Regulations 2009 that could not be addressed in the Collaborative Seismic Environment Plan or Oil Pollution Emergency Plan. Namely, those aspects that are survey or titleholder specific.

Guidance is provided in most sections in grey font, accompanied by worked examples.

Please note: worked examples are EXAMPLES ONLY. Each titleholder must consider the guidance information and tailor each section to their own specific circumstances.

Titleholders should merge this document into their own templates.

Please remove these instructions prior to finalising the plan.

1. Introduction

Worked example: <Titleholder> has elected to use the Collaborative Seismic Environment Plan (CSEP) and Oil Pollution Emergency Plan (OPEP) to undertake the <seismic survey>.

Use of the CSEP and OPEP requires the titleholder to develop a survey specific Oil Spill Response and Monitoring Bridging Plan (this plan) which describes how the titleholder's activities, spill risks and internal management systems interface with the CSEP and OPEP.

1.1 Summary of proposed survey

Worked example: <Titleholder> plan to undertake the <seismic survey> located <provide details of location, permits and a map showing survey operations area and distance to State or Territory waters, closest shorelines, and marine parks. Also, present survey schedule>.

The <seismic survey> will consist of the following vessels:

- Seismic vessel: <provide name of vessel>
- Support vessels: : <provide name of vessels>

1.2 Interface with titleholder and vessel documents

Guidance: In addition to this plan and the CSEP OPEP the titleholder and the vessel operators will have company and survey specific emergency response documents. The titleholder should ensure that company and survey specific emergency response documents align with this plan and the CSEP OPEP.

Worked example: Table 1-1 describes the titleholder's and vessel operator's emergency response documents relevant to the <seismic survey>.

Table 1-1: Titleholder's key internal emergency management documentation

Document	Description
Relevant Emergency Management Plan	Provide a summary of what is included in this document - Worked example: Describes roles and responsibilities of the Incident Management Team (IMT) in response to an emergency.
Seismic Survey Emergency Management Procedure	Provide a summary of what is included in this document - Worked example: Contains instructions for vessel emergency, medical emergency, search and rescue, reportable incidents, incident notification and contact information.
Emergency Management Contacts Directory (or similar)	Provide a summary of what is included in this document - Worked example: This document contains relevant contact and communications information to enable effective communication amongst the response personnel and external stakeholders.

Document	Description
Vessel Shipboard Oil Pollution Emergency Plan (SOPEP)	Provide a summary of what is included in this document - Worked example: Under MARPOL Annex I requirements, all vessels of over 400 gross tonnage are required to have a current SOPEP. The SOPEP includes actions to be taken by the crew in the event of an oil spill, including steps taken to contain the source with equipment available onboard the vessel.

1.3 WA DoT review

Guidance: Where there is the potential for a spill to impact State waters or land this survey implementation plan is to be submitted to the WA Department of Transport (DoT) for review.

2. Spill Management Arrangements

2.1 Titleholder incident management structure

Guidance: Titleholders must identify what incident/emergency management system chain of command they use to respond to and manage incidents e.g., either Incident Command System (ICS) or Australasian Inter-Service Incident Management System (AIIMS). Titleholders will also need to review the worked example below to determine responsibilities for activation of their emergency teams.

Titleholders should also list the planned locations and facilities for their Incident Control Centre and Forward Operating Bases, if requested to conduct operations by the Control Agency.

In addition, the following items will need to be addressed to meet Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulation (OPGGS (Env)) Regulation 14(4):

- A description of the structure of all emergency management teams (e.g., Incident Management Team, Crisis Management Team) should be provided, along with their overarching roles and responsibilities and how the various teams link and report to each other.
- If the incident/emergency management system of command is scalable according to the nature of the spill i.e. one person can take on multiple roles, or one role may be filled by multiple individuals where circumstances permit.

Worked example: <Titleholder> applies the Incident Command System (ICS) methodology for emergency management, which is compatible with the Australasian Inter-service Incident Management System (AIIMS) and National Plan for Maritime Environmental Emergencies (National Plan). The ICS is a management system designed to enable incident management through integrating facilities, equipment, personnel, procedures, and communications operating under one structure. An ICS is commonly structured into functional areas that facilitate incident management activities, including operations, planning, logistics, finance, and incident command.

<Titleholder> also applies a graduated response framework that increases resource involvement based on the significance and escalation potential of the incident, as shown in Figure 2-1. This graduated framework involves three key emergency management teams, as described below and shown in

Figure 2-2:

- Incident Response Team (IRT) is located on the Facility and provides a first strike response and regular updates to the Incident Management Team throughout the response.
- Incident Management Team (IMT) is based onshore and supports the IRT, by coordinating advice, logistical support and managing the operational and technical aspects of the response; and
- Crisis Management Team (CMT) is based onshore and is responsible for the overall management of the incident from a strategic, commercial, legal, reputational, and high-level liaison perspective.

