NOPSEMA
Australia's offshore energy regulator

GUIDANCE NOTE

Oil Pollution Risk Management

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Contents

Acronyms *and* abbreviations

AEP	Australian Energy Producers
AIIMS	Australasian Inter-service Incident Management *System*
ALARP	As low as reasonably practicable
AMOS Plan	Australian industry cooperative oil spill response arrangements
AMSA	Australian Maritime Safety Authority
AS/NZS ISO	Australian standard/New Zealand standard International Organisation for Standardisation
BOCP	Blowout contingency plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DISR	Department of Industry, Science and Resources
EP	Environment plan
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EPO	Environmental performance outcome
EPS	Environmental performance standard
ICS	Incident command system
IAP	Incident action plan
IMT	Incident management team
LOWC	Loss of well control ('blowout')
NEBA	Net environmental benefit analysis
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
OPGGS Act	Offshore Petroleum and Greenhouse Gas Storage Act 2006
Environment Regulations	Offshore Petroleum and Greenhouse Gas Storage Environment Regulations 2023
OPRC 90	International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990
OPEP	Oil pollution emergency plan
OSCA	Oil spill control agent
OSMP	Operational and Scientific Monitoring Program
OWR	Oiled wildlife response
SCERP	Source control emergency response plan
SIMA	Spill Impact Mitigation Assessment
SMP	Scientific monitoring plan
SP	Support plan
TRP	Tactical response plan
WOMP	Well Operations Management Plan

1. Introduction

The *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGS Act) places obligations on petroleum titleholders to prevent the escape of petroleum and, should an oil pollution incident occur the titleholder is required to control and cleanup the pollution, remediate environmental damage and monitor the impact on the environment.

The Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Environment Regulations) require a titleholder to have an accepted Environment Plan (EP) in place for any petroleum activity or greenhouse gas activity in Commonwealth waters. This guidance note is focused on the requirements for evaluation of oil pollution emergency risks and the requirements for emergency planning set out in the Environment Regulations.

This guidance note supplements the NOPSEMA EP Content Requirements Guidance Note (N-04750-GN1344). Where GN1344 discusses the purpose of each regulation more generally, this guidance note provides information on application of the Environment Regulations to oil pollution risk management.

Guidance Note GN1344 – Environment Plan Content Requirements

NOPSEMA has published an Environment Plan Decision Making Guideline (N-4750-GL1721) which describes how NOPSEMA evaluates EP submissions against the legislated criteria for acceptance (Regulation 34).

Guideline GL1721 – Environment Plan Decision Making

Each section of this guidance note begins with a statement of NOPSEMA's expectations of titleholders in prevention, preparedness, response and/or recovery for oil pollution incidents. Expectations are further explained in the supporting guidance and accompanied by self-check questions to assist titleholders to critically evaluate the content of their EP and oil pollution emergency plan (OPEP) prior to submission to NOPSEMA.

While the level of detail provided in any EP submission to NOPSEMA should be relative to the nature and scale of a proposed activity and its complexity, this guidance note provides an indication of the type and range of information that may be relevant when preparing an EP and OPEP. References to other relevant NOPSEMA advice documents are included in section 6.

The relative merits of different oil pollution control measures, the range of possible risk assessment methods, and options for OPEP design and structure, are not in the scope of this document. However, a range of external references that address relevant topics in more detail are provided in section 7.

This guidance note is for the use of titleholders in understanding how to address the requirements of the Environment Regulations in relation to oil pollution risk management and response planning. It may also be used by other stakeholders to understand the regulatory requirements and NOPSEMA's expectations in this area.

2. Regulatory requirements for oil pollution risk management

NOPSEMA expects that each environment plan submission includes an appropriate risk assessment and demonstrates that adequate arrangements and capability are in place for timely and effective response to oil pollution incidents that may arise from the activity. Information regarding oil pollution risk and control measures must be consistent across well operations management plans, safety case and environment plans (including OPEP and financial assurance).

Environment Plan (and OPEP)

Section 572C of the OPGGS Act sets out the titleholder's duty to prevent oil pollution events, control the escape of petroleum, remediate damage to the environment and carry out environmental impact monitoring.

The Environment Regulations require that titleholders proposing to undertake petroleum activities must have an accepted EP in place prior to commencing their activity. Further, they state that the implementation strategy of the EP must contain an OPEP, and the OPEP must include adequate arrangements for responding to and monitoring oil pollution.

An OPEP is part of a point-in-time submission of an EP and therefore NOPSEMA cannot accept links to titleholder's emergency response systems as an OPEP. However, NOPSEMA does encourage an OPEP to be in a form that is functional for the titleholder to implement and evaluate their compliance against their EP commitments and regulatory requirements. Therefore, an OPEP may be a hierarchy or series of interconnected and/or supporting documents. If an OPEP is made up of more than one document, the EP must clearly identify which documents and elements of an EP submission comprise the OPEP and thus address the oil pollution risk management requirements of the Environment Regulations.

Well Operations Management Plans (WOMP)

A loss of well control (LOWC) incident is one of the highest consequence risks associated with offshore petroleum activities. An adequate OPEP requires a detailed and accurate understanding of oil pollution risks, prevention controls and feasibility of source control options. Provisions for prevention, preparedness and response to a LOWC are contained throughout the OPGGS Act and its regulations for safety, well integrity and environment management.

The OPGGS (Resource Management and Administration) Regulations 2011 and the Environment Regulations work together to ensure effective source control in the case of a loss of well integrity:

- The Resource Management and Administration Regulations require a WOMP that focuses on technical suitability of the chosen measures for ensuring well integrity and for regaining well control if an incident occurs.
- The WOMP must identify the technical and managerial aspects of managing the risks to integrity of the wells. As such, it is important that titleholders identify all risks that have the potential to cause a loss of well integrity so that control measures can be identified and implemented to reduce the risks to as low as reasonably practicable (ALARP). WOMPs must also provide a summary description of the blowout contingency plan and/or source control plan covering drilling, well, production and injection activities for each well, installation, field or area, demonstrating that the plan to regain control after a loss of well integrity is fit for purpose, based on a realistically modelled case, and will be available prior to commencing the well activity [see N-04600-GN1602].

- The Environment Regulations require an EP to set out the response arrangements for timely and effective response in the case of an oil pollution event. A key component of the response arrangements for LOWC incidents is the Source Control Emergency Response Plan (SCERP) and supporting arrangements that is designed to minimise the volume of hydrocarbons released.

Safety case

The OHS regime for offshore petroleum operations is set out in Schedule 3 of the OPGGS Act and its associated regulations; the OPGGS (Safety) Regulations 2024. Titleholders must ensure that activities and response operations described in the EP and OPEP are consistent with the relevant safety case and have adequately considered the requirements for a safety case in relation to any emergency response operations.

Financial Assurance for oil pollution costs, expenses and liabilities

Under section 571(2) of the OPGGS Act, titleholders are required to have and maintain sufficient financial assurance to meet the costs, expenses and liabilities that may arise in connection with carrying out petroleum activities, including those associated with responding to a major oil spill. The demonstration of financial assurance is a prior condition of acceptance of an EP (Regulation 16). The methods to estimate the levels of financial assurance require accurate information regarding the activity description, worst-case oil pollution scenario and planned response. Titleholders should ensure a strong interface between the processes for development and maintenance of the OPEP and maintenance of levels of financial assurance.

Further information regarding WOMPs, safety cases and financial assurance is available on NOPSEMA's website.

Section 2 Self-check **Consistency across regulatory submissions**

☐ Oil pollution risk information is consistent across regulatory submissions, including:
- Relevant aspects of the activity description (e.g., well descriptions and status)
- Oil pollution scenarios (potential oil characteristics, flow rates, volumes, durations)
- Feasibility of source control options and methods and timeframes to well kill.

☐ Information provided to demonstrate compliance with financial assurance requirements is consistent with worst-case oil pollution scenario and the planned response presented in the EP/OPEP.

3. Oil pollution risk assessment

NOPSEMA expects that titleholders will consider and incorporate good practice oil pollution risk assessment guidance that has been developed and referenced by industry associations and other technical authorities.

The Environment Regulations require that impacts and risks associated with the petroleum activity are detailed, evaluated, and reduced to ALARP and acceptable levels. The Environment Regulations, however, do not prescribe in detail how this is to be accomplished. Lack of prescription provides for advances in technology & innovation and encourages continuous improvement.

The international offshore petroleum industry has well established 'good practice' guidelines developed to support high standards of effective and efficient oil pollution risk assessment, preparedness, and response

planning (see section 7). Where a titleholder proposes to take an alternative approach that may deviate from industry 'good practice', the EP submission should clearly justify why the alternate practice or approach was considered more appropriate for their circumstances.

3.1. Establishing the context of oil pollution risk

3.1.1. Activity-specific risk context

Regulation 21(1) *- The environment plan must contain a comprehensive description of the activity including the following:*

(a) the location or locations of the activity;
(b) general details of the construction and layout of any facility;
(c) an outline of the operational details of the activity (for example, seismic surveys, exploration drilling or production) and proposed timetables;
(d) any additional information relevant to consideration of environmental impacts and risks of the activity.

NOPSEMA expects that the petroleum activity is described in sufficient detail to understand the potential volume, rate, duration, and location of oil pollution hazards. The description must be sufficient to inform the evaluation and selection of prevention, preparedness, and response control measures to reduce oil pollution risk to ALARP.

A petroleum activity means the operations or works in an offshore area undertaken for the purpose of exercising a right conferred by the petroleum title or discharging an obligation imposed on the titleholder under the OPGGS Act. The scope and boundaries of the petroleum activity must be clearly defined in the EP to enable accurate evaluation and mitigation of risks.

The petroleum activity must be described in sufficient detail and provide relevant contextual information to support the subsequent oil pollution risk evaluation and response planning. The types of information will include, but are not limited to:

- For exploration, appraisal, infill, or production drilling activities - well design and characteristics and depth of target reservoir, potential hydrocarbon(s) characteristics
- For production activities - hydrocarbon properties, production rates, offtake rates, and clear identification and status of wells under the scope of the plan
- For workovers, interventions, or other well-related activities - details on tubing removal, the types of facilities, rigs, or vessels to be involved and relevant specifications such as tank sizes
- For vessel operations – fuel type, collision risks and bunkering operations
- For activities in frontier areas or applying novel technologies – relevant information on the risks expected
- For all activities - timing details such as the duration and seasonality of the activity, location details such as the petroleum title/s that authorise the activity, geographic position, and regional context including distance to key ports and key receptors, water depth at potential release locations.

The legislative and operational interface between petroleum activities and maritime activities must be described and defined in the EP to ensure clarity in the risk assessment and in setting out the roles and responsibilities for oil pollution emergencies.

Hydrocarbon and reservoir characteristics

Regulation 21(1)(d) requires the activity description to include any additional information relevant to consideration of environmental impacts and risks of the activity. NOPSEMA considers that the hydrocarbon physical and chemical properties, and reservoir characteristics are essential information required to understand the oil pollution risks. Expected weathering behaviours and residual components must be described in sufficient detail to understand the potential fate of the spilled oil and enable assessment of the selection of appropriate response strategies.

Arrangements should be described to sample and characterise hydrocarbons as early as possible in the petroleum lifecycle to reduce uncertainty and to further inform oil pollution risk assessment and response planning. Where titleholders have ready access to hydrocarbon samples from nearby producing fields of similar hydrocarbon characteristics, NOPSEMA expects that a hydrocarbon assay from these is used to evaluate the impacts and risks of the activity. Where activities have been ongoing for some time, assay information should be updated to reflect changes in oil composition over time.

Where detailed hydrocarbon characteristics are not available, such as for exploration activities, titleholders may use analogues as inputs to the risk evaluation and response planning. The selection of analogues should be appropriately conservative and any assumptions regarding hydrocarbon characteristics must be appropriately justified and explained. The EP should explain the level of confidence regarding the reservoir characteristics that may be encountered and address uncertainties in the predicted hydrocarbon properties, particularly when interpreting outcomes of trajectory models based on analogue inputs.

