

INDEPENDENT AUDIT OF NOPSEMA'S CONSIDERATION OF EXPLORATION IN THE GREAT AUSTRALIAN BIGHT

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Preface

Dear Ministers

I am pleased to provide you with my audit of the National Offshore Petroleum Safety and Environmental Management Authority's (NOPSEMA) consideration of current exploration activity in the Great Australian Bight.

The Great Australian Bight is important to local communities, fishing and tourism industries. It is also considered to be highly prospective for petroleum resources and a frontier for exploration. Community concern regarding petroleum exploration activities in the Great Australian Bight has driven a desire for assurance in NOPSEMA's processes and decision-making as the independent regulator for offshore petroleum activities in Commonwealth waters.

I have found that the regulator's processes and guidelines appropriately take into account all environmental risks and impacts as required under the regulations. Importantly, through the audit, I have found that NOPSEMA's practices properly and fully implement its processes and guidelines. In addition, everyone with whom I engaged who had previously interacted with NOPSEMA spoke highly of its professionalism, skilled workforce and determination to ensure Australia's offshore industry is operating properly. Collectively, these findings should provide assurance to Australians that NOPSEMA is highly capable of assessing exploration activity in the Great Australian Bight.

Changes in recent months to the regulation of offshore oil and gas activities have sought to improve the transparency of NOPSEMA's assessment and decision-making process. I have identified some opportunities that might further improve the transparency of NOPSEMA's operations, and the regime as a whole, and increase confidence in and understanding of the regulator.

In developing my findings and opportunities I had the expert assistance of Professor Peta Ashworth, Dr Geoffrey O'Brien, Dr David Smith and Mr Steve Walker. Their expert advice in their respective fields made it possible for the audit to be completed to a high standard in the required timeframes. I was also supported by a highly capable taskforce.

The stakeholders I met with during consultations engaged in a positive and productive way, each providing a different perspective. I appreciate the time taken by all in furthering the discussion of exploration activities in the Bight.



Dr Alan Finkel AO
Australia's Chief Scientist
Reviewer

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Abbreviations

ALARP	As Low As Reasonably Practicable
CEO	Chief Executive Officer
CSIRO	Commonwealth Scientific and Industrial Research Organisation
EMBA	Environment that May Be Affected
Environment Regulations	<i>Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
Equinor	Equinor Australia B.V.
GABRP	Great Australian Bight Research Program
GABDMP	Great Australian Bight Deepwater Marine Program
GN	Guidance Note
ISO	International Organization for Standardization
IUCN	International Union for Conservation of Nature
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NOPTA	National Offshore Petroleum Titles Administrator
OPEP	Oil Pollution Emergency Plan
OPGGGS Act	<i>Offshore Petroleum and Greenhouse Gas Storage Act 2006</i>
RMS	Regulatory Management System
RON	Representative of NOPSEMA

Glossary

Biodiversity	The variety of plant and animal life in the world or a particular habitat.
Commonwealth land	Land held by, vested in or owned by the Commonwealth of Australia.
Commonwealth waters	Any part of the sea, including the waters, seabed and airspace within Australia's Exclusive Economic Zone, or over the continental shelf of Australia that is not state or Northern Territory waters, stretching from 3 to 200 nautical miles from the coast.
Endemism	The condition of being native or restricted to a locality or region.
Environment plan	A document prepared under the Environment Regulations that details and evaluates the impacts and risks to the environment as a result of a petroleum activity, specifies the control measures that will be used to reduce impacts and risks, and demonstrates these risks have been reduced to as low as reasonably practicable (ALARP) and an acceptable level.
EMBA	The Environment that May Be Affected by planned (e.g. drilling, produced water, seismic activities) and unplanned (e.g. oil spills) components of a petroleum activity.
<i>EMBA – impact</i>	As defined by Equinor for the Stromlo-1 Environment Plan – the impact EMBA is the geographic area that may be affected by planned activities in the petroleum safety zone. For Equinor's environment plan, the maximum extent of underwater noise effects (including a buffer) determines the outer limits of this area.
<i>EMBA – risk</i>	As defined by Equinor for the Stromlo-1 Environment Plan – the risk EMBA is the geographic area that may be affected by unplanned events associated with planned activities in the petroleum safety zone. For Equinor's environment plan, the maximum extent of an oil spill resulting from a major well blowout sets the outer limits of this area.

Joint Authority	The Joint Authority for the offshore area of each state (except Tasmania) and the Northern Territory comprises the responsible Commonwealth minister (the Minister for Resources and Northern Australia) and the relevant state or territory minister. The Joint Authority for the offshore areas of Tasmania and each external territory is the responsible Commonwealth minister. The Joint Authority makes major decisions under the OPGGS Act, including release of offshore petroleum exploration areas, granting of titles, changes to title conditions and core decisions regarding resource management and resource security.
Modelling – deterministic	In the context of oil-spill modelling, a computer simulation of a single hypothetical oil spill subject to a single set of wind and weather conditions. ¹
Modelling – stochastic	In the context of oil-spill modelling, the overlaying of a great number (often more than a hundred) of individual computer-simulated hypothetical oil spills. ²
Petroleum	A general term for oil and natural gas.
Petroleum activity	Operations or works in an offshore area undertaken for the purpose of: <ul style="list-style-type: none"> • exercising a right conferred on a petroleum titleholder under the OPGGS Act by a petroleum title • discharging an obligation imposed on a petroleum titleholder by the OPGGS Act or a legislative instrument under the OPGGS Act.
Receiving environment	The physical, chemical, ecological or biological properties of the area impacted by an activity.
Relevant persons	As defined by Regulation 11A of the Environment Regulations, “relevant persons” are: <ul style="list-style-type: none"> a) each Department or agency of the Commonwealth to which the activities to be carried out under the environment plan, or the revisions of the environment plan, may be relevant

¹ NOPSEMA, *At a glance: oil spill modelling*, August 2018, accessed 23 August 2019, <https://www.nopsema.gov.au/assets/Publications/A626200.pdf>, p. 2.

² NOPSEMA, *At a glance: oil spill modelling*, August 2018, accessed 23 August 2019, <https://www.nopsema.gov.au/assets/Publications/A626200.pdf>, p. 1.

- b) each Department or agency of a State or the Northern Territory to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant
- c) the Department of the responsible State Minister, or the responsible Northern Territory Minister
- d) a person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the environment plan, or the revision of the environment plan
- e) any other person or organisation that the titleholder considers relevant.

Stromlo-1	The name of Equinor's planned petroleum exploration well for permit area EPP39, located in the Ceduna Sub-basin of the Great Australian Bight. The planned well location is 372 km offshore and 476 km west of Port Lincoln, South Australia.
Titleholder	The registered holder of a given petroleum title.
Title	A petroleum permit, lease, licence, authority or consent issued under the <i>Offshore Petroleum and Greenhouse Gas Storage Act 2006</i> . A title provides a right to undertake petroleum activities within the terms of the title and its associated area.

Executive summary

Australia has a long history of offshore oil and gas exploration and production. In areas where offshore petroleum activities are commonplace, communities are familiar with the role of the regulator and the responsibilities of the industry. However, this is not the case for communities that have little experience with offshore exploration, production and regulation.

The South Australian coast is dominated by the Great Australian Bight (the Bight). Communities from across the Bight have a strong connection to, and vested interest in, the environment of the region. While exploration activities have occurred in the Bight for nearly 50 years, only 13 wells have been drilled in Commonwealth waters in this time. No wells have been drilled in the region since 2003, before the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) was established in 2012.

The audit team was tasked with providing independent assurance that all environmental impacts and risks are considered by NOPSEMA in its assessment of current proposed exploration drilling activity in the Bight. We have done that, and also outlined opportunities for industry, the regulator and governments to provide further assurance.

To inform the findings of this audit, I sought the assistance of four subject matter experts across the fields of community engagement, geoscience, marine science and offshore exploratory drilling and regulatory matters. Their advice helped me determine the findings and opportunities outlined in this report. The audit team undertook significant research that provided the technical background to much of our work. Community consultations across the Bight informed my own and the audit team's understanding of community concerns and the realities of public consultation in relation to NOPSEMA's current considerations.

The audit team engaged thoroughly with NOPSEMA to verify our understanding of NOPSEMA's processes and guidelines, and their practical implementation through its assessment and decision-making.

This audit finds NOPSEMA to be a highly skilled, professional and competent regulator. NOPSEMA has appropriate processes, guidance material and practices to ensure environment plans are assessed against relevant, sufficient and complete scientific and technical information referenced by titleholders.

Environment plans are regulatory documents to inform approval processes and also provide an opportunity for the public to see the potential impacts and risks of proposed petroleum exploration. Information communicated to the public concerning worst-case oil-spill modelling must be communicated clearly, allowing the public to understand the potential impact under a worst-case scenario. During consultations with stakeholders, the audit team noted a

lack of understanding of oil-spill modelling meant that some stakeholders had unwarranted fears about the risks from an oil spill. There is a role for titleholders to better explain their oil-spill modelling to further assure local communities.

The regulator is held in high regard by those with whom it has engaged. However, the audit finds there are avenues for NOPSEMA to provide a greater level of transparency to the public during its assessment and decision-making process. Additionally, concepts concerned with environmental impact and risk, namely “as low as reasonably practicable” (ALARP) and “acceptable”, are not concepts well understood by many community stakeholders. NOPSEMA could provide clearer guidance to stakeholders in a bid to assist their overall understanding of these terms.

Whether stakeholders were satisfied with the titleholder’s engagement process often depended on whether they had been categorised as relevant persons and therefore had continued engagement with the titleholder. Overall stakeholder satisfaction might be improved through NOPSEMA providing clearer public guidance on what it considers when it assesses if titleholders have appropriately identified and consulted with relevant persons. Titleholders could also consider ongoing engagement with stakeholders not considered relevant persons to better inform them of the safety and environmental processes in place.

Governments, too, have an opportunity to provide additional assurance to local communities. They could address identified gaps in public understanding of how the regulatory regime works to manage risks to the environment, and how the industry is regulated and governed throughout the life cycle of petroleum activities.

The audit team is confident the community should feel assured that NOPSEMA is a highly skilled regulator well-equipped to give appropriate consideration to its regulatory obligations in assessing environment plans submitted to it. Addressing the opportunities identified in this report may help to further build community assurance.

Findings and opportunities

The Minister for Resources and Northern Australia could amend the National Offshore Petroleum Safety and Environmental Management Authority's (NOPSEMA) statement of expectations to address the relevant opportunities identified in this audit.

CHAPTER 3: NOPSEMA processes and practices

- Finding 1** NOPSEMA is a highly skilled, professional and competent regulator.
- Finding 2** NOPSEMA has appropriate processes and practices to meet regulatory requirements under the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Environment Regulations) in its consideration of exploration matters.
- Finding 3** NOPSEMA has appropriate processes and practices to ensure environment plans are assessed against relevant, sufficient and complete scientific and technical information.
- Finding 4** NOPSEMA has clear guidance material in place to assess environmental impacts and risks.
- Finding 5** Stakeholders desire a greater level of transparency from NOPSEMA during the assessment and decision-making process, prior to a final decision on the environment plan.

Opportunity NOPSEMA could enhance transparency during the assessment and decision-making process by providing additional public detail of requests for further written information and notices giving titleholders the opportunity to modify and resubmit an environment plan.

- Finding 6** "As low as reasonably practicable" (ALARP) and "acceptable" are not concepts well understood by some stakeholders.

Opportunity NOPSEMA could provide clearer guidance to the public on what it considers when it assesses environmental impact and risk to be ALARP and acceptable.

CHAPTER 4: Stakeholder engagement and consultation

- Finding 7** Parties consulted by the titleholder as relevant persons generally feel appropriately included in regulatory processes.
- Finding 8** Parties not consulted as relevant persons by the titleholder did not always understand why they were not determined to be relevant persons.
- Finding 9** The titleholder has outlined in its environment plan an extensive commitment to engagement with communities, but some stakeholders remained unsatisfied.

Opportunity NOPSEMA could provide further clarification to the public of what it considers when it assesses whether titleholders have appropriately identified and consulted with relevant persons.

Opportunity Titleholders could consider ongoing community engagement opportunities for stakeholders not meeting the regulatory definition of relevant persons.

CHAPTER 5: Scientific and technical information

- Finding 10** The titleholder has had access to, and referenced in its environment plan, relevant, sufficient and complete scientific and technical information related to the Great Australian Bight. The audit team has not considered nor made a finding on whether the information is appropriate for NOPSEMA to accept the plan.
- Finding 11** NOPSEMA has well-documented processes to appropriately take into account matters protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Australian Marine Park values as part of the assessment process. Titleholders are aware of the requirement to take account of these matters. However, there is limited public information for stakeholders detailing how NOPSEMA takes into account matters protected under the EPBC Act.

Finding 12 A number of documents that NOPSEMA and titleholders are required to take into account as part of environment plan drafting and assessment are managed by other government agencies external to NOPSEMA. These agencies are responsible for updating this information at regular intervals and some documents are not up-to-date.

NOPSEMA has demonstrated it is aware these documents contain outdated information and the audit team is satisfied NOPSEMA has appropriate processes and practices in place to ensure environment plans reference complete scientific and technical information, including additional up-to-date information as required, and that this information is used appropriately in its assessment and decision-making process.

The audit team is satisfied that outdated plans do not limit NOPSEMA's process for assessment and decision-making consistent with the Environment Regulations.

Opportunity NOPSEMA could provide clearer public guidance on how it considers matters protected under the EPBC Act and the principles of ecologically sustainable development in its decision-making.

Opportunity The Commonwealth Government could ensure documents and information from government organisations on which NOPSEMA and titleholders rely are maintained and kept up-to-date to reflect current and emerging science.

CHAPTER 6: Improving the understanding and operation of the regime

Finding 13 The stakeholders who had interacted with NOPSEMA held its engagement approach in high regard.

Finding 14 The audit team's consultations found a lack of understanding by some stakeholders about oil-spill modelling and the potential impacts or risks of a credible worst-case oil spill. The maps of the worst-case oil-spill models have been incorrectly interpreted by some stakeholders as what might occur from a single spill, rather than being the combination of many scenarios intended to determine the boundary of the area addressed by the environment plan.

Opportunity Titleholders could consider ways to better present oil-spill modelling, including individual oil-spill scenarios, to communicate the risk and likely extent of an oil spill.

Finding 15 There is a role for governments and their agencies to better explain, on a continuous basis, how the regulatory regime manages risks to the environment. The audit team's consultation sessions indicated communities wanted more information on the measures in place to prevent an oil spill and the response plan if a spill occurs.

Opportunity Governments could better explain to the public how the offshore industry is regulated and governed. This would help create a greater understanding of the low probability of risks eventuating.

Opportunity Governments could better promote, and publish, how a response will be coordinated in the event of an oil spill, including where a spill crosses jurisdictional boundaries.

Opportunity Governments could consider options to improve the transparency of the measures proposed by a titleholder to reduce the risk of an oil spill.

1. Introduction

On 23 April 2019, Equinor submitted its environment plan for the Stromlo-1 Exploration Drilling Program to the national oil and gas regulator, the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), for assessment.

Equinor's draft environment plan was voluntarily released for public comment in February 2019. It has generated significant interest, highlighting community concerns regarding offshore oil and gas activities in the Great Australian Bight (the Bight).

Recognising those concerns, and with a desire to assure the community the regulator is appropriately considering the impacts and risks under the Environment Regulations, the Minister for Resources and Northern Australia and the Minister for the Environment requested I undertake this audit into NOPSEMA's current consideration of exploration in the Bight.

The Bight extends from Cape Pasley, Western Australia to Cape Catastrophe, South Australia and forms part of the world's longest southern-facing coastline.³ The region has significant environmental value, as well as economic value to the fishing, tourism and oil and gas industries.

The Bight supports Australia's largest and most valuable stocks of southern bluefin tuna, Australian sardine, western king prawn, southern rock lobster, abalone, snapper and flathead. The total gross value of production from South Australian fisheries and aquaculture over the past 15 years has been between \$400 million and \$500 million a year.⁴

Tourism in the region is worth about \$270 million a year, with a growing market for marine activities that include whale watching, diving, interactions with sea lions and dolphins, recreational beach use and ship cruises.⁵

The region has global conservation significance, providing biologically important habitats and migration pathways for iconic species and apex predators, including Australian sea lions, southern right whales, great white sharks, pygmy blue whales and common dolphins. Its broad continental shelf also supports areas of high biodiversity on the ocean floor, with many species unique to their area.

The Bight is also considered to be a promising frontier oil and gas region.⁶

3 Paul Rogers et al, *Physical processes, biodiversity and ecology of the Great Australian Bight region: a literature review*, CSIRO, 2013, provides a major review of the physical processes, biodiversity and ecology of the Bight region.

4 Econsearch, *Economic indicators for the Commercial Fisheries of South Australia Summary Report 2015/216. A Report to PIRSA Fisheries and Aquaculture*, prepared by Econsearch, October 2017, cited in David Smith et al, "A whole of systems approach to improved understanding of the environmental, economic and social values of a frontier marine oil and gas field: Establishment, success factors and lessons learnt", 2018, *Deep-Sea Research Part II*, Vol. 157-158, pp. 3-10, p. 4.

5 David Smith et al, "A whole of systems approach to improved understanding of the environmental, economic and social values of a frontier marine oil and gas field: Establishment, success factors and lessons learnt", 2018, *Deep-Sea Research Part II*, Vol. 157-158, pp. 3-10, p. 4.

6 Geoscience Australia, *Submission to the Senate Environment and Communications Committee inquiry into oil or gas production in the Great Australian Bight*, accessed 26 August 2019, <https://www.aph.gov.au/DocumentStore.ashx?id=8543f70a-1e4b-4569-9e22-863cc26d0eac&subId=414799>, p. 6.

