Acceptance of Stromlo-1 Exploration Drilling Environment Plan

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) provides the following statement of reasons for its decision to accept the Stromlo-1 Exploration Drilling Environment Plan (EP), subject to conditions, in accordance with regulation 10 of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

Relevant terms

1. In this statement, the words and phrases have the following meaning:

1.1. The *Offshore Petroleum and Greenhouse Gas Storage Act 2006* is referred to as the OPGGS Act.

1.2. The National Offshore Petroleum Safety and Environmental Management Authority is referred to as NOPSEMA.

1.3. The Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 are referred to as the Environment Regulations.

1.4. Stromlo-1 Exploration Drilling Environment Plan (Revision 3, dated November 2019) is referred to as the EP.

1.5. The *Environment Protection and Biodiversity Conservation Act 1999* is referred to as the EPBC Act.

1.6. Equinor Australia B.V is referred to as the titleholder.

1.7. The term 'petroleum activity' (hereafter referred to as the activity) means the Stromlo 1 exploration well drilling activity and support operations as described in section 2 of the EP.

1.8. The term 'environment' means: (a) ecosystems and their constituent parts, including people and communities; and (b) natural and physical resources; and (c) the qualities and characteristics of locations, places and areas; and (d) the heritage value of places; and includes (e) the social, economic and cultural features of the matters mentioned in paragraphs (a), (b), (c) and (d).

1.9. The term 'environmental impact' means any change to the environment, whether adverse or beneficial, that wholly or partially results from an activity.

1.10. The term 'control measure' means a system, an item of equipment, a person or a procedure, that is used as a basis for managing environmental impacts and risks.

1.11. The term 'environmental management system' includes the responsibilities, practices, processes and resources used to manage the environmental aspects of an activity.

1.12. The term 'environmental performance' means the performance of a titleholder in relation to the environmental performance outcomes and standards mentioned in an environment plan.

1.13. The term 'relevant person' has the meaning provided under regulation 11A of the Environment Regulations.

1.14. The term 'environmental performance outcome' means a measurable level of performance required for the management of environmental aspects of an activity to ensure that environmental impacts and risks will be of an acceptable level.

1.15. The term 'environmental performance standard' means a statement of the performance required of a control measure.

1.16. The term 'operational area' is taken to be the operational area for the petroleum activity as defined in Section 2.1 of the EP.

Decision

2. On 18 December 2019, NOPSEMA made the decision pursuant to regulation 10 of the Environment Regulations to accept the EP, subject to conditions.

3. Acceptance of the EP permits the titleholder to undertake the activity described in the EP, which is the drilling of the Stromlo 1 exploration well in Commonwealth waters in the Great Australian Bight (GAB) adjacent to South Australia (SA), subject to meeting the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009 and Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011.

4. In undertaking the activity the titleholder is subject to the requirements of the Environment Regulations and relevant provisions in the OPGGS Act, as well as the conditions as set out in the attached acceptance letter and notice of decision dated 18 December 2019.

The notice of decision was provided to the titleholder on 18 December 2019 in accordance with regulation 11 of the Environment Regulations.

Authority

5. The decision maker for acceptance of an environment plan under Regulation 10 of the Environment Regulations is the 'Regulator'. Where the decision relates to petroleum activity, the Regulator is defined as NOPSEMA by regulation 4 of the Environment Regulations.

6. I, [redacted] was the responsible decision maker for this decision. I hold the position of the Manager, Assessment and Inspection – Drilling and Developments within NOPSEMA. I was empowered to make the decision pursuant to a valid instrument of delegation made by Stuart Smith, Chief Executive Officer (CEO) of NOPSEMA. Pursuant to subsection 666(2) of the OPGGS Act, anything done by the CEO in the name of NOPSEMA is taken to have been done by NOPSEMA.

7. A copy of the relevant instrument of delegation is available from NOPSEMA on request.

8. In the following sections of this Statement of Reasons, when I refer to NOPSEMA having made a request, or having regard to a matter, or similar phrasing, I am referring to a step that I took exercising delegated authority in making this decision. Where appropriate, in taking such steps I took advice from the assessment team within NOPSEMA.

The assessment process

9. The assessment team comprised of appropriately experienced NOPSEMA environment specialists with expert knowledge in environmental and marine science relevant to marine exploratory drilling activities and their associated impacts and risks. The assessment was scoped to examine higher order impacts and risks, with the specialist NOPSEMA assessors assigned to assess the EP topics within their fields of expertise. The topics for the assessment included a general assessment of the whole EP and four detailed topic assessments of the EP content, as follows:

- matters protected under Part 3 of the EPBC Act (underwater noise emission impacts);
- adequacy of source control arrangements and capability;
- adequacy and capability of arrangements for timely oil spill response and monitoring;
- consultation with relevant persons.