The IMT is scalable to the nature and scale of the response i.e. one person can take on multiple roles where circumstances permit.

The activation of the IMT will occur by the On-Scene Commander (Vessel Master for vessel spills) contacting the on-duty IMT Operations Section Chief who will then mobilise the Incident Commander and IMT as the situation warrants. Duty positions within IMT are staffed by a roster system where each position has required personnel identified for the role.

Figure 2-1: <Titleholder> incident response framework

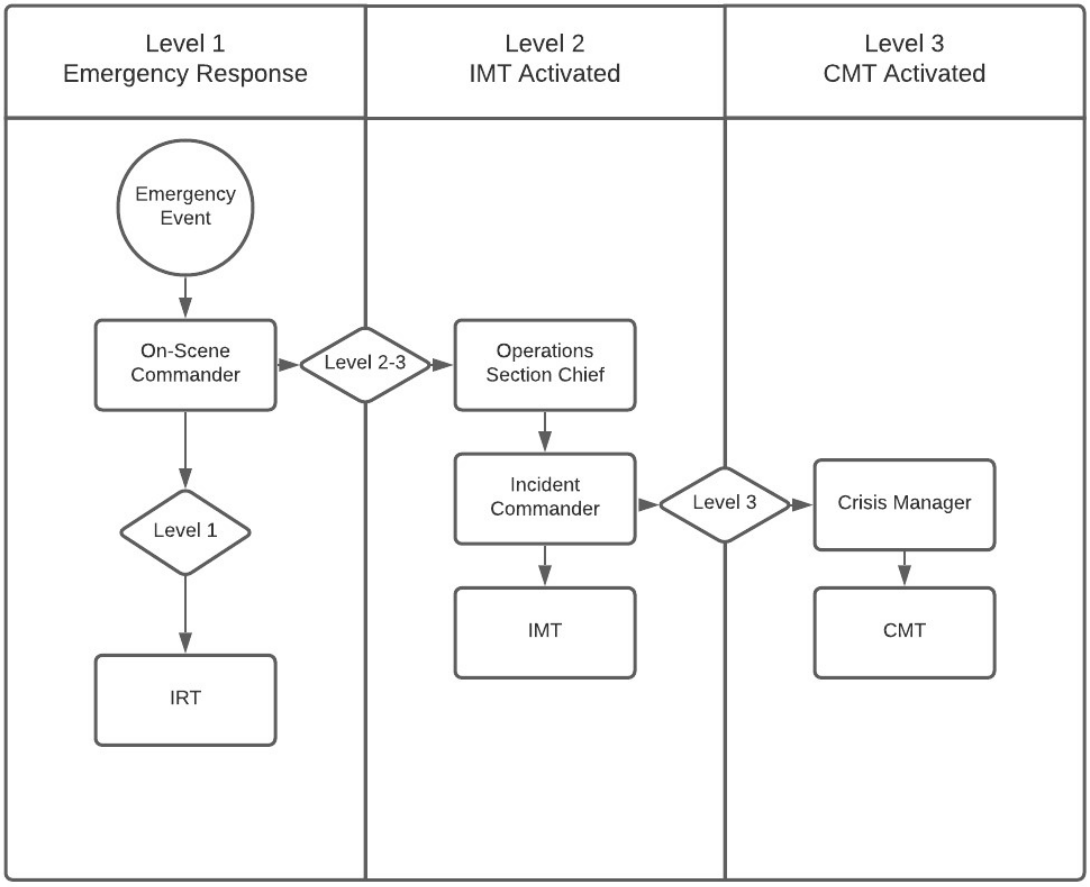
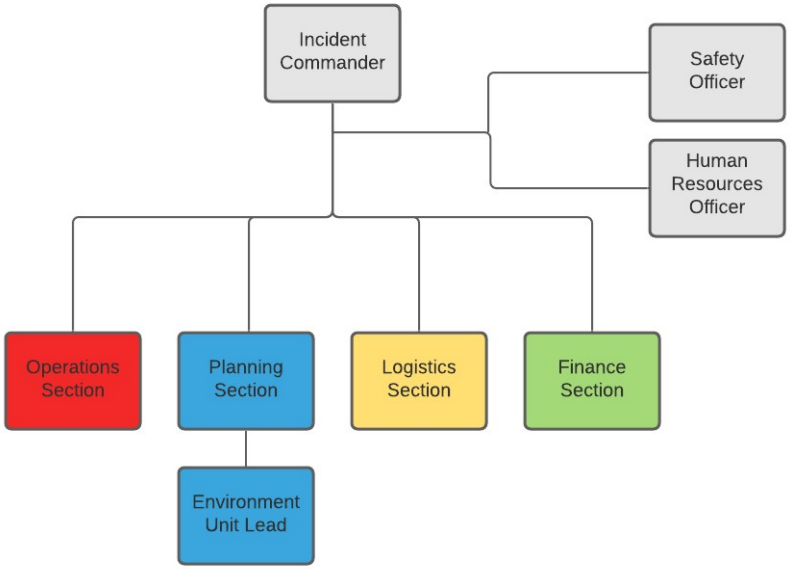


Figure 2-2: IMT Structure



2.1.1 Roles and responsibilities

Guidance: Titleholders must clearly define the roles and responsibilities of personnel involved in preparedness and response activities at a tactical, operational, and strategic level. This includes all roles that have responsibilities in Sections 3 to 10 of the OPEP, and Section **Error! Reference source not found.** of this Plan.