Petroleum exploration in Australian waters is driven by global oil consumption, estimated to increase from 99 million barrels a day in 2018 to 103 million barrels a day in 2021.⁷

Equinor is the sole titleholder of exploration permit EPP39, covering an area in the Ceduna sub-basin, in Commonwealth waters off South Australia. As part of Equinor's proposed work program under the title, it must drill an exploration well (the Stromlo-1 well) in the area by 30 April 2021 to meet its work program commitments. Before it can begin, Equinor is required to obtain all the necessary approvals from NOPSEMA for environmental management, safety and well integrity.

The proposed site of the Stromlo-1 well is 372 km off the coast of South Australia and 476 km west of Port Lincoln (Figure 1). Past wells in the Bight have been drilled in shallower depths than Stromlo1. Woodside Energy Ltd's Gnarlyknots 1A well, drilled in 2003, was the deepest, in 1,316 metres of water. The Stromlo-1 well is expected to be drilled in about 2,240 metres of water, targeting a potential geological reservoir about 2,700 metres below the seabed.

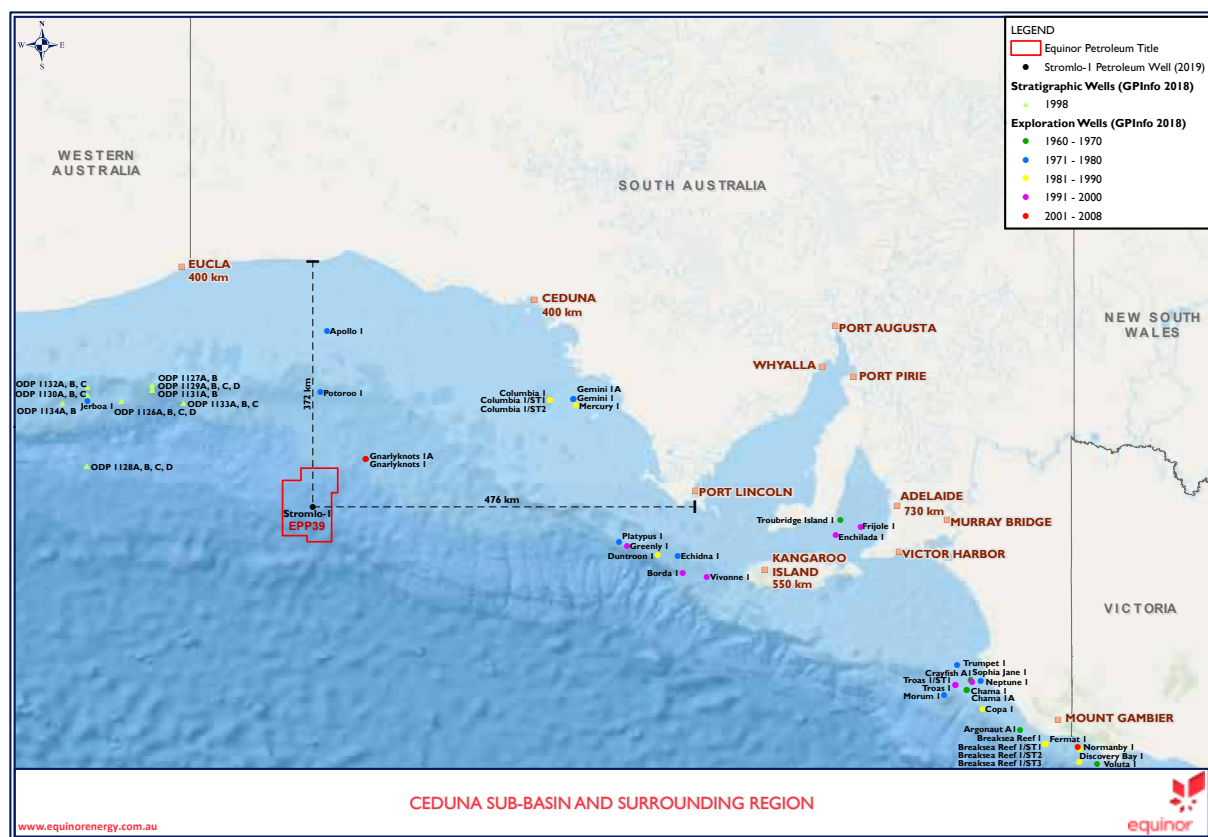


Figure 1. The Stromlo-1 well location along with previously drilled wells in the Great Australian Bight.⁸
Source: Equinor environment plan for the Stromlo-1 Exploration Drilling Program.⁹

7 Department of Industry, Innovation and Science, *Resources and Energy Quarterly*, June 2019, accessed 23 August 2019, <https://publications.industry.gov.au/publications/resourcesandenergyquarterlyjune2019/index.html>, p. 65.

8 This map includes exploration wells drilled in Commonwealth waters and state waters, including side tracked wells at the same site. The map also includes scientific drilling (referred to as stratigraphic wells).

9 Equinor, *Environment plan for Stromlo-1 Exploration Drilling Program*, 2019, accessed 20 August 2019, <https://www.equinor.com/content/dam/statoil/documents/australia/gab-project/Equinor-Environment-Plan-Rev-1-20190422.pdf>, p. 9.

The proposed site for Stromlo-1 is within the International Union for Conservation of Nature (IUCN) Category VI Multiple Use Zone of the Great Australian Bight Marine Park, which means oil and gas activities are allowable subject to assessment (Figure 2).¹⁰

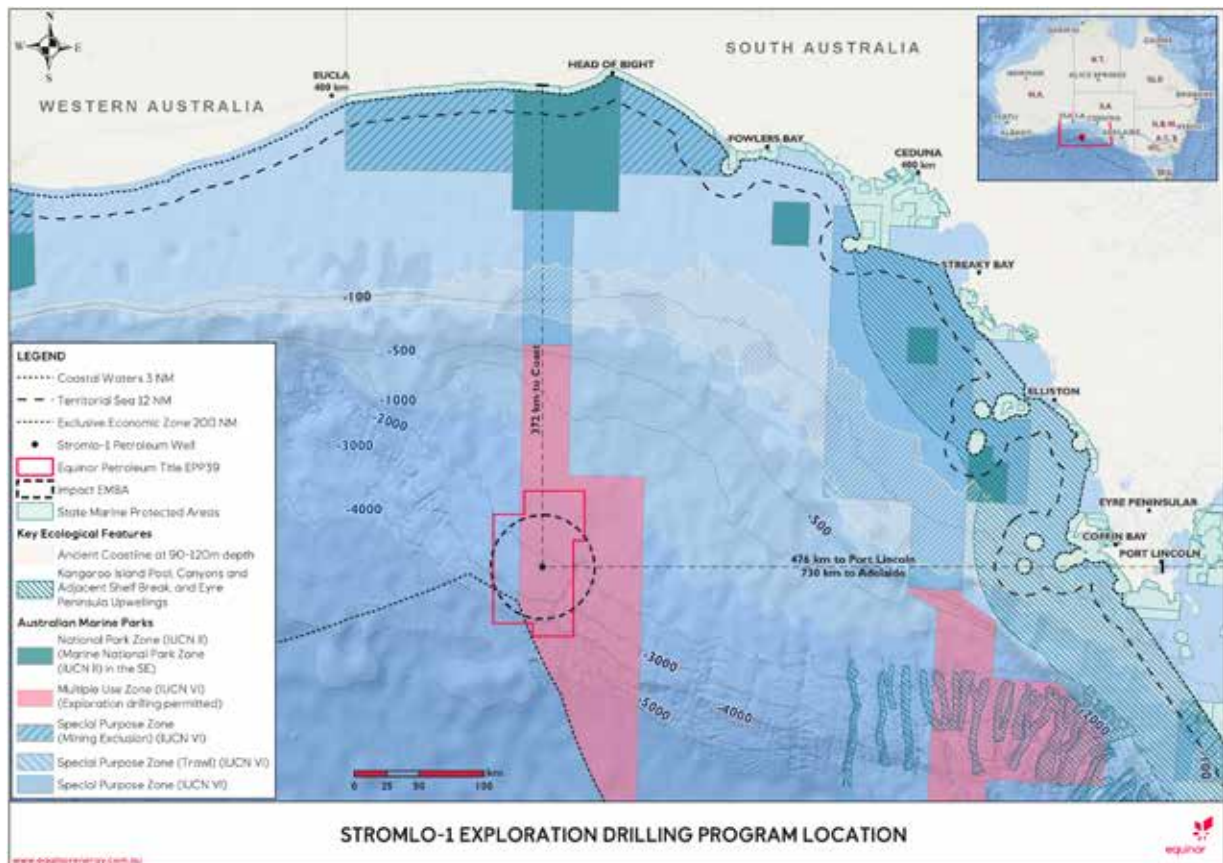


Figure 2. Location of Stromlo-1 well location and Commonwealth protected areas in the vicinity of the Impact Environment that May Be Affected.

Source: Equinor, Location Map, Stromlo-1 Exploration Drilling Program.¹¹

1.1. Audit process

The terms of reference for this audit were released on 28 June 2019 by Minister Matthew Canavan and Minister Sussan Ley. The terms of reference requested that I report back to them by the end of August 2019 to:

- examine how environmental impacts and environmental risks, including Australian Marine Park values and [the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)] protected matters, and other relevant information such as that received through consultation and public comment processes, are taken into account

¹⁰ Oil and gas activities are allowable in the IUCN Category VI Multiple Use Zone of the Great Australian Bight Marine Park under the *South-west Marine Park Network Management Plan 2018*. A petroleum title granted under the OPGGS Act is a 'prior usage right' for the purposes of the EPBC Act if the petroleum title was in force immediately before the proclamation of an Australian Marine Park that overlaps the title area. A prior usage right can apply to a petroleum title in any IUCN category. Titles that are prior usage rights are exempt from having to comply with provisions of the EPBC Act and the *Environment Protection and Biodiversity Conservation Regulations 2000* that relate to a Commonwealth marine reserve, or the management plan for the reserve. The petroleum title for the proposed Stromlo-1 well has a prior usage right for the purposes of the EPBC Act.

¹¹ Equinor, "Location Map, Stromlo-1 Exploration Drilling Program", 2019, accessed 20 August 2019, <https://www.nopsema.gov.au/environmental-management/activity-status-and-summaries/details/473>

- examine the relevancy, sufficiency and completeness of scientific and technical information used to support assessment and decision-making in relation to the current exploration proposal.¹²

The terms of reference expressly excluded from consideration by this audit:

- whether Australia should have an oil and gas industry
- the merits or otherwise of petroleum activity occurring within the Bight
- NOPSEMA's legislative and regulatory framework
- the merits of administrative decisions made by NOPSEMA.

I have been assisted in this audit by four experts – Professor Peta Ashworth, Dr Geoffrey O'Brien, Dr David Smith and Mr Steve Walker – who have expertise in the fields of community engagement, petroleum geoscience, marine science and offshore exploration drilling and regulatory matters respectively.¹³ Their wealth of experience has greatly assisted me in understanding the complex regulatory environment, natural systems and community values associated with Australia's oil and gas industry. Where this report refers to the audit team, the team consists of myself as the reviewer and the experts who assisted me.

I have also been supported by a taskforce of four experienced officials from the Department of Industry, Innovation and Science and the Department of the Environment and Energy.

In undertaking this audit, I consulted widely across the regions associated with the Bight. As part of targeted consultations to support the deliberations of the audit, members of the audit team and the taskforce attended meetings and roundtables in Western Australia, South Australia, Victoria and Tasmania.

More than 70 people attended these consultations, including NOPSEMA officials, the NOPSEMA Board, oil and gas titleholders, commercial fishing associations and peak bodies, traditional owners, environmental non-government organisations, Commonwealth government agency officials, state government agency officials and local government representatives.¹⁴ Feedback from the stakeholder consultations has informed my consideration.

The audit team held meetings with NOPSEMA staff to audit its practices and to further understand its processes for assessing an environment plan. These meetings provided an intensive period of verification of NOPSEMA's protocols.

To meet the timeframes of the audit, I was required to undertake it in tandem with NOPSEMA's current consideration of exploration matters. I did not actively request submissions. However, I accepted and acknowledged all submissions provided to the process and considered the matters they raised.

¹² The full terms of reference are at Appendix A: Terms of reference.

¹³ More information about the experts is at Appendix B: Experts assisting the Chief Scientist.

¹⁴ A full list of stakeholder groups which attended consultation sessions is at Appendix C: Stakeholder consultation undertaken by the audit.

2. Legislative and governance frameworks

This chapter provides an overview of the legislative framework for offshore oil and gas activities in Commonwealth waters, and details NOPSEMA's governance arrangements. It addresses NOPSEMA's organisational capability to effectively and appropriately regulate offshore oil and gas activities.

2.1. Legislation and regulations

The legal framework for offshore oil and gas exploration and production is based on the Offshore Constitutional Settlement, an agreement between the Commonwealth, the states and the Northern Territory for dividing responsibilities for regulating offshore activities.¹⁵

Under the agreement, the states and the Northern Territory are responsible for regulating offshore activities in waters within three nautical miles of their coastline. This area is referred to as "coastal waters". The Commonwealth is responsible for the legislation governing and regulating activities beyond coastal waters to the limits of the continental shelf, or the boundary with Timor-Leste in the case of areas north of Western Australia and the Northern Territory. This area is referred to as "Commonwealth waters".

Offshore oil and gas activities in Commonwealth waters are governed by the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGGS Act). The legislation covers both exploring for and extracting offshore oil and gas resources. It sets out a basic framework of rights, entitlements and responsibilities of government and industry.

The OPGGS Act is supported by a set of regulations including:

- *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Environment Regulations)
- *Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011*
- *Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009*.

Underpinning this legal framework are four key principles:¹⁶

1. Australia's offshore oil and gas resources are best exploited (and risks managed) through commercial development.
2. Operations are to be undertaken in accordance with good oilfield practice and be compatible with the optimal long-term recovery of oil and gas.

¹⁵ "Offshore Constitutional Settlement", Attorney-General's Department, accessed 15 August 2019 <https://www.ag.gov.au/Internationalrelations/InternationalLaw/Pages/TheOffshoreConstitutionalSettlement.aspx>

¹⁶ Department of Industry, Innovation and Science, *Submission to the Environment and Communications References Committee inquiry into the potential environmental, social and economic impacts of BP's planned exploratory oil drilling project, and any future oil and gas production in the Great Australian Bight*, March 2016, accessed 20 August 2019, <https://www.aph.gov.au/DocumentStore.ashx?id=c092096d-72d7-4e82-9e6b-210c09f505bf&subId=411990>, p. 10.

3. All associated risks to health and safety and the marine environment are managed to be as low as reasonably practicable (ALARP), and environmental risks must be managed to acceptable levels.
4. Property rights for oil and gas resources are applied and respected through a system of licences and titles. Exclusive rights give titleholders the incentive to move through the oil and gas lifecycle, provided activities comply with the OPGGS Act, supporting regulations and title conditions.

2.1.1. Cross-jurisdictional coordination

The Environment Regulations require a titleholder's oil pollution emergency plan to include information demonstrating that the plan's response arrangements are consistent with the national system for oil pollution preparedness and response.¹⁷

This system is the National Plan for Maritime Environmental Emergencies (the National Plan), which sets out national arrangements, policies and principles for managing maritime environmental emergencies.¹⁸ It covers internal and coastal waters, the Australian Exclusive Economic Zone, offshore islands and territories, and the high seas where an incident has the potential to affect Australian interests.

The National Plan governance structure includes senior Commonwealth, state and Northern Territory government officials along with industry stakeholders covering the commercial maritime sector, peak oil and chemical industry bodies, and professional bodies representing salvage and towage interests.

The National Plan provides for the coordination of stakeholders during major incidents, including across Australian jurisdictions and sectors.

2.2. Objective-based regulation

The OPGGS Act and the Environment Regulations are objective-based, similar to the EPBC Act. The legislation sets the broad goals to be attained. Those undertaking operations or activities must develop the most appropriate methods to achieve those goals for safety, well integrity and environmental management. This contrasts to a prescriptive regulatory regime, where those undertaking operations or activities are only required to consider those matters specifically identified by the regulations and meet the minimum standards of protection prescribed.

¹⁷ Sub-regulation 14(8E), Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009. Further information on oil pollution emergency plans is provided in Section 2.5.1.

¹⁸ Australian Maritime Safety Authority, *National Plan for Maritime Environmental Emergencies*, 2019, accessed 15 August 2019, <https://www.amsa.gov.au/sites/default/files/amsa-496-national-plan.pdf>

Key components of objective-based regulation include:

- Responsibility for managing risks rests with those undertaking the operation or activity, on the basis they are best placed to identify and manage the impacts and risks of their activities to ALARP, and to set appropriate performance measures (outcomes and standards). For environmental matters, the impacts and risks, including impacts and risks to matters protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), must also be managed to acceptable levels.¹⁹
- Those undertaking the operation or activity must consider and identify the performance outcomes for all environmental or safety matters, and clearly demonstrate how those outcomes will be achieved.
- Independent assessment by the regulator determines if the proposed management plan is acceptable.
- Risk management can be tailored to the impacts and risks of the activity.
- Those undertaking the operation or activity have the flexibility to implement new technologies to meet and exceed the performance outcomes and standards they have set for the activity, promoting continuous improvement.

2.3. Governance arrangements

Three main entities are involved in administering and jointly regulating Australia's offshore oil and gas sector: the Joint Authorities, the National Offshore Petroleum Titles Administrator (NOPTA) and NOPSEMA.