In all cases where well-control hazards are present, the EP should describe the expected reservoir characteristics and history relevant to oil pollution risks, such as the gas-oil ratio, water cut, high pressure/ high temperature (HPHT) classification, propensity for natural flow or the use of enhanced oil recovery techniques.

3.1.2. Environmental context

Regulation 21(2) *- The environment plan must:*

(a) describe the existing environment that may be affected by the activity; and

(b) include details of the particular relevant values and sensitivities (if any) of that environment.

NOPSEMA expects the EP to define the environment that may be exposed to hydrocarbons from a worst-case oil pollution incident and describe the environment in a level of detail commensurate to the severity and likelihood of exposure and suitable to identify protection priorities.

To comprehensively describe the environment, the titleholder should first understand the potential oil pollution scenarios that may arise from the activity and have a detailed understanding of the potential distribution of hydrocarbons that could be expected to arise from each. Section 3.2.3 provides further guidance on defining the extent of potential exposure from oil pollution events.

The description of the environment should use contemporary and relevant scientific and technical information, must be sufficient to inform the oil pollution risk assessment and response planning and must include consideration of matters of national environmental significance (NES) protected under Part 3 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and specified in Regulation 21(3).

Identification and description of environmental, socioeconomic and cultural receptors should incorporate accurate and current information from relevant persons. The level of detail provided should be commensurate with the environmental value and sensitivity of receptors including their vulnerability, abundance, distribution, resilience and the predicted extent, severity, and duration of potential oil pollution consequences.

***Guidance Note** GN1785 – Petroleum activities and Australian Marine Parks*

The OPGGS Act section 790B confirms that the definition of the 'environment' under the Environment Regulations applies to Commonwealth, State and Territory jurisdiction. However, NOPSEMA cannot consider the acceptability of the response arrangements of international governments beyond Australia's borders. Titleholders are encouraged to ensure that response arrangements established are scalable for the purposes of addressing response actions in adjacent jurisdictions.

3.1.3. Legislative context

***Regulation 21(4) –** The environment plan must:*

(a) describe the requirements, including legislative requirements, that apply to the activity and are relevant to the environmental management of the activity; and

(b) demonstrate how those requirements will be met.

NOPSEMA expects that the EP will identify national, state and territory requirements relevant to oil pollution risk management and will demonstrate how these requirements will be met through the titleholder's response planning and during response operations.

In addition to requirements under the OPGGS Act, there are a range of legislative requirements of the State, Territory and Australian governments that are relevant to oil pollution risk management. It is the titleholder's responsibility to identify the legislative requirements that may apply. Examples include:

- Part 3 of the EPBC Act including matters protected (refer to Appendix B of GN1344)
- The role and function of hazard management authorities and environmental authorities as set out in legislation in each jurisdiction, and requirements for pollution emergencies and response actions.

Titleholders must ensure that their response arrangements align with the relevant administrative arrangements in place in Australia for coordination of marine environment emergencies. For example:

- The National Plan for Maritime Environmental Emergencies (National Plan) and associated response plans for State and Territory hazard management and environmental authorities
- The Offshore Petroleum Incident Coordination framework (OPICF) through the Department of Industry, Science and Resources (DISR), an Australian Government framework providing agency-led, whole-of-government coordination to a significant petroleum incident in Australian waters
- Memoranda of Understanding between Australia and foreign governments relevant to the activity.

Section 3.1 Self-check **Establishing the context of oil pollution risk**

☐ The petroleum activity is accurately scoped and described in sufficient detail to enable identification and evaluation of all potential oil pollution hazards.

☐ Reservoir characteristics, hydrocarbon properties, including weathering profile and dispersant amenability, are described and justified for the hydrocarbons expected to be encountered.

☐ The environment that has potential to be exposed to hydrocarbons from a worst-case pollution event has been described, including the values, sensitivities and protected matters.

☐ Legislative and administrative requirements relevant to marine oil pollution events from the activity have been identified and addressed.

3.2. Evaluating oil pollution risks

Regulation 21(5) *- The environment plan must include:*

(a) details of the environmental impacts and risks for the activity; and

(b) an evaluation of all the impacts and risks, appropriate to the nature and scale of each impact or risk; and

(c) details of the control measures that will be used to reduce the impacts and risks of the activity to as low as reasonably practicable and an acceptable level.

Regulation 21(6) *- To avoid doubt, the evaluation mentioned in paragraph (5)(b) must evaluate all the environmental impacts and risks arising directly or indirectly from:*

(a) all operations of the activity; and

(b) potential emergency conditions, whether resulting from accident or any other reason.

A range of publications provide good practice guidance on tools and techniques for hazard identification and risk assessment that are of specific relevance to oil pollution hazards, including ISO 17776:2016 for major accident hazards and IPIECA & OGP Oil Spill Response Joint Industry Project (referenced in Section 7).

GN1344 provides general guidance on NOPSEMA's expectations of titleholder's risk evaluation process to address the regulatory requirements.

Guidance Note *GN1344 – Environment Plan Content Requirements*

Titleholders should consider the following principles while undertaking the evaluation of oil pollution risks:

- the depth and rigour of evaluation should be proportionate to the significance of the impact and risk (nature and scale)

- the level of detail provided in the evaluation of the control measures should be commensurate with the complexity of the control measure and the expected level of risk reduction it achieves. Resources and effort should be weighted to the more significant impacts and risks
- likelihood of an incident occurring should be treated separately to the likelihood of the consequence occurring. Likelihood should not be based on the likelihood of the incident occurring coupled with the likelihood of consequences of the pollution event occurring
- adoption of control measures should clearly show how both likelihood of the incident will be reduced and show how the consequence (pollution impact) will be reduced
- supporting evidence should be presented for conclusions made. Contemporary and relevant scientific and technical information, including analysis of comparable incidents where available, should be provided to support descriptions of likelihood and consequence.

3.2.1. Hazard identification

NOPSEMA expects that the EP identifies the full range of possible oil pollution scenarios, up to and including the worst-case discharge, including those scenarios considered during hazard identification processes but determined to not be feasible due to specific characteristics of the activity.

The Environment Regulations require that an EP must include details of the environmental impacts and risks for the activity. In risk assessment terminology (ISO 31000) this can be thought of as the 'risk identification' stage.

The EP should include a systematic identification and evaluation of activity-specific risks, consistent with industry good practice oil pollution risk assessment methodologies.

The full range of possible oil pollution scenarios up to and including worst case scenario should be identified irrespective of their probability of occurrence. Consideration should be given to all release sources and the full range of release volumes. Where a high consequence scenario is excluded from the selection of oil pollution scenarios, adequate technical justification will be required to explain why it is not considered credible or feasible.

3.2.2. Likelihood

NOPSEMA expects that the titleholder provides suitable evidence-based justification for the likelihood values assigned to oil pollution scenarios.

The EP should present a range of scenarios that are representative of the potential oil pollution events that may arise from the activity to carry through the risk assessment and selection of control measures. The EP should include the full range of scenarios including more likely response planning scenarios, up to and including worst-case discharge scenarios even where the likelihood is very low.

Potential sources of oil pollution should not be ignored or excluded from evaluation because of low likelihoods or the assumed continued effectiveness of preventive control measures. For example, international industry data indicates that well control incidents are possible for production wells in routine operations despite being more likely during drilling or well intervention activities. These low probability incidents cannot be disregarded based on the assumption of ongoing well integrity during steady-state operations. However, if an open hole loss of well control scenario is inherently not feasible, an informed justification may be presented and supported by appropriate references and/or justified expert opinion where appropriate. NOPSEMA is unlikely to accept an EP where a high consequence / low likelihood oil

pollution scenario has been omitted, especially where a similar incident has been experienced elsewhere in the offshore petroleum industry.

3.2.3. Consequences

NOPSEMA expects the titleholder to define realistic volumes/rates of hydrocarbon that could be released for each oil pollution scenario, to predict the fate and distribution of the hydrocarbon, and to make well-informed evaluations of the potential consequence of the predicted exposure.

The EP must describe the range of potential consequences of the oil pollution scenarios, up to and including potential worst-case consequence.

There are various technical guides that publish considerations for estimating worst-case discharges relevant to petroleum activities. Some examples of relevant International and industry guidance and estimation techniques are referenced in Section 7.

Oil pollution scenarios – release rates and volumes

Release volumes and rates should be justified with reference to the technical specifications of the activity, such as vessel specifications, infrastructure specifications, flow rates, storage capacity and detection timeframes.

Release volumes of potential oil pollution incidents should reflect the worst-case discharge and not be inappropriately restricted or assume mitigation actions have been successfully implemented. For example:

- a release volume for a LOWC from an exploration, appraisal or development drilling activity should be estimated with no equipment 'down hole' where this is a possible circumstance at any time during drilling, rather than having obstructions in the well bore that might reduce flow
- a release from a workover, intervention or decommissioning activity may be determined by the largest possible discharge point where this can be technically justified as an alternative to a no equipment 'down hole' scenario
- the description of predicted oil distribution should not be limited by assuming that response control measures would be successfully implemented.

The duration of a LOWC scenario should be based on the number of days to achieve a successful well kill. The timeframe must be clearly supported by a demonstration of the titleholder's capability to drill a relief well and achieve well kill within this timeframe.

Descriptions of predicted mitigated consequences due to successful deployment of response control measures (e.g., source control or use of dispersants) can be used to provide a comparison with the descriptions of unmitigated consequences to support assumptions of net environmental benefit and the ALARP demonstration for response controls.

Representative oil pollution scenarios for response planning

Where many potential oil pollution scenarios are identified within the risk assessment, titleholders should choose a representative group of scenarios (including different incident types or levels) for the purposes of response planning. Scenarios could be grouped according to magnitude, duration and/or hydrocarbon characteristics, where common impacts and response requirements exist.

Consideration should be given to whether the selected planning scenarios represent the response needs for all the incident response levels and the range of response options that may be required. Different response levels may, for example, have different requirements for initial (first strike) actions, ongoing actions, response

decision-making processes, operational monitoring, response escalation/de-escalation, resource mobilisation and implementation of control measures.

Predicting behaviour and fate of oil pollution

There are various qualitative and quantitative methods available to assist in predicting the distribution of released oil. Typically, simulation modelling is used to predict the possible fate and trajectory of oil pollution in offshore scenarios under different conditions. A combination of stochastic and deterministic modelling should be used to define the extent of the environment that may be affected, identify vulnerable receptors and protection priorities, and define response requirements to support response planning.

The EP should provide details of model inputs, parameters, assumptions, and output information to demonstrate that the results are appropriate to understanding the oil pollution risks of the proposed activity. The EP should demonstrate that the modelling is directly applicable to the petroleum activity proposed and matches the sources, hydrocarbon types, release durations, volumes, and release locations relevant to the scenarios identified.

In some cases, where incident parameters are similar across a range of activities, such as diesel spills from offshore support vessels, modelling outputs from a nearby 'surrogate' activity can be used to extrapolate potential distribution of hydrocarbons where it can be demonstrated that the surrogate is sufficiently analogous to support the activity specific risk evaluations and response planning.

When using modelling to inform risk assessments and response planning, titleholders should consider the limitations and precision of the modelling and the level of uncertainty in the modelling inputs and outputs. An appropriate level of conservatism should be applied to the modelling outputs and consideration of whether receptors near the boundary of the predicted distribution of oil in the environment should be excluded from the evaluation of risks and response planning. For example, it would be reasonable to expect that a sensitive receptor near the boundary of the area predicted to be affected by the modelling will need to be monitored for exposure to account for uncertainties in the modelling and to ground truth predictions in an oil pollution incident.

NOPSEMA Bulletin #1 Oil Spill Modelling (April 2019) discusses application, interpretation and presentation of oil spill modelling in further detail.

NOPSEMA Bulletin #1 – *Oil spill modelling*

Comparison of non-mitigated and mitigated scenarios is helpful to demonstrate the predicted effectiveness of response measures. For example, comparing the fate and trajectory of hydrocarbons with or without surface dispersant application or subsea dispersant injection, or benefit achieved through source control.

The strategic net environmental benefit analysis (NEBA)/spill impact mitigation assessment (SIMA) process should also consider non-mitigated versus mitigated consequences to enable selection of the response strategies that provide the best net benefit (refer Section 3.3.3). For example, it is important to understand the potential subsurface receptors of dispersed oil to enable quantification of the potential impacts. It is also important to consider these features when State/Territory subsurface receptors could be impacted by cross-jurisdictional plume transport and to involve the relevant State/Territory jurisdictional authority in the NEBA/SIMA assessment process.

Evaluating potential environmental consequences of exposure to hydrocarbons

Details of receptor sensitivities to oil pollution and potential consequences should be based on contemporary and relevant scientific information derived from reputable research as well as observations at real oil pollution incidents. The description of potential consequences should present the likely range and scale of consequences of hydrocarbon exposure based on the scientific consensus, while also acknowledging any diversity of opinions in the scientific literature. Potential consequences on vulnerable receptors should not be downplayed based on a limited set or dated research, where more recent research has provided new insights into effects of hydrocarbon exposure. Where reliable research is not available, any assumptions made in the consequence evaluation should be appropriately justified.

Evaluation of socio-economic consequences should consider both consequences due to the actual effects of the oil spill, and market effects arising from public perceptions, such as the loss of market sales when fish tainting is feared.

3.2.4. Priorities for protection

NOPSEMA expects that the evaluation of oil pollution consequence will clearly identify protection priorities to provide a basis for selection of response control measures, identifying response needs and framing the environmental performance outcomes for response.

NOPSEMA expects that the description of predicted spill consequences will be sufficiently detailed to enable identification of vulnerable receptors for prioritisation in response planning and support the development of response objectives. Titleholders should also describe the process to be applied for identifying and prioritising receptors for protection during response operations in an incident. This process should include consultation with the relevant authorities of the Commonwealth and State/Territory, and other relevant interested persons or organisations.

The prioritisation process should consider the sensitivity of receptors, combined with the magnitude of the impact, the timeframe to impact, and the feasibility and effectiveness of available response options. Protected matters under Part 3 of the EPBC Act must be clearly identified and considered, including the temporal nature of sensitivities such as environmental (e.g., nesting, calving, and roosting) and commercial (e.g., fishing and tourism seasons) sensitivities that may create seasonal change to the risk profile and selection of protection priorities.

Protection priorities should consider relevant policies, guidelines, threatened species recovery plans, plans of management, management principles and other documents published on the Department of Climate Change, Energy, the Environment and Water (DCCEEW) website in relation to matters protected under Part 3 of the EPBC Act.

In defining specific priorities for protection, the EP should apply information about the consequences of the spill to vulnerable receptors such as fauna, habitat and protection areas and must explain how protected matters are considered in establishing the relative priorities for protection. This information will be reviewed by the relevant authorities of the State/Territory in the event of an oil spill to enable the jurisdictional authority to perform their role and responsibility in a response.

The OPEP should be consistent with response priorities presented within relevant State/Territory maritime emergency plans and draw on available materials for establishing protection priorities within the National System for Maritime Environmental Emergencies.

Section 3.2 Self-check **Evaluating oil pollution risks**

☐ A risk evaluation process consistent with industry good practice guidance has been documented and systematically applied.

☐ All sources of potential oil pollution events relevant to the activity, have been identified and described and appropriate justification is provided for relevant scenarios that have been excluded as not possible or credible.

☐ Likelihood and consequence have been evaluated independently and are supported by sufficient justification, including reference to contemporary and relevant scientific and technical information.

☐ The distribution and fate of oil resulting from the range of oil spill scenarios up to and including the worst-case scenario(s) has been predicted with reasonable confidence consistent with industry good practice techniques.

☐ The extent, severity and duration of potential consequences has been presented and evaluated in terms of the vulnerability of sensitive receptors.

☐ Modelling outputs are provided in sufficient detail to support the consequence evaluation and planning of response operations.

☐ The EP describes the predicted toxic and physical effects of the oil exposure to the receptors within the EMBA.

☐ The EP sets out priorities for protection that are consistent with legislative and administrative requirements and considers the expectations of relevant stakeholders.

☐ Effort has been applied to evaluation according to protection priorities and commensurate to relevant protection status.

3.3. Mitigating oil pollution risk

Regulation 21(5) *- The environment plan must include:*

(a) details of the environmental impacts and risks for the activity; and

(b) an evaluation of all the impacts and risks, appropriate to the nature and scale of each impact or risk; and

(c) details of the control measures that will be used to reduce the impacts and risks of the activity to as low as reasonably practicable and an acceptable level.

Regulation 21(6) *- To avoid doubt, the evaluation mentioned in paragraph (5)(b) must evaluate all the environmental impacts and risks arising directly or indirectly from:*

(a) all operations of the activity; and

(b) potential emergency conditions, whether resulting from accident or any other reason.

Regulation 22(9) - *The oil pollution emergency plan must include adequate arrangements for responding to and monitoring oil pollution, including the following:*
(a) the control measures necessary for timely response to an emergency that results or may result in oil pollution…….

3.3.1. Demonstrating ALARP and acceptability

NOPSEMA expects the titleholder will have adopted all reasonably practicable measures to reduce oil pollution risks by preventing incidents and preparing for a timely and effective response to pollution events. The EP must demonstrate that the costs of any further improvements to the quality, quantity or timeliness of response controls would be grossly disproportionate to the environmental benefit gained. NOPSEMA expects titleholders to demonstrate that response controls will provide an acceptable level of environmental protection and will not result in unacceptable impacts.

The risk evaluation presented in the EP must enable a titleholder to demonstrate that oil pollution response control measures and response arrangements detailed in the EP and OPEP will be effective in reducing oil pollution risks to ALARP and an acceptable level.

GL1721 and GL1344 both address the concepts of ALARP and environmental acceptability and provide detailed guidance on approaches for demonstrating that the EP has met those criteria for acceptance under the Environment Regulations.

Guidance Note GN1344 *– Environment Plan Content Requirements*

Guideline GL1721 *– Environment Plan Decision Making*

Control measures should be applied to treat various sources of risk at the different phases of emergency management. To demonstrate a comprehensive risk evaluation has been undertaken for oil pollution risks, NOPSEMA expects that titleholders will have specific controls to:

- *prevent* oil pollution events (refer Section 3.3.2)
- *respond* to events should they occur (refer Section 3.3.3 and Section 3.3.4); and

- *maintain preparedness* (capability and readiness) to implement a timely response for the duration of their activity (refer Section 3.3.5).

The level of detail provided in the EP evaluation of the control measures should be commensurate with the complexity of the control measure and the level of risk reduction it achieves.

It is essential that the required level of performance of each control measures is defined sufficiently to inform the setting of meaningful environmental performance standards (refer Section 3.3.6).

Demonstrating oil pollution risk reduction to ALARP

Titleholders should apply a systematic process to evaluate the proposed quality, quantity and timeliness of prevention, response and preparedness controls in order to determine whether there is anything more that could be done to further reduce the likelihood of the events occurring, mitigate the volumes of hydrocarbons lost to the environment, and improve capability for timely response to oil pollution.

Titleholders must consider alternatives, additional controls, or improvements to existing controls that could increase the functionality, availability, reliability, survivability, independence, and compatibility of response resources including equipment, personnel, and support services. The evaluation should be undertaken by competent personnel who have a thorough knowledge of the use, limitations, and possible failure modes of control measures. A simple comparison of the titleholder's existing or proposed capability against an impracticable or extreme option, such as maintaining the same capability on standby for the duration of the activity, is not considered an appropriate demonstration of risk evaluation to meet ALARP requirements of the Environment Regulations.

The EP should document the outcomes of this process and provide reasoning for selected and rejected oil pollution risk controls. The EP must demonstrate that all reasonably practicable control measures are in place to mitigate oil pollution risk and will be implemented with the required resources in the shortest practicable timeframes. Titleholders must demonstrate that the cost of adopting additional, alternative, or improved control measures is grossly disproportionate when comparing sacrifice to environmental benefit.

NOPSEMA assesses the extent to which a titleholder has considered cooperative arrangements to share the 'costs' of alternative, additional and/or improved control measures that may otherwise be disproportionate for a single titleholder. As part of the ALARP evaluation, NOPSEMA expects a titleholder to have considered reasonable opportunities for collaboration, such as resource sharing, shared equity, and joint funding in reducing costs of risk reduction to individual titleholders.

The titleholder may not be the Control Agency for some potential oil pollution incidents from its activity (e.g., vessel incidents, response in State/Territory waters, oiled wildlife response). In these cases, the evaluation of effectiveness of control measures and demonstration of ALARP should consider the likely response needs of the relevant Control Agency and how the titleholder will support a timely and effective response (e.g., Incident Management Team (IMT) personnel, operational monitoring, provision of vessels and aircraft, and other response resources). First strike actions, resource requirements, and expectations of the Control Agency should be agreed during consultation while preparing the EP.

Response arrangements involving activation of a State/Territory response plan or an external organisation to conduct a response does not remove the responsibility of the titleholder to provide response resources to meet ALARP or to explore options to improve the effectiveness of the arrangements in order to demonstrate risk reduction to ALARP.

Establishing acceptability of oil pollution risks

An oil pollution incident is not acceptable, and the legislation expressly identifies the failure to prevent the waste or escape of petroleum as an offence.

NOPSEMA's consideration of environmental acceptability is based upon the acceptable level of *risk* that is tolerable. Noting that the potential consequences of an oil pollution incident are described and evaluated based on the *unmitigated* consequences, an acceptable level of risk should be defined in relation to the implementation of preventative control measures to reduce the likelihood of the incident occurring in the first place, combined with the expected effectiveness of the response control measures to achieve protection of priority receptors and prevent any irreversible environmental damage from occurring.

Spill response control measures may introduce additional impacts with the aim of reducing the overall impact of a spill and achieving a net environmental benefit (e.g., dispersants, shoreline clean-up, wildlife response, etc). Titleholders should show that the spill response will not introduce unacceptable impacts and that controls are in place to reduce potential impacts to ALARP (refer section 3.3.4).

An 'acceptable level' of risk defined in the EP must be consistent with relevant principles of conservation management plans, and must not compromise the management, conservation, or protection objectives of the environment. Further guidance on outcomes and impact levels that may be considered unacceptable in protected areas (e.g., Australian Marine Parks) should also be considered to ensure that response arrangements are designed to deliver acceptable outcomes.

***Guidance Note** GN1785 – Petroleum activities and Australian Marine Parks*

When operating in particularly sensitive locations where mitigated oil pollution scenarios have the potential to cause irrecoverable environmental damage, or where there are technical challenges that mean a well blowout may not be able to be brought under control by a relief well, the EP may not demonstrate an acceptable level of oil pollution risk and further efforts to reduce likelihood and improve effectiveness of mitigation will be required.

Section 3.3.1 Self-check **Mitigating Oil Pollution Risks: Demonstrating ALARP and Acceptable levels of risk**

- ☐ A systematic process has been applied to evaluate the applicability of all prevention, response, and preparedness controls with consideration to alternatives, additional controls, improvements to controls (including cooperative arrangements), to reduce the likelihood and consequence of an oil pollution event.
- ☐ The evaluation presents the environmental benefit and costs of alternative, additional, or improved controls and demonstrates all reasonably practicable control measures are being implemented.
- ☐ The EP demonstrates with a reasonable level of confidence that oil pollution risks can be reduced to ALARP and acceptable levels.
- ☐ Oil pollution response capability and capacity meets the response requirements arising from the oil pollution scenarios in the EP, up to and including the worst-case scenario.
- ☐ The EP demonstrates all feasible preparatory actions to improve effectiveness and timeliness of response arrangements and capability have been implemented where costs are not grossly disproportionate to the environmental benefit gained.

3.3.2. Preventative control measures

NOPSEMA expects titleholders will apply the hierarchy of controls to oil pollution hazards and implement all reasonably practicable measures to prevent oil pollution incidents and minimise potential release rates and volumes.

Prevention of significant incidents is a major priority for NOPSEMA in assuring the protection of lives and the environment. NOPSEMA expects that titleholders will prioritise elimination and prevention of significant incidents which could lead to oil pollution through selection of appropriate risk controls. Prevention control measures in place to reduce the likelihood of oil pollution incidents should be specifically identified for each source of oil pollution that may arise from the petroleum activity.

In line with the ALARP principle, titleholders must critically evaluate design aspects of the activity that have a bearing on the likelihood of a pollution incident occurring and the consequence of the release. NOPSEMA expects that opportunities to eliminate oil pollution hazards or reconsider design parameters to reduce the consequence are fully explored prior to applying other mitigation controls and administrative procedures to prevent oil pollution incidents or reduce the consequences of an incident. Some examples of project design that NOPSEMA expects that titleholders will have critically evaluated include:

- avoidance of vessel heavy fuel oils where possible
- temporal or spatial adjustment to increase physical separation to environmental sensitivities
- use of liners or other methods to isolate reservoirs while drilling
- incorporating capping stack loading and interface compatibility into well design phase.

Well design and other prevention control measures for loss of well control are also the subject of WOMPs submitted to NOPSEMA (refer Section 2).

3.3.3. Response control measures

NOPSEMA expects that the EP identifies the necessary oil pollution response strategies and associated control measures and quantifies the resources required for their effective and timely implementation.

The EP is required to detail the response control measures that will be used to reduce the oil pollution risks of the activity to ALARP and an acceptable level. The OPEP must detail the arrangements and capabilities that will be in place for timely implementation of the control measures in response to an emergency that results or may result in oil pollution.

NOPSEMA expects that the titleholder will systematically evaluate and select oil pollution response strategies. Implementation of these strategies will be dependent on specific control measures in the form of systems, equipment, people, technical controls, and procedures to ensure timely and effective implementation of the response strategy to achieve environmental performance outcomes.

Extensive information is available in internationally recognised good practice guidance to support the evaluation and planning of common response strategies (refer to Section 7).

Selecting Response Strategies

The OPEP should focus on several oil spill response strategies (i.e. multiple layers of independent control measures) for reducing the total volume of oil released, maximising the recovery of oil, and mitigating the consequences. These response strategies should achieve the following objectives:

- Stop the flow (e.g. operational shut-downs and relief well drilling)
- Control the source (e.g. well intervention, pipe isolations, capping stack, offset installation equipment)
- Treat the release at the source (e.g. subsea and surface dispersants, at-sea containment and recovery)
- Protect priority receptors (e.g. oiled wildlife response, protection/defection, shoreline clean-up)
- Recover released oil (e.g. containment and recovery, shoreline cleanup)
- Monitoring impacts and recovery of the environment.

The evaluation should demonstrate that response strategies will be effective in protecting the defined priority receptors and achieving response objectives. The evaluation should also clearly explain reasons for excluding any response strategies identified as not relevant or not feasible.

Evaluation tools such as NEBA/SIMA are typically used to select appropriate response strategies. These tools help evaluate the benefits and associated impacts of implementing potential response strategies based on achieving a net benefit. They are not sufficient for demonstrating that oil pollution risk will be reduced to

ALARP and acceptable levels when used in isolation as they do not consider options to optimise implementation or improve effectiveness of the identified strategies.

The EP must define the level of performance required of all oil pollution control measures. For oil pollution response measures, the required performance should focus on effectively mitigating the consequences of the worst-case oil pollution scenario.

Tactical response plans and support plans

The EP should set out how the control measures in the response strategy will be implemented through support plans and/or tactical response plans. These should be commensurate to the complexity of the strategy and the level of risk reduction achieved. An appropriately detailed description of the scope, content, and expected level of performance of support plans and TRPs should be provided.

TRPs should function as meaningful response support systems with a clear schedule of mobilisation, deployment, and implementation. They should set out the resourcing requirements in terms of quantity, type, and quality of resources to be utilised and address uncertainties and assumptions to the extent practicable. These may address detailed requirements for implementing strategies such as source control (see below), logistics, supply, dispersant, shoreline, oiled wildlife, and waste management.

Source control emergency response

Industry good practice in source control emergency planning has been documented by the Oil and Gas Producers Association (IOGP) Subsea Well Response Subcommittee in several reports. Two reports provide titleholders with a planning 'toolkit' to predict and reduce the estimated response timeline for capping a subsea well blowout. The two reports, as referenced in Section 7, are:

- Report 594: Source Control Emergency Response Planning Guide for Subsea Wells, and
- Report 592: Subsea Capping Response Time Model Toolkit User Guide.

The EP should demonstrate that the titleholder has identified all opportunities to reduce the predicted timeframe to well closure and final kill, has arrangements in place for timely and reliable access to resources, and has a detailed understanding of the resource requirements for successful implementation of the source control strategy from day 1 to when the well is killed.

NOPSEMA has issued guidance on regulatory expectations relevant to source control planning and procedures content within the EP, the WOMP and in the Source Control Emergency Response Plan (SCERP). Australian Energy Producers (AEP) has also provided industry guidance in this area through their Australian Offshore Titleholders Source Control Guideline (see Section 7).

***Information Paper** IP1979 – Source control planning and procedures*

Defining response requirement – 'need'

The EP must demonstrate a clear understanding of the quality, quantity, and timeliness of equipment, personnel, and support services required to effectively implement each response strategy and measure the performance of the strategy in achieving required environmental performance outcomes.

Resource requirements for responding to worst-case oil pollution scenarios should be identified and defined based on reasonable planning assumptions and realistic response considerations. Consideration should be given to relevant modelling outputs such as predicted shortest time to contact, highest volumes ashore, and

consequences to protection priorities. Consideration should also be given to resource availability, response locations, logistics and supply, environmental and oceanographic constraints, regulatory approvals, and any other case-specific constraints.

The timeliness requirements of each strategy should be clearly set out with a description of the resource requirements over time and a break-down of immediate actions to activate, mobilise, and deploy resources to commence response within defined timeframes.

Capacity reasoning to demonstrate ALARP – 'how much is enough?'

The EP must demonstrate that the titleholder's capacity to respond meets the defined response requirements. Where a gap exists between the titleholder's existing capability and the response requirements, ALARP principles should be followed (refer Section 3.3.1) to address the gap and identify alternatives, additional control measures, and/or incremental improvements to the timeliness and effectiveness of response controls.

In defining the required capacity, titleholders should account for multiple competing demands likely to be placed on key response assets (in particular, for vessels, aircraft, transport, logistics, waste) and personnel across the range of response control measures. Consideration should be given to provision and maintenance of:

- the required numbers of competent incident management personnel, field-based response management personnel, support services personnel, expert environmental advice, skilled and unskilled personnel, for the full duration of the response accounting for fatigue management, redundancies, and rotational shifts
- local, regional, national, and international response equipment for the duration of the response including a defined number, type, and location of facilities and equipment (contracted and/or titleholder owned) to be deployed commensurate with the response needs
- response services (e.g. vessels, aircraft, etc.) for the duration of the response, including logistical requirements for the ability to effectively deploy resources at the potential incident locations in a timely manner.

The EP may acknowledge that successful implementation of one response strategy may significantly reduce the resource requirements of another strategy, however for the purposes of oil pollution emergency planning, the environmental benefit and response requirements of a response strategy should be considered independently of the other strategies. Potential success of one strategy should not be relied upon as a reason for not preparing for concurrent response activities.

The resource requirements to successfully implement a response should inform the response arrangements established and described in the OPEP.

3.3.4. Controls for response hazards

NOPSEMA expects that titleholders will identify and evaluate hazards arising from pollution response strategies and implement effective controls to minimise associated impacts and risks.

Each oil pollution response strategy may potentially introduce new or additional environmental impacts and risks that must be reduced to ALARP and acceptable levels. The EP must identify these associated impacts and risks and describe the control measures in place to avoid or mitigate further environmental harm and to ensure that response strategies continue to deliver a net environmental benefit.

The description of these response hazards should be commensurate to the nature and scale of the potential impacts, with consideration to the likelihood that they may occur during a response. More effort should be focussed on strategies that involve trade-off decisions, where scientific uncertainty exists, where there are higher levels of public concern, or where response actions have substantial geographic spread (e.g. dispersants).

There are a range of control measures that are commonly applied to each response strategy to mitigate further impacts during response operations. Simply identifying that a NEBA or SIMA will be implemented at the time of an incident is unlikely to sufficiently demonstrate that impacts and risks of the identified control measures will be reduced to ALARP and an acceptable level for the duration of a response.

3.3.5. Preparedness control measures

NOPSEMA expects that titleholders will develop and maintain adequate response arrangements and capability to implement timely response to oil pollution. NOPSEMA expects that preparatory actions will be undertaken sufficiently in advance of the activity commencing.

Once response controls and capability required for a worst-case oil pollution event are defined (refer Section 3.3.3) the titleholder should evaluate the degree to which further preparatory actions could be taken to improve the effectiveness and timeliness of those controls.

NOPSEMA expects that the EP will define the timeframes required for effective implementation of control measures, address barriers to timely implementation, and demonstrate arrangements that will meet the defined timeframes. Response timeframes should clearly relate to the relevant predicted timeframes for contact at various priority sensitivities identified during the risk evaluation stage.

Improving effectiveness and timeliness of controls – "how much is enough?"
NOPSEMA expects that preparatory actions that can be feasibly undertaken without grossly disproportionate effort or cost, will be undertaken prior to the petroleum activity occurring. Substantial effort should be put towards improving the timeliness, effectiveness and reliability of source control actions and other primary response options that contribute significant levels of risk reduction. This is further discussed in Section 4.1.

Titleholders should evaluate each response option and identify preparatory actions that may improve effectiveness or timeliness of response, including:

- pre-deployment of equipment and other support resources
- additional or improved contracts with service providers
- pre-spill tactical planning for sensitive receptors at highest risk of exposure to hydrocarbons
- regular monitoring of availability of critical resources such as relief rigs, specialist vessels, and personnel.

Preparedness measures should include putting in place the necessary regulatory approvals, or defining the process to gain regulatory approvals where specific activity information is not yet available, to execute the response within required timeframes. Where regulatory approvals cannot be obtained in advance of an incident, the titleholder should ensure the process to obtain additional regulatory approvals is clearly documented and progressed to the extent possible to avoid unnecessary delays during an incident. Consideration should be given to aspects such as:

- Customs approvals for equipment and supplies required from international suppliers
- Visa and work permit requirements for international response personnel

- Safety case requirements for relief rigs and vessels deploying well intervention equipment
- Relief well and source control planning and necessary regulatory approvals
- Flight and pilot approvals for dispersant aircrafts
- Dispersant approval processes in State waters, where relevant
- Decanting of waste collection tanks during containment and recovery operations
- Waste disposal permits and licensing.

The EP submission process provides the mechanism for titleholders to gain 'acceptance' for oil spill dispersant products and deployment strategies (surface and/or subsea dispersants) prior to an incident. Any dispersant use during an oil pollution incident from an offshore petroleum activity must be carried out in accordance with an accepted EP and no additional 'approvals' are required to implement these response arrangements in Commonwealth waters. Dispersant use in State/Territory waters is subject to the relevant State/Territory agency requirements. Additionally, where dispersant use in Commonwealth waters has potential to carry dispersed oil into State/Territory waters, an evaluation of the sub-surface impacts to State/Territory receptors should be undertaken in consultation with the relevant State/Territory jurisdictional authority to inform the dispersant response strategy NEBA/SIMA evaluation.

Where dispersant application has been defined as a primary response strategy, titleholders should undertake dispersant efficacy testing on the oil type expected to be encountered and establish requirements for field testing of dispersant efficacy in the event of an oil pollution event.

Once the control measures are identified and capability is in place, the titleholder must provide for the maintenance of that capability for the duration of the petroleum activity, such that the titleholder remains prepared and capable to activate those control measures in the specified timeframes. Further guidance on training, exercise and testing required to maintain preparedness is provided in Sections 5.4 and 5.5.

Preparatory actions should be completed sufficiently in advance of the activity to enable titleholder's self-assurance activities and enable regulatory compliance activities. For example, testing of availability of critical resources such as relief rigs and specialist vessels should be undertaken sufficiently in advance of the activity to enable any risk gap to be addressed prior to the activity commencing.

Section 3.3.2 Self-check **Mitigating Oil Pollution Risks: Control measures**

☐ The hierarchy of controls has been appropriately applied for each oil pollution hazard, including the elimination or mitigation of oil pollution events through design.

☐ Independent response control measures are identified and evaluated to reduce the total volume of oil released, mitigate the spread of oil in the environment, and achieve a net environmental benefit.

☐ Control measures are detailed with clear commitments made regarding their selection, implementation and performance.

☐ Complex response control measures such as source control have well developed support plans and tactical response plans which set out the quality, quantity, timeliness of response resources and response actions.

☐ Control measures to prevent environmental impacts resulting from the response strategies are set out for implementation through OPEP.

3.3.6. Environmental performance outcomes and standards

Regulation 21(7) – *The environment plan must:*

(a) set environmental performance standards for the control measures identified under paragraph (5)(c); and

(b) set out the environmental performance outcomes against which the performance of the titleholder in protecting the environment is to be measured; and

(c) include measurement criteria that the titleholder will use to determine whether each environmental performance outcome and environmental performance standard is being met.

NOPSEMA expects the environmental performance standards to reflect the level of performance required of the identified prevention, preparedness, and response control measures to achieve the defined environmental performance outcomes.

An EP must have environmental performance outcomes (EPOs) and environmental performance standards (EPSs) for control measures required for effective prevention, response, and preparedness for oil pollution incidents, including for associated hazards arising from response activities. GN1344 provides additional information on regulatory definitions and NOPSEMA's expectations more generally for EPOs and EPSs.

Environmental performance outcomes

For preventative controls designed to avoid incidents, titleholders should have an EPO that sets a clear objective that no oil pollution incidents will occur for the duration of the activity.

EPOs for response strategies should state what that strategy is trying to achieve and what would constitute an acceptable outcome of an effective response. The EPOs set the expectations and guide decision making regarding the selection and adequacy of control measures in achieving ALARP and acceptable levels of impacts and risks (refer Section 3.3.1).

Environmental performance standards

Performance levels for prevention, response, and preparedness control measures should have been defined during the response capability assessment and demonstration of ALARP (refer Section 3.3.1) and will form the basis for setting EPSs. Each control measure must have at least one EPS that defines the measurable level of performance of the control in contributing to achieving the associated EPO(s).

EPSs should set clear commitments suitable for performance and compliance monitoring. Consideration should be given to the physical, administrative, procedural, and technical features of control measures such as contractual and other arrangements for response resources and personnel, maintenance of equipment and personnel, and management systems and facilities (IMS, ICC).

Response EPSs should be sufficiently defined in the OPEP to enable incident responders to understand performance requirements and implement the response to achieve EPOs.

EPSs for Control Agency response activities

Offshore petroleum activities may include pollution risks with scenarios where a government agency will assume the Control Agency function for some or all of a pollution incident (e.g. vessel spills, spills that enter State waters, spills that cross international boundaries). This does not negate the need for titleholders to have response control measures in place and to define appropriate EPSs for those control measures. EPSs in these circumstances should, for the respective EP, reflect:

- the required level of response preparedness
- the arrangements and capability to implement an immediate response and continue that response until the relevant control agency assumes incident control
- the arrangements for transition of incident control to the government Control Agency and capability to support the Control Agency for the duration of the response
- the arrangements for response resources required to support the Control Agency for the duration of the response.

Measurement criteria

Measurement criteria are required for determining whether each EPO and EPS is being met and provide a basis for performance monitoring (Section 4.4.3), assurance activities (Section 5.5), and exercise and testing programs (Section 5.4). For example, measurement criteria may refer to a process of certification and verification to validate the preparedness and performance of the control measure where relevant (e.g. capping stack certification).

Titleholders should consider how they will monitor compliance with EPSs for oil pollution controls during various phases of prevention, preparedness, and response to inform the development of appropriate measurement criteria.

Section 3.3.3 Self-check **Environmental performance standards and outcomes**

☐ Environmental Performance Outcomes relate to acceptable levels of impact and risk.

☐ Measurable EPSs are included for all oil pollution prevention, response preparedness and implementation control measures, as well as for controls to mitigate additional hazards of implementing the response controls.

☐ EPSs present the required performance levels for the control measures defined during the risk evaluation, including for timely response to oil pollution.

☐ EPSs are clearly linked to the relevant control measures and have appropriate measurement criteria identified for monitoring performance.

4. Oil Pollution Emergency Plan

Regulation *22(8)* - *The implementation strategy must contain an oil pollution emergency plan and provide for the updating of the plan.*

Regulation 22(9) – *The oil pollution emergency plan must include adequate arrangements for responding to and monitoring oil pollution, including the following:*

(a) the control measures necessary for timely response to an emergency that results or may result in oil pollution;

(b) the arrangements and capability that will be in place, for the duration of the activity, to ensure timely implementation of the control measures, including arrangements for ongoing maintenance of response capability;

(c) the arrangements and capability that will be in place for monitoring the effectiveness of the control measures and ensuring that the environmental performance standards for the control measures are met;

(d) the arrangements and capability in place for monitoring oil pollution to inform response activities.

4.1. Arrangements and capability for timely response

NOPSEMA expects the OPEP will set out how and when the response control measures will be implemented, including how the titleholder will deploy sufficient capability in the required timeframes. The level of detail to be provided in the OPEP regarding the control measures, deployment methods, and deployment timeframes should be commensurate with the complexity of each control measure and the expected level of risk reduction it achieves.

NOPSEMA determines the adequacy of the arrangements based on the titleholder's demonstrated ability to access the required resources (equipment, personnel, support services) for timely implementation of the OPEP, as relevant to the nature and scale of the worst-case scenarios that may arise from the petroleum activity.

The OPEP should provide response personnel with operational instructions on how and when to implement the selected response control measures. The OPEP must relate to the oil pollution risks of the petroleum activity described in the EP and present response arrangements that are adaptable, scalable, and sustainable for the duration of the activity.

Guidance on the structure and content of OPEPs is provided in references produced by a range of government and industry bodies (see Section 7). NOPSEMA expects the OPEP to have a practical design and structure, and that it will be effectively implemented in an incident response. The OPEP design should consider the range of emergency response personnel (including those from external organisations) who may be involved in a response and will be required to follow and implement the plan.

The following sub-sections provide further information on some key elements typically addressed within an OPEP. While these elements are not specifically prescribed by the Environment Regulations, they are commonly presented as control measures, consistent with industry guidelines on OPEP design and content.

Response decision-making

The OPEP should define decision-making processes to support deployment, assessment, and ongoing review of the implementation of oil pollution response control measures.

Roles, responsibilities, and accountabilities for decision-making should be clear, including in relation to establishment and implementation of an IMT, first strike actions, relevant financial and activation authorities, and notifications and coordination with response agencies or other government entities.

NOPSEMA expects that titleholders will have feedback mechanisms to incorporate the outcomes of operational monitoring and performance monitoring into ongoing decision-making during response. Where titleholders adopt a NEBA or SIMA approach as a control measure to guide response decision-making, the OPEP should detail the required analysis methodology, roles and responsibilities for decision making, and information requirements.

The OPEP should define criteria for setting response priorities to guide the strategic direction of a response. These criteria should align with pre-identified environmental sensitivities and protection priorities defined by the risk assessment (Section 3.2.4). Response decision-making processes should describe how they consider relevant management plans, species recovery plans, or management principles that apply to matters protected under Part 3 of the EPBC Act. If cross-jurisdictional impacts may occur, the decision-making process should describe the process of consultation with the relevant jurisdictional authorities.

Initial actions and first strike plans

The OPEP should set out the first strike actions that occur during the early stages of an incident to ensure timely and effective response. This includes establishing incident management teams, completing relevant notifications, initiating immediate response actions, obtaining situational awareness, activations and mobilisations of equipment and personnel, review of planned strategies and establishing incident action planning for ongoing implementation of spill response control measures.

NOPSEMA recognises that every incident will involve a unique set of circumstances and it is not expected that an OPEP will detail each step through every possible response action for the duration of the response. It should, however, outline in advance foreseeable scaling up actions and the implementation of controls that are not naturally part of the initial first strike.

Response arrangements must address regulatory requirements for notification and reporting of reportable incidents to NOPSEMA in accordance with Environment Regulations 47, 48 and 49.

Guidance Note *N-03300-GN2303 - Notification Reporting and Recording Requirements for Incidents (A1179039)*

In the event of a significant oil spill response, NOPSEMA will deploy Inspectors to relevant locations of the response, including to the Incident Control Centre, to collect information on the incident and monitor compliance with the response commitments defined in the EP and OPEP.

Policy *PL1922 - Regulatory compliance monitoring, enforcement and intervention for offshore oil pollution incidents*

NOPSEMA expects the OPEP to describe the titleholder resources required to provide incident and response information to the NOPSEMA Inspectors, to enable a structured and defined method for timely incident and ongoing response reporting.

Incident action plans

The OPEP should define the framework, processes, and required inputs for implementation of an Incident Action Plan (IAP) as well as timeframes for its development and ongoing maintenance.

An IAP should incorporate the latest situational awareness, define the response objectives, response operations, and resources for an appropriate operational period. The description of the IAP process should include the process for providing continual updates of the response operation/resources through the capture of oil pollution monitoring data from the 'Monitor and Evaluate' response strategy and monitoring of the effectiveness of response control measure implementation.

The OPEP should clearly identify the roles and responsibilities for developing, communicating, implementing, and maintaining an IAP.

Response termination and recovery phase

The OPEP should describe the responsibilities, relevant stakeholders (including jurisdictional authorities), and the process for terminating a response including termination or 'end-point' criteria. When defining termination criteria, consideration should be given to:

- the expectations and responsibilities of agencies with jurisdiction over the affected resources (e.g. State authorities)
- the applicability of the criteria to all adopted response control measures e.g. active operational response termination verses ongoing impact and recovery monitoring termination
- the adaptability of the criteria to the range of possible oil types/scenarios and environmental sensitivities identified in the risk evaluation
- the alignment of the criteria with the oil pollution response EPOs
- diminishing returns (e.g. no further improvement to net environmental outcomes is expected by continuing the response)
- on-going consultation with relevant persons (e.g. community, external response organisations and contractors, government, and non-government agencies)
- linkages to the outputs of operational monitoring and monitoring of impacts to the environment.

Section 4.1 Self-check **Arrangements and capability for timely response**

☐ The EP includes an OPEP

The OPEP:

☐ provides for implementation of the necessary response capability within the timeframes required.

☐ is an operationally focussed document informing response personnel of how and when to activate the arrangements to implement the control measures in response to an oil pollution event.

☐ is the output of the response planning process; is commensurate with the identified risks for the petroleum activity; and is fit for purpose, adaptable, scalable, and sustainable.

☐ identifies and defines all initial (first strike) actions in detail and provides for the ongoing response needs for the duration of the response, through to termination and recovery.

☐ identifies roles and responsibilities, and interfaces with other response agencies and other government entities arrangements.

☐ identifies accountabilities and timeframes for establishment of Incident Management capability, notifications, activations, and mobilisations.

☐ provides response personnel with clear and measurable performance standards to meet to deliver timely and effective response.

4.2. Maintenance of arrangements and capability

NOPSEMA expects that titleholders will maintain oil pollution response readiness at all times during the activity. Titleholders will ensure that sufficient equipment, personnel, and support services are operationally ready to be deployed in required timeframes should an incident occur.

The OPEP must demonstrate how the titleholder implements preparedness arrangements and control measures (Section 3.3.5) and maintains response control measures (Sections 3.3.3) to ensure it can respond quickly and effectively in the event of an oil pollution event. This is particularly important for control measures that may be subject to changing degrees of readiness over time (e.g., access to relief rigs or support vessels with required specifications, access to sufficient support and logistical resources, personnel availability) or those key to the response (e.g. contracts for source control and other at-source response options such as dispersant application and containment and recovery).

Demonstration of maintenance and readiness includes aspects such as maintenance of contracts, maintenance of equipment, maintenance of personnel training and competence (Section 5.3), exercise and testing (Section 5.4), and other assurance mechanisms (Section 5.5).