In addition, the following items will need to be addressed to meet OPGGS (Environment) Regulation 14(5):

- Who would be responsible for making the external notifications outlined in Section 3 of the OPEP?
- Who would be responsible for activating external Support Agencies i.e. Oil Spill Trajectory Modelling Providers, Scientific Monitoring Providers?

Worked example: <Titleholder's> Emergency Management Plan provides detailed guidance on roles and responsibilities for all emergency management personnel.

A summary of key roles and responsibilities for <Titleholder's> personnel for incident response are outlined in Table 2-1. The Planning Section Chief (or delegate) is responsible for making the external notifications outlined in Table 3-1 of the Collaborative Seismic OPEP.

Table 2-1: Summary of Roles and Responsibilities of Key Emergency Management Personnel

Key roles	Responsibilities
Incident Commander (or delegate)	• Overall management of incident response operations

Key roles	Responsibilities
	• Assess the situation and confirm or adjust the classification level in consultation with the Operations Section Chief and On-Scene Commander • Notify the Crisis Manager of event and initial response • Set objectives for IMT • Confirm IAP is being developed and approve IAP • Validate that relevant regulators and other authorities have been notified • Consider and request Crisis Management Team support • Approve Incident Demobilisation Plan
Operations Section Chief (or delegate)	• Assist in classifying the emergency (level 1,2,3) in consultation with the site On-Scene Commander and maintain open line of communication • Inform Incident Commander of emergency notification and level and maintain an open line of communication • Provide overview of response operations at initial IMT brief • Communicate incident updates provided by the On-Scene Commander to IMT through meetings and team briefs • Provide incident details to the Planning Section Chief and Situation Unit Lead for development of Initial IAP and help develop incident objectives and strategies • Determine operational areas e.g., staging areas, forward command, incident area, oiled wildlife receiving and demobilisation areas • Contribute to the preparation and implementation of the Incident Demobilisation Plan
Planning Section Chief (or delegate)	• Notify external agencies and regulators of spill (as per Section 3 of the Collaborative Seismic OPEP) • Consider incident escalation potential and predication for incident • Develop Initial IAP in conjunction with Operations Section Chief and Situation Unit Lead • Liaise with Logistics, Safety Officer and Environment Unit Leads as to requirements to complete response strategies • Facilitate/Chair IMT meetings • Monitor situation reports and update Emergency Operations Centre (EOC) status displays with additional information and adjust IAP as necessary • Prepare the Incident Demobilisation Plan
Logistics Section Chief (or delegate)	• Source all logistical requirements to complete response operations, including personnel, equipment and supplies for ongoing incidents. • Upon approval from IC, source third party resources (e.g. vessels, helicopters) to assist in response operations • Liaise with Planning Section Chief on specialist resource requirements being considered in response strategies. Verify availability as this may affect strategy selection

Key roles	Responsibilities
Environment Unit Lead (or delegate)	• Undertake operational Spill Impact Mitigation Analysis (SIMA) • Activate SMPs, upon request from the Control Agency and subject to approval from the Incident Commander • Activate Monitoring Provider upon approval of the IC

2.1.2 *Emergency management contacts*

Guidance: Titleholders will need to outline where personnel can source up to date emergency contacts relevant to the titleholder's survey specific oil spill scenario. This may include internal contacts (e.g., on-call Operations Section Chief) and external contacts (e.g. all agencies listed in Table 3-1 of the CS OPEP (external notifications), oil spill response organisations, aviation contractors, marine contractors, scientific monitoring providers). How frequently this list is updated should be detailed.

Worked example: <Titleholder> maintains an emergency contacts directory in the Emergency Management SharePoint folder <provide internally accessible hyperlink, if possible>, available to all IMT members. This list is checked and updated every 6 months.

2.2 Personnel competencies and testing arrangements

Guidance: Titleholders will be required to provide information on personnel competencies and training to meet Regulation 14 (5); and testing of response arrangements to meet Regulation 14 (8A) and Regulation 14 (8B).

Worked example: <Titleholder> follows the approved ICS and IMO emergency management training requirement for ICS command and general staff. A summary of training requirements and core competencies for <Titleholder> key IRT, IMT and CMT personnel are outlined in Table 2-2.