The Joint Authorities, comprised of the responsible Commonwealth minister and the relevant state or Northern Territory minister, make major decisions under the OPGGS Act, including:

- releasing areas for offshore oil and gas exploration
- granting titles
- changing title conditions (such as granting extra time to undertake an activity)
- making core decisions about resource management and resource security.

NOPTA is a branch of the Department of Industry, Innovation and Science. It is responsible for the day-to-day administration of petroleum and greenhouse gas titles in Commonwealth waters. It is the first point of contact for all matters relating to offshore titles administration.

¹⁹ The meaning of ALARP and acceptable are discussed further in Section 3.4.

NOPSEMA is an independent statutory authority established under the OPGGS Act. It is responsible for the regulation of all offshore oil and gas activity in Commonwealth waters, as well as in designated coastal waters where regulatory functions have been conferred under relevant state or territory legislation. This includes oversight for health and safety, structural integrity of facilities and wells, and environmental management. NOPSEMA's functions include:

- to promote the occupational health and safety of persons engaged in offshore oil and gas operations
- to develop and implement effective monitoring and enforcement strategies to ensure compliance by persons with their health and safety, structural integrity and environmental management obligations under the OPGGS Act and regulations
- to advise on matters relating to health and safety, structural integrity and environmental management
- to cooperate with other Commonwealth agencies or authorities that have functions related to regulating offshore oil and gas operations.²⁰

NOPSEMA is accountable to the responsible Commonwealth minister, who provides it with a statement of expectations. NOPSEMA's regulation of offshore oil and gas activities is subject to governance controls that include parliamentary oversight, ministerial policy direction and independent statutory reviews. The most recent operational review of NOPSEMA was in 2015. The next is due to be completed in 2020.

2.4. Regulating offshore petroleum activities

Before a petroleum activity can begin, one or more risk management plans must be assessed and accepted by NOPSEMA. The plans required depend on the type of activity a titleholder proposes to undertake. They may include a well operations management plan (also referred to as a WOMP), a safety case and an environment plan.

- A well operations management plan describes the characteristics of the well and the activities to be undertaken. To be accepted by NOPSEMA, the plan must clearly demonstrate how preventative control measures will reduce the risk of losing well integrity to ALARP.²¹
- A safety case is a comprehensive, integrated risk-management plan that identifies the safety-critical aspects of the facility, both technical and managerial, and defines appropriate operational performance standards.
- An environment plan provides a detailed environmental impact and risk assessment and explains how those impacts and risks will be managed to a level that is acceptable and ALARP for the life of the activity.

²⁰ A full list of NOPSEMA's functions are set out in Section 646 of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*.

²¹ NOPSEMA, *Offshore petroleum well integrity approvals*, July 2017, accessed 15 August 2019, <https://www.nopsema.gov.au/assets/Publications/A561361.pdf>

2.5. Environment plan assessment process

NOPSEMA requires titleholders to have, among other approvals, an accepted environment plan prior to undertaking oil and gas activities, including exploration. A titleholder must comply with the accepted environment plan while carrying out the activity. NOPSEMA monitors compliance with the plan through inspections and may take enforcement action if non-compliance is identified.

The statutory basis for NOPSEMA's assessment of an environment plan is the Environment Regulations. The object of the regulations is to ensure all activities are consistent with the principles of ecologically sustainable development and to ensure that all environmental impacts and risks are reduced to ALARP and acceptable levels.²²

To accept an environment plan, NOPSEMA must be reasonably satisfied it meets the criteria set out in Regulation 10A of the Environment Regulations. A plan must:²³

- be appropriate for the nature and scale of the activity
- demonstrate that environmental impacts and risks will be reduced to ALARP
- demonstrate that the environmental impacts and risks will be of an acceptable level
- provide for appropriate environmental performance outcomes, environmental performance standards and measurement criteria
- include an appropriate implementation strategy, with monitoring, recording and reporting arrangements
- not involve any activity, other than environmental monitoring or responding to an emergency, in any part of a declared World Heritage area
- demonstrate the titleholder has carried out consultations as required by Division 2.2 of the Regulations, and that measures adopted because of the consultations are appropriate
- comply with the OPGGS Act and the regulations.

The acceptance criteria are assessed against a broad definition of "environment" as specified by the Environment Regulations. This definition includes:²⁴

- a) ecosystems and their constituent parts (including people and communities)
- b) natural and physical resources
- c) qualities and characteristics of locations, places and areas
- d) heritage value of places
- e) social, economic and cultural features of the above.

²² Regulation 3, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

²³ Regulation 10A, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

²⁴ Regulation 4, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

The contents of an environment plan must accord with the requirements in Division 2.3 of the Environment Regulations. These include:²⁵

- description of the activity
- description of the environment that may be affected by the activity
- description of the regulatory and other requirements that apply to the activity
- identification and evaluation of environmental impacts and risks
- definition of environmental performance outcomes and setting of standards against which environmental performance is to be measured
- measurement criteria to determine if the outcomes and standards have been met.

When preparing an environment plan, Regulation 11A requires a titleholder to consult with all relevant persons who may be affected by the proposed activity. Recent amendments to the Environment Regulations to improve transparency and consultation requirements for activities in Commonwealth waters apply to all plans submitted on or after 25 April 2019. Key changes include:

- publication of environment plans on submission to and acceptance by NOPSEMA
- a 30-day public comment period for environment plans for all seismic surveys and exploratory drilling activities.^{26, 27}

NOPSEMA has 30 days to make a decision on a submitted environment plan, though this can be extended if it needs more time. If NOPSEMA is reasonably satisfied a plan meets the acceptance criteria, it must accept the plan. If it is not reasonably satisfied, it must give the titleholder a reasonable opportunity to modify and resubmit the plan.²⁸

NOPSEMA may request further written information about any matter required in a plan prior to making its decision. Such a request can be made at any point in its assessment process and is not subject to publication.²⁹ An overview of the environment plan assessment process can be found at Figure 3.

²⁵ Regulation 13, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

²⁶ Further discussion of the public comment period is in Section 4.3 of this report.

²⁷ Equinor submitted its environment plan to NOPSEMA on 23 April 2019 prior to the new regulatory requirements coming into effect. While the new regulatory requirements do not apply to Equinor's environment plan, Equinor voluntarily committed to follow the steps of the new regulatory process. The Stromlo-1 environment plan was voluntarily released for public comment in February 2019 and was published on submission to NOPSEMA.

²⁸ Regulation 10, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

²⁹ Regulation 9A, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

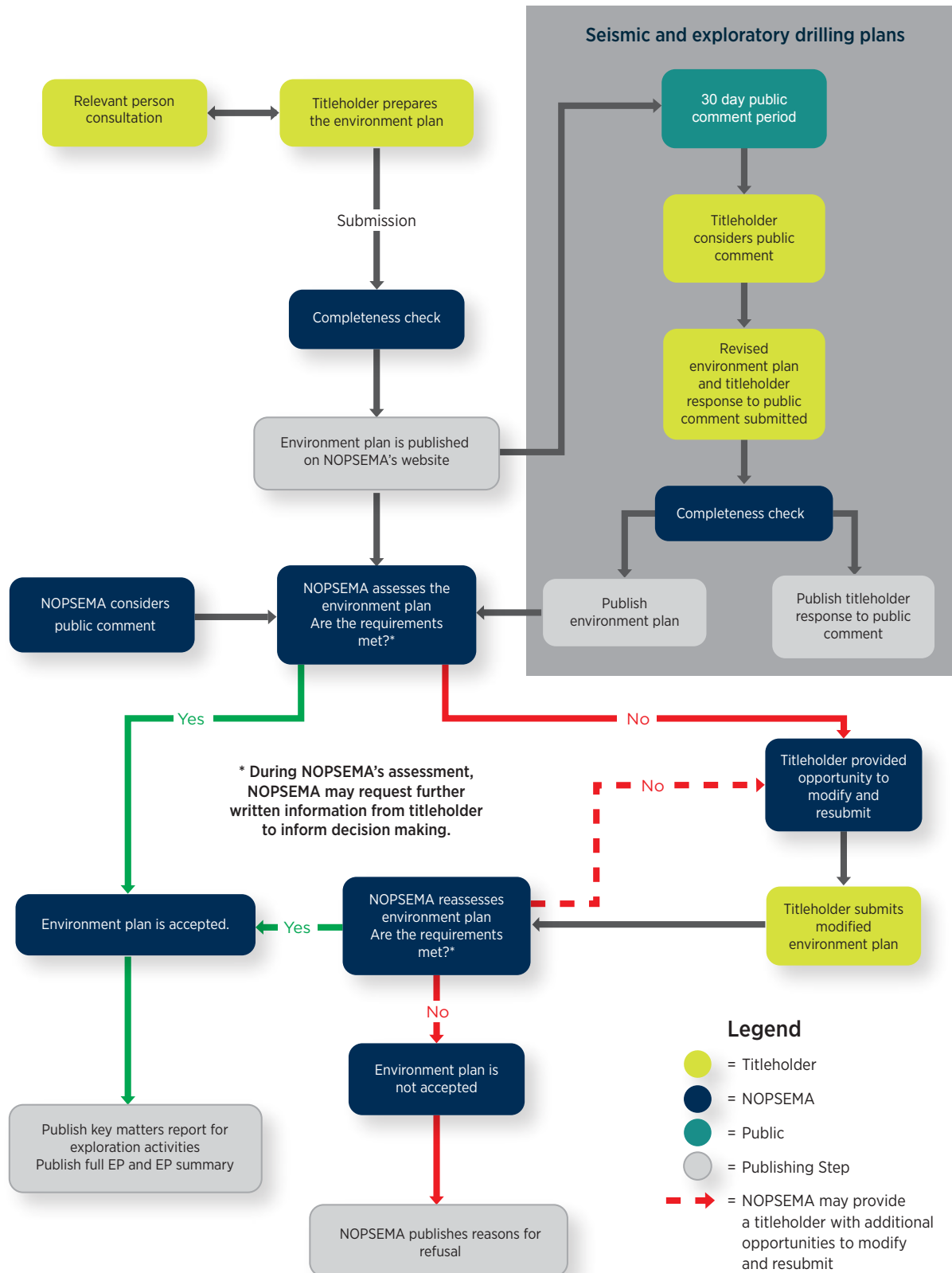


Figure 3: Overview of the environment assessment plan process.

2.5.1. Oil Pollution Emergency Plans

The Environment Regulations seek to ensure oil pollution risks associated with any activity have been detailed and evaluated, enabling appropriate control measures to be put in place. The titleholder must demonstrate in an oil pollution emergency plan how it will take all reasonably practicable measures for responding to and monitoring oil pollution, thereby avoiding or minimising environmental damage. These include:³⁰

- control measures needed for timely response
- arrangements and capability to ensure timely implementation of those control measures, and provisions to maintain that capability
- arrangements and capability to monitor oil pollution to inform response activities as well as to monitor the effectiveness of these activities.

2.5.2. Financial assurance from petroleum titleholders

The OPGGS Act requires that titleholders maintain financial assurance sufficient to meet the costs, expenses and liabilities that might result from their activities.³¹ They must demonstrate this financial assurance before NOPSEMA can accept an environment plan.³² NOPSEMA provides details on its website of the processes for demonstrating financial assurance.³³ Its guidance and submission information includes:

- Policy – Financial assurance for petroleum titles (PL1780)
- Guideline – Financial assurance for petroleum titles (GL1381)
- Form – Financial assurance declaration (FM1519)
- Form – Financial assurance confirmation (FM1465).

NOPSEMA requires a titleholder to:³⁴

- use an independently validated method to estimate the total costs, expenses and liabilities that may arise from carrying out activities under a petroleum title
- identify the types of financial assurance that will be accessible
- submit a financial assurance declaration (FM1519) for the title
- submit a financial assurance confirmation (FM1465) for the specific environment plan.

There are several forms of acceptable financial assurance, including insurance, self-insurance, a bond, the deposit of an amount as security with a financial institution, an indemnity or other surety, a letter of credit from a financial institution, and a mortgage.³⁵

³⁰ Sub-regulation 14(8AA), Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

³¹ Section 571, Offshore Petroleum and Greenhouse Gas Storage Act 2006.

³² Regulation 5G, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

³³ "Financial Assurance", NOPSEMA, accessed 14 August 2019, <https://www.nopsema.gov.au/environmental-management/financial-assurance/>

³⁴ NOPSEMA, *Guideline: Financial assurance for petroleum titles GL1381, Revision 7*, June 2019, accessed 20 August 2019, <https://www.nopsema.gov.au/assets/Guidelines/A342339.pdf>, p. 3.

³⁵ Ibid, pp. 5-6.

For NOPSEMA to accept an environment plan the titleholder must demonstrate that the costs estimated in the proposal, including for a “worst case” oil spill, are reasonable and that the titleholder has access to the funding to deal with any spill. This ensures the actions outlined in the oil pollution emergency plan can be acted on.

2.6. Streamlining offshore petroleum approvals

Prior to 2014, titleholders were required to have all petroleum activities assessed and approved under both the Environment Regulations and the EPBC Act. This process was streamlined on 7 February 2014 when the Minister for the Environment endorsed NOPSEMA’s environmental management authorisation process (referred to as the Program) under Part 10 of the EPBC Act.³⁶ The Minister approved oil and gas activities in Commonwealth waters under the EPBC Act, conditional on their acceptance by NOPSEMA in accordance with the endorsed environment management authorisation process.³⁷ This means that, subject to some exceptions, titleholders now only need to have their activities accepted by NOPSEMA and no longer need to refer those activities for assessment under the EPBC Act.

These arrangements are in effect until 31 December 2040, and specifically exclude petroleum or greenhouse gas activities that:³⁸

- have, will have or are likely to have a significant effect on the environment on Commonwealth land
- have, will have or are likely to have a significant impact on the values of the Great Barrier Reef World Heritage Area or the Great Barrier Reef National Heritage place
- are within the boundaries of the Great Barrier Reef Marine Park
- are in the Antarctic
- involve injecting or storing greenhouse gas.

Under the Environment Regulations, NOPSEMA is also not able to accept an environment plan for an activity in any declared World Heritage property.³⁹

³⁶ Department of the Environment and Energy, *Notification of decision to endorse the program to streamline offshore petroleum and greenhouse gas activity environmental approvals*, 7 February 2014, accessed 20 August 2019, <http://www.environment.gov.au/system/files/pages/06872cd4-b755-4ecf-a4e7-dd16145e1384/files/offshore-endorsement-notice.pdf>

³⁷ Department of the Environment and Energy, *Final approval decision for the taking of actions in accordance with an endorsed program under the Environment Protection and Biodiversity Conservation Act 1999*, 27 February 2014, accessed 20 August 2019, <http://www.environment.gov.au/system/files/pages/06872cd4-b755-4ecf-a4e7-dd16145e1384/files/offshore-approval-decision-notice.pdf>

³⁸ Ibid.

³⁹ Sub-Regulation 10A(f), Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

The matters protected under Part 3 of the EPBC Act and included in the Program are:

- World Heritage properties
- National Heritage places
- wetlands of international importance
- listed threatened species and ecological communities
- listed migratory species
- Commonwealth marine environments.

The Program describes NOPSEMA's commitments to ensure activities have no unacceptable impacts on these matters:⁴⁰

- NOPSEMA will not accept an environment plan that involves an activity, other than arrangements for environmental monitoring or for responding to an emergency, in any part of a declared World Heritage property within the meaning of the EPBC Act.
- NOPSEMA will not accept an environment plan that proposes activities that will contravene a plan of management, or proposes unacceptable impacts to a protected matter.
- NOPSEMA will have regard to relevant policy documents, plans, conservation advice and guidelines on the Department of the Environment and Energy's website.

2.7. Australian Marine Parks

There are 58 Australian Marine Parks in Commonwealth Waters. The parks are managed by Parks Australia. The largest is the Coral Sea Marine Park, off the coast of Queensland. The other parks around Australia are grouped into five marine networks – South-east, Temperate East, North, North-west and South-west (which covers the Great Australian Bight Marine Park). The Coral Sea Marine Park and each network has its own management plan.

Six types of protected areas are defined by the International Union for the Conservation of Nature (IUCN). The Great Australian Bight Marine Park is comprised of four different zones. There is an IUCN Category II National Park Zone, and an IUCN Category VI Special Purpose Zone (Mining Exclusion) in which seismic surveys and mining are not permitted, except where a prior usage right exists.⁴¹

⁴⁰ A full copy of the endorsed Program is available at <http://www.environment.gov.au/system/files/pages/06872cd4-b755-4ecf-a4e7-dd16145e1384/files/offshore-program-report.pdf>

⁴¹ See footnote 9 on prior usage rights.

The rest of the park is IUCN Category VI, where low-level use of natural resources is considered compatible with nature conservation.⁴² This includes Multiple Use Zones, where tourism activities, fishing and mining may be permitted, and Special Purpose Zones that allow or deny a particular activity.

Oil pollution emergency responses would be permitted in any marine park.

The Director of National Parks has authorised mining activities in Multiple Use Zones and some Special Purpose Zones through class approvals.⁴³ These class approvals require (among other conditions) that operations are undertaken in accordance with an environment plan accepted by NOPSEMA. The regulator's acceptance is contingent on the environment plan being consistent with the marine park's management plan and with demonstrating that the Director of National Parks has been consulted as a relevant person.

Marine park management plans allow for building pipelines in National Park Zones (IUCN Category II) and Habitat Protection Zones (IUCN Category IV), but this activity has not been included in the class approval and requires separate assessment and authorisation by the Director of National Parks.

⁴² Mining is defined as including oil exploration under Sub-section 355(2) of the *Environment Protection and Biodiversity Conservation Act 1999*.

