



**18 December 2019** 

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# Stromlo-1 Exploration Drilling Activity (Great Australian Bight) Equinor Australia B.V.

# **Purpose of this report**

NOPSEMA has accepted with conditions, the Stromlo-1 exploration drilling program environment plan (the EP) submitted by Equinor Australia B.V (the titleholder) for the Stromlo-1 exploration drilling activity in the Great Australian Bight within the periods of 1 November 2020 to 30 April 2021 or 1 November 2021 to 30 April 2022.

In February 2019, the titleholder voluntarily published the EP providing the public with an opportunity to comment on the proposed activity. Following the public comment period, the titleholder submitted the EP to NOPSEMA for assessment on 23 April 2019. NOPSEMA has since completed its assessment of the EP against the requirements of the Environment Regulations and has accepted the EP with conditions. The accepted EP has been published on NOPSEMA's website.<sup>1</sup>

This document has been prepared to explain some of the concerns of stakeholders identified by NOPSEMA through sources such as the public comment process, stakeholder engagement and issues raised in the broader community.

Detailed explanations of NOPSEMA's considerations and decision-making can be found in NOPSEMA's Statement of Reasons, which is also published on the NOPSEMA website.

Further information about the activity can be found on NOPSEMA's webpage for the Stromlo-1 Exploration Drilling Program.

<sup>&</sup>lt;sup>1</sup> Environment Regulations, Regulation 10A Criteria for acceptance of environment plan



Concerns	Titleholder's position	NOPSEMA's assessment and decision
1. Some strong opposition to the concept of oil and gas exploration in the Great	Equinor's environment plan and its report on public comment document the views of some community members who oppose oil and gas exploration in the Great Australian Bight.	NOPSEMA does not have a government policy role and does not advocate for exploration or production activity of the offshore petroleum industry, or Australia's energy needs. These are policy matters for the Australian Government. Decisions about whether petroleum exploration should be allowed in particular areas is not a feature of the Environment Regulations, under which NOPSEMA is required to make decisions.
Australian Bight	Details about Equinor's response to this issue can be found in section 3 and Appendix 3.1 of the accepted environment plan and section 4 of Equinor's report on public comment.  Equinor's environment plan and response to public comment state that it has engaged with the broader community, including members of the community with strong opposition to the concept of oil and gas exploration in the Great Australian Bight. Equinor took an early decision to publish the environment plan for community members to see it in full and provide comment. Section 3 of the EP details the extent of Equinor's community engagement including engagement with parties who oppose oil and gas exploration.	NOPSEMA recognises that some parts of the community hold strong views about whether exploration for oil and gas should occur at all in the Great Australian Bight (GAB). A large number of submissions made during the public comment period reflected this sentiment.
		As Australia's independent expert regulator for health and safety, environmental management, structural and well integrity for offshore petroleum facilities and activities in
		Commonwealth waters, NOPSEMA recognises that members of the community have a right to freely express and promote opinions regarding petroleum activities within the Great Australian Bight and have their views considered. This includes strong views held by some stakeholders as evidenced by community campaigns against the activity and petroleum exploration of any kind in the GAB.
		The regulatory processes administered by NOPSEMA are expert and independent from other processes. NOPSEMA cannot take into account factors that are not relevant to assessing the specific activity proposed in an environment plan such as whether particular areas are made available for exploration or whether a title is issued.
	The EP notes that since the end of the public comment period, Equinor has also met with groups opposing the concept of oil and gas exploration in the Great Australian Bight. Equinor reported that all	



meetings had been held respectfully and clear philosophical differences had been acknowledged.

Prior to submitting the environment plan, Equinor was granted a petroleum title by the Joint Ministerial Authority and the National Offshore Petroleum Titles Administrator (NOPTA) for access to offshore acreage in the Great Australian Bight (outlined in section 1.1 of the plan).

#### Concerns

# Titleholder's position

#### NOPSEMA's assessment and decision

2. Expectation of some stakeholders that oil spill risk needs to be eliminated completely before access is granted to the Great Australian Bight

Equinor provided information about oil spill risks in its environment plan in Section 7.7.