10. Since submission of the environment plan which was received on 23 April 2019, the assessment team completed a full assessment of the EP. The findings and conclusions of the general assessment and each topic assessment were evaluated together to form a view as to whether the EP, as a whole, met the criteria for acceptance.

11. At the conclusion of the assessment, the team made a recommendation to me (as the delegated decision-maker) that the EP met the criteria for acceptance under regulation 10A. For the reasons set out in this Statement of Reasons, I accepted that recommendation with conditions as detailed in the attached acceptance Letter.

Background

12. On 23 April 2019, the titleholder submitted the EP (Revision 1) to NOPSEMA in accordance with subregulation 9(1) of the Environment Regulations.

13. On 17 May 2019, the titleholder was notified that NOPSEMA was unable to make an assessment decision under subregulation 10(1)(c) of the Environment Regulations (due to the size of the submission and complexity of the assessment), with the notification date for the decision being revised to 27 June 2019.

14. On 27 June 2019, NOPSEMA requested the titleholder to provide further written information under subregulation 9A(1) of the Environment Regulations regarding the nature and scale of the activity, drilling discharge management, noise impacts, oil spill risks, oil spill monitoring program, spill source control, and consultation, as well as a number of other issues. A copy of the letter sent by NOPSEMA is provided in Attachment 1.

15. On 8 August 2019 NOPSEMA agreed to extend the timeframe for the titleholder to provide the requested information following a request by the titleholder, in accordance with subregulation 9A of the Environment Regulations.

16. On 18 September 2019, the titleholder provided the requested further written information which was incorporated into the EP (Revision 2).

17. On 23 September 2019, the titleholder was notified that NOPSEMA was unable to make an assessment decision under subregulation 10(1)(c) of the Environment Regulations (due to the size of the submission and complexity of the assessment), with the notification date for the decision being revised to 14 November 2019.

18. On 8 November 2019, NOPSEMA notified the titleholder that they were required to modify and resubmit the EP, as NOPSEMA was not reasonably satisfied that the EP met the acceptance criteria as set out in subregulation 10A of the Environment Regulations. A modified EP was required to address deficiencies identified in relation to source control, oil spill risk, consultation, drilling discharge management, and noise impacts as well as a number of other issues. A copy of the letter sent by NOPSEMA is provided in Attachment 2.

19. On 29 November 2019, the titleholder resubmitted the EP (Revision 3) to NOPSEMA under subregulation 10(4) of the Environment Regulations.

20. On 18 December 2019 NOPSEMA accepted the EP, subject to conditions under subregulation 10(6). A notice of this decision was provided to the titleholder on 18 December 2019, in accordance with regulation 11 of the Environment Regulations. A copy of the letter sent by NOPSEMA is provided in Attachment 3.

Key materials considered in making the decision

21. In making this decision, NOPSEMA considered the documents making up the EP submission in accordance with legislative requirements and NOPSEMA assessment policy and procedure. The material that NOPSEMA had regard to in making this decision included:

- Stromlo-1 Exploration Drilling Environment Plan (Revision 3, November 2019);
- Stromlo-1 Exploration Drilling Plan Oil Pollution Emergency Plan (Revision 4, November 2019);
- Supporting Environment Plan documentation (Appendices 1-1, 2-1, 3-1, 3-2, 4-1, 6-1, 6-2, 7-1, 7-2, 7-3, 7-4, 7-5, 9-1 and 9-2);
- Relevant published, peer-reviewed scientific literature, including the scientific literature cited in the EP;
- The OPGGS Act;
- The Environment Regulations;
- NOPSEMA Environment Plan Assessment Policies, Guidance and Guidelines (available at https://www.nopsema.gov.au/environmental-management/environment-resources/):

  Policies

  - PL0050 – Assessment – Revision 14, January 2018;
  - PL1347 - Environment plan assessment – Revision 6, April 2017;

  Guidelines

  - GL1721 - Environment plan decision-making – Revision 5, June 2018;
  - GL1381 – Financial Assurance for Petroleum Titles – Revision 6, September 2017;

  Guidance Notes

  - GN1344 - Environment plan content requirements – Revision 3, April 2016;
  - GN1488 - Oil pollution risk management – Revision 2, February 2018;
  - GN1785 - Petroleum activities and Australian marine parks – Revision 0 – July 2018;