⁴³ "Mining", Parks Australia, accessed 14 August 2019, <https://parksaustralia.gov.au/marine/activities/do-i-need-an-approval/mining/>

3. NOPSEMA processes and practices

The audit team was tasked with evaluating NOPSEMA's processes for assessing environment plans, and verifying the consistency of these processes with its regulatory obligations. This chapter deals specifically with the links between the regulations and the processes.

3.1. Organisational capability of NOPSEMA

NOPSEMA has three core regulatory functions: safety, well integrity and environmental management. This is reflected in NOPSEMA's organisational structure (Figure 4), with two regulatory divisions, one regulatory support division and a legal team. Each division reports to the Chief Executive Officer.

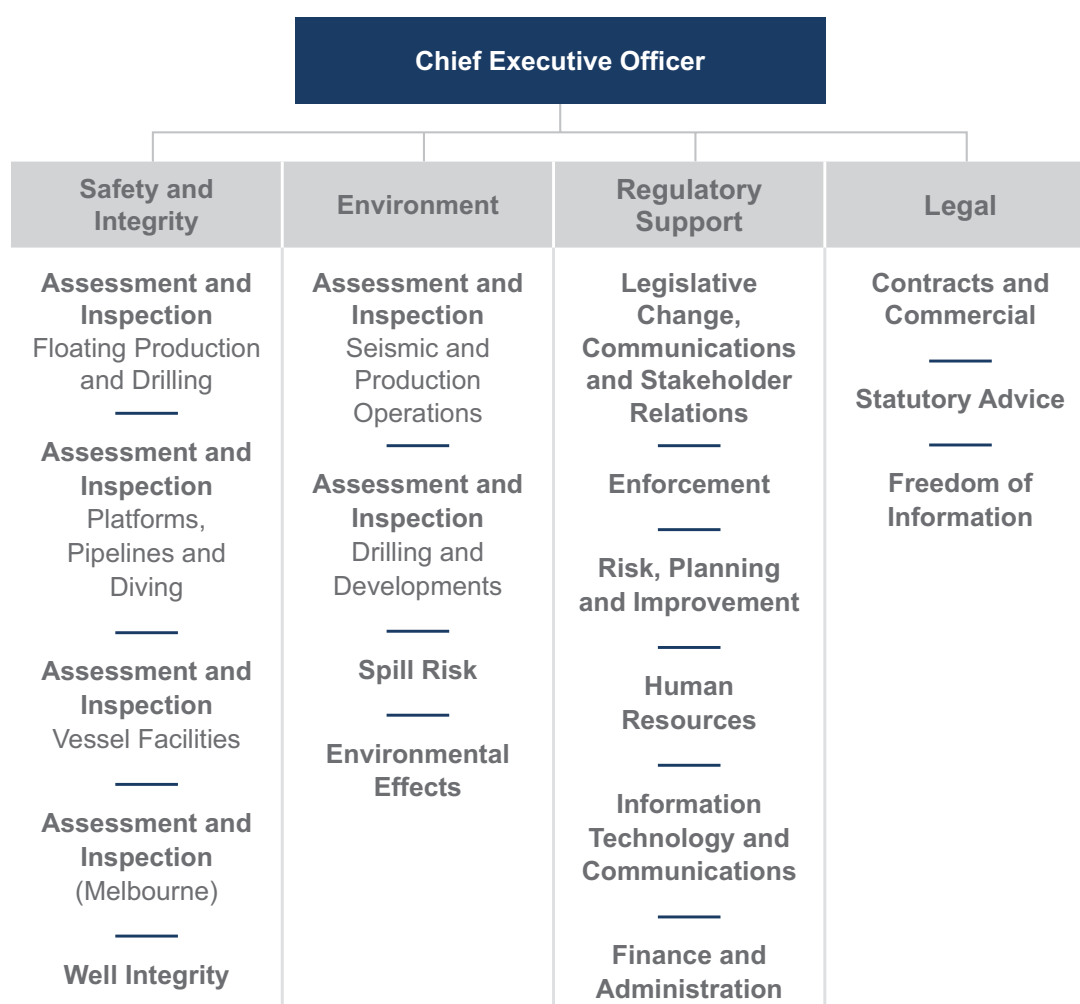


Figure 4. National Offshore Petroleum Safety and Environmental Management Authority's organisational structure

Source: National Offshore Petroleum Safety and Environmental Management Authority, 2019

To assess the completeness of scientific and technical information NOPSEMA uses to make its decisions, the audit team considered the technical proficiency and capability of the environment division.

The audit team was told the division has approximately 25 environmental experts. The audit team noted that technical staff are highly qualified, typically with a Masters or PhD degree in their respective field and with substantial post-degree experience. Industry experience was especially valued by NOPSEMA's management.

Staff recruited by NOPSEMA undertake extensive training to ensure they understand their job and the regulatory environment. New staff are supervised while they complete the required training and gain broad exposure to the regulatory setting and NOPSEMA's processes. The audit team considered the training and induction processes sufficient to ensure staff know how to do their jobs.

The diverse experience, backgrounds and capabilities of the technical staff cover all the disciplines needed to assess environment plans. If particular experience or expertise is needed, independent external advice is sought, for example through NOPSEMA's contract with the Australian Antarctic Division's Australian Marine Mammal Centre.

All those interviewed as part of the audit demonstrated very strong technical experience and had a deep understanding of the Environment Regulations.

Staff explained how the organisation copes with capacity or capability gaps if staff are ill, on leave or away. If needed, NOPSEMA uses short-term contractors to assist.

NOPSEMA demonstrated it is aware there is a degree of subjectivity in any assessment. The audit team considered NOPSEMA had appropriate processes to minimise bias. These measures include:

- For technically complex plans or activities with higher interest, assessment teams are bigger, with more experts.
- Assessment experts sit within their original team and do not work in isolation, enabling them to draw on the expertise of their team.
- Team composition varies between assessments.
- A training and competency program ensures all staff are trained and re-trained as appropriate.
- Assessors have both technical qualifications and field-based experience.
- NOPSEMA can employ staff on short-term contracts and use external expertise as required.
- NOPSEMA actively engages with the research community and industry.
- NOPSEMA has a culture of challenging and testing views and approaches.

NOPSEMA demonstrated it has processes in place to assess environment plans against appropriate scientific and technical information. Importantly, if there is scientific uncertainty, NOPSEMA explained to the audit team, it is standard practice to take a precautionary approach.

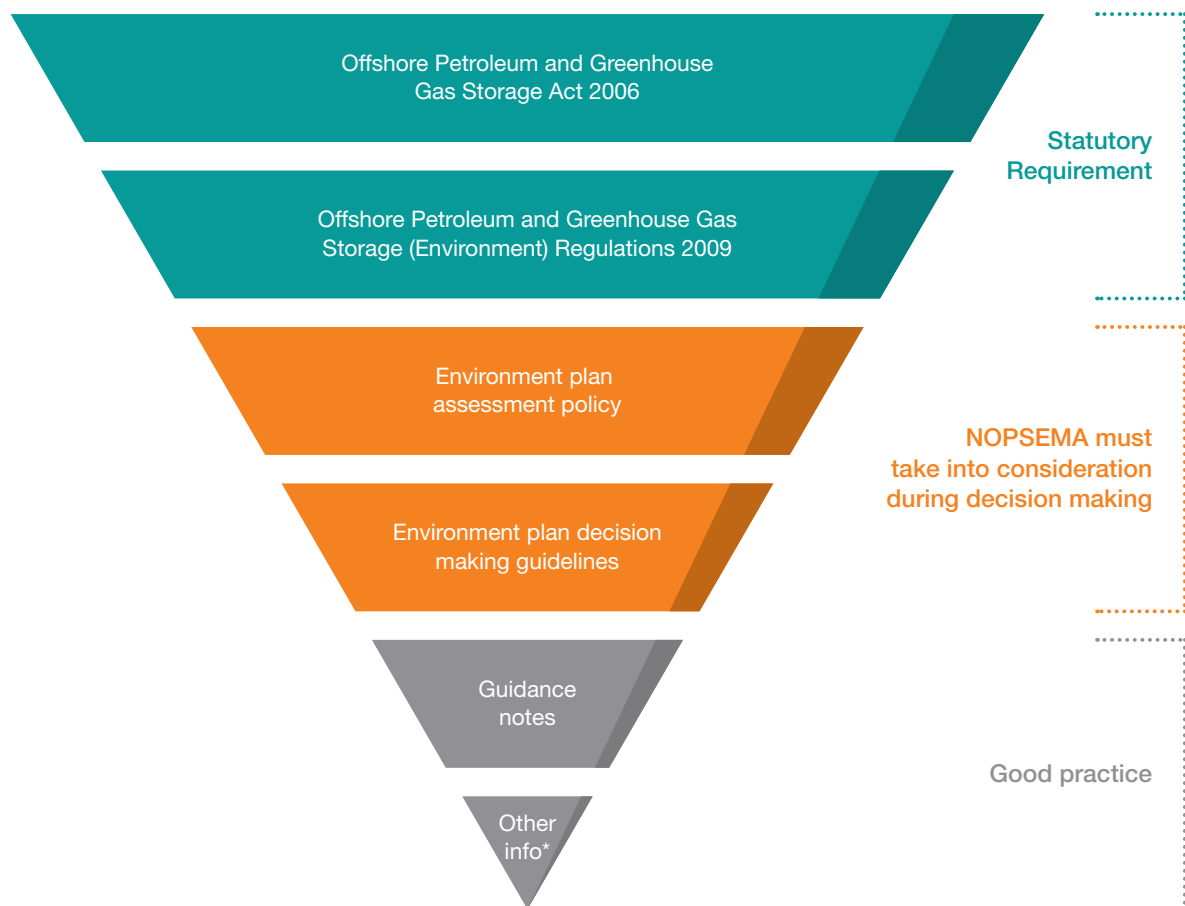
The audit team considered NOPSEMA's staff appropriately qualified for the organisation's role, with a wide range of experience and backgrounds. NOPSEMA demonstrated there is comprehensive training, and that it has links to other organisations, including arrangements with other government agencies, contractors, consultants and research bodies, to help ensure staff keep abreast of new scientific and technical information. For example, its officials participate in regular meetings for the National Plan for Maritime Environmental Emergencies as well as in international environmental regulator forums.

Finding 1 NOPSEMA is a highly skilled, professional and competent regulator.

3.2. Consistency of processes and practices with regulatory requirements

Objective-based regulation works best when regulators publish clear policies, processes and criteria by which decisions are made. This ensures that regulated entities understand the regulator's expectations and include appropriate information in risk-management plans. Activities accepted by the regulator are then monitored to ensure compliance.

To this end, NOPSEMA has developed a range of guidance materials for titleholders.



*Other information includes brochures, environment alerts, bulletins, information papers, articles in the Regulator magazine, forms and other published material.

Figure 5. National Offshore Petroleum Safety and Environmental Management Authority's regulatory process framework for environment plan assessment

Source: National Offshore Petroleum Safety and Environmental Management Authority, 2019

Figure 5 outlines the relative weight of documentation used to guide assessments:

- policy documents provide NOPSEMA's interpretation of its statutory requirements as set out in the OPGGS Act and the Environment Regulations
- guideline documents explain how titleholders can meet those statutory requirements
- guidance notes outline NOPSEMA's advice on good practice approaches for specific management topics
- information papers provide additional background and further detailed advice on more complex or emerging topics.

A full list of the documentation available from the "Environment Resources" page on NOPSEMA's website is available at Appendix D.

For this audit of current exploration activity in the Bight, the audit team considered the policies and guidance material in place when Equinor submitted its environment plan on 23 April 2019. Consideration was given to the following guidance documents produced by NOPSEMA:

- Assessment Policy PL0050 Revision 14 (referred to as PL0050)
- Environment plan assessment Policy PL1347 Revision 6 (referred to as PL1347)
- Environment plan decision making Guideline GL1721 Revision 5 (referred to as GL1721)
- Environment plan content requirements Guidance Note GN1344 Revision 4 (referred to as GN1344)
- ALARP Guidance Note GN0166 Revision 6 (referred to as GN0166).

The audit team also considered NOPSEMA's internal "Environment Plan Assessment Procedure" that details the process to be followed in assessing an environment plan.

3.2.1. Assessment policies

NOPSEMA's assessment policies are in two documents:

- Assessment Policy (PL0050) is relevant to all assessments, including safety cases, well operations management plans and offshore project proposals
- Environment Plan Assessment Policy (PL1347) is specific to environment plans.

Assessment Policy (PL0050)

PL0050 establishes overall principles to provide procedural direction and guidance for those involved in assessments. These principles include:

- submitted documentation is to be kept confidential, although disclosed when legally required⁴⁴
- assessments are to be fair and technically competent
- there will be consistency in methodology between assessments
- assessment processes are to be transparent
- good management practices will be applied
- good quality management practices are to be adopted
- the detail of assessments will be proportionate to the level of risk
- the results of assessment will be presented to relevant stakeholders
- assessments will evaluate competency to meet commitments
- information from assessments will guide post-acceptance compliance activities
- significant assessment decisions will be referred to NOPSEMA's Compliance Committee.

44 Under the changes to the Environment Regulations on 25 April 2019, NOPSEMA is required to publish environment plans on submission and if accepted by the regulator.

The audit team considers these principles a sensible overarching assessment framework.

The Assessment Policy makes key commitments particularly relevant to NOPSEMA's assessment of the Stromlo-1 environment plan:

- Its core processes will involve guidance and operational procedures aligned with legislative requirements.
- Assessment teams will have appropriate skills and competence, with access to extra expertise and experience where necessary.
- Assessment teams will be trained in the relevant procedures.
- Findings will be reviewed by team managers or others in NOPSEMA to ensure consistency.
- The assessment team will be selected on specified grounds.
- Any deviations from documented procedures will be approved and recorded.
- There will be specific assessment scopes.
- Assessment progress will be monitored.
- Lead assessors will be appointed.
- Quality assurance and quality control issues will be embedded into processes and supplemented by internal audits.
- There will be an emphasis on assessing any competence commitments in submissions.
- The Compliance Committee will review significant decisions.

Environment plan assessment Policy (PL1347)

PL1347 details more specific policies for assessing environment plans.⁴⁵ This policy provides a clear and succinct statement of NOPSEMA's decision-making, acknowledging the complex and often competing environmental, social and economic considerations raised by the acceptance criteria in Regulation 10A of the Environment Regulations.

It notes that it uses principles for good decision-making in accordance with the *Administrative Decisions (Judicial Review) Act 1977*. These are expanded on in Section 1.3 in the Environment plan decision making Guideline GL1721.⁴⁶

⁴⁵ The current Rev. 7 version of this document applies to all environment plan submissions made after 25 April 2019. The Stromlo-1 environment plan was submitted on 23 April 2019 and will be assessed under Rev. 6. The key changes made in Rev. 7 include:

- An initial "completeness check" has been introduced to determine if the environment plan includes material that "apparently" addresses all the required contents. This replaces the Rev. 6 requirement of a "pre-assessment check" that was less focused on screening out environment plans not containing information in all the required categories.
- New sections added on sensitive information and public comments.
- New Environment Plan Assessment Principles that are more detailed than in Rev. 6.
- Clearer decision-making responsibility.

⁴⁶ Grounds for judicial review of a NOPSEMA assessment under the *Administrative Decisions (Judicial Review) Act 1977* could include making errors in law, taking irrelevant considerations into account, lack of evidence on which to base a decision, relying upon factual errors for a decision, and not following prescribed legal procedures.

PL1347 states the purpose of NOPSEMA's decision-making approach is to satisfy the objects of Regulation 3 of the Environment Regulations. The objects relate to ensuring environmental impacts and risks will be of an acceptable level and reduced to ALARP, and consistent with the five principles of ecologically sustainable development which are set out in Section 3A of the EPBC Act.

The audit team considered this policy to provide appropriate commitments to ensure an environment plan meets the Regulation 10A acceptance criteria. It provides information on how NOPSEMA will scope an environment plan assessment, conducting both a general assessment and one or more detailed topic assessments focusing on the highest impacts or risks of a proposed activity.

The audit team concluded PL1347 also adequately reflects the requirements of Regulation 5G(2) of the Environment Regulations – that NOPSEMA be reasonably satisfied a titleholder complies with the financial assurance requirements. It appropriately refers to more specific financial assurance guidelines for titleholders (GL1381).

3.2.2. Assessment decision-making guideline

Environment plan decision making Guideline (GL1721) is NOPSEMA's key decision-making guideline. Its stated aim is to provide transparency about how NOPSEMA assesses environment plans. The expectation is that titleholders will take this information into account when preparing their plans.

This guideline is also important for another reason. Under Regulation 10 of the Environment Regulations, NOPSEMA has a level of discretion in deciding it is "reasonably satisfied" an environment plan meets the criteria for acceptance. Section 1.2 of this guideline explains how NOPSEMA interprets the "reasonably satisfied" threshold.

The guideline's approach is to amplify and develop each of the eight specific criteria in Regulation 10A. This is done by first putting each criterion into context. It then nominates specific factors that influence how it decides whether that criterion is met. Finally, it sets clear objectives to be met to qualify for acceptance. The audit team found this approach clear and transparent.

The guideline provides significant clarity on how environment plans are assessed to demonstrate environmental impacts and risks have been reduced to ALARP and also to an acceptable level. It includes a sample of decision-making questions for each of the Regulation 10A categories that help to make the process even clearer.

The document also provided evidence of NOPSEMA's open and transparent processes when developing guidance material, with a public consultation period prior to its formal adoption.

3.2.3. Guidance Note

Environment plan content requirements Guidance Note (GN1344) explains to titleholders the relevant requirements of the Environment Regulations that need to be met in an environment plan. GN1344 is an authoritative and transparent statement of the standards NOPSEMA works to when assessing an environment plan.