Only persons that have completed all mandatory training requirements can be placed on the IMT roster. Training status of IMT personnel is reviewed monthly (or following significant personnel or policy change by the <Titleholder> Emergency Response Coordinator) and notifications issued in advance to personnel requiring re-validation by training and/or emergency response exercise participation.

Table 2-2: Exercise and Training Requirements for Key IRT, IMT and CMT Personnel

Key Roles	Exercises	Training
IRT Personnel Vessel Master	Weekly muster alarm drill (may be combined with level 1 exercise) 1 x level 1 exercise per swing Level 2/3 exercise 6 monthly in accordance with 3-year exercise plan.	SOPEP training

Key Roles	Exercises	Training
IMT Personnel Incident Commander (IC)	It is required that 80% of personnel will participate in an IMT exercise annually.	All IMT personnel complete ICS 100, 200 and IMT induction IC undertakes - IMO3 Oil Spill Command & Control
Operations Section Chief Planning Section Chief Logistic Section Chief Environment Unit Lead	It is a target that 80% of personnel will participate in an IMT exercise annually. Participation in exercises is tracked in the Exercises & Training Schedule and is reviewed monthly or following significant personnel or policy change by the Emergency Response Coordinator.	IMO2 Oil Spill Management
CMT Personnel	Level 2/3 exercise on a biennial basis	Group Crisis training

<Titleholder> maintains an Exercise and Training Schedule as detailed in the <Relevant Titleholder document> to ensure its competency in responding to and managing major incidents, including oil spills. The Exercise and Training Schedule is reviewed and revised (if required) annually.

As part of this schedule, <Titleholder> conducts, or participates in, a number of different exercise types, which are further described in Table 2-3.

As part of the exercise process, a number of documents are prepared to ensure exercises are well planned, conducted and evaluated. To support this, the following documents are used:

- Exercise scope document – provides background context to the exercise, outlines the exercise need, aim, objectives, details of the scenario, participating groups and agencies, exercise deliverables and management structure. This document can be used to engage a third-party contractor to assist in conducting the exercise
- Exercise plan and instructions – provide instructions and 'play' (including any injects) for conducting the exercise
- Post exercise report – includes an after-action review of the exercise, evaluating how the exercise performed against meeting its aim and objectives.

<Titleholder> routinely undertakes post-exercise debriefings following level 2-3 OPEP exercises and drills to identify opportunities for improvement and communicate lessons learned. All actions that are derived from drills and exercises including debriefs are documented in the <Refer to Titleholder process or system that tracks actions from exercises to completion>.

Table 2-3: Exercise types, objectives, and frequency

Exercise Type	Objective	Frequency
Notification exercise	To test all communication and notification processes to service providers and regulatory agencies defined within the OPEP	Prior to the start of a survey and then: • At least annually • When response arrangements have been significantly amended
Tabletop exercise	To encourage interactive discussions of a simulated scenario amongst IMT members and refresh roles and responsibilities	As per <Titleholder> Exercise and Training Schedule
Incident Management Exercise	To activate IMT and establish command, control, and coordination of a simulated level 2 or 3 incident and test response arrangements in OPEP	Minimum of one oil spill exercise per year for <Titleholder> Australia's activities. Where response arrangements are the same for a number of activity-specific OPEPs, one exercise may be used to test these response arrangements for these OPEPs at the same time
National Plan Exercises or WA DoT exercises	Participate as required to ensure alignment between National/State Response Framework and <Titleholder> Response Framework	As determined by AMSA and/or WA DoT, <Titleholder> may not be requested to participate every year

2.3 Cost recovery

Guidance: Titleholders are required to maintain financial assurance sufficient to give the titleholder carrying out the petroleum activity, the capacity to meet the costs, expenses and liabilities that may result in connection with carrying out the petroleum activity; doing any other thing for the purpose of the petroleum activity; or complying (or failing to comply) with a requirement under the OPGGS Act in relation to the petroleum activity. This requirement is to be met by the Titleholder before NOPSEMA can accept the EP. The Titleholder will need to submit a declaration and confirmation of financial assurance to NOPSEMA.

Worked example: As required under Section 571(2) of the OPGGS Act 2006, <Titleholder> has financial assurances in place to cover any costs, expenses and liabilities arising from carrying out its Petroleum Activities, including major oil spills. This includes costs incurred by relevant Control Agencies (e.g., DoT, AMSA) and third-party spill response service providers.

<Titleholder> has determined the appropriate level of financial assurance required. A declaration and confirmation of financial assurance will be submitted to NOPSEMA prior to acceptance of this EP.

3. Description of Survey Spill Profile

3.1 Survey spill scenarios

Guidance: Titleholders will need to state their spill scenario/s for the survey.