  Information Papers

  - IP1349 - Operational and scientific monitoring programs – Revision 2, March 2016; and
  - IP1411 - Consultation requirements under the Environment Regulations – Revision 2, December 2014;

- NOPSEMA's Environment plan assessment standard operating procedure (N-04750 - SOP1369) – Revision 13, 2018;
- Relevant Other Requirements:
    - Director of National Parks (2018), Australian Marine Parks - South-west Marine Parks Network Management Plan 2018.
    - Department of Sustainability, Environment, Water, Population and Communities (2012) Marine bioregional plan for the South-west Marine Region.
    - Department of the Environment, Water, Heritage and the Arts (2013), Matters of National Environmental Significance - Significant Impact Guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999.
    - Relevant policies, plans of management, recovery plans, conservation advice and other guidance for matters protected under the EPBC Act, as well as other additional relevant scientific literature.
- Third party correspondence received by NOPSEMA regarding the activities proposed in the EP;
- Comments received from the public on the EP during the voluntary public comment period undertaken as a result of the titleholder voluntarily publishing it's EP for comment prior to the regulatory amendments for publication coming into effect;
- Recorded findings of NOPSEMA's assessment team regarding assessment of how the EP met the relevant criteria of the Environment Regulations;
- NOPSEMA Bulletin#1 – Oil Spill Modelling – April 2019; and
- NOPSEMA Bulletin#2 – Clarifying statutory requirements and good practice consultation – November 2019.

Legislative framework

22. The Environment Regulations provide for:

22.1. Subregulation 9(1) states that before commencing an activity, a titleholder must submit an environment plan for the activity to the Regulator.

22.2. Subregulation 9A(1) states that if a titleholder submits an environment plan, the Regulator may request the titleholder to provide further written information about any matter required by these Regulations to be included in an environment plan.

22.3. Subregulation 9A(3) states that if a titleholder receives a request and provides information requested by the Regulator within the period specified or within a longer period agreed to by the Regulator:

a) the information becomes part of the environment plan; and

b) the Regulator must have regard to the information as if it has been included in the submitted environment plan.

22.4. Paragraph 10(1)(a) states that if the Regulator is reasonably satisfied that the environment plan meets the criteria set out in regulation 10A, the Regulator must accept the environment plan.

22.5. Paragraph 10(1)(b) states that if the Regulator is not reasonably satisfied that the environment plan meets the criteria set out in Regulation 10A, the Regulator must give the titleholder notice in writing under subregulation 10(2).

22.6. Paragraph 10(1)(c) states that if the Regulator is unable to make a decision on the environment plan within the 30 day period, the Regulator must give the titleholder notice in writing and set out a proposed timetable for consideration of the plan.

22.7. Subregulation 10(2) states that a notice to a titleholder under this subregulation must:

a) state that the Regulator is not reasonably satisfied that the environment plan submitted by the titleholder meets the criteria set out in regulation 10A; and

b) identify the criteria set out in regulation 10A about which the Regulator is not reasonably satisfied; and

c) set a date by which the titleholder may resubmit the plan.

22.8. Regulation 10A provides the criteria for acceptance of an environment plan and states that, for regulation 10, the criteria for acceptance of an environment plan are that the plan:

a) is appropriate for the nature and scale of the activity; and

b) demonstrates that the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable; and

c) demonstrates that the environmental impacts and risks of the activity will be of an acceptable level; and

d) provides for appropriate environmental performance outcomes, environmental performance standards and measurement criteria; and

e) includes an appropriate implementation strategy and monitoring, recording and reporting arrangements; and

f) does not involve the activity or part of the activity, other than arrangements for environmental monitoring or for responding to an emergency, being undertaken in any part of a declared World Heritage property within the meaning of the EPBC Act; and

g) demonstrates that: the titleholder has carried out the consultation required by Division 2.2A; and the measures (if any) that the titleholder has adopted, or proposes to adopt, because of the consultation are appropriate; and

h) complies with the Act and regulations.

22.9. Regulation 10(6)(b) states the Regulator may accept the plan subject to limitations or conditions applying to the operations of the activity.

Consideration and findings of material facts

23. Following an assessment of the EP undertaken in accordance with the Environment Regulations and NOPSEMA's assessment policies and procedures, NOPSEMA provides the following considerations and

findings of material fact which contributed to the decision to accept the EP subject to conditions in the attached acceptance letter.