Section 3 of the note, on key content requirements, clearly articulates the purpose of the regulatory requirements and then identifies core concepts and considerations for each aspect. It refers to the applicability of International Organization for Standardization (ISO) standards – especially AS/NZS ISO 31000: Risk Management and AS/NZS ISO 14001: Environmental Management Systems. GN1344 states that the processes described in these standards “provide a good basis for addressing the requirements of the Environment Regulations”.⁴⁷

Section 4 of the note expands on how the criteria in Regulation 10A of the Environment Regulations are met through the content requirements for an environment plan.

The audit team found GN1344 to be a succinct and transparent summary of expectations of environment plans. Its benchmarking elements enable a consistent approach to assessment. It would, however, be even clearer if it defined what it means by “cumulative impacts”.⁴⁸

Under the Environment Regulations, a titleholder is required to demonstrate broad compliance with other Commonwealth legislation. GN1344 provides a high-level explanation of what NOPSEMA considers to be required. The audit team’s meetings with NOPSEMA verified it has appropriate processes in place to ensure a titleholder has demonstrated compliance with all of its environmental obligations under Commonwealth legislation.

3.2.4. Assessment procedure

NOPSEMA’s Environment Plan Assessment Procedure details the process for assessing an environment plan. It provides clarity about roles and responsibilities (from the CEO down) and includes process flowcharts for the various assessment and decision stages.

The audit team considered the Environment Plan Assessment Procedure to be appropriately linked to the requirements of the Environment Regulations and NOPSEMA’s policies and guidelines. These links include:⁴⁹

- Technical assessors are responsible for conducting assessments in accordance with NOPSEMA’s policies and procedures and for ensuring consistency with NOPSEMA’s published guidance.

⁴⁷ NOPSEMA, *Environment plan content requirements guidance note GN1344, Revision 4*, April 2019, accessed 28 August 2019, <https://www.nopsema.gov.au/assets/Guidance-notes/A339814.pdf>, p 5.

⁴⁸ The audit recognises there is limited national or international consensus on the management of cumulative impacts. The United Nations has proclaimed 2021-2030 the UN Decade of Ocean Science for Sustainable Development, which includes actions to improve the understanding and management of the effects of cumulative stressors.

⁴⁹ NOPSEMA, *NOPSEMA Environment Plan Assessment Procedure, SOP1369, Revision 13*, February 2018.

- Lead assessors have to ensure NOPSEMA's policies, processes and guidance are applied during assessment.
- Assessors must record the basis for conclusions against both the acceptance criteria and content requirements of the Environment Regulations.
- The Representative of NOPSEMA (RON) has to conclude there is appropriate evidence that NOPSEMA's assessment policies have been adhered to before the final decision is made.⁵⁰

To verify these processes are adhered to, the audit team had a series of meetings with NOPSEMA to examine its practice and the evidence of their implementation.

Overall there is good, open decision-making at the procedural level.

Sections 7.3.15 & 7.3.16 of the Environment Plan Assessment Procedure state that lead assessors can ask technical assessors to revise and clarify their findings. If there is no overall team consensus about a decision, the Assessment Procedure says this should be flagged for further consideration by the RON. Discussions with NOPSEMA indicated it is rare for consensus not to be achieved through open discussion and debate, or by inviting specialists not directly involved with a particular assessment to provide peer review.

To ensure the process is being followed, NOPSEMA relies on documents, reports and deliberative information used to inform decisions being recorded in its Regulatory Management System (RMS). NOPSEMA uses the RMS to record and track all of its regulatory activities. All assessment-related documents are stored in the RMS or connected systems. The Environment Plan Assessment Procedure provides very clear and consistent criteria for doing this.

Of particular relevance is that the RMS has a step-by-step checklist to confirm an environment plan meets each of the Regulation 10A acceptance criteria. This ensures an assessment meets this aspect of NOPSEMA's regulatory obligations. A plan cannot be approved without the RON ticking off all elements in the checklist.

NOPSEMA's processes specify the RON alone has the authority to approve an environment plan. The RON may ask for input from NOPSEMA's Compliance Committee (the CEO, General Counsel and each Head of Division) if, for instance, there is a high level of stakeholder interest (Section 8.3.2) or the assessment decision is likely to be "atypical" (Section 8.3.4), but the assessment decision rests with the RON.⁵¹

⁵⁰ Any NOPSEMA environment manager or head of division can be the RON for an environment plan assessment. The RON has the key role of final decision-maker by delegation from NOPSEMA's CEO.

⁵¹ Once the RON has made a decision, options for external parties to challenge that decision include judicial review under the *Administrative Decisions (Judicial review) Act 1977*, referral to the Commonwealth Ombudsman, and NOPSEMA's own formal complaint procedure.

NOPSEMA's assessment principles, policies and procedures are of high quality and provide a sensible decision-making framework. The Environment Regulations' objectives (Regulation 3) and acceptance criteria (Regulation 10A) are appropriately referenced. Detailed guidance documents make expectations of an environment plan clear. Guidelines amplify and develop each of the Regulation 10A criteria, ensuring both NOPSEMA and stakeholders know what is required to gain acceptance.

NOPSEMA's internal processes for assessing environment plans support the requirements of the Environment Regulations. Clear responsibilities are placed on named roles to ensure policies and guidance are applied throughout the process. The regulator's RMS tracks the whole process.

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- Finding 2** NOPSEMA has appropriate processes and practices to meet regulatory requirements under the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Environment Regulations) in its consideration of exploration matters.
- Finding 3** NOPSEMA has appropriate processes and practices to ensure environment plans are assessed against relevant, sufficient and complete scientific and technical information.
- Finding 4** NOPSEMA has clear guidance material in place to assess environmental impacts and risks.
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3.3. Processes for titleholders to provide additional information and modify plans

Regulatory experience has shown that assessment processes in objective-based regimes are iterative. Regulators raise questions and applicants (titleholders in the case of this report) respond with clarifications or amendments, until there is enough evidence to make a decision.

Offshore environment plans are complex and detailed documents, so accepting a plan may be a long process. The Environment Regulations reflect this. NOPSEMA is able to request further written information (Regulation 9A) and, where not reasonably satisfied the environment plan meets the acceptance criteria, allow a titleholder to modify and resubmit an environment plan (Regulation 10).

The audit team concluded that Section 4.5 of the Environment Plan Assessment Policy (PL1347) specifies clear procedures for both of these processes.

Aside from a request for further written information, NOPSEMA's written processes and flowcharts do not indicate any other dialogue with a titleholder during assessment of an environment plan.

The audit team has verified NOPSEMA's practice is to liaise with titleholders before they submit a plan, and to cease doing so once a formal submission is made and under assessment. This enables the assessment team to concentrate on the assessment and ensures the independence and objectivity of the regulator during the process.

If NOPSEMA requests further information, dialogue can resume. It is common practice for the assessment team to meet a titleholder to explain issues that have been raised. This gives the titleholder an opportunity to address any deficiencies.

The audit team considers it good practice for NOPSEMA's assessment team to not engage with a titleholder while assessing a plan.

3.3.1. Transparency of requests for additional information

For environment plans submitted prior to 25 April 2019, NOPSEMA published notifications whenever it gave a titleholder the opportunity to modify and resubmit a plan. These notices were brief, with little detail about the reasons why. Recent revisions to NOPSEMA's environment plan assessment policy mean these notices will no longer be published.⁵² NOPSEMA will publish a notification only when the final assessment decision is made.

NOPSEMA may make a request for further written information to a titleholder when information in an environment plan is insufficient for NOPSEMA to make an assessment decision. NOPSEMA has never published its requests for further written information from a titleholder. The audit team heard concerns from stakeholders about insufficient transparency in this regard. It was suggested NOPSEMA should publish a summary of these requests to engender greater trust in the process.

Finding 5 Stakeholders desire a greater level of transparency from NOPSEMA during the assessment and decision-making process, prior to a final decision on the environment plan.

Opportunity NOPSEMA could enhance transparency during the assessment and decision-making process by providing additional public detail of requests for further written information and notices giving titleholders the opportunity to modify and resubmit an environment plan.

⁵² NOPSEMA, *Environment Plan Assessment Policy PL1347, Revision 7*, April 2019, accessed 21 August 2019, <https://www.nopsema.gov.au/assets/Policies/A662608.pdf>

3.4. 'As low as reasonably practicable' (ALARP) and 'acceptable'

The concept of ALARP is well-established, particularly in relation to safety. Its basis is the trade-off between a risk and the impost – such as time, effort and money – needed to minimise or eliminate that risk. Reducing risks to ALARP means risks are minimised to the point where the cost of any further reduction is vastly disproportionate to the benefits gained. Factors to take into account when considering what is reasonably practicable include the likelihood of the risk occurring, the impact if it occurs, and the availability, suitability and cost of control measures to eliminate or reduce the risk or impact.

ALARP is underpinned by the understanding no activity can ever have zero risk. In Australia, it is used both for safety legislation and environmental regulation. The concept is central to NOPSEMA's policies and processes. The Environment Regulations state an environment plan must demonstrate the environmental risk and impacts of an activity will be reduced to ALARP.⁵³

NOPSEMA has no stand-alone ALARP guidance note for environmental assessments, but the audit team reviewed ALARP Guidance Note GN0166, which deals with safety issues. The audit team's meeting with NOPSEMA verified that the regulator regards what GN0166 says as consistent with NOPSEMA's environmental management functions. It also verified there is further guidance on ALARP relating to environment plans contained in Section 3 of GL1721 and sections 3.5 & 3.6 of GN1344.

The Environment Regulations also require that environmental impacts and risks be of an "acceptable level".⁵⁴ They do not, however, define what "acceptable" means. The audit team notes that GN1344 mitigates this by providing clear guidance on the issues titleholders should consider when determining if environmental impacts and risks are acceptable. NOPSEMA's Environment plan decision making Guideline (GL1721) also clearly details the aspects assessors will consider in deciding if a titleholder has adequately demonstrated acceptable levels of environmental impact and risk.

The audit team observed during stakeholder consultations that ALARP and acceptable are well-understood concepts across industry but less so in the wider community. Concerns were expressed that this lack of understanding might create unwarranted fears about the approved level of risks.

Finding 6 "As low as reasonably practicable" (ALARP) and "acceptable" are not concepts well understood by some stakeholders.

⁵³ Sub-regulation 10A(b), Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

⁵⁴ Sub-regulation 10A(c), Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

Opportunity NOPSEMA could provide clearer guidance to the public on what it considers when it assesses environmental impact and risk to be ALARP and acceptable.

4. Stakeholder engagement and consultation

To assess NOPSEMA's processes to meet its obligations in assessing environment plans, this audit was tasked with examining how other relevant information, such as that received through consultation and public comment, is taken into account. This chapter addresses the regulatory requirements for consultation and the processes of titleholders and NOPSEMA to assess consultative inputs.

4.1. Regulatory requirements

Consultation with "relevant persons" potentially affected is a requirement for all petroleum activities. An environment plan must demonstrate consultation processes are in place and that the titleholder, having undertaken appropriate consultation in preparing the plan, has adopted or proposes to adopt appropriate management measures as a result. NOPSEMA cannot accept any environment plan that does not demonstrate this.

The titleholder is required to give each relevant person sufficient information and reasonable time to make an informed assessment of the possible consequences on their functions, interests or activities. NOPSEMA assesses the sufficiency of information and the time provided on a case-by-case basis.

All environment plans submitted on or after 25 April 2019 are subject to amendments to the Environment Regulations that impose extra requirements for oil and gas activities in Commonwealth waters. These include:

- the full publication of environment plans on submission to and acceptance by NOPSEMA
- a 30-day public comment period for all environment plans relating to seismic surveys and exploratory drilling activities.

Environment plans for petroleum development, production, construction or infrastructure activities are already subject to public comment during preparation of an Offshore Project Proposal.⁵⁵

Comments related to the content of the environment plan received during the comment period must be taken into account by the titleholder, and by NOPSEMA when assessing the plan. NOPSEMA and the titleholder must not consider comments on matters not related to the content of the environment plan, or comments received outside the comment period.

⁵⁵ An offshore project proposal must be submitted to NOPSEMA for assessment prior to submitting an environment plan for individual project activities. The proponent is required to demonstrate the project can be carried out in a manner consistent with the principles of ecologically sustainable development, and that the environmental impacts and risk will be of an "acceptable" level. Petroleum activities that comprise an offshore project include constructing, commissioning, operating and decommissioning facilities and pipelines, production drilling and any other activity undertaken to recover petroleum.

Following the public comment period, the titleholder is required to prepare a statement responding in general terms to any comments received and indicating whether any modifications were made to the environment plan in response to the comments received. A copy of the revised environment plan and the statement are published on NOPSEMA's website when the environment plan is submitted for assessment.⁵⁶

NOPSEMA is now required to prepare a statement detailing how its assessment has taken into account any comments received. It must publish the statement on its website at the same time it publishes an accepted environment plan. These new regulatory requirements add to NOPSEMA's internal efforts to increase stakeholder confidence in its decision-making processes.

Tensions between resource companies and other interests are not unique to offshore exploration activities. Effectively managing the competing interests of stakeholders, to protect livelihoods and lifestyles, can be challenging. Constructive relationships with all stakeholders engaged in the process are crucial.⁵⁷

The 2015 Operational Review of NOPSEMA detailed key principles for stakeholder engagement to achieve a "Social Licence to Regulate".⁵⁸ A core component of building trust in an organisation is the community's perception of its competence and integrity.⁵⁹ This is especially important for a regulator managing an activity with perceived risks.⁶⁰

The audit team saw extensive evidence that NOPSEMA is regarded as a highly professional regulator and has been proactive in working to achieve greater transparency. Some stakeholders with whom the audit team met expressed appreciation for NOPSEMA's willingness to engage with stakeholders, host community sessions when appropriate and respond to questions and issues within its remit.

NOPSEMA's efforts to increase transparency are outlined in its 2017 report "Stakeholder engagement and transparency work program".⁶¹ Among its important approaches is a standing Transparency Taskforce to drive further reforms.

⁵⁶ Sub-regulation 11B, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

⁵⁷ Jan Terje Karlsen et al, "Building Trust in Project Stakeholder Relationships", *Baltic Journal of Management*, 2008, Vol. 3, No. 1, pp. 7 – 232.

⁵⁸ Ken Fitzpatrick et al, *2015 Operational Review of the National Offshore Petroleum Safety and Environmental Management Authority*, September 2015, accessed 21 August 2019, <https://www.nopsema.gov.au/assets/Corporate/2015-Operational-review-of-NOPSEMA.pdf>, p. 65.

⁵⁹ Bart Terwel et al, "Going beyond the properties of CO₂ capture and storage (CCS) technology: How trust in stakeholders affects public acceptance of CCS", *International Journal of Greenhouse Gas Control*, 2011, Vol. 5, Issue 2, pp. 181-188.

⁶⁰ Vivianne Visschers, & Michael Siegrist, "Exploring the Triangular Relationship between trust, affect and risk perception: a review of the literature", *Risk Management*, 2008, Vol. 10, pp. 156-167.

⁶¹ NOPSEMA, *Final Report: Stakeholder engagement and transparency work program*, 2017, accessed 21 August 2019, <https://www.nopsema.gov.au/assets/Environment-resources/A562339.pdf>

4.2. Defining relevant persons

Regulation 11A of the Environment Regulations defines the relevant persons who should be consulted when preparing a plan as including:

- a) each Department or agency of the Commonwealth to which the activities to be carried out under the environment plan, or the revisions of the environment plan, may be relevant
- b) each Department or agency of a State or the Northern Territory to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant
- c) the Department of the responsible State Minister, or the responsible Northern Territory Minister
- d) a person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the environment plan, or the revision of the environment plan
- e) any other person or organisation that the titleholder considers relevant.

NOPSEMA's document "Public comment on environment plans" elaborates on this by identifying each relevant person category as:

- "particular government departments or agencies with responsibilities that are relevant to the petroleum activity
- a person or organisation whose functions, interests or activities may be affected by the petroleum activities themselves to be carried out under the environment plan, which generally includes other marine users in the vicinity of the activity and its immediate footprint
- any other person or organisation the titleholder considers relevant. This may vary between activity, and NOPSEMA recommends that titleholders apply this category broadly when considering who to consult with."⁶²

Defining government departments or agencies with responsibilities relevant to the petroleum activity is clear and uncontested. The other two categories are less so. The audit team was told the way relevancy is determined by the titleholder leads to perceived inconsistencies between different petroleum activities.

Who may be considered relevant depends on the location and the likely impacts of the activity. Determining who is relevant is first undertaken by the titleholder, which must include this in its environment plan. NOPSEMA must be satisfied the titleholder has demonstrated its consultations with relevant persons meets the criteria in the Environment Regulations.

⁶² NOPSEMA, *Public Comment on Environment Plans*, 2019, accessed 20 August 2019, <https://www.nopsema.gov.au/assets/Publications/A665131.pdf>

Stakeholders can directly contact a titleholder to make their case for why they should be considered relevant through their various “functions, interests and activities”. They are obliged to clearly describe how their functions, interests or activities may be affected by a proposed activity. However, a titleholder is not obliged to accept their request.

NOPSEMA’s guidance on this matter (outlined in a 2014 information paper) is that the concept of a relevant person with whom titleholders must consult should be interpreted broadly:

“Relevancy implies that there exists a reasonable connection or relationship to the activity in question. Factors such as the nature of the activity, description of the environment in which the activity is being undertaken and the possible impacts and risks of the activity should be taken into account when determining whether a reasonable connection exists between the activity, and potential relevant person(s).”⁶³

4.2.1. Consultation process

The Environment Regulations require a titleholder to provide each relevant person with sufficient information about the proposed activity and a reasonable time period for the consultation. The consultation period may last from months to years, depending on the proposed activity and the information available.