Equinor evaluated the risk of an oil spill by considering a range of scenarios, their probability of occurrence and the subsequent fate and effects of spilled oil for different spill scenarios under varying environmental conditions.

Equinor acknowledges that the risk associated with drilling and oil spills is not zero. Equinor's environment plan concluded that spill risks, with prevention and response strategies to mitigate the effects of any spill would be reduced to acceptable levels and to as low as reasonably practicable.

Consequences of a spill would be reduced through a number of response actions,

While oil spills are exceedingly rare, no offshore petroleum activity is without risk. Therefore, NOPSEMA's remit is to ensure that the risks are reduced to as low as reasonably practicable and to ensure that in the event of a spill, appropriate measures are in place to minimise impact.

NOPSEMA recognises the view of some within the community for there to be zero risk of an oil spill in order for activity to proceed, and NOPSEMA agrees that an oil spill is not an acceptable outcome of offshore petroleum activity. However, the Environment Regulations require NOPSEMA to accept environment plans where risks have been demonstrated to be reduced to levels that are acceptable and as low as reasonably practicable. NOPSEMA ensures this requirement is met through independently assessing proposals against stringent requirements and criteria for acceptance.

The only way in which oil spill risk can be entirely eliminated is to close an area to exploration. This is a policy matter for state and federal governments and is not within NOPSEMA's remit. The inherent risk in offshore petroleum exploration was acknowledged when Equinor was granted a petroleum title for offshore acreage through a separate government process prior to submitting an environment plan to NOPSEMA.

Read on further to find additional areas of the Key Matters Report which address oil spill risk management.



should a spill occur. The operation of the blowout preventer (BOP) would prevent a large spill event; if the primary BOP control was unsuccessful the secondary BOP control would restrict the flow of oil to 1 day or less. If a capping stack were to be required, Equinor identified response arrangements to ensure the release would be restricted to 15 days; and if the relief well was required, response arrangements would ensure that the flow would be permanently stopped within 88 days.

Equinor's approach to managing oil spill risks is detailed in its Oil Pollution Emergency Plan (OPEP), which is a mandatory component of any environment plan.

#### Concerns

### Titleholder's position

# NOPSEMA's assessment and decision position

3. There is concern that an oil spill would devastate the marine environment of southern Australia Equinor's assessment of the risk of an oil spill (See Section 7 of the accepted EP) confirms that appropriate barriers shall be in place to prevent an oil spill, including engineering devices, procedural and other controls. Each of these can prevent, stop, or drastically reduce an oil spill. Equinor identified that for an oil spill to occur all of the barriers would have to fail partially or completely, making a large oil spill event highly unlikely.

NOPSEMA recognises the environmental and cultural values of the Great Australian Bight, which is home to a variety of marine species and iconic areas such as the coastal formations of Bunda cliffs and surrounding islands. Ensuring protection of these values and sensitivities was a focus of NOPSEMA's assessment effort. Further, much of the community concern appears to have been generated by misinformation about the extent of a hypothetical major oil spill.

In addition to evaluating low likelihood, high consequence events, oil spill modelling is undertaken to inform planning and preparedness for oil spill response and monitoring. Good practice contingency planning requires that 100 individual simulations of a worst case scenario are overlayed to establish conservative planning areas that encompass the full range of possible variations around which plans are developed and exercised. In addition, modelling considers not only the areas that may be affected by an 'oil slick' but also the



Equinor also recognised that detail regarding arrangements for well barriers would be provided in the well operations management plan (WOMP) for NOPSEMA's approval before drilling would commence.

To address the exceedingly rare event of an oil spill, Equinor has used sophisticated modelling (see Appendix 7-1) to calculate probabilities of exposure to various oil concentrations and the maximum geographic extent of oil exposure to the environment. This modelling is used to assess the potential environmental effects of a spill and forms the basis of Equinor's spill response plans. Equinor also included a full evaluation of the likelihood and potential consequences of an unmitigated worst case spill scenario (see in Appendix 7-5) as well as the reduction in consequences that could be achieved through applying mitigation by oil spill response and source control action. The EP shows that the consequences are substantially reduced with mitigation controls proposed, even in the highly unlikely event of a major oil spill.