Worked example: Table 3-1 details the credible spill scenarios identified for the <insert survey name>.

Table 3-1: Spill scenario summary

Worst case credible spill scenario	Hydrocarbon type	Maximum credible volume released
Scenario 1: Vessel collision (location 1)	Marine Diesel Oil	600 m^3 over 6 hours
Scenario 1: Vessel collision (location 2)	Marine Diesel Oil	600 m^3 over 6 hours

3.2 Spill spatial extent forecasting results

Guidance: Titleholders will need to describe the spatial extent of their survey spill scenario and forecast spill movement. Section 4.2.4 of the OPEP provides methods to present this information. It is recommended that as a minimum, ADIOS2 and vector mapping is used as an initial tool to determine if the survey spill scenario will result in shoreline impacts. If shoreline impacts are predicted, oil spill trajectory modelling can then be used to indicate the probability shoreline contract, time to shoreline contact and volume of oil accumulated on the shoreline. Some titleholders will prefer to conduct spill modelling for all new activities, omitting the need to perform ADIOS2 and vector mapping.

The spill spatial extent results will provide the titleholder with more information to be able to determine which response strategies are applicable to their activity and adequately plan and resource the response.

Worked example: Spill modelling was conducted for the vessel collision scenario (600 m^3 MDO), which represents the worst-case spill volume for this survey.

Spill modelling was performed using a three-dimensional spill trajectory and weathering model, SIMAP (Spill Impact Mapping and Analysis Program). This model is designed to simulate the drifting, spreading, weathering and fate of specific oil types under the influence of changing meteorological and oceanographic forces.

A stochastic modelling approach was followed for each of the scenarios. The stochastic model involves the repeated application of SIMAP (100 simulations for each season; summer, transitional and winter) to simulate the defined spill scenarios using different samples of current and wind data. The model results were then combined to provide a summary of each season.

The modelling outputs do not represent the potential behaviour of a single spill (which would have a much smaller area of influence) but provides an indication of the probability of any given area of the sea surface being contacted by hydrocarbons above impact thresholds.

For spill response preparedness, outputs relating to oil on the sea surface and oil accumulated on the shoreline are most relevant (i.e., oil that can be managed using spill response strategies) for the allocation and mobilisation of spill response resources. Therefore, the modelling results presented in Table 3-2 relate to sea surface exposure and shoreline contact.

Results for the worst-case credible scenarios have only been included if there was a floating hydrocarbon concentration greater than 1.0% probability.

Modelling results for dissolved and entrained oil for the worst-case scenarios have not been included given there are limited response strategies that will reduce subsurface impacts.

Table 3-2: Summary of spill modelling results for <insert survey name>

Worst case credible spill scenario	Maximum volume/duration	Location	Probability (%) of oil exposure on sea surface >1 g/m²	Minimum time (days) before oil exposure on sea surface >1 g/m²	Probability (%) shoreline accumulation ≥10 g/m²	Minimum time (days) before shoreline accumulation ≥10 g/m²	Probability (%) shoreline accumulation ≥100 g/m²	Minimum time (days) before shoreline accumulation ≥100 g/m²	Accumulated oil on shoreline in worst replicate simulation at or above 100 g/m² (m³)	Oiled shoreline length at concentrations >100 g/m² in worst replicate simulation (km)
Scenario 1: Vessel collision (location 1)	600 m³ over 6 hours	Marine Park A	1.7	4.7	NA	NA	NA	NA	NA	NA
		Island A	12.0	7.5	10.5	8.2	8.0	9.0	48	16.2
		Marine Park B	1.7	7.1	NA	NA	NA	NA	NA	NA
		Shoal A	2.5	5	NA	NA	NA	NA	NA	NA
		Mainland site B	1.8	7.9	1.7	7.1	1.8	7.9	8.2	6.1
Scenario 1: Vessel collision (location 2)	600 m³ over 6 hours	Marine Park A	2.6	5.0	NA	NA	NA	NA	NA	NA
		Island B	11.4	20.8	12.2	21.1	9.0	21.9	8.2	5.5

3.3 Survey protection priorities

Guidance: For the purposes of the CSEP, protection priorities refer to the most significant receptors and values (hereafter referred to as receptors) that require protection from the impacts of a spill. <Titleholder> may use the process outlined in Section 4.3.1 of the Collaborative Seismic OPEP for the identification of protection priorities that is aligned to the Western Australian DoT Protection Prioritisation Process (DoT 2017). If the Titleholder wants to use a different process, they will need to state this here.

Worked example: Results from hydrocarbon spill modelling were compared against the location of key sensitive receptors with high conservation valued habitat or species or important socio-economic/heritage value within the spatial extent of the environment that may be affected (EMBA). Sensitive receptors within the EMBA with shortest potential timeframes to contact above the floating moderate impact threshold of 10 g/m^2 were identified.