NOPSEMA’s information paper “Consultation requirements under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009” sets out its expectations for consultation. This includes early engagement, respectful communication and providing sufficient information to relevant persons and organisations.⁶⁴

Section 8 of the Environment plan decision making Guideline (GL1721) outlines NOPSEMA’s expectation that titleholders must, in preparing an environment plan:⁶⁵

- identify who needs to be consulted, share information and allow time for that information to be considered (Regulation 11A).
- disclose in the environment plan all consultation carried out, so NOPSEMA can assess if the consultation meets requirements (Sub-regulation 16(b)).

⁶³ NOPSEMA, *Consultation requirements under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* IP1411, Revision 2, December 2014, accessed 20 August 2019, <https://www.nopsema.gov.au/assets/Information-papers/A347285.pdf>, p. 6.

⁶⁴ NOPSEMA, *Consultation requirements under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* IP1411, Revision 2, December 2014, accessed 20 August 2019, <https://www.nopsema.gov.au/assets/Information-papers/A347285.pdf>

⁶⁵ NOPSEMA, *Environment plan decision making Guideline GN1721*, Revision 5, June 2018, accessed 14 August 2019, <https://www.nopsema.gov.au/assets/Guidelines/A524696.pdf> p. 21.

Sub-regulation 10A(g) sets out NOPSEMA's criteria for deciding it is reasonably satisfied appropriate consultation has occurred. Specific factors that influence its decision include:⁶⁶

- information sought from relevant persons to inform the evaluation of impacts and risks
- the transparency and completeness of the report on consultations.

GL1721 notes:

"In deciding if relevant persons have been consulted NOPSEMA will consider publicly available information such as published consultation expectations, the quality of information relied upon to exclude persons from consultation who may be relevant, information provided by other relevant persons during consultation, and information provided directly to NOPSEMA from relevant persons."⁶⁷

In its considerations, NOPSEMA poses the following questions:⁶⁸

- Could the relevant person consulted make an informed decision about how they may be affected by an activity?
- Is it clear that information gathered through consultation has informed the following:
 - the description of the environment
 - the evaluation of impacts and risks
 - the adoption of control measures?
- Were the relevant persons aware of how to provide information, how to get more information, and how their views were taken into account?
- Are the consultation efforts of the titleholder proportionate to the degree to which that relevant person will be affected?
- Has the titleholder met any publicly available expectations of consultation held by that relevant person?
- Are the reasons for selecting/rejecting additional measures proposed by relevant person reasonable?

The audit team considers this guidance is clear about how NOPSEMA decides it is reasonably satisfied a titleholder has consulted sufficiently. However, the audit team's stakeholder consultations indicated non-industry stakeholders were still often confused about why determinations about who was a relevant person differed between environment plans for different oil and gas activities.⁶⁹

⁶⁶ Ibid p. 22.

⁶⁷ Ibid p. 24.

⁶⁸ Ibid p. 28.

⁶⁹ NOPSEMA's assessment of Equinor's environment plan is ongoing. It is not clear at this stage if NOPSEMA is reasonably satisfied the consultation undertaken is sufficient to meet the regulatory requirements. The audit has not considered the merits of how Equinor has defined relevant persons.

The audit team considered NOPSEMA's policies, guidance notes, proformas and other information materials to be excellent guides on what information is required from titleholders. NOPSEMA has similar documents available for external stakeholders.

4.3. Public comments

As noted in Section 4.1, the Environment Regulations require a period during which interested members of the public can submit to NOPSEMA comments on an environment plan. A titleholder must take these comments, if relevant to the environmental management of their activity, into account in its environment plan. NOPSEMA must also take the comments into account in its assessment. The titleholder must prepare a report on its response to comments received. The report is published by NOPSEMA.

NOPSEMA has prepared a public brochure detailing its process for dealing with public comments, along with any other correspondence it receives.⁷⁰ There are clear guidelines on what makes issues raised through public comments relevant to the environment plan. NOPSEMA also has clear processes for responding to correspondence received separate to the public comment period.

During its meetings with NOPSEMA, the audit team verified the process for considering public comments during NOPSEMA's assessment. Similar to other government public consultation processes, NOPSEMA tailors its approach to each environment plan submission. This takes into account the volume of public submissions to ensure NOPSEMA most efficiently considers all relevant matters raised and identifies major themes. NOPSEMA then assesses how the titleholder has taken the public comments into account.

NOPSEMA's guidance note "Responding to public comment on environment plans" (GN1847) details its expectations on how titleholders should manage and respond to public comments.⁷¹ NOPSEMA has also detailed its process to assess comments.

4.4. Equinor's Stromlo-1 consultation

In accordance with the terms of reference, the audit team considered the specific aspects of the consultation processes for Equinor's proposed Stromlo-1 Exploration Drilling Program, the exploration matter currently under consideration by NOPSEMA.

⁷⁰ NOPSEMA, *Public comment on environment plans*, March 2019, accessed 21 August 2019, <https://www.nopsema.gov.au/assets/Publications/A665131.pdf>

⁷¹ NOPSEMA, *Guidance Note: Responding to public comment on environment plans GN1847*, accessed 19 August 2019, <https://www.nopsema.gov.au/assets/Guidance-notes/A662607.pdf>

In preparing its environment plan, Equinor consulted with a range of stakeholders it regarded as relevant persons. Equinor's relevant person consultation report itemises who was consulted and summarises the feedback received.⁷²

Equinor's determination of who was a relevant person was contested by some stakeholders with whom the audit team met. Equinor's methodology was to define a relevant person as those stakeholders who had an activity, function or interest within the geographic area that might be affected by its planned activities – referred to as the Impact Environment that May Be Affected (or Impact EMBA) area.⁷³ It did not include stakeholders who may have been interested in the larger geographic area that might be affected by an unplanned event associated with its planned activities referred to as the Risk Environment that May Be Affected (or Risk EMBA) area.

While the titleholder might have considered this assessment methodology clear-cut, interested individuals and organisations it determined to not be relevant persons disagreed. The audit team heard during consultations from stakeholders who felt Equinor's determination of relevant persons was far too narrow – particularly given paragraph 11A (1)(e) states "any other person or organisation that the titleholder considers relevant" can be included.

Fishing industry associations, environmental non-government organisations and traditional owners were among those who disagreed with Equinor's determination they were not relevant persons.⁷⁴

4.4.1. Stakeholder feedback on Stromlo-1 consultation

During the audit team's meetings with stakeholders about Equinor's consultation for the Stromlo-1 proposal, varying degrees of concern were expressed about the process.

One factor in these concerns was whether a stakeholder was for or against oil and gas exploration in the Bight. Stakeholders who indicated they would not accept any level of risk in relation to the proposed activity tended to report not being satisfied with the levels of consultation and engagement. Those who saw potential benefits from offshore activities tended to be more positive.

Those who had been considered by the titleholder to not be a relevant person also reported more dissatisfaction with the levels of consultation and engagement. Those considered to be relevant persons were generally more positive. This may be because relevant persons receive continued dialogue with the titleholder, while there are no requirements under the Environment Regulations for continued engagement with other stakeholders.

⁷² Equinor, *Environment Plan Appendix 3-1: Relevant person consultation report*, April 2019, accessed 14 August 2019, <https://www.equinor.com/content/dam/statoil/documents/australia/gab-project/Equinor-Appendix-3-1-Relevant-persons-consultation-report-FINAL-Rev1.pdf>

⁷³ Equinor, *Environment Plan for the Stromlo-1 Exploration Drilling Program*, April 2019, accessed 23 August 2019, <https://www.equinor.com/content/dam/statoil/documents/australia/gab-project/Equinor-Environment-Plan-Rev-1-20190422.pdf>, p. 24.

⁷⁴ NOPSEMA's assessment of Equinor's environment plan is ongoing. It is not clear at this stage if NOPSEMA is reasonably satisfied the consultation undertaken is sufficient to meet the regulatory requirements. The audit has not considered the merits of how Equinor has defined relevant persons.

Individuals and small organisations with limited resources expressed concern about their ability to make sense of all the information in an environment plan and comment within the set consultation period. NOPSEMA said it was aware of the matter but had to accord with the law and could not impose unreasonable timeframes.

All stakeholders expressed a desire to see a strong and independent regulator that relied on science to inform its operations.

Equinor submitted its environment plan to NOPSEMA on 23 April 2019, two days before the amendments to the Environment Regulations noted in Section 4.1 took effect. Equinor voluntarily committed to follow the new regulatory requirements for public comment and transparency. These include:

- releasing its full environment plan for a 30-day public comment period
- reviewing and addressing any relevant issues raised during consultation and revising its plan as appropriate
- preparing a report detailing how it considered and responded to comments received
- publishing its amended environment plan and public comment report
- having its environment plan published on NOPSEMA's website if it is accepted.

The draft environment plan was released for a 30-day public comment period on 19 February 2019. Members of the public were invited to comment on the plan through the NOPSEMA website. More than 31,000 comments were submitted and all comments were provided to Equinor for consideration. Equinor has subsequently prepared a statement of response to those comments.⁷⁵

Notwithstanding the feeling of some stakeholders whom the titleholder did not consider to be relevant persons, the audit team heard evidence that Equinor had gone beyond regulatory requirements in engaging with some stakeholders not considered to be relevant persons.

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| Finding 7 | Parties consulted by the titleholder as relevant persons generally feel appropriately included in regulatory processes. |
| Finding 8 | Parties not consulted as relevant persons by the titleholder did not always understand why they were not determined to be relevant persons. |
| Finding 9 | The titleholder has outlined in its environment plan an extensive commitment to engagement with communities, but some stakeholders remained unsatisfied. |
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⁷⁵ Equinor, *Statement of Response to Public Comments to Equinor's draft Environment Plan for the Stromlo-1 Exploration Drilling Program*, April 2019, accessed 14 August 2019, <https://www.equinor.com/content/dam/statoil/documents/australia/gab-project/Equinor-response-to-public-comments-April-2019-final.pdf>

Opportunity NOPSEMA could provide further clarification to the public of what it considers when it assesses whether titleholders have appropriately identified and consulted with relevant persons.

Opportunity Titleholders could consider ongoing community engagement opportunities for stakeholders not meeting the regulatory definition of relevant persons.

4.5. Key matters report

As noted in Section 4.3, for any environment plan subject to a public comment period that NOPSEMA accepts, the regulator is required to publish a report detailing how its assessment took public comments into account. Its Environment Plan Assessment Policy (PL1347) has been updated to include the need to publish this, called a key matters report.⁷⁶

The audit team verified NOPSEMA's practice is to publish this report at the same time as its environment plan decision notice. This means there can be some delay in feedback to those who submitted comments.

The audit team verified that NOPSEMA had prepared such reports for activities not subject to the public comment requirements but that have generated community interest. For example, NOPSEMA published a key matters report (referred to as a "Key Stakeholder Matters Report" for that activity) about the stakeholder concerns it considered in assessing the environment plan for the Duntroon Multi-client 3D and 2D Marine Seismic Survey.⁷⁷ The audit team considered this report is a good example of the level of detail NOPSEMA was requesting from titleholders, and demonstrated how environmental management issues raised about the activity were being managed.

As noted in Section 4.4, Equinor's environment plan is currently under consideration by NOPSEMA. Should NOPSEMA accept Equinor's Stromlo-1 environment plan, the audit team is confident publishing a key matters report would provide the public with a helpful level of information about issues raised in public comments.

⁷⁶ Further information on this process is provided in NOPSEMA's assessment policy-PL1347, Revision 7, April 2019, accessed 27 August 2019, <https://www.nopsema.gov.au/assets/Policies/A662608.pdf>

⁷⁷ NOPSEMA, Key Stakeholder Matters Report: Duntroon Multi-client 3D and 2D Marine Seismic Survey, January 2019, accessed 14 August 2019, <https://www.nopsema.gov.au/assets/epdocuments/A645899.pdf>

5. Scientific and technical information

The audit team was asked to examine the relevancy, sufficiency and completeness of the scientific and technical information used by NOPSEMA to assess Equinor's current proposal for exploration in the Bight. Part of that examination was considering NOPSEMA's organisational capability to assess information, as mentioned in Section 3.1. Other aspects are covered in this chapter.

The audit team considered only the relevancy, sufficiency and completeness of the information in Equinor's environment plan.

5.1. Internal and external assessment processes

To verify how the regulator tests the relevancy, sufficiency and completeness of information in environment plans, the audit team considered NOPSEMA's knowledge systems, links to external information sources, and processes for assessing technical information.

NOPSEMA described to the audit team a two-fold approach to ensure it has all the information it needs to assess environment plans according to the requirements of the Environment Regulations. This approach can be summarised as:

- providing comprehensive guidance as to what is required in an environment plan
- having a robust assessment process built on the Environment Regulations.

As outlined in section 3.2, NOPSEMA has various guidance documents on its assessment policy and criteria, content requirements and decision-making. Its guidance notes detail the material expected within an environment plan.⁷⁸ The audit team considers this guidance material to be clear and unambiguous.

Section 3.2 also noted that NOPSEMA's RMS system provides an important safeguard to ensure an environment plan's content meets the requirements of the Environment Regulations. No plan can be accepted without the necessary requirements being checked off in the RMS.

The audit team was thus able to verify that NOPSEMA's internal assessment processes are systematic, comprehensive and accord with its regulatory obligations.

⁷⁸ A full list of guidance documents relevant to the environment plan assessment and decision-making process is available at Appendix D: NOPSEMA guidance and information.

5.2. Scientific understanding of the Great Australian Bight

The audit team considered whether Equinor had access to and referenced in its report scientific and technical information that was relevant, sufficient and complete.

The deep-water ecosystems of the Bight were poorly understood prior to 2013. The Bight is now one of Australia's best-understood deep-water marine systems, thanks to the Great Australian Bight Research Program (GABRP) and the Great Australian Bight Deep-water Marine Program (GABDMP).⁷⁹

The GABRP was a collaboration between BP, CSIRO, the South Australian Research and Development Institute, the University of Adelaide and Flinders University. It was established in 2013 in response to pending petroleum exploration. The goal was to better understand the Bight's environmental value as well as economic and social values. It brought together more than 100 scientists and technical staff spanning oceanography, ecology, biodiversity, petroleum geology and geochemistry.

The ecological, economic and social data collected over four years was used to develop whole-of-ecosystem models of the Bight. These models have been used to:

- predict, monitor and assess potential impacts from human activities
- inform qualitative risk assessments
- provide tools to guide future sustainable development in the region.

The models developed from GABRP include oceanographic and species distribution models, and the whole-of-system ecosystem models. These models are valuable tools to evaluate the effects of different environmental stressors on an ecosystem.

The GABDMP, a CSIRO-led research program sponsored by Chevron, aimed to better understand the geology and ecology of the Bight's Ceduna Sub-basin. The three-year program involved four research voyages to explore deep-water rocky outcrops, volcanic seamounts, potential seeps and their associated ecosystems. Sites across the Ceduna Sub-basin from water depths of 700 metres to 5,501 metres were studied. 2.8 tons of rocks, 148 metres of sedimentary core samples, 55,698 biological specimens and 48,097 km² of mapping data were collected.⁸⁰

The data from the GABRP and the GABDMP have been shared broadly. More than 40 scientific papers have been published as a result of the two programs, as well as more than 50 reports and about 90 conference abstracts. The knowledge from these programs provides the baseline information for assessing the impacts and risks from mining in the Bight.

⁷⁹ Paul Rogers et al, *Physical processes, biodiversity and ecology of the Great Australian Bight region: a literature review*, CSIRO, 2013.

⁸⁰ Andrew Ross et al, "Insights into the Great Australian Bight gained through marine geology and benthic ecology studies", *The APPEA Journal*, 2018, Vol. 58, No. 2, pp. 845-851.

Equinor's environment plan for Stromlo-1 extensively references publications from these programs.

Under the various GABRP Agreements, BP had the rights to disclose results and confidential information to Equinor (then known as Statoil), BP's co-venturer in petroleum exploration titles located in the Ceduna Basin. Equinor had access to all GABRP reports and papers as they were finalised by the research team. Company officials met with research staff to discuss results and were also provided raw data files.

Finding 10 The titleholder has had access to, and referenced in its environment plan, relevant, sufficient and complete scientific and technical information related to the Great Australian Bight. The audit team has not considered nor made a finding on whether the information is appropriate for NOPSEMA to accept the plan.

5.3. Matters protected under the EPBC Act and Australian Marine Park values

Under the Environment Regulations, an environment plan must include a description of the environment that may be affected by the activity, including matters protected under Part 3 of the EPBC Act and Australian Marine Park values that will or may be affected. The titleholder must detail and evaluate all the impacts and risks arising from the operations of the activity and potential emergency conditions.

In evaluating the risks and impacts to EPBC Act protected matters, NOPSEMA's Guidance Note on Environment plan content requirements (GN1344) states that an environment plan must make it clear how the titleholder has taken into account relevant management documentation published by the Department of the Environment and Energy. This includes management plans, recovery plans, relevant policies and conservation advice.

As mentioned in Section 2.7, NOPSEMA cannot accept any environment plan for an activity in a marine park not consistent with the management plan governing that park.

The proposed Stromlo-1 well is within the Great Australian Bight Marine Park, which is governed by Parks Australia's *South-west Marine Parks Network Management Plan 2018*. The Stromlo-1 well is proposed within an International Union for the Conservation of Nature Category VI Multiple Use Zone in which oil and gas activities are allowed, subject to assessment.⁸¹

⁸¹ See footnote 9 on prior usage rights.

The marine park's management plan prohibits mining in about 40% of the park. The marine park contains habitats, species and ecological communities associated with two significant bioregions – the Great Australian Bight Shelf Transition and the Southern Province – and local marine species considered both nationally and regionally important to biodiversity. This includes an important calving and gathering area for endangered southern right whales.