Environmental assessment – description of the petroleum activity

24. NOPSEMA considered the description of the activity in the EP and found that:

- A comprehensive description of the activity had been provided in the EP which was relevant for the consideration of environmental impacts and risks of the activity. Key aspects of the description included the following:
    - The activity described in the EP is the drilling of the Stromlo 1 exploration well and supporting operations, located in Commonwealth waters in the GAB, approximately 730 km west of Adelaide, 400 km south-west of Ceduna and 372 km from the Australian coast at its closest point.
    - The activity will be undertaken using a mobile offshore drilling unit (MODU) equipped with a dynamic positioning system, and supported by three vessels and two helicopters.
    - A 500 m radius Petroleum Safety Zone (PSZ) will be gazetted around the MODU once on location where support vessels engaged in the activity may be present.
    - The location of the activity is clearly set out by diagrams, figures and coordinates depicting the Stromlo-1 well location, operational area (2 nautical mile radius around the mobile offshore drilling unit), and the environment that may be affected from planned activities (40 km radius).
- Information considered relevant for the consideration of environmental impacts and risks (such as the operational details of the activity and proposed timetable) included:
    - a statement in the EP that the proposed timetable for the activity is planned to occur between 1 November 2020 and 30 April 2022 (at any time during this period other than from 1 May to 31 October inclusive, in any year);
    - the activity duration, which is approximately 60 days;
    - hours of operation, which is 24 hours a day;
    - the activity location, which is within exploration permit EPP39 in Commonwealth waters in the GAB adjacent to SA;
    - water depths of the activity location, which is approximately 2240 m;
    - Planned total depth of 5186 m true vertical depth - mean sea level (TVD MSL);
    - chemical selection process, synthetic based mud (SBM) system and cutting and fluids treatment system;
    - vertical seismic profiling of the well taking 4 – 8 hours to complete, comprising of three air guns with a maximum total volume of 750 cubic inches (cui);
    - general details of the support vessels to be used for the activity;
    - the permanent plugging and decommissioning of the well in situ;

- a statement in the EP that confirms the activity or any part of the activity, including under emergency conditions will not be undertaken in any part of a declared World Heritage property within the meaning of the EPBC Act.

- However, NOPSEMA wanted to provide greater certainty that the proposed drilling activity will not occur outside of the periods of 1 November 2020 to 30 April 2021 or 1 November 2021 to 30 April 2022. NOPSEMA imposed condition 1 to remove ambiguity on the timing of the activity.

Environmental assessment – description of the environment that may be affected by the petroleum activity

25. NOPSEMA considered the description of the environment in Section 4 of the EP that may be affected by the activity including relevant values and sensitivities and found that:

- The description includes the physical environment features and biological habitats, ecosystems and their constituent parts in the area that may be affected by the activity.
- Social and economic features of the environment relating to defence areas, recreational activities (including fishing), marine tourism, commercial shipping, Commonwealth and State managed commercial fisheries and petroleum industry activities, have been identified and described.
- Cultural and heritage environment features and values have been identified and described.
- The Department of the Environment and Energy's EPBC Act Protected Matters Search tool (see Appendix 4-1 of the EP for the report) was used to determine the conservation values and sensitivities in the environment that may be affected by the activity. The results of this search were that 23 listed threatened species, 28 listed migratory species, 20 listed marine species within the meaning of the EPBC Act (including 31 cetaceans) have been identified and described as being in the environment that may be affected by the activity.
- The qualities and characteristics and values and sensitivities of the South-west marine bioregion within the Commonwealth marine area have been identified and described with regard to the Marine bioregional plan for the South-west Marine Region.
- Values and sensitivities of the Great Australian Bight Marine Park have been identified and described with regard to the major conservation values as described in the South-west Marine Parks Network Management Plan 2018.
- No terrestrial sensitivities or values (e.g. Ramsar or protected wetlands or state terrestrial areas), threatened ecological communities (TECs) or World Heritage Properties are within the area that may be affected by planned aspects of the activity.
- The description of the environment has been informed by relevant published information including reports of the Great Australian Bight Research Program and the Great Australian Bight Deepwater Marine Program as well as information from the Department of the Environment and Energy website and other peer reviewed publications.

Environmental assessment – description of the environment relevant for oil spill risks

26. NOPSEMA considered the description of the environment in Appendix 7-3 of the EP that may be affected in the event of an oil spill including relevant values and sensitivities and found that:

- The description includes the physical environment features and biological habitats, ecosystems and their constituent parts in the area that may be affected by any permutation of spill scenario and prevailing weather conditions.
- Social and economic features of the environment relating to coastal settlements, defence areas, commercial shipping, Commonwealth and State managed commercial fisheries, petroleum industry activities, recreational activities (including fishing) and marine tourism, have been identified and described.
- Cultural and heritage environment features and values have been identified and described.
- The Department of the Environment and Energy's EPBC Act Protected Matters Search Tool (see Appendix 7-2 of the EP for the report) was used to determine the matters of national environmental significance that may be affected in the unlikely event of an oil spill. The results of this search were that 311 listed threatened species, 97 listed migratory species, 168 listed marine species within the meaning of the EPBC Act (including 41 cetaceans) have been identified and described as being in the environment that may be affected by an oil spill.
- Values and sensitivities of the South-west, South-east and Temperate East Marine regions within the Commonwealth marine area and state waters of Western Australia, South Australia, Victoria, New South Wales and Tasmania have been identified and described with regard to the Marine bioregional plans for the South-west, South-east and Temperate East Marine Bioregions.
- Values and sensitivities of the following Australian Marine Parks (AMP) (including the key ecological features (KEFs) and other major conservation values) within each marine region have been identified and described:
    - South-west Marine Region: GAB, South-west Corner, Bremer, Eastern Recherche, Twilight, Murat, Western Eyre, Western Kangaroo and Southern Kangaroo Island AMPs. KEFs within these AMPs include: Albany Canyons group and adjacent shelf break, Ancient coastline at 90-120 m depth, Benthic invertebrate communities of the eastern Great Australian Bight, Commonwealth Marine Environment surrounding the Recherche Archipelago, Kangaroo Island Pool, canyons and adjacent shelf break, Eyre Peninsula upwellings, Small pelagic fish of the Southwest Marine Region and The Diamantina Fracture Zone.
    - South-east Marine Region: Murray AMP, Nelson AMP, Zeehan AMP, Apollo AMP, Beagle AMP, Boags AMP, East Gippsland, Flinders, Franklin, Freycinet, Huon, South Tasman Rise and Tasman Fracture AMPs. KEFs within these AMPs include: Bass Cascade, Big Horseshoe Canyon, East Tasmania subtropical convergence zone, Seamounts south and east of Tasmania, Shelf rocky reefs and hard substrates, Upwelling east of Eden and West Tasmania Canyons.
    - Temperate East Region: Jervis, Hunter, Central Eastern, Lord Howe and Cod Grounds AMPs. KEFs within these AMPs include: canyons on the Eastern continental slope, Shelf rocky reefs, Tasman front and eddy field and Tasmantid Seamount Chain.
    - Values and sensitivities of the following threatened ecological communities identified and described: Subtropical and temperate costal saltmarsh, Giant Kelp Marine Forests of South Australia and Posidonia australis seagrass meadows of the Manning-Hawksbury Ecoregion.

- Values and sensitivities of the following 13 Ramsar wetlands within each marine region have been identified and described: Myall Lakes Wetland, Towra Point Nature Reserve, Piccaninnie Ponds Karst Wetlands, the Coorong and Lakes Alexandrina and Albert Wetland, East Coast Cape Barren Island Lagoons, Flood Plain Lower Ringarooma River, Lavinia, Logan Lagoon, Corner Inlet, Gippsland Lakes, Port Phillip Bay (Western Shoreline), Western Port and Lake Gore.
- Values and sensitivities within the broader environment (South Australia, Western Australia, Victoria, Tasmania, New South Wales) that may be affected by a spill have been identified and described and include state marine parks, protected wetlands and terrestrial areas.

Environmental assessment – requirements

27. NOPSEMA considered the description of requirements in the EP, including legislative requirements that apply to the activity and are relevant to the environmental management of the activity and found that:
    - a suitable description of the relevant legislative requirements that apply to the activity including, but not limited to, relevant plans of management under the EPBC Act has been provided in the EP; and
    - a suitable demonstration of how these requirements will be met by the titleholder has been provided by integrating these requirements as criteria for demonstrating that impacts and risks of the activity will be of an acceptable level.

Environmental assessment – evaluation of environmental impacts and risks

28. NOPSEMA considered the details of the environmental impacts and risks for the activity provided in sections 5, 6 and 7 of the EP and found:
    - A sufficiently robust method, consistent with internationally recognised standards ISO 14001: Environmental management systems and ISO 31000: 2009 Risk management has been applied for the identification and evaluation of environmental impacts and risks of the activity. This included describing the context, defining criteria for evaluation, identifying and analysing impacts and risks, conducting an evaluation and application of control measures.
    - The environmental impacts and risks detailed as resulting from the activity are appropriately identified, given the description of the activity and environment that may be affected by the activity. These include impacts and risks associated with:
        - Displacement of marine users
        - Seabed disturbance
        - Underwater sound
        - Light emissions
        - Atmospheric emissions
        - Drilling fluids and cuttings discharges
        - Cement discharges
        - Cooling and brine