Equinor has detailed its approach to managing an oil spill in its Oil Pollution Emergency Plan (OPEP) and will submit a WOMP for approval by NOPSEMA before commencing any work on site.

extremely low concentrations relevant to monitoring any water quality change (measured in parts per billion).

NOPSEMA required significant prevention measures to be adopted as well as detailed advanced response planning and preparedness to respond in the exceedingly rare event of an oil spill. Preventative control is established on the concept of 'defence in depth'; independence in the operation of multiple barriers. For a well control incident to result in an uncontrolled release of hydrocarbons to the environment there would need to be failures in multiple consecutive preventative barriers, as well as failures of the contingency response measures designed to mitigate failures.

The environment plan identifies tools, such as oil spill modelling, to inform oil spill preparedness and response planning. Multiple layers of conservatism were applied to the oil spill modelling undertaken. The parameters for modelling were based on the highest potential unrestricted flows without accounting for any mitigative action. Modelling outputs also presented the extent of potential exposure to oil at conservative thresholds, relevant to water quality effects and visible sheens. The modelling accounts for variations in seasonality and weather conditions, allowing response planning suitable for all conceivable scenarios. In the exceedingly rare event of a spill, all potential scenarios would be met with commensurate response actions.

In addition to the requirement for an Oil Pollution Emergency Plan to be included in the Environment Plan, a Safety Case and Well Operations Management Plan must be submitted and accepted by NOPSEMA before any proposed activity can begin. These plans would also address in detail how Equinor would manage the drilling activity to prevent an incident with the potential for an oil spill occurring.



Concerns

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## Titleholder's position

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4. There is concern that emergency response actions would take too long to implement in the event of an oil spill Equinor submitted detailed proposals for response arrangements in the exceedingly rare event of an oil spill.

In response to NOPSEMA's requests, Equinor amended its environment plan to include revised emergency response actions for an oil spill. This has been addressed in the Oil Pollution Emergency Plan (OPEP), which is a mandatory component of any environment plan.

## NOPSEMA's assessment and decision position

NOPSEMA acknowledges that immediate action is imperative when responding to an emergency and that the community expects specialised equipment to be on standby for use in responding to a serious incident, such as an oil spill.

Following requests from NOPSEMA, Equinor modified its environment plan to reduce emergency response times including arrangements to ensure potential relief well rigs and essential equipment were readily available in the exceedingly rare event of an oil spill. NOPSEMA's assessment of the environment plan concluded that timeframes have been reduced to acceptable levels.

NOPSEMA decided that controls provided by the blowout preventer (preinstalled on the well to act in the event of a loss of well control) in addition to arrangements for rapid mobilisation and deployment of subsea response equipment including capping stacks would result in shortest reasonably practicable response timeframes in the event of a blowout.

The accepted environment plan now commits to commencing drilling only after a suitable relief well rig has been identified in Australian waters, whereas Equinor had previously considered the worst case option of sourcing a drilling rig from Singapore. A relief well is needed to permanently stop a well when a blowout occurs, however Equinor has demonstrated that a capping stack would stop the flow within 15 days.

In addition, NOPSEMA decided to accept the environment plan with conditions, which were imposed to further improve timeliness of oil spill response measures. Conditions include the requirement that, in the event of a well control incident and prior to a well blowout event, Equinor initiates pre-mobilisation actions for the proposed source control actions. Conditions were also established to ensure Equinor initiates resources to enable drilling of two relief well operations to permanently stop the flow in the event of a blowout given the remote location of Stromlo-1.

Further information about blowout preventers and capping stacks can be found at: <a href="https://www.nopsema.gov.au/environmental-management/environment-resources/contingency-measures-for-subsea-drilling-operations/">https://www.nopsema.gov.au/environmental-management/environment-resources/contingency-measures-for-subsea-drilling-operations/</a>