The South-west Marine Parks Management Plan 2018 states that the key ecological features of the marine park are:

“Ancient coastline between 90 m and 120 m depth (valued for relatively high productivity, aggregations of marine life and high levels of biodiversity and endemism); benthic [bottom dwelling] invertebrate communities of the eastern Great Australian Bight (valued as a species group or community that is nationally and regionally important to biodiversity); and small pelagic [open ocean] fish of the South-west Marine Region (valued as a species group that has a regionally important ecological role).”⁸²

NOPSEMA, in consultation with Parks Australia, has published Guidance Note GN1785 – ‘Petroleum activities and Australian Marine Parks’ – to explain to titleholders their obligations within a marine park. GN1785 provides an outline to titleholders on relevant marine park management arrangements and the requirements that are relevant to petroleum exploration activities that may affect Australian Marine Parks and intends to assist titleholders in the preparation of Environment Plans to comply with these arrangements and regulatory requirements. It also outlines requirements for consultation with the Director of National Parks as a relevant person under the Environment Regulations.⁸³

The audit team saw evidence that NOPSEMA complies with the requirements of the EPBC Act and Australian Marine Parks values. The audit team also saw evidence titleholders were aware of these requirements. However, the audit team's consultations indicated some stakeholders did not understand how NOPSEMA takes the requirements into account.

The audit team saw evidence that NOPSEMA takes into account relevant management plans and policies relating to the EPBC Act, as is required. However, the audit team noted agencies other than NOPSEMA are responsible for updating this information, and it identified several examples where information was out of date. This included the Conservation Values Atlas, threatened species management plans and the species profile and threats database.

⁸² Director of National Parks, *South-west Marine Parks Network Management Plan 2018*, 2018, accessed 21 August 2019, <https://parksaustralia.gov.au/marine/pub/plans/south-west-management-plan-2018.pdf>, p. 101.

⁸³ NOPSEMA, *Petroleum activities and Australian marine parks GN1785*, July 2018, accessed 26 August 2019, <https://www.nopsema.gov.au/assets/Guidance-notes/A620236.pdf>

However, the audit team was satisfied that NOPSEMA was aware of these deficiencies and had appropriate processes in place to access current and emerging scientific information. NOPSEMA demonstrated staff are able to identify where information in a relevant management plan or policy is out-of-date. When this occurs, NOPSEMA requires a titleholder to reference up-to-date information while still complying with any requirements outlined in those documents.

So while the audit team suggests all government information sources should be maintained and updated, it is satisfied that potentially outdated plans do not limit NOPSEMA's assessment and decision-making.

Finding 11 NOPSEMA has well-documented processes to appropriately take into account matters protected under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Australian Marine Park values as part of the assessment process. Titleholders are aware of the requirement to take account of these matters. However, there is limited public information for stakeholders detailing how NOPSEMA takes into account matters protected under the EPBC Act.

Finding 12 A number of documents that NOPSEMA and titleholders are required to take into account as part of environment plan drafting and assessment are managed by other government agencies external to NOPSEMA. These agencies are responsible for updating this information at regular intervals and some documents are not up-to-date.

NOPSEMA has demonstrated it is aware these documents contain outdated information and the audit team is satisfied NOPSEMA has appropriate processes and practices in place to ensure environment plans reference complete scientific and technical information, including additional up-to-date information as required, and that this information is used appropriately in its assessment and decision-making process.

The audit team is satisfied that outdated plans do not limit NOPSEMA's process for assessment and decision-making consistent with the Environment Regulations.

Opportunity NOPSEMA could provide clearer public guidance on how it considers matters protected under the EPBC Act and the principles of ecologically sustainable development in its decision-making.

Opportunity The Commonwealth Government could ensure documents and information from government organisations on which NOPSEMA and titleholders rely are maintained and kept up-to-date to reflect current and emerging science.

5.4. Assessing expected and potential well impacts

Under the Environment Regulations, a titleholder is required to describe and evaluate in an environment plan all impacts and risks for a proposed activity and detail the control measures that will reduce the impacts and risks to ALARP and to an acceptable level.

The impact and risks associated with drilling an exploration well can be divided into two categories:

- impacts expected to occur
- impacts that might occur (the consequence component of risk).

5.4.1. Expected impacts

The well's location and the nature of the receiving environment are likely to be the main factors in whether expected impacts are significant. In the case of a remote well hundreds of kilometres from shore, sewage and grey water are likely to have minimal impact, provided discharges meet published standards.

Sound generated during drilling or vertical seismic profiling can travel long distances and has the potential to adversely affect cetaceans and fish. NOPSEMA has a comprehensive information paper on detailing and evaluating acoustic impacts in environment plans.⁸⁴

During the audit team's meetings with NOPSEMA, the audit team saw evidence that NOPSEMA recognises each exploration well must be assessed according to the environment in which the activity is proposed to occur.

While the expected impacts from drilling an exploration well are generally of low consequence, the audit team verified that NOPSEMA requires a titleholder to detail and evaluate all impacts and risks, then assess the impacts on an individual basis, taking into consideration the well's receiving environment.

The audit team concluded that NOPSEMA uses comprehensive technical information to support its assessment of expected impacts and it provides clear guidance to titleholders about what must be included in an environment plan and the required level of detail.

The audit team verified that NOPSEMA's evaluation of plans was comprehensive, with focused assessments on the risks with the greatest environmental impacts, and considers that the information available for assessment is relevant, appropriate and sufficient.

⁸⁴ NOPSEMA, *Acoustic impact evaluation and management IP1765, Revision 2*, December 2018, accessed 14 August 2019, <https://www.nopsema.gov.au/assets/Information-papers/A625748.pdf>

5.4.2. Potential impacts

NOPSEMA's guidance note on oil-pollution risk management (GN1488) requires a titleholder to consider all potential sources and volumes of oil pollution from its activities, including vessel operations, up to and including worst-case scenarios for all environment plans.

The highest-consequence environmental impact that can occur from drilling an exploration well is a blowout, leading to the uncontrolled release of oil, gas or condensate. If oil is released, there is the potential for widespread damage to the environment and local communities in a wide area would likely be impacted.

Substantial blowouts are extremely rare, low-probability events but, because their consequences can be catastrophic, the Environment Regulations require a titleholder to detail a response plan for an oil pollution incident in a drilling-related environment plan. NOPSEMA requires the titleholder to detail worst-case oil-spill scenarios. Additionally, a well operations management plan must provide a summary of blowout contingency planning and a description of any plan to cap a well in the event of a blowout.

The audit team's meetings with NOPSEMA provided evidence that the regulator devotes significant time and effort to providing guidance material to assist titleholders to develop comprehensive contingency plans for oil spills. The regulator's website contains information about what is expected in contingency planning within environment plans and references industry best practice and international standards. Key documents that NOPSEMA provides related to oil-spill mitigation are detailed in Table 1.

Table 1. Key documentation on oil-spill mitigation requirements provided by NOPSEMA.

Name	Title	Theme
Bulletin #1	Oil spill modelling	Provides detailed information on what the inputs and outputs to models should consider and what modelling approaches should be undertaken.
GN1488	Oil pollution risk management	Describes the expectations required for oil spill contingency planning, preparedness and response.
GL1721	Environment plan decision making	Describes how NOPSEMA evaluates environment plan submissions against the legislated criteria for acceptance (Regulation 10A).
GN1344	Environment plan content requirements	Itemises the content requirements of environment plans.

NOPSEMA's Oil pollution risk management (GN1488) guidance note lays out detailed requirements and expectations for oil-spill contingency planning, notably the need for an Oil Pollution Emergency Plan (OPEP).

GN1488 states environment plans must:

- "demonstrate that oil pollution risks of the petroleum activity have been reduced to ALARP and acceptable levels
- detail control measures that will be used to reduce oil pollution impacts and risks to ALARP and an acceptable level (these control measures will address oil pollution prevention, preparedness and response)
- demonstrate that impacts and risks associated with implementing oil pollution response control measures have been reduced to ALARP and acceptable levels
- set environmental performance outcomes to ensure that oil pollution impacts and risks will be of an acceptable level
- set environmental performance standards and measurement criteria for the adopted oil pollution control measures
- contain an OPEP and include mechanisms to maintain and update the OPEP
- identify a chain of command and roles and responsibilities of oil pollution response personnel
- include arrangements for testing the response arrangements in the OPEP
- include measures to ensure that oil pollution response personnel are aware of their responsibilities and have appropriate competencies and training
- provide for monitoring environmental impacts of an oil pollution incident and any response activities."⁸⁵

The OPEP must:

- "include adequate arrangements to ensure that titleholders can implement oil pollution response control measures in a timely manner and for the duration of the activity. The response arrangements and capability detailed in the OPEP should:
 - be commensurate with the level of oil pollution risk identified in the risk assessment and be fit for purpose, performance based, adaptable, scalable, executable and sustainable
 - provide for implementation of response control measures to meet set levels of performance
 - detail when and how the titleholder will seek assistance and any dependence on other response organisations

⁸⁵ NOPSEMA, *Guidance Note: Oil pollution risk management GN1488, Revision 2*, February 2018, accessed 14 August 2019, <https://www.nopsema.gov.au/assets/Guidance-notes/A382148.pdf>, p. 1.

- ensure titleholders have the capacity to meet obligations to clean up potential oil pollution incidents that may result from their activity
- provide for monitoring of oil pollution to inform response activities and the effectiveness of control measures as well as monitoring of impacts to the environment from oil pollution and response activities
- ensure that response activities are consistent with the national system for oil pollution preparedness and response.”⁸⁶

Titleholders are required through their environment plan and well operations management plan to provide detailed processes for how they will:

- regain control of the well in the event of a blowout
- mitigate the oil pollution from a blowout.

Regaining source control may involve multiple and often parallel processes. This includes clearing the well-head of debris, mobilising and deploying an available capping stack, and drilling a relief well.

Mitigating the oil pollution may involve using dispersants (both at the well-head and on the surface), booms, skimmers and other systems, as well as cleaning oil from shorelines and rescuing animals covered in oil.

The audit team saw evidence that NOPSEMA requires a titleholder to provide a detailed plan of exactly how and in what timeframe all of the above will be achieved. The audit team is satisfied NOPSEMA requires appropriate levels of detail on where items such as dispersants, vessels and capping stacks will be sourced. This approach should, in the unlikely event of a spill, limit the amount of oil released and dramatically lessen the potential environmental impact and shorten the time it takes the environment to recover.

5.4.3. Oil-spill modelling

Robust oil-spill modelling provides a sound basis for planning and preparedness for oil-spill response.

The rationale for oil-spill modelling is that the titleholder cannot assume a blowout will be brought under control by deploying a capping stack, even though titleholders must demonstrate this control measure can be executed in a timely fashion. Consequently, the worst-case scenario is where a spill is not brought under control until the well is “killed” by drilling a relief well and there are no other mitigation activities. In the case of Stromlo-1, the worst-case model involves the blow-out running for 102 days.

A worst-case model is not realistic in that it assumes nothing will be done to mitigate the flow of oil – that the blow out preventer will fail completely, that no debris material will be in and around the well-bore (thereby limiting the flow), that the capping stack will be ineffective, that no dispersants will be used at the well-head or at the sea surface, and that no booms and skimmers will be deployed.

⁸⁶ Ibid.

The worst-case model is nonetheless an essential means to define the maximum area of operations for any spill response and relief operations. The worst-case model shows the maximum possible amount of oil that could potentially be released, the maximum extent of each of many different spill scenarios, and the maximum hydrocarbon loading in the marine environment and the shoreline.

NOPSEMA's guidance documents, listed in Table 1, provide substantial detail on the required inputs and outputs to the oil-spill models and the stochastic and deterministic modelling approaches needed.

The Oil pollution risk management (GN1488) guidance note details NOPSEMA's requirements for oil-spill contingency modelling in environment plans. The audit team's meetings with NOPSEMA verified that NOPSEMA rigorously assesses oil-spill modelling against those requirements. The following summarises a small number of factors considered in the assessment:

1. NOPSEMA first determines if the description of the activity and the spill release hazards defined in the environment plan are consistent with global practice and expectations. NOPSEMA also determines if hazard identification is consistent with current practice and historic incidents for the specific activity. NOPSEMA ensures all potential spill risks have been evaluated.
2. NOPSEMA evaluates the oil-spill scenarios and hydrocarbon properties provided to establish the nature of the risk and the potential behaviour of any spilt substance. It assesses the nominated spill release volumes, durations and characteristics to ensure consistency with global oil and gas industry leading practice.
3. NOPSEMA assesses the modelling to ensure the outputs are not being inappropriately suppressed. In addition, NOPSEMA ensures the environment plan contains the relevant modelling outputs (such as the minimum time to impact and the greatest shoreline loadings) that will provide key inputs to emergency oil-spill response planning.
4. NOPSEMA evaluates in detail the appropriateness of the proposed oil-spill management controls and implementation strategy. As the designated oil-spill "control agency", the titleholder must provide sufficient crisis-management, incident management and field-based response personnel, along with processes and supporting resources to manage a large, multifaceted response. NOPSEMA evaluates all of the proposed response strategies against the nature and scale of the activity, based on all potential impacts and risks derived from the modelling.
5. NOPSEMA closely considers all proposed response arrangements, such as contracts with equipment suppliers, mutual aid arrangements, provision for logistics and mobilisation plans, storage locations and deployment locations.

The audit team found NOPSEMA provides titleholders with comprehensive advice on oil-spill modelling. The regulator's Bulletin #1 on oil-spill modelling and GN1488 provide clear guidance on the information the regulator expects in plans.⁸⁷

The audit team is satisfied this detailed guidance, when combined with NOPSEMA's rigorous assessment processes and highly experienced staff, means the technical information used to assess spill risks and response planning is relevant, appropriate and sufficient.

In terms of Equinor's Stromlo-1 environment plan, as noted in section 5.2, the audit team is satisfied the company referenced relevant, sufficient and complete scientific and technical information in its plan submitted to NOPSEMA for assessment. The audit team did not evaluate whether the information was sufficient for NOPSEMA to accept the plan.

⁸⁷ NOPSEMA, *Bulletin #1: Oil spill modelling*, April 2019, accessed 22 August 2019, <https://www.nopsema.gov.au/assets/Bulletins/A652993.pdf>

6. Improving the understanding and operation of the regime

This chapter outlines matters related to the community's understanding of how oil and gas activities are regulated, including the operation of NOPSEMA. The audit team has identified opportunities for government and industry to work with local communities in providing additional assurance around petroleum activities in the Bight.

6.1. Visibility of NOPSEMA

During the audit team's consultation meetings, NOPSEMA was praised by many for demonstrating a willingness to respond to various requests for further information and to engage with local communities. NOPSEMA was also acknowledged for its expertise and professionalism, and being willing and able to answer tough questions.

The 2015 Operational Review of NOPSEMA noted the usefulness of targeted education in improving public understanding of what NOPSEMA does. It was clear in the audit that NOPSEMA has undertaken a range of activities in this regard. This includes hosting or participating in 27 meetings with key stakeholders and community groups concerned with the Bight.

The amount of information about its policies, guidelines and processes that NOPSEMA makes available is also evidence of its willingness to engage with the public – though it could make documents easier to find on its website.

Finding 13 The stakeholders who had interacted with NOPSEMA held its engagement approach in high regard.

6.2. Communicating oil-spill risk

The consultation meetings to support the audit made it evident there is community concern about the risk and impact of oil spills.

In the case of the Stromlo-1 proposal, the oil-spill modelling in the Equinor environment plan includes stochastic models that map 100 unmitigated oil spill simulations. Each map is labelled with a caveat, clearly written in red, stating:

“Important notice: This map is an amalgamation of 100 oil spill simulations with different metocean [combined wind, wave and climate] conditions. The map is not representative of one single spill.”⁸⁸

⁸⁸ Equinor, *Environment Plan Appendix 7-1: oil spill modelling study*, April 2019, accessed 21 August 2019, <https://www.equinor.com/content/dam/statoil/documents/australia/gab-project/Equinor-Appendix-7-1-MAQ0559M-Equinor-Stromlo-GAB-Oil-Spill-Modelling.pdf>, pp. 76-77.

During the audit team's consultation, it was clear this caveat had been overlooked by many stakeholders who expressed great concern about the project's potential risks. In addition, the audit team was shown figures prepared by groups opposed to oil and gas activities that incorrectly interpreted Equinor's modelling. This had clearly contributed to community anxiety, as a number of stakeholders acknowledged.

NOPSEMA's fact sheet on oil-spill modelling provides an explanation of both stochastic and deterministic modelling, the associated merits of each, and how they are likely to be used as a tool by the titleholder:

"While it is impossible to prepare for an infinite number of possible oil spills it is also insufficient to only prepare to respond to a single representative worst-case oil spill, therefore, appropriate preparedness and response planning tends to be informed by both deterministic and stochastic modelling."⁸⁹

NOPSEMA's guidance does not include a requirement for the modelling to be presented in a particular format. Rather, NOPSEMA's guidance note (GN1488) states:

"Titleholders should identify and describe potential oil pollution scenarios for their activities to support the risk evaluation and inform pollution response planning. Scenarios should address the range of potential pollution sources for the activity (e.g. vessel spills, pipeline breaches, well blowouts) and be representative of the key consequences. Many of the characteristics of potential offshore petroleum pollution scenarios (e.g. location, oil type(s), potential flow rates and volumes) are likely to be either known and/or can be reasonably predicted for spill response planning purposes."⁹⁰

And further:

"When utilising modelling to inform risk assessments and response planning, consideration should be given to the following:

- relevance of the modelling method to the proposed activity, oil type, location, temporal period and site specific oceanographic environmental conditions (in particular where modelling is adapted from nearby activities or locations).