Titleholder staff with responsibility and accountability for maintaining response readiness should familiarise themselves with the details of the contracts and arrangements. Robust mechanisms should be in place to ensure that they are aware of any changes to the quality, quantity, or timeliness of services to be supplied by OSROs or available through industry cooperative arrangements. For example, contractor management systems should function to ensure that contracts remain valid and that contractors continue to provide the required capability.

Section 4.2 Self-check **Maintenance of arrangements and capability**

☐ The EP/ OPEP describe for all preparedness and response controls:

- all contracts and arrangements that are in place
- roles, responsibilities, and accountabilities for maintaining readiness
- processes for verifying and maintaining implementation readiness and effectiveness
- how assurance of readiness for OPEP implementation is to be provided.

4.3. Interface with the national system

Regulation 22(11) *- The implementation strategy must include information demonstrating that the response arrangements in the OPEP are consistent with the national system for oil pollution preparedness and response.*

NOPSEMA expects that response arrangements will accurately reflect applicable control and coordination arrangements under the National Plan. This includes adherence to relevant protocols established by the Commonwealth or State and Territory signatories to the National Plan under existing intergovernmental agreements.

The national system for oil pollution preparedness and response is a combination of the legislative and administrative arrangements for meeting Australia's obligations as a signatory to the OPRC 90 (International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990).

Australia meets this obligation through the administration of the National Plan for Maritime Environmental Emergencies (the National Plan) and associated State and Territory government response plans. The National Plan applies to Commonwealth and State waters and establishes a framework for marine oil pollution response that encompasses State and Northern Territory response arrangements. EPs must accurately identify jurisdictional and control agencies in accordance with the Australian Government Coordination Arrangements for Maritime Environmental Emergencies (see Section 7).

EPs must successfully interface with the contingency plans and arrangements of the relevant national and state/territory oil pollution response agencies, as well as relevant other industry plans.

Relevant information about response arrangements that must be included in an EP and must be consistent with the national system include:

- details of roles and responsibilities of control agencies and support agencies

- detail of the interface or implementation of an incident control system / incident management system
- incident classification, response escalation processes and response priorities
- interface with regional response plans and protocols, including State oiled wildlife response plans
- adoption of consistent pollution response procedures wherever possible (e.g. reporting and assessment forms)
- use of response terminology consistent with the National Plan.

A pollution incident classification system should support a graduated scale of response consistent with incident classification tiers in the National Plan. It should be based on factors relevant to the activity-specific scenarios, such as oil pollution sources and volumes, resources at risk and numbers of response resources required to combat the oil pollution and titleholder's response capabilities.

Arrangements for incident notification, activation, and reporting should be clearly set out within the OPEP and be consistent with any guidance materials from the state/territory control agencies including, but not limited to, the Australian Maritime Safety Authority, the Director of National Parks, relevant Hazard Management Authorities and Environmental Protection Agencies.

Where response arrangements rely on external support from national and state resources, titleholders must engage with those response agencies to ensure that response actions proposed within the EP will be acceptable to those agencies and to ensure that arrangements will interface adequately.

In setting out the interface between the titleholder's OPEP and the national system, titleholders should ensure that they have consulted with relevant control agencies and other agencies or relevant persons with responsibilities for environmental protection in an oil pollution incident. Possible matters for consultation may include, but are not limited to:

- notification and mobilisation procedures and/or arrangements including but not limited to communication types, channels, and timeframes
- interface and/or integration with arrangements, plans and procedures
- roles and responsibilities of supporting organisations including key deliverables
- availability of resources and response times, including shared resource implications
- resources and documentation arrangements for exercises, audits, and maintenance
- liability and cost recovery arrangements for resources deployed during an incident.

Records of consultation with external OSROs are not required where a titleholder has entered into a contract or documented agreement with that organisation for the provision of response services. In this case the titleholder's systems for maintaining capability will need to be described in the implementation strategy but does not need to feature in the consultation report.

Government Control Agency led response

State/territory government agencies may assume the control agency role for the part of a spill from an offshore petroleum activity that enters state/territory waters. An OPEP must clearly identify the potential control agency jurisdictions for its oil pollution risks and any arrangements for joint, unified, or transition of control.

Organisational structures for incident management need to provide for appropriate interface with other control agencies or natural resource management agencies. This may include the establishment of liaison officers or other functional positions required to support the interface, as well as defining effective information flows.

The National Plan has established coordination arrangements in the event of an incident affecting the jurisdiction of foreign governments - NP-GUI-007 "Coordination of International Incidents: Notification Arrangements Guidance".

Titleholders should consider any guidance published by relevant government agencies on their expectations during a pollution response. Any uncertainties in expectations or arrangements, including the interface between government and industry response plans, should be resolved through consultation while preparing the plan. See Section 7 for references to guidance published by other control agencies.

***Guideline GL1887** – Consultation with Commonwealth agencies with responsibilities in the marine area*

Where an OPEP references other response plans under the National Plan framework and details the interface (bridging) with such publicly available plans, those plans do not need to be provided as part of EP and OPEP submission.

Section 4.3 Self-check **Interface with the national system**

- ☐ Accurate identification of jurisdictional and control agencies in accordance with the Australian Government Coordination Arrangements for Maritime Environmental Emergencies.
- ☐ Arrangements are compatible with the national system and interfaces between the titleholder response structures and government and industry response plans are made clear.
- ☐ Identification of notification, reporting, and activation requirements for Commonwealth, State, and Territory entities involved in oil pollution response. Including, but not limited to, the Australian Maritime Safety Authority, the Director of National Parks, relevant hazard management agencies and environmental protection agencies.
- ☐ Adherence to the requirements of State and Territory control authorities for oil pollution events in state waters, as established through published guidance and through the course of consultation.
- ☐ Consistency with published regional response plans and protocols, including State oiled wildlife response plans.
- ☐ Appropriate consultation to ensure alignment with the national system.

4.4. Monitoring arrangements

OPGGS Act Section 572C(2)(c)(ii) *– the registered holder of the title must … carry out environmental monitoring of the impact of the escape on the environment.*

Regulation22(6) *- The implementation strategy must provide for sufficient monitoring of, and maintaining a quantitative record of, emissions and discharges (whether occurring during normal operations or otherwise), such that the record can be used to assess whether the environmental performance outcomes and standards in the environment plan are being met.*

Regulation 22(9) - *The oil pollution emergency plan must include adequate arrangements for responding to and monitoring oil pollution, including the following:*

- *(a) the control measures necessary for timely response to an emergency that results or may result in oil pollution;*
- *(b) the arrangements and capability that will be in place, for the duration of the activity, to ensure timely implementation of the control measures, including arrangements for ongoing maintenance of response capability;*
- *(c) the arrangements and capability that will be in place for monitoring the effectiveness of the control measures and ensuring that the environmental performance standards for the control measures are met;*
- *(d) the arrangements and capability in place for monitoring oil pollution to inform response activities.*

Regulation 22(10) - *The implementation strategy must provide for monitoring of impacts to the environment from oil pollution and response activities that:*

- *(a) is appropriate to the nature and scale of the risk of environmental impacts for the activity; and*
- *(b) is sufficient to inform any remediation activities.*

Monitoring during an oil pollution incident is typically separated into 'Response Phase Monitoring' and 'Recovery Phase Monitoring', otherwise commonly referred to as operational and scientific monitoring respectively. The different phases of monitoring during a pollution incident have different aims, techniques, timeframes, resources, and reporting requirements. Additionally, the Environment Regulations set requirements for 'Performance monitoring' of control measures in meeting defined environmental performance standards.

4.4.1. Operational (Response phase) monitoring

NOPSEMA expects the OPEP to set out how and when operational monitoring of oil pollution will be implemented, including how sufficient capability will be deployed in the required timeframes. The monitoring arrangements should detail how outcomes of the monitoring will inform response decision-making and provide timely information on the effectiveness of response control measures.

The OPEP must detail the arrangements and capability for operational monitoring and provide for timely mobilisation of competent personnel and equipment to undertake effective monitoring of oil pollution for situational awareness during an oil pollution incident.

Operational monitoring must meet the information needs of the IMT to support response decision-making including understanding the distribution and predicted trajectory of hydrocarbons in the environment, and the presence and location of potential receptors at risk. Operational monitoring must also provide feedback on the effectiveness of response control measures, such as dispersant efficacy and success of shoreline clean-up. Information obtained through operational monitoring must be relevant and timely to inform and support decisions on whether to continue, stop, modify, escalate, or de-escalate implementation of each response control measure.

Where trajectory modelling is to be used to guide the location and intensity of operational monitoring during an incident, the process for applying modelling to support the monitoring should be described. The titleholder should acknowledge the limitations of simulation modelling and demonstrate a capability for timely and useful mix of stochastic and deterministic modelling as well as the timely deployment of resources to ground-truth modelling predictions (e.g. aerial and vessel surveillance). This is particularly relevant for sensitive receptors or marine parks where the objectives are to prevent hydrocarbon exposure.

NOPSEMA guidance note GN1785 provides guidance regarding consultation with, and authorisations from, the Director of National Parks in relation to actions required to respond to unplanned oil pollution incidents, including environmental monitoring and remediation, to be conducted in Australian Marine Parks.

4.4.2. Environmental impact (recovery phase) monitoring

NOPSEMA expects titleholders to have arrangements in place to carry out environmental impact monitoring that will describe measurable changes to the environment resulting from the pollution event or response activities.

The EP must describe the arrangements and capability that will be in place for measuring impacts to environment, both from the oil pollution and from response activities, sufficient to describe damage to the environment, inform any remediation activities, and evaluate the recovery of receptors.

The EP should describe the arrangements in place for gathering and defining pre-impact baseline conditions to be able to quantify the damage to the environment from the spill incident.

Environmental impact monitoring arrangements are typically presented in a combined operational and scientific monitoring plan (OSMP) attached to the OPEP.

The scope of environmental impact monitoring should include ecological and physical receptors as well as socio-economic, cultural and heritage features. Monitoring programs should identify how measurement of impacts will be consistent with any requirement for management plans and recovery plans for matters protected under Part 3 of the EPBC Act.

The environmental impact monitoring arrangements should be commensurate to the nature and scale of the spill scenarios presented in the EP, sufficiently flexible to account for uncertainty associated with pre-spill consequence predictions, and conservative to account for where the potential extent of hydrocarbon distribution in the environment may extend beyond the predicted EMBA.

The OSMP should define key features of the monitoring program rather than the specific methods for gathering data. Key features include the reporting timetable and measures to be implemented to ensure overall science quality such as experimental design, statistical rigour, and peer review. Experimental designs should be robust and defensible and include a description of the baseline data to be used and/or collected to achieve the monitoring program's stated objectives and the process by which relevant receptors and sites will be selected for monitoring.

Individual monitoring programs should have aims or objectives that clearly state what is to be achieved. Data proposed to be collected will need to be sufficient to demonstrate that objectives and measurement criteria have been achieved, and to support decisions regarding termination criteria, or the need for, and scope of, remediation activities.

The OSMP should define initiation and termination criteria for the monitoring as clear decision points, and these will likely differ from those of the oil pollution response strategies.

Monitoring programs must be implementable within timeframes that are specific to the circumstances of the oil pollution scenarios. Monitoring may be planned in a phased approach with greater preparedness to facilitate targeted monitoring for time-critical aspects of impacts to the environment. The readiness to implement the identified monitoring programs should be demonstrated, including project execution plans, required logistics, timeframes for mobilisation and commencement of monitoring activities, and the awareness and availability of monitoring personnel with suitable qualifications, training, and experience.

Where the monitoring is dependent on arrangements or agreements with third-party service providers, the submission should provide an appropriate level of detail on the strength of these arrangements and what they provide to demonstrate suitability for the activity-specific circumstances.

The environmental monitoring arrangements should be in place prior to the commencement of the activity. However, it may be appropriate to include forward commitments for aspects that improve readiness, such as ongoing collection of baseline data and testing/exercising of time critical arrangements such as reactive baselines.

Consultation with relevant interested persons or organisations should be a key feature of monitoring programs, particularly in defining and evaluating decision criteria that address any relevant requirements for protected matters under the EPBC Act that may be affected, but also in relation to parameters to be measured, locations to be monitored, and suitable initiation and termination points.

AEP has published a Joint Industry Operational and Scientific Monitoring Plan Framework for oil pollution monitoring arrangements that titleholders can use for monitoring planning purposes. The framework includes an Operational and Scientific Monitoring Bridging Implementation Plan template to allow titleholders to tailor the arrangements to their specific circumstances. NOPSEMA has prepared a Regulatory Advice Statement - Joint Industry Operational and Scientific Monitoring Framework to assist titleholders in applying the framework and template to produce fit-for-purpose oil pollution monitoring arrangements in an environment plan and to meet the requirements of the Environment Regulations.

4.4.3. Performance monitoring

NOPSEMA expects titleholders to have arrangements to ensure that environmental performance standards are met and that response operations continue to comply with the accepted environment plan.

Titleholders are required to monitor compliance with EPSs (see Section 3.3.6) for oil pollution controls during various phases of prevention, preparedness, and response.

EPSs relevant to the response phase should be documented in the OPEP to inform response personnel of the level of performance required and the appropriate measurement criteria against which to report, enabling the Incident Management Team to ensure control measures are meeting or exceeding the required levels of performance detailed in the respective EPSs.

Performance monitoring of oil pollution control measures, and actions taken by the Incident Management Team, should be recorded in a readily accessible form such as an Incident Log and/or associated Incident Action Plan.

Section 4.4 Self-check **Monitoring arrangements**

☐ The OPEP provides for timely activation and implementation of operational monitoring to meet the requirements of worst-case spill scenario response timeframes and priorities.

☐ The outputs of the operational monitoring meet the IMT's response decision-making information needs and timeframes to support the effective implementation of response control measures.

☐ The EP/OPEP details capability and arrangements for monitoring of impacts to environment, both from the pollution and from response activities, sufficient to describe damage to the environment, inform any remediation activities and evaluate the recovery of receptors.

☐ Environmental impact monitoring programs have robust and defensible experimental designs, have identified baseline information availability or processes to obtain baseline condition data, and are sufficiently flexible to cover all potential environmental receptors that may be impacted in the event of a spill.

☐ Monitoring programs are implementable within timeframes that are specific to the circumstances of the oil pollution scenarios and provide clear initiation and termination decision points to monitor all impacts and meet legislative and relevant stakeholder requirements.

☐ The EP includes clear competency criteria for personnel who will be making decisions in relation to implementing and reviewing the monitoring, and that these personnel are aware of their responsibilities.

☐ The EP includes arrangements for ensuring review of the monitoring programs and implementation arrangements on a regular basis to ensure that changes in external factors are known and factored in prior to a monitoring program to be implemented.

☐ The EP/OPEP provides for suitable monitoring of performance against implementation of environmental performance standards defined for response.

5. Incident management capability

5.1. Management systems

Regulation 22(1) *– The environment plan must contain an implementation strategy for the activity*

Regulation 22(2) *– The implementation strategy must contain a description of the environmental management system for the activity, including specific measures to be used to ensure that, for the duration of the activity:*

a) the environmental impacts and risks of the activity continue to be identified and reduced to a level that is as low as reasonably practicable; and
b) control measures detailed in the environment plan are effective in reducing the environmental impacts and risks of the activity to as low as reasonably practicable and an acceptable level; and
c) environmental performance outcomes and standards set out in the EP are being met.

NOPSEMA expects the EP to describe the specific elements of the titleholder's environmental management systems that will be used to maintain preparedness and implement an effective response to an oil pollution incident.

Titleholders must have an incident management system capable of implementing control measures for the duration of response to the worst-case pollution incident described in the accepted EP. Titleholders should use a well-understood incident response system (e.g., ICS/AIIMS) that integrates with national, state/territory, and mutual aid response plans to facilitate effective oil pollution response. The emergency management organisational structure should clearly define roles, responsibilities, reporting lines, information flows, and other linkages between the different levels of crisis, incident, and emergency response teams.

In addition to the crisis, incident, and emergency management systems, other management system elements that deliver preparedness should be described in the EP, with consideration to management of response contracts and maintenance of response equipment.

The management system elements that deliver the response capability should be considered as control measures and therefore require performance standards that define the quality, quantity, and assurance mechanisms of these management system elements.

5.2. Incident Management Team structure and capability

Regulation 22(3) *– The implementation strategy must establish a clear chain of command, setting out the roles and responsibilities of personnel in relation to the implementation, management and review of the environment plan including emergencies and potential emergencies.*

NOPSEMA expects the titleholder to demonstrate access to Incident Management Team capability sufficient to manage the response operations described in the OPEP. Roles, responsibilities, and reporting lines must be clearly defined for all personnel with responsibilities under the OPEP.

The OPEP must set out the response structures and the roles and responsibilities of the Incident Management Team (IMT) functional positions. The composition of the IMT capability must be sufficient for managing a timely and effective response operation for the duration of an incident response. NOPSEMA expects that the titleholder will systematically evaluate and quantify IMT personnel requirements over the duration of the worst-case incident described in the EP. The methodology used should account for the scale, extent, and duration of response actions to be undertaken and timeframes for delivery of specific controls.

Once functional requirements are understood, the titleholder must demonstrate arrangements for obtaining the required numbers of competent personnel within the necessary timeframes to ensure the actions set out in the OPEP can be delivered in a timely and effective manner. Arrangements for IMT personnel should provide for redundancy, rostering, shift coverage, and rotation for maintaining the IMT capability for the duration of the response. The titleholder must define the positions to be filled by the titleholder and those to be filled by external parties and describe the arrangements for supply of both.

Decision-making responsibilities and authorities should be clearly defined, including the interface between various emergency and crisis response plans (e.g. SCERP, Shipboard oil pollution emergency plan (SOPEP), Drilling Rig Emergency Response Plan, Crisis Management Plan, etc.), and the authorities for contract activation and expenditure.

Where an incident response may cross into another jurisdiction, the OPEP must define the interface with the national plan and relevant state/territory maritime environment emergency plans. It must set out roles, responsibilities and communication pathways for preparedness and response. Consideration must be given to the specific requirements of state and territory hazard management agencies (refer Section 4.3).

5.3. Training and competency

Regulation 22(4) – *The implementation strategy must include measures to ensure that each employee or contractor working on, or in connection with, the activity is aware of his or her responsibilities in relation to the environment plan, including during emergencies or potential emergencies, and has the appropriate competencies and training.*

NOPSEMA expects that personnel with responsibilities under the OPEP are trained and competent to perform their allocated roles for the duration of the activity. NOPSEMA expects that titleholder's training standards are appropriately aligned with relevant industry good practice, national and state emergency management training programs.

NOPSEMA expects that titleholders will have role-specific, objectives-based training programs for oil pollution response personnel to ensure each person is competent to implement the control measures assigned to their functional positions.

NOPSEMA recognises that there are different levels of training and competency required for different IMT functional positions. In the Australian offshore petroleum sector, it is common practice to train emergency response personnel to the nationally accredited training units for all-hazards response to provide understanding of basic emergency response team functions, competency levels, operational structure, and the roles and responsibilities of the response personnel. This type of training should be supplemented with oil spill response training specific to the roles and responsibilities of each functional position.

NOPSEMA recognises that there are options for delivering objectives-based oil spill functional position training. The titleholder must demonstrate that the selected training method delivers the capability required

of each functional position. To enable such demonstration, the titleholder should define the performance requirements of each functional position and match the performance requirements to the objectives of the specific training. This can be done through internationally recognised training and/or through bespoke training.

As an example, the International Maritime Organisation syllabus (IMO training levels I, II & III) is internationally accredited and well-established for oil spill response competency. The National Plan and industry mutual aid plan recognise IMO levels I-III format for incident management and specialist training in planning, operations, logistics and incident control. NOPSEMA expects titleholders will ensure that personnel assigned to incident control (IMT Lead) and section/team lead have undertaken training that provides awareness and competency for the interface with national and state combat agencies and/or where mutual aid arrangements are proposed; the selected training programs should provide Australian-specific oil spill response competency requirements along with the international standards of oil spill response capability.

It is noted that some functional positions, such as finance, media, liaison, and other support roles may not require specific oil pollution response training due to the similarity of their response functions across crisis management and other hazards.

Due to the complex nature of oil spill response, lack of real-life oil spill events, and limited exposure to large-scale deployment exercises, training for IMT personnel must be set at sufficient frequency to ensure the personnel maintain operationally ready competence throughout the duration of the activity. The titleholder must demonstrate implementation of the training cycle, which may include:

- specified levels and frequencies of mandatory formal training
- mechanisms to ensure personnel are aware of their responsibilities and the performance standards that they must meet in preparedness and response
- participation in functional position workshops and refresher training
- frequency of participation in exercises where the person is performing in their functional position for sufficient time to demonstrate competency to meet the objectives of the position
- any other method where the competency against the objectives-based competency requirements can be assessed.

The AEP Guidance Document: Incident Management Teams Knowledge Requirements for Responding to Marine Oil Spills provides contemporary guidance on titleholder methods for developing, sizing, and training personnel for IMT roles within the Australian offshore petroleum context (see Section 7).

The IOGP Report 664: Review of Subsea Well Response Capability provides contemporary guidance on training and competency requirements of a Source Control Incident Management Team (see Section 7).

5.4. Testing and exercise

Regulation 22(12) *The implementation strategy must include arrangements for testing the response arrangements in the oil pollution emergency plan that are appropriate to the response arrangements and to the nature and scale of the risk of oil pollution for the activity.*

Regulation 22(13) *The arrangements for testing the response arrangements must include:*

(a) a statement of the objectives of testing; and
(b) a proposed schedule of tests; and
(c) mechanisms to examine the effectiveness of response arrangements against the objectives of testing; and
(d) mechanisms to address recommendations arising from tests.

Regulation 22(14) *The proposed schedule of tests must provide for the following:*

(a) testing the response arrangements when they are introduced;
(b) testing the response arrangements when they are significantly amended;
(c) testing the response arrangements not later than 12 months after the most recent test;
(d) if a new location for the activity is added to the environment plan after the response arrangements have been tested, and before the next test is conducted—testing the response arrangements in relation to the new location as soon as practicable after it is added to the plan;
(e) if a facility becomes operational after the response arrangements have been tested and before the next test is conducted—testing the response arrangements in relation to the facility when it becomes operational.

NOPSEMA expects the titleholder will test response arrangements and capabilities to ensure they are effective and exercise the arrangements to maintain response readiness. The EP must set out suitable arrangements for testing including appropriate objectives, schedules, means of evaluation and management of lessons identified.

The Environment Regulations set out requirements for titleholders to test the effectiveness of the response arrangements detailed in the OPEP. NOPSEMA takes this to include the full range of response control measures, arrangements and capabilities provided for in the EP/OPEP.

The EP should describe an appropriate range and schedule of tests and exercises to maintain response readiness and verify that response arrangements and capabilities will perform as expected to be effective in minimising the consequences of an oil pollution incident.

In meeting the regulatory requirements, titleholders should apply international good practice for scheduling, designing, and evaluating exercises. There are several government and industry resources available for titleholders on emergency response exercises, including the Australian Disaster Resilience Handbook 3: Managing Exercises, IPIECA & OGP's 2014 Oil Spill Exercises - Good Practice Guidelines for the development of an effective exercise programme, and IOGP Report 628 – Recommendations for Enhancements to Well Control Drills in the Oil and Gas Industry (see Section 7).

The testing program should encompass all levels of response relevant to the oil pollution risks of the activity and scenarios selected must be realistic and reflect the oil pollution scenarios described in the EP. The testing program should provide for a combination of methods ranging from desktop exercises, workshops, and notification/communications tests, through to functional exercises, full deployment, and unannounced drills. Consideration should also be given to the interface of testing with other assurance activities as discussed in Section 5.5.

The EP must state the objectives of testing. Test objectives should be relevant to the response controls and performance standards for the activity. Greater effort should be placed on testing more critical or complex control measures, where specialised response equipment and systems are used infrequently by titleholders, or where preparedness and/or response arrangements rely heavily on external oil spill response organisations (OSROs). Titleholders should prioritise response arrangements in the testing program with consideration to:

- the importance of the arrangements and control measures in minimising impacts of oil pollution to ALARP
- the variability or reliability of the arrangements and control measures over time, and
- dependence on external service providers.

Where the objective includes testing of interface arrangements with OSROs or other control agencies, titleholders should collaborate with relevant entities to fully test the interface from both perspectives.

Where oil spill exercises have a dual purpose to test response arrangements and train spill responders (see Section 5.3), the exercise design should clearly identify the OPEP response commitments being tested, define clear objectives, and set appropriate performance indicators that differentiate between testing and training components. Tests should seek to challenge the status quo and identify opportunities for improvement.

The EP must clearly show that the schedule of testing will meet the prescriptive requirements of regulation 22(14). Where titleholders choose to combine multiple activities in a corporate-level testing schedule (e.g. exercise matrix), the titleholder should clearly demonstrate the tests that are relevant to the activity and are undertaken within appropriate timeframes to meet the requirements of regulation 22(14). The schedule of tests should allow sufficient lead-time to implement any potential learnings from the test, particularly in relation to critical control measures.

Titleholders should ensure they have a clear process outlining how response arrangements will be evaluated during the testing, how performance will be measured, and how lessons will be managed. Consideration should be given to the necessary competence of evaluators and appropriate degrees of separation/independence of evaluators from the arrangements being tested.

5.5. Assurance, review and ongoing consultation

Regulation 22(2) *The implementation strategy must contain a description of the environmental management system for the activity, including specific measures to be used to ensure that, for the duration of the activity:*

(a) the environmental impacts and risks of the activity continue to be identified and reduced to a level that is as low as reasonably practicable; and

(b) control measures detailed in the environment plan are effective in reducing the environmental impacts and risks of the activity to as low as reasonably practicable and an acceptable level; and

(c) environmental performance outcomes and standards set out in the environment plan are being met.

Regulation 22(5) *The implementation strategy must provide for sufficient monitoring, recording, audit, management of non-conformance and review of the titleholder's environmental performance and the implementation strategy to ensure that the environmental performance outcomes and standards in the environment plan are being met.*

Regulation 22(8) *The implementation strategy must contain an oil pollution emergency plan and provide for the updating of the plan.*

Regulation22(15) *The implementation strategy must provide for appropriate consultation with:*

(a) Relevant authorities of the Commonwealth, a State or a Territory; and

(b) Other relevant interested persons or organisations

NOPSEMA expects the titleholder to have assurance mechanisms that will verify the titleholder's response-readiness and will enable continuous improvement for the duration of the activity. The assurance mechanisms will work together to enable routine review of risk controls, management of non-conformance, and improvement and update to the OPEP.

Titleholders must have specific measures in place to enable continuous improvement in response capability, verify that oil pollution prevention and response controls are/will be effective, and provide assurance that preparedness controls are maintaining response readiness.

The titleholder's management systems should include activities such as audits, peer reviews, independent specialist review, scientific research, engineering reviews, industry benchmarking, and routine monitoring. These activities should be described with consideration to the titleholder's arrangements for:

- maintenance of **arrangements and capabilities** (response **readiness)** (Section 4.2),
- **performance monitoring** of prevention, preparedness, and response controls against performance standards (Section 4.4.3), and
- **testing and exercise** of response arrangements (Section 5.4).

The titleholder's compliance management systems must function to address corrective actions from previous incidents and non-conformances from the assurance activities, including appropriate mechanisms to track actions and recommendations to timely completion.

Further to those aspects, the EP must describe additional assurance and review processes within the titleholder's managements systems that function to verify that:

- titleholders are effectively reducing risks to ALARP through review of risk controls and continuous improvements in response capability, and
- improvements are documented and communicated through updates to the OPEP and associated documents and systems.

Continuous improvement

The regulations require that, for the duration of the activity, the titleholder must ensure that environmental impacts and risks of the activity continue to be identified and reduced to a level that is ALARP. The titleholder should undertake, and document the outcomes from, testing and other assurance activities to identify where prevention, response, and preparedness controls can be improved to increase confidence and reliability in response capability.

NOPSEMA recognises that many arrangements and capabilities are held at a cooperative level and encourages collaborative approaches to assurance practices. Titleholders' systems should facilitate contribution to, and feedback from, industry collaboration activities where these are relevant to their requirements and have potential to generate improvements in capability relevant to their activities.

Ongoing consultation

In maintaining incident management capability, and for the duration of a spill response, relevant persons may require additional and ongoing consultation. In particular, the EP must provide for the ongoing consultation with control and support agencies to maintain response preparedness. The OPEP should also provide for timely notification and engagement with other relevant interested persons in the event of a spill. This should not be restricted to organisations with direct response roles, but also include persons who may be able to take their own response actions (e.g. aquaculture operators or Indigenous rangers) or be required to modify their activities (e.g. commercial fishers, tourism operators and/or First Nations people).

Updating the OPEP

The Environment Regulations requires the Implementation Strategy to contain arrangements for updating and reviewing the OPEP to ensure that all relevant information is accurate, and that new information has been included. Updates to the OPEP should reflect outcomes of testing, assurance and continuous improvement activities, and feedback from ongoing consultation.

To address the requirements of Regulation 22(8), the EP should include a proposed timetable of reviews and the triggers that will prompt the updating of the OPEP. The frequency and depth of reviews to update an OPEP will depend on the nature of the activity (duration, potential impacts and risks, etc.) and arrangements (complexity, stability, etc).

Modification of oil pollution risk controls or response arrangements that materially alter the basis on which the EP was accepted may require a revised EP to be submitted to NOPSEMA, as per the following guidance.

***Policy PL1347** – Environment Plan Assessment*

***NOPSEMA Environment ALERT 1** – Proper application of change management processes.*

Section 5 Self-check **Incident Management Capability**

☐ The OPEP provides for an incident management system capable of implementing control measures for the duration of response to the worst-case oil pollution incident described in the EP.

☐ The incident management system appropriately integrates with national, state/territory and mutual aid response plans.

☐ The OPEP provides for an Incident Management Team capability sufficient to provide for effective and timely implementation of oil pollution response operations for the duration of an oil pollution response.

☐ The OPEP demonstrates that the size and complexity of the Incident Management Team (functional positions, reporting lines, accountabilities, numbers of personnel, etc) is matched to the scale of response operations, up to and including the worst-case scenario.

☐ The OPEP demonstrates that personnel assigned to incident management and response roles will be appropriately trained and competent to fulfil position duties

☐ The OPEP demonstrates the arrangements for providing the required number of Incident Management Team personnel and Field Response Team personnel will be maintained for the duration of the activity and the duration of the response.

☐ The OPEP demonstrates that all control measures and arrangements will be appropriately tested and describes the process that applies test results to further improve capability.

☐ The EP and OPEP demonstrate that exercising and testing of oil spill response control measures and arrangements meet the prescriptive requirements of regulations i.e. frequency, test objectives, etc.

☐ The EP and OPEP make appropriate provisions for ongoing consultation, both to maintain incident management capability and in the event of a spill.

☐ The EP describes the relevant assurance and review mechanisms applied to maintaining and continually improving oil pollution response capability, systems and plans

6. Related NOPSEMA guidance

Please refer to NOPSEMA's webpage for latest revisions of the following relevant documents:

N-00500-PL1922 - Regulatory compliance monitoring, enforcement and intervention for offshore oil pollution incidents

N-03300-GN2303 - Notification Reporting and Recording Requirements for Incidents

N-04750-GL1381 - Financial assurance for petroleum titles

N-04750-GL1721 - Environment Plan Decision-making Guideline

N-04750-GL2086 – Consultation in the course of preparing an environmental plan

N-04750-GN1343 - Petroleum activity

N-04750-GN1344 - Environment plan content requirements

N-04750-GN1785 - Petroleum activities and Australian Marine Parks

N-04750-GN1847 - Responding to public comment on environment plans

N-04750-IP1349 - Operational and Scientific Monitoring Programs

N-04750-IP1979 - Source control planning and procedures

N-06800-GL1887 - Consultation with Commonwealth agencies with responsibilities in the marine area

Regulatory Advice Statement: AEP's Joint Industry Operational and Scientific Monitoring Framework

7. Useful external references

The following is a collation of external references that represent industry good practice or provide useful resources to support the concepts discussed in this document. It does not represent a NOPSEMA endorsement or requirement to consider or be restricted to these information sources in conducting a risk assessment or developing an OPEP. In utilising this list and preparing submissions to NOPSEMA, titleholders are responsible for identifying and sourcing contemporary information relevant to their activity's context. This list is not exhaustive and NOPSEMA does not take responsibility for the absence of references that may be more appropriate for the specific circumstances of the activity.

7.1. Industry good practice guidance

Risk assessment and response planning

- Oil spill risk assessment and response planning for offshore installations. Oil spill response joint industry project. Finding 6, IPIECA and OGP London 2013
- Guidelines for offshore oil spill response plans. Guidance for offshore oil and gas exploration, production and pipeline facility operators, API Technical Report 1145 September 2013
- Contingency planning for oil spills on water. Good practice guidelines for the development of an effective spill response capability, OGP Report Number 519, January 2015
- Manual on oil spill risk evaluation and assessment of response preparedness, IMO, 2010
- AEP Guidance Document: Incident Management Teams – Knowledge Requirements for Responding to Marine Oil Spills

Exercise & Testing

- IPIECA & IOGP (2016) Oil Spill Exercises Good Practice Guideline for the development of an effective exercise program: https://www.ipieca.org/resources/good-practice/oil-spill-exercises/
- Australian Disaster Resilience Handbook 3: Managing Exercises

- IOGP Report 628: Recommendations for Enhancements to Well Control Drills in the Oil and Gas Industry

Source control planning and procedures

- AEP Australian Offshore Titleholders Source Control Guideline (note: available to AEP members only)
- Report 594: Source Control Emergency Response Planning Guide for Subsea Wells, developed by the International Association of Oil and Gas Producers (IOGP) Subsea Well Response Subcommittee.
- Report 592 – Subsea Capping Response Time Model Toolkit User Guide to accompany the RTM toolkit and support industry to predict.
- IOGP Report 664: Review of subsea well response capability

Consultation & Coordination with Government Agencies

- National plan for maritime environmental emergencies
- Australian government coordination arrangements for maritime environmental emergencies. Australian Maritime Safety Authority
- Offshore Petroleum Incident Coordination Framework. Department of Industry, Science and Resources
- Western Australian Offshore Petroleum Industry Guidance Note. Department of Transport
- Victorian Joint Industry and State Oil Pollution Responses guidance note. Department of Economic Development, Jobs, Transport and Resources
- Oiled Wildlife Response Plan – Western Australia Department of Biodiversity, Conservation and Attractions

Oil spill monitoring

- AEP Joint industry Operational and Scientific Monitoring Plan Framework

7.2. Useful further resources

Australian Marine Oil Spill Centre Pty Ltd – http://www.amosc.com.au

Australian Maritime Safety Authority – http://www.amsa.gov.au

Australian Energy Producers – http://http://www.energyproducers.au

American Petroleum Institute – http://www.api.org

International Association of Oil & Gas Producers (IOGP) - https://www.iogp.org/

International Maritime Organisation – http://www.imo.org

International Oil Spill Conference - http://ioscproceedings.org/

International Offshore Petroleum Environment Regulators (IOPER) - http://ioper.org/

International Petroleum Industry Environmental Conservation Association (IPIECA) - http//www.ipieca.org

International Tanker Owners Pollution Federation (ITOPF) – http://www.itopf.com

Interspill – http://www.interspill.org

NOAA Office of Response and Restoration - http://response.restoration.noaa.gov/

Offshore Petroleum Regulator for Environment and Decommissioning – http://www.gov.uk

USA Bureau of Safety and Environmental Enforcement (BSEE) - https://www.bsee.gov/

Spillcon – http://www.spillcon.com/

Queries and Feedback

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