Concerns	Titleholder's position	NOPSEMA's assessment and decision position
5. There is concern that exploration activity in the Great Australian Bight would produce greenhouse gas emissions now and into the future if oil and gas was discovered and produced	Equinor describes its assessment of the impacts from atmospheric emissions from the drilling activity in section 6.5 of the plan.  Legislation does not require the proponent to address consideration of greenhouse gas emissions for a future development project, if oil was discovered, in submissions addressing exploration activity.	NOPSEMA recognises community concern regarding the effects potential greenhouse gas emissions may have from offshore activity in the Great Australian Bight. In the event a discovery was made during the exploration phase, Equinor would be subject to further separate approvals for which NOPSEMA would be required to undertake further assessments to include consideration of emissions before future development or production activity could be approved and undertaken.  To date, NOPSEMA has assessed the impacts of the proposed exploration activity in the Great Australian Bight as presented in Equinor's environment plan and concluded that with the appropriate measures and controls, impacts can be reduced to an acceptable level, in accordance with Environment Regulations.
		Before any offshore development can proceed, an Offshore Project Proposal (OPP) must be submitted to NOPSEMA for consideration. This must identify and evaluate all of the potential impacts of the proposed project, and associated petroleum activities, and this extends to consideration of emissions. NOPSEMA assessments are guided by the National Greenhouse and Energy Reporting Act 2007 (NGER Act) including the safeguard mechanism which sets baselines for management of greenhouse gas emissions and is administered by the Clean Energy Regulator through the Department of the Environment and Energy.
		In making decisions on offshore project proposals, NOPSEMA would be guided by government policy and legislation in relation to emissions reduction at that time.
Concerns	Titleholder's position	NOPSEMA's assessment and decision position
6. Divergent views about how economic benefits are relevant to a decision regarding exploration activity in the	Equinor's environment plan includes information regarding the potential economic benefits to the community resulting from petroleum development in the Great Australian Bight.	Possible economic benefits are not a relevant consideration for NOPSEMA in assessing environment plan submissions. NOPSEMA's assessments are not impacted by potential economic benefits that may flow from exploration and production.
		NOPSEMA recognises that some stakeholders expect economic benefits from offshore drilling proposals to form part of the criteria for NOPSEMA's decision-making.
	Section 3.1.2 of the plan outlines that community engagement provided Equinor with a range of views, including	Also, some stakeholders claim that NOPSEMA may be unduly influenced by economic benefits presented by industry.



Great Australian Bight	strong interest in the potential economic benefits in the event of a commercial discovery.	Economic benefits resulting from potential activity in the Great Australian Bight are not relevant matters for the assessment process and were not considered by NOPSEMA in its decision making.
Concerns	Titleholder's position	NOPSEMA's assessment and decision position
7. Ocean conditions in the Great Australian Bight would make drilling unsafe	In response to NOPSEMA's requests, Equinor amended its environment plan to include detailed analysis of ocean conditions in the Great Australian Bight that will be used in evaluating and selecting suitable rigs. The same evaluations are also applicable for a relief well rig. This can be found at section 2.4 and 2.5 of the plan.  In addition, the suitability of a rig for the Stromlo-1 location will be detailed in the mobile offshore drilling unit safety case for Stromlo-1 to be submitted to NOPSEMA for approval before the drilling can commence.	In responding to requirements from NOPSEMA, Equinor modified its environment plan to address the issues with the particular oceanic conditions at the drilling location.  The accepted environment plan includes detailed analysis of ocean conditions in the Great Australian Bight and rig capabilities. The timing of proposed drilling activity has been revised to coincide with milder weather conditions experienced during summer.  NOPSEMA acknowledges concerns raised by the community regarding the ocean conditions in the Great Australian Bight and the potential impacts this could have on ensuring safe and precise drilling. Further details regarding the rig arrangements and drilling will be addressed in the safety case and WOMP when they are submitted by Equinor, and considered by NOPSEMA through additional assessment processes.
Concerns	Titleholder's position	NOPSEMA's assessment and decision position
8. Consideration of "relevant persons" consultation by Equinor during the public engagement process	In February 2019, Equinor published its environment plan and undertook a voluntary public comment process.  In its environment plan, Equinor identified relevant persons in accordance with the requirements in the Environment Regulations.	NOPSEMA recognises that some members of the community are dissatisfied that they weren't consulted by Equinor as "relevant persons" as defined under the Environment Regulations. As a result of NOPSEMA's assessment of Equinor's environment plan, NOPSEMA required Equinor to further consider relevant persons. Unlike stakeholder engagement, there are prescribed categories of relevant persons in the legislation that must be consulted within the preparation of an environment plan.  Following further consultation by Equinor, NOPSEMA decided that relevant person consultation met the requirements of the Environment Regulations. The public comment



Equinor addresses the matter of relevant persons at section 3 of its environment plan; and provides analysis of specific persons in Appendix 3-1.

process resulted in more than 31,000 submissions, many of which included information related to environmental management of the activity and are reflected in the key matters described in this report and throughout the environment plan.