⁸⁹ NOPSEMA, *At a glance: Oil spill modelling*, 2018, accessed 14 August 2019, <https://www.nopsema.gov.au/assets/Publications/A626200.pdf>

⁹⁰ NOPSEMA, *Oil pollution risk management GN1488, Revision 2*, February 2018, accessed 14 August 2019, <https://www.nopsema.gov.au/assets/Guidance-notes/A382148.pdf>, p. 9.

- appropriate application of different modelling techniques (e.g. stochastic and deterministic) to match the purpose of the modelling (e.g. risk assessment versus spill response planning).
- the number of model runs selected for stochastic modelling.
- extracting relevant outputs from different modelling techniques to match different requirements of risk evaluation versus pollution response planning.
- application of appropriate threshold values (e.g. surface thickness, entrained or dissolved hydrocarbon concentrations) to interpret and apply modelling outputs.
- ensuring that modelling inputs match the sources and volumes of the spill risk scenarios.
- selection of a modelling period that is relevant to the pollution risks and has regard to the likely persistence of residual oil in the environment.
- appropriate use of 'probability contours' so that they do not have the effect of restricting the area that may be affected or underestimate potential consequences.
- potential for oil accumulating on shorelines or in the water column over time."⁹¹

The audit team acknowledges that, given oil-spill modelling is such an important planning tool, it would help to improve how this risk is communicated in environment plans.

Finding 14 The audit team's consultations found a lack of understanding by some stakeholders about oil-spill modelling and the potential impacts or risks of a credible worst-case oil spill. The maps of the worst-case oil-spill models have been incorrectly interpreted by some stakeholders as what might occur from a single spill, rather than being the combination of many scenarios intended to determine the boundary of the area addressed by the environment plan.

Opportunity Titleholders could consider ways to better present oil-spill modelling, including individual oil-spill scenarios, to communicate the risk and likely extent of an oil spill.

⁹¹ Ibid, p. 10.

6.3. Improving community understanding of the offshore oil and gas regulatory regime

During the audit team's consultation sessions, stakeholders expressed a desire to have a say in whether oil and gas activities take place in particular areas. It was not always clear to stakeholders when and how decisions to release petroleum acreage and grant titles were made or what processes were followed to make these decisions.

This lack of understanding also extended to governments' contingency planning for oil spill. There was general confusion among stakeholders about what would happen if an oil spill crossed jurisdictional boundaries and the roles of titleholders and governments in responding to a spill.

While environment plans detail how a titleholder will respond in the event of an oil-pollution incident, they do not detail the measures to prevent such events. This information is largely contained in well operations management plans, which are not released publicly. This contributes to distrust in the process for preventing oil spills.

Finding 15 There is a role for governments and their agencies to better explain, on a continuous basis, how the regulatory regime manages risks to the environment. The audit team's consultation sessions indicated communities wanted more information on the measures in place to prevent an oil spill and the response plan if a spill occurs.

Opportunity Governments could better explain to the public how the offshore industry is regulated and governed. This would help create a greater understanding of the low probability of risks eventuating.

Opportunity Governments could better promote, and publish, how a response will be coordinated in the event of an oil spill, including where a spill crosses jurisdictional boundaries.

Opportunity Governments could consider options to improve the transparency of the measures proposed by a titleholder to reduce the risk of an oil spill.

7. Conclusion

This audit has found NOPSEMA to be a highly skilled, professional and competent regulator that has developed and applies appropriate processes and practices to meet its regulatory requirements in considering exploration matters under the Environment Regulations.

This is not to say that there aren't improvements that can be made to give greater assurance to the community that risks and impacts to the environment of proposed activities are appropriately considered as required under the legislation.

I have suggested some opportunities in this audit to provide that greater assurance. Further improvements in transparency, the communication of information and more guidance for the public would increase the overall level of confidence in the regulation and operation of Australia offshore oil and gas industry.

Appendix A: Terms of reference

Audit of the National Offshore Petroleum Safety and Environmental Management Authority's consideration of exploration in the Great Australian Bight

1. Overview

The offshore oil and gas sector delivers significant benefits for all Australians and the Great Australian Bight (the Bight) is considered to have world-class highly prospective petroleum resources. To better understand and test this potential further exploration activity is needed.

The Bight and the surrounding region are also important to local communities, and the fishing and tourism industries. The region is known for its unique environment, tourism values, and fishing and aquaculture industries and deserves strong protection.

Australia has a world-class independent environmental and safety regulator in the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) and a petroleum industry with an impressive operational record.

On 16 May 2019, the Minister for Resources and Northern Australia and the Minister for the Environment announced that a re-elected Liberal National Government would commission an independent audit of NOPSEMA's current consideration of exploration in the Bight to be undertaken by Australia's Chief Scientist, Dr Alan Finkel AO FAA FTSE.

In undertaking the audit, the Chief Scientist will work with NOPSEMA to assure all environmental considerations are thoroughly considered as part of the assessment process and decision making of the independent regulator.

2. Purpose

The audit is to provide an independent assurance that NOPSEMA's assessment and decision making processes regarding the current proposed exploration activity are consistent with the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (the Environment Regulations). This may also identify opportunities for government and industry to work with local communities in providing additional assurance around petroleum activities in the Bight.

3. Background

NOPSEMA is Australia's independent regulator for health and safety, well integrity and environmental management for offshore oil and gas activities in Commonwealth waters, and in coastal waters where regulatory powers and functions have been conferred.

NOPSEMA was established on 1 January 2012 under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*. Before any activity can occur NOPSEMA must accept environment plans for offshore petroleum activities in accordance with the assessment criteria set out under the associated Environment Regulations. The Environment Regulations were updated on 25 April 2019 to improve the consultation and transparency requirements for offshore oil and gas activities.

In February 2014, the Australian government streamlined the assessment process for offshore petroleum activities under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). In doing so the Minister for the Environment has provided a class approval for all petroleum and greenhouse gas activities taken in Commonwealth waters that have been assessed and accepted in accordance with NOPSEMA's assessment process.

On 28 June 2018, the Director of National Parks approved mining operations (including oil and gas activities) in certain zones within some Australian Marine Parks provided they are conducted in accordance with an environment plan accepted by NOPSEMA.

NOPSEMA is currently considering an environment plan from Equinor, which was submitted for assessment on 23 April 2019. Equinor has voluntarily committed to follow new transparency processes under the Environmental Regulations to ensure their environment plan is subject to the same level of stringency required under the new regulations.

4. Scope of the audit

The audit will work with NOPSEMA to assure that the process for assessment and decision-making for the environment plan for the current exploration proposal in the Bight are consistent with its regulatory obligations. In doing so it will:

- examine how environmental impacts and environmental risks, including Australian Marine Park values and EPBC Act protected matters, and other relevant information such as that received through consultation and public comment processes, are taken into account
- examine the relevancy, sufficiency and completeness of scientific and technical information used to support assessment and decision-making in relation to the current exploration proposal.

5. Outside the scope of the audit

The audit will not consider the following issues:

- whether Australia should have an oil and gas industry
- the merits or otherwise of petroleum activity occurring within the Great Australian Bight
- NOPSEMA's legislative and regulatory framework
- the merits of administrative decisions made by NOPSEMA.

6. Reviewer

The audit will be undertaken by Australia's Chief Scientist. To support his considerations the Chief Scientist can draw on relevant experts in the fields of marine ecosystems, offshore petroleum exploration and regulation, environmental management and community engagement.

A cross-agency secretariat will support the Chief Scientist and the review process.

7. Results

The Chief Scientist will present a report to the Commonwealth Ministers responsible for resources and the environment by the end of August 2019.

8. Consultation

Where relevant, this audit will include targeted consultation to provide specific, independent expertise and advice. At a minimum, the following bodies will be expected to be consulted:

- the Commonwealth, South Australian, West Australian, Tasmanian and Victorian Ministers for Resources and/or their agencies
- the Commonwealth, South Australian, West Australian, Tasmanian and Victorian Ministers for the Environment and/or their agencies
- NOPSEMA
- the NOPSEMA Board
- offshore petroleum titleholders in the region
- local industry and community groups.

9. Confidentiality

The audit's considerations and discussions will remain confidential until the Ministers choose to release it. This will ensure that a robust, critical examination can occur. Any stakeholder consultation conducted as part of the audit will remain confidential until the release of the report.

10. Sunset

These terms of reference have been created to inform the development of a report and recommendations to the Ministers. These terms of reference will remain in place until the provision of the relevant report to the Ministers.

Appendix B: Experts assisting the Chief Scientist

Professor Peta Ashworth (community engagement expert)

Professor Peta Ashworth has more than 30 years' experience in a range of senior management and research roles. She is well-known for her expertise in the energy sector, in communication and stakeholder engagement, and in technology assessment. Peta was a scientific member of the Northern Territory Inquiry into Hydraulic Fracturing, co-chaired the Independent Advisory Panel for the Radioactive Waste Management Facility project for the Department of Industry, Innovation and Science, and has chaired the International Energy Agency's Greenhouse Gas Social Research Network since its inception in 2009.

Dr Geoffrey O'Brien (petroleum geoscience expert)

Dr Geoffrey O'Brien was previously the Chief Geoscientist for the National Offshore Petroleum Titles Administrator, from where he retired in 2018. He now consults to the oil, gas, CO₂ storage and government sectors. He has a PhD in earth sciences, with specialities in petroleum basin analysis and marine geochemistry. He has published more than 100 papers. Over the past 35 years he has worked with BHP Billiton, Western Mining Petroleum, Geoscience Australia, the University of Adelaide and GeoScience Victoria, and has consulted to a wide range of companies in Australia and overseas.

Dr David Smith (marine science expert)

Dr David Smith led the Marine Resources and Industries Research Program of CSIRO Oceans and Atmosphere. The program focused on research that supports the sustainable use of marine resource and included the Great Australian Bight Research Program. Before joining CSIRO in 2005, David was director of the Marine and Freshwater Resources Institute in Victoria. He chairs the National Research Providers Network for Fisheries and Aquaculture, is a member of the National Marine Science Committee, and an adjunct professor at the Institute for Marine and Antarctic Studies, University of Tasmania, in Hobart.

Mr Steve Walker (offshore exploratory drilling and regulatory matters expert)

After obtaining a BSc in chemical engineering and working in industry, Steve Walker worked for the Health and Safety Executive (the UK government agency responsible for regulating work-related health and safety) for 38 years. His roles included inspections and audit, accident investigations and enforcement. In 2009 he became head of HSE's Offshore Division, responsible for regulating about 300 oil and gas installations. From 2012 to 2014, he chaired the North Sea Offshore Authorities Forum and co-chaired the European Union Offshore Authorities Group. He retired from HSE in 2014 and has since done consultancy work on offshore regulatory issues.

Taskforce assisting the Chief Scientist

I have also been supported by a taskforce of four officials from the Department of Industry, Innovation and Science and the Department of the Environment and Energy:

- Geoff Whelan (Head of taskforce)
- Lisa Wechmann
- Matthew Wagner
- Mitchell Baskys.

Appendix C: Consultation

Commonwealth government agencies

Department of Industry, Innovation and Science

Department of the Environment and Energy

Parks Australia

National Offshore Petroleum Safety and Environmental Management Authority

NOPSEMA Board

Environmental interest groups

Agricultural advocate

Doctors for the Environment Australia

Greenpeace

Patagonia

Port Fairy Fight for the Bight

South Australian Environmental Defenders Office

Sydney Environment Institute

The Bob Brown Foundation

The Great Australian Bight Right Whale Study

Wilderness Society

Fishing associations

Abalone Industry Association of South Australia

Australian Southern Bluefin Tuna Industry Association

Seafood Industry Australia

Seafood Industry Victoria

South Australian Oyster Growers Association

South Australian Rock Lobster Advisory Council

Western Australian Fishing Industry Council

Local government

District Council of Ceduna

City of Holdfast Bay

City of Port Adelaide Enfield

City of West Torrens

District Council of Cleve

District Council of Elliston

District Council of Lower Eyre Peninsula

District Council of Streaky Bay

District Council of Yankalilla

District Council of Franklin Harbour

City of Port Lincoln

Local government associations

Port Lincoln Chamber of Commerce and Tourism

Regional Development Australia – Whyalla and Eyre Peninsula

Petroleum titleholders and industry associations

The Australian Petroleum Production and Exploration Association (APPEA)

Bight Petroleum

Equinor

Karoo Gas

Murphy Oil

Santos

South Australian state government agencies

Department of Energy and Mining

Department of Premier and Cabinet

Department of Primaries Industries and Regions

Environment Protection Authority

South Australian Research and Development Institute

Tasmanian state government agencies

Department of Primary Industries, Parks, Water and Environment

Department of State Growth

Environment Protection Authority

Traditional owners

The Aboriginal Lands Trust

Representatives from the Barngarla People and the Mirning People

Victorian state government agencies

Environment Protection Authority

Department of Economic Development, Jobs, Transport and Resources

Western Australian state government agencies

Department of Mines, Industry Regulation and Safety

Department of Transport

Appendix D: NOPSEMA guidance and information

NOPSEMA has the following environmental guidance resources available on the Environment Resources page of its website:⁹²

Policies

- [Environment plan assessment policy](#) (Rev 7) (April 2019)
- [Offshore project proposal assessment policy](#) (Rev 1) (September 2018)
- [Financial assurance requirements for petroleum titles policy](#) (Rev 1) (May 2019)
- [Petroleum environment inspections policy](#) (Rev 5) (June 2018)
- [Enforcement policy](#) (Rev 15) (March 2017)
- [Sharing information with Australian and international agencies policy](#) (Rev 1) (May 2019)
- [Assessment Policy](#) (Rev 15) (August 2019)
- [Environment plan levies and cost recovery policy](#) (Rev 0) (June 2019)

Guidelines

- [Environment plan decision making guideline](#) GL1721 (Rev 5) (June 2018)
- [Financial assurance for petroleum titles guideline](#) (Rev 7) (June 2019)
- [Environment plan summaries guideline](#) (Rev 2) (April 2019)
- [When to submit a proposed review of an environment plan guideline](#) (Rev 1) (January 2017)
- [End of the operation of an environment plan guideline](#) (Rev 1) (October 2016)
- [Making submissions to NOPSEMA guideline](#) (Rev 17) (April 2019)

Guidance notes

- [Responding to public comment on environment plans guidance note](#) (Rev 0) (April 2019)
- [Petroleum activity guidance note](#) (Rev 2) (April 2016)
- [Environment plan content requirements guidance note](#) (Rev 4) (April 2019)
- [Petroleum activities and Australian Marine Parks guidance note](#) (Rev 0) (July 2018)
- [Change to the titleholder with operational control of activities guidance note](#) (Rev 1) (October 2017)

⁹² "Environment Resources", NOPSEMA, 2018, accessed 21 August 2019, <https://www.nopsema.gov.au/environmental-management/environment-resources/>. The Environment Resources page also includes a list of forms and Regulator articles relevant to environmental management. Note – this list represents the current versions of guidance and information documents available on the NOPSEMA website at the time of the audit. An environment plan is assessed against the Environment Regulations and guidance documents current at the time of submission.

- [Oil pollution risk management guidance note](#) (Rev 2) (February 2018)
- [Notification and reporting of environmental incidents guidance note](#) (Rev 4) (February 2014)
- [Offshore project proposal content requirements guidance note](#) (Rev 4) (March 2019)
- [ALARP guidance note](#) (Rev 6) (June 2015)⁹³

Information papers

- [Consultation requirements under the OPGGS Environment Regulations 2009 information paper](#) (Rev 2) (December 2014)
- [Acoustic impact evaluation and management information paper](#) (Rev 2) (December 2018)
- [Operational and scientific monitoring programs information paper](#) (Rev 2) (March 2016)
- [Making public comment on offshore project proposals information paper](#) (Rev 3) (September 2018)
- [Consideration of five year revisions information paper](#) (Rev 0) (January 2018)
- [Streamlining environmental regulation of petroleum activities in Commonwealth waters information paper](#) (Rev 0) (February 2014)

Bulletins

- [Bulletin #1 – Oil spill modelling](#) (Rev 0) (April 2019)

NOPSEMA has also published a range of brochures and fact sheets for the community:⁹⁴

- [Brochure – Introducing NOPSEMA](#) (April 2019)
- [Brochure – Offshore petroleum environment approvals](#) (November 2018)
- [Brochure – Offshore petroleum safety case approvals](#) (July 2018)
- [Brochure – Public comment on environment plans](#) (March 2019)
- [Brochure – Offshore petroleum well integrity approvals](#) (July 2019)
- [Brochure – Requirements for consultation and public comment](#) (August 2018)
- [Brochure – Environmental Management and the offshore petroleum lifecycle](#) (June 2015)
- [Brochure – Decommissioning offshore petroleum facilities](#) (May 2017)
- [Brochure – An overview of the offshore petroleum lifecycle](#) (January 2019)
- [Factsheet – At a Glance: Objective-based regulation](#) (May 2018)

⁹³ The ALARP guidance note is available on the <https://www.nopsema.gov.au/safety/safety-resources/> page of NOPSEMA's website.

⁹⁴ "Publications", NOPSEMA, accessed 21 August 2019, <https://www.nopsema.gov.au/resources/publications/>

- [Factsheet – At a Glance: Oil spill response arrangements](#) (July 2018)
- [Factsheet – At a Glance: Oil spill response strategies](#) (July 2018)
- [Factsheet – At a Glance: Oil spill modelling](#) (August 2018)
- [Factsheet – At a Glance: Oil spill dispersants](#) (July 2018)
- [Factsheet – At a Glance: Marine seismic surveys](#) (November 2018)
- [Factsheet – Assessment process for environment plans: Post transparency.](#)