Table 3-3 outlines the list of priority protection areas in the event of a spill associated with the <Titleholder survey>. Depending on the spill scenario (i.e., volume and location), these priority protection areas could be impacted by surface hydrocarbons at or above moderate impact threshold concentrations.

Table 3-3: Protection Priority Areas for <Titleholder scenario>

Priority protection area	High value receptors	Seasonality of receptor	Ranking (floating oil)	Ranking (dissolved oil)	Minimum time (days) before shoreline accumulation >100 g/m^2	Probability (%) of shoreline contact >100 g/m^2	Peak volumes on shoreline (m^3)	Protection and response priority[1]
Island A	Intertidal coral reefs	Spawning – Sept – Nov and Mar – May; but corals always present	4	4	9.0	8.0	48	High
	Seabirds and shorebirds - and Lesser Sand Plover (*Charadrius mongolus*) – Endangered	Unknown	3	2				Medium
	Sharks and rays	Whale sharks seasonally present	1	2				Low
	Mangroves	Always present	4	4				High
	Cetaceans (Sperm whale, Bryde's whale, short-finned pilot whale, false killer whale, pygmy killer whale, melon-headed whale and Curvier's beaked whale)	Most species unconfirmed. Migration route for sperm whale usually occurs from May to October.	2	1				Low

[1] If contact above environmental impact assessment thresholds may occur

Priority protection area	High value receptors	Seasonality of receptor	Ranking (floating oil)	Ranking (dissolved oil)	Minimum time (days) before shoreline accumulation >100 g/m^2	Probability (%) of shoreline contact >100 g/m^2	Peak volumes on shoreline (m^3)	Protection and response priority[1]
	Saltwater crocodiles	Always present	1	1				Low
	Marine Parks (IUCN 1a)	Always present	3	3				Medium
	Traditional fishing	Always present	2	2				Low
	Marine turtles (internesting and foraging); and sea snakes – Olive ridley, green turtle	Year round, with peak season from Dec to Jan. Hatchling emergence is thought to be highest in May	4	3				High
Island B	Seabirds and shorebirds, including Eastern Curlew (*Numenius madagascariensis*) and Lesser Sand Plover (*Charadrius mongolus*)	Year round, but migratory shorebirds are highest between October and April	3	2	21.9	9.0	32	Medium
	Marine turtles (internesting and foraging) - green, loggerhead and hawksbill turtles; sea snakes	Year round, with peak season from Dec to Jan. Hatchling emergence is thought to be highest in May; sea snakes unknown	4	3				High

Priority protection area	High value receptors	Seasonality of receptor	Ranking (floating oil)	Ranking (dissolved oil)	Minimum time (days) before shoreline accumulation >100 g/m^2	Probability (%) of shoreline contact >100 g/m^2	Peak volumes on shoreline (m^3)	Protection and response priority[1]
	Intertidal coral reefs	Spawning – Sept – Nov and Mar – May; but corals always present	4	4				High
	Ramsar wetland; Marine Park (IUCN Ia) - including cultural heritage; and Commonwealth Heritage Place	Always present	5	5				High
	Foraging habitat for whale sharks	Oct-Dec	1	2				Low

4. Applicable Response Strategies

Guidance: Once the titleholder has identified their survey specific spill scenario spatial extent and protection priorities, they need to identify the applicable response strategies using the information in the Strategic SIMA for MDO/MGO spills provided in Section 4.4 of the OPEP.

Worked example: Section 4.4 of the OPEP provides a Strategic SIMA for MDO/MGO spills within the EMBA. This assessment provided a recommendation on a suite of industry recognised response strategies based on the risk, feasibility, and effectiveness of each strategy on MDO/MGO. Table 4-1 lists the response strategies applicable to this survey's specific spill scenarios.

Using the spill spatial extent forecasting results shown in Table 3-2 and protection priorities shown in Table 3-3, the worst-case spill for this survey is predicted to contact sensitive shoreline receptors. Table 4-1 presents the response strategies applicable to the worst-case spill predicted for <seismic survey>.

Table 4-1: Applicable response strategies to <seismic survey>

Response strategy	OPEP Recommendation	Applicable to <seismic survey>
Monitor and evaluate	Primary response strategy	Yes
Natural recovery	Primary response strategy	Yes
Shoreline protection	Secondary response strategy	Yes
Shoreline clean-up	Secondary response strategy	Yes
Oiled wildlife response	Primary response strategy	Yes
Scientific monitoring	Primary response strategy	Yes

5. Resource Capability for Response Strategies

Guidance: To meet the requirements of OPGGS (Environment) Regulation 14 (8AA), titleholders must describe the capability that will be in place to implement the response strategies. This includes internal capability and arrangements that will be in place with relevant service providers for the duration of the survey.

The scale of these arrangements and types of external contracts will be dependent upon the nature and scale of the titleholder's survey and possibly any pre-existing arrangements they may have in place for other activities (e.g., drilling, operations).

Worked example: Table 5-1 outlines the resource capability and arrangements in place for the response strategies relevant to this survey.

Table 5-1: Resource capability to implement response activities

Guidance: PLEASE NOTE - This table is an example only. If a titleholder has existing arrangements with service providers, including spill trajectory modelling, aviation and vessel providers, shoreline protection and clean-up and scientific monitoring then these should be included below.

Timeframes to be included, replacing all instances of <'XX'>. Those with timeframes provided are set as per the OPEP Performance Standards and are existing industry standards.

Tactic	Resources Available	Service Providers	Mobilisation Timeframe[2]
Monitor and evaluate			
Tracking buoy	Tracking buoys available on vessel undertaking seismic survey	AMSA (additional buoys)	2 hours for tracking buoy on vessel <XX days> for additional tracking buoys (if required)
Fate and weathering modelling	Planning Section utilise ADIOS2 Programs installed on IMT computers	Available via United States National Oceanic and Atmospheric Administration (NOAA) website - https://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/response-tools/downloading-installing-and-running-adios.html	Within 2 hours of IMT activation
Spill trajectory modelling	AMSA National Plan arrangements	Modelling contractor via AMSA	Within <XX hours> of request being sent to Modelling Contractor
Aerial surveillance	Aircraft sourced through existing contracts with aviation providers Aerial surveillance observers using national pool of trained/experienced observers – sourced through AMSA *(Note: If Titleholder has a contract with AMOSC then state capability here)*	AMSA, Titleholder's aviation service provider *(Note: If Titleholder has a contract with AMOSC then state capability here*	<XX days> for national pool trained/experienced aerial observers <XX hours> for aircraft to be ready for mobilisation
Vessel surveillance	Vessel and crew supplied by vessel	Titleholder's marine vessel contractor/s	Within <XX hours> for vessels situated

[2] Mobilisation timeframe is taken from the point the IMT selects the tactic, unless otherwise stated

Tactic	Resources Available	Service Providers	Mobilisation Timeframe[2]
	contractor		close to the spill source (if available)
Shoreline assessment	(If available) <Titleholder> trained personnel (team leaders) Trained response personnel and specialised equipment available from State and National Response Teams *(Note: If Titleholder has a contract with AMOSC then state capability here)*	Titleholder (if available) Mobilised through AMSA, DoT and/or NT IMT as Control Agency (*Note: If Titleholder has a contract with AMOSC then state capability here*)	Given the logistical and safety considerations with shoreline response in remote waters, implementation of the response will take approximately <XX days> to occur from decision being made
Shoreline protection and deflection activities			
Booming, recovery, and debris removal	(*If available*) <Titleholder> owned nearshore boom/skimming equipment Trained response personnel and specialised equipment available from State and National Response Teams *(Note: If Titleholder has a contract with AMOSC then state capability here)*	Titleholder (*if available*) Mobilised through AMSA, DoT and/or NT IMT as Control Agency *Note: If Titleholder has a contract with AMOSC then state capability here)*	Given the logistical and safety considerations with shoreline response in remote waters, implementation of the response could take approximately <XX days> to occur from decision being made
Shoreline clean-up activities			
Manual and mechanical removal; washing, flooding, and flushing; sediment reworking and surf washing	(*If available*) <Titleholder> owned clean-up equipment and trained personnel Trained response personnel and specialised equipment available from State and National Response Teams *(Note: If Titleholder has a contract with AMOSC then state capability here)*	Titleholder (*if available*) Mobilised through AMSA, DoT and/or NT IMT as Control Agency *(Note: If Titleholder has a contract with AMOSC then state capability here)*	Given the logistical and safety considerations with shoreline response in remote waters, implementation of the response will take approximately <XX days> to occur from decision being made
Oiled wildlife response			
Reconnaissance, hazing, pre-emptive capture, and treatment	Specialised equipment available from State and National Response *(Note: If Titleholder has a contract with*	Mobilised through AMSA, DoT and/or NT IMT as Control Agency *(Note: If Titleholder has a contract with*	Given the logistical and safety considerations with shoreline response in remote waters, implementation of the response will take approximately <XX days>

Tactic	Resources Available	Service Providers	Mobilisation Timeframe[2]
	AMOSC then state capability here)	*AMOSC then state capability here)*	to occur from decision being made
Scientific monitoring			
Scientific monitoring	Contract with Monitoring Service Provider	<Insert name of Monitoring Service Provider>	Within <XX hours> of spill notification

6. Scientific Monitoring

Guidance: Titleholders will be required to work with the Control Agency to undertake scientific monitoring, providing the resources, planning, advice, and equipment necessary for implementation. The Collaborative Seismic OPEP provides a list of possible Scientific Monitoring Plans (SMPs) that may apply to the titleholder's individual spill scenario/s, which would be activated if the initiation criteria are met.

Titleholders should review the SMPs and use the results of their spill spatial extent forecasting (Section 4.2.4 of the OPEP) to determine which SMP initiation criteria (Appendix E of OPEP) may be triggered by their worst-case spill scenario. For example, spills that are not predicted to come within close proximity to shorelines (including offshore islands and islets) may not trigger the initiation criteria for receptors found at these locations e.g., intertidal and coastal habitats, benthic habitats. Conversely, worst-case spills that are predicted to contact shorelines are likely to trigger most SMPs, however it is important to understand the location of all sensitive receptors, including social and heritage features and understand if the spill would also trigger the initiation criteria for these SMPs.

It is the expectation of the Control Agencies that the titleholder will finalise SMPs in the event of a spill. To provide sufficient monitoring capability, including personnel, equipment, and ability to finalise SMPs, titleholders will need to demonstrate they have adequate arrangements in place to undertake this monitoring, which is often through a contracted Monitoring Service Provider.

Titleholders will also need to outline their process for activating any contracted Monitoring Service Provider/s, including nominating who will make the initial contact. Titleholders should also state if the contract includes standby services and if the Monitoring Service Provider/s provide regular capability reports to the Titleholder as part of this service.

Worked example: Using the results presented in Section 3.2 and 3.3, the worst-case spill is predicted to contact sensitive shorelines. <Titleholder> has reviewed the SMPs in Appendix E of OPEP and has determine the worst-case spill may trigger the initiation criteria of the following SMPs:

- SMP: Water quality impact assessment
- SMP: Sediment quality impact assessment
- SMP: Intertidal and coastal habitat assessment
- SMP: Seabirds and shorebirds
- SMP: Marine mega-fauna assessment (reptiles; whale sharks, dugongs, and cetaceans)
- SMP: Benthic habitat assessment
- SMP: Marine fish and elasmobranch assemblages assessment
- SMP: Fisheries impact assessment
- SMP: Social impact assessment

<Titleholder> has contracted <Company A> to provide standby scientific monitoring response and implementation services, which includes the provision of personnel, planning, logistics and reporting. <Include details of supporting companies if relevant to the contract e.g., <Company A> will be supported by <Company B> and <Company C> (who will both report through Company A).

The Monitoring Services Provider is contracted to provide <Titleholder> with a monthly Standby Capability and Competency Report, which details personnel requirements for SMPs, numbers of

available personnel and competencies for service provider and sub-contracted personnel for the duration of the survey.

<Titleholder> IMT Environment Unit Lead is responsible for activating SMPs, upon request from the Control Agency and subject to approval from the Incident Commander. Table 6-1 outlines <Titleholder> SMP activation process.

If the Control Agency takes command of scientific monitoring, <Titleholder> will follow the direction of the Control Agency providing planning and resourcing support through its Monitoring Service Provider/s as required.

Table 6-1: SMP activation process

Guidance: PLEASE NOTE - This table is an example only. If a titleholder has documented arrangements with a monitoring service provider, then these should be reflected below.

Timeframes to be included, replacing all instances of <'XX'>.

Responsibility	Task	Timeframe	Complete
Environment Unit Leader (Titleholder)	In consultation with the Control Agency, review initiation criteria of SMPs during the preparation of the initial IAPs and subsequent IAPs; and if any criteria are met, activate relevant SMPs.	Within <XX hours> of spill notification	❑
	Obtain approval from Incident Commander Leader to initiate SMPs.	Within <XX hours> of spill notification	❑
	Contact Monitoring Services Provider and notify on-call officer of incident, requesting provision of support.	Within <XX hours> of spill notification	❑
	Provide monitor and evaluate data (e.g., aerial surveillance, fate and weathering modelling, tracking buoy data) to Monitoring Services Provider.	Within <XX hours> of data being received by IMT	❑
	Liaise directly with Monitoring Services Provider to confirm which SMPs are to be activated.	Within <XX hours> of monitor and evaluate data being received from IMT	❑
	Provide purchase order to Monitoring Services Provider.	Within <XX hours> of initial notification to Monitoring Services Provider	❑
	Record tasks in Personal Log.	At time of completion of task	❑

Responsibility	Task	Timeframe	Complete
Monitoring Services Provider	On-call officer to notify Service Provider Manager of activation.	Within <XX hours> of notification being made to Monitoring Services Provider	❑
	Send personnel to IMT.	Within <XX hours> of notification being made to Monitoring Services Provider	❑
	Liaise directly with Environment Unit Leader to confirm which SMPs are to be fully activated.	Within <XX hours> of monitor and evaluate data being received from IMT	❑
	Confirm availability of initial personnel and equipment resources.	Within <XX hours> of monitor and evaluate data being received from IMT	❑