When assessing the environment plan, NOPSEMA took into account information contained in the consultation records in the environment plan, as well as information contained in the public comment submissions and in correspondence provided directly to NOPSEMA. For example, in recognition of matters raised by Indigenous groups, NOPSEMA requested amendments to the environment plan to reflect the cultural and spiritual values of the existing environment, including an assessment of potential impacts from the activity or emergency conditions such as an oil spill.

#### Concerns

### Titleholder's position

#### NOPSEMA's assessment and decision position

9. Equinor (and therefore NOPSEMA) have not duly considered issues raised in the public comment process

Equinor addresses the public comment process in section three of its environment plan and in Appendix 3-1.

In its response report to the public comment process, Equinor noted that only thirteen comments had resulted in changes to the environment plan.

It was noted by NOPSEMA that dissatisfaction was expressed by a number of stakeholders/members of the public following the release of this public comment report.

To ensure that public comments were taken into account, NOPSEMA undertook a process to review the public submissions that were made during the public comment period. A significant amount of information was identified as part of the process, which NOPSEMA ensured was addressed by Equinor and in NOPSEMA's assessment and decision-making.

Under the Environment Regulations, NOPSEMA cannot take into account matters that are not relevant to the specific activity proposed in an environment plan. Where information was provided through the public comment process that was relevant to the environmental management of the proposed activity, NOPSEMA took this into account in its assessment.

NOPSEMA publishes a significant amount of guidance and advice material on its website. Specific to how decisions are made on environment plans, NOPSEMA has published the Environment Plan Decision Making Guideline. This guideline is expressly taken into account by NOPSEMA when making decisions on environment plans.

Concerns

Titleholder's position

NOPSEMA's assessment and decision position



10. Use of dispersants in an emergency event would harm the environment

In response to NOPSEMA's request for robust evaluation of the consequences of using dispersants, Equinor amended its environment plan to provide further information on the implications of its proposed use of dispersants to mitigate the consequences of spilled oil.

This can be found in Section 8.5 of the accepted environment plan and is cross referenced in the operational section of the OPEP.

NOPSEMA recognises concern in the community regarding the use of dispersants. However, dispersants are only used in the event of an oil spill and only where their use would help mitigate the consequences of an oil spill on the environment.

NOPSEMA recognises that the risks associated with not having dispersants available in the event of an oil spill could far outweigh the risks associated with applying dispersants in a controlled way to contain a spill. Dispersants are designed to enhance dispersion of oil releases to prevent slicks from reaching sensitive shallow water and coastal environments and thus reduce potential impacts to these particularly vulnerable areas.

While NOPSEMA acknowledges that large scale oil spills are exceedingly rare events, if an oil spill did occur it could cause significant environmental impacts. The purpose of any oil spill response is to reduce environmental impacts and dispersants are among a range of oil spill response tools that may be used to reduce the impacts of oil spill to the community and the environment.

Following an assessment of further information provided by Equinor to evaluate the consequences of using dispersants, NOPSEMA found that when used with appropriate safeguards and commensurate to the need, (i.e. as described in the accepted environment plan) the prescribed application of dispersants in the case of Stromlo-1 would be both necessary and beneficial for mitigating spill consequences.

#### Concerns

# Titleholder's position

# NOPSEMA's assessment and decision position

11. There is concern that the environmental footprint of the drilling activity will have adverse effects on some marine species including various whale species

Following a request from NOPSEMA, Equinor amended its environment plan to demonstrate how impacts associated with planned drilling activities, such as underwater noise, would be managed to acceptable levels. This can be found at section 6.0 of the accepted Environment Plan.

In response to requests from NOPSEMA regarding impacts on marine species, Equinor revised the timing of the proposed exploration drilling activity to avoid periods of southern right whale migration. NOPSEMA also required Equinor to provide additional information and evaluation of impacts to other marine mammal species and fish communities to ensure they will be managed to acceptable levels.

NOPSEMA acknowledges concerns raised by some stakeholders that impacts associated with planned exploratory drilling activities such as underwater noise and light emissions could adversely affect some marine species. The environment that may be affected by the drilling activity is defined by the predicted maximum extent of underwater noise effects (with a conservative buffer). The disturbance footprints for other activity aspects (e.g. light and



drilling discharges) fall within this environment that may be affected. In order to understand the environment that may be affected, information was provided that was informed by the results of the Great Australian Bight Research Program, data and plans of management from the Department of Environment and Energy website and other peer reviewed publications.

Equinor's proposed well is remote from known foraging and breeding/aggregation areas for whales. For example, the biologically important area for pygmy blue whale foraging is approximately 140 km north of the proposed well location. Habitat modelling based on aerial survey observations of 119 pygmy blue whales indicates that the highest probability of occurrence is along the shelf break, inshore of the environment that may be affected for this drilling activity. In addition, appropriate evidence was provided by Equinor demonstrating limited potential for interaction with important habitats for other species and fauna groups such as seals and sea lions, sperm whales and pelagic fish communities.

The revised plan also has regard to and is consistent with, the South-west Marine Parks Network Management Plan 2018 as well as actions outlined in recovery plans for sensitive marine species, e.g. the Conservation Management Plan for the Blue Whale 2015-2025.

#### Concerns

# Titleholder's position

# NOPSEMA's assessment and decision position

12. There is concern that drilling activity would adversely impact Southern Right Whale migration periods and use of the area

While Equinor initially proposed a drilling activity window of 1 October 2020 through to 31 May 2021 (with 2021 or 2022 as a contingency), this timeframe has been modified in response to feedback provided by NOPSEMA.

In response to NOPSEMA's advice, Equinor reduced the activity window by two months avoiding the months of October and May. Subsequently, the timing of the drilling activity in the EP is now scheduled to occur during the period 1 November 2020 to 30 April 2022 at any time other than from 1 May to 31 In response to NOPSEMA's requests regarding timeframes to further reduce impacts, Equinor revised the timing of proposed drilling in its environment plan to avoid southern right whale migration periods.

NOPSEMA shares the community's concern for the protection of marine species that utilise the Great Australian Bight, such as southern right whales and other whale species, and has considered the potential effects of the proposed activity on these species, including migration periods, in its assessment.

Although the drilling location is not within a confined whale migration route, under the revised schedule, the potential for the activity to interact with southern right whales has been reduced even further. The revised activity timing is consistent with the recovery objective from the *Conservation Management Plan for the Southern Right Whale: A recovery plan under the Environment Protection and Biodiversity Conservation Act 1999 2011-2021* in minimising anthropogenic threats, and addresses concerns raised by some stakeholders during consultation.



	October inclusive, in any of the three years.  Equinor has addressed the migration of Southern Right Whales at sections 2.1 and 6.3 of its environment plan.	Drilling would be permitted to occur within the revised period from 1 November to 30 April in any of the three years from 2020 to 2022. This will avoid the months of May and October when pregnant females and southern right whale cows and calves could migrate through the permit area.
Concerns	Titleholder's position	NOPSEMA's assessment and decision position
13. Discharges from the proposed drilling activity will have adverse impacts on water quality and therefore the health of the marine environment	In response to NOPSEMA's advice, Equinor amended its environment plan to provide a clearer risk evaluation and description of appropriate control measures. This can be found at section 6.6.	In assessing Equinor's amended environment plan, NOPSEMA found that revised control measures to manage the discharge of drilling discharges in the marine environment were appropriate.  NOPSEMA acknowledges concerns raised by some stakeholders about the impacts of drilling
		discharges into the marine environment and the effect on water quality and therefore the health of sea life and sea floor communities.
		Equinor provided additional information regarding the marine environment at the well location, as well as a more robust risk evaluation to demonstrate that the selection of controls associated with drilling discharges was suitable to ensure that those impacts and risks were acceptable and reduced to as low as reasonably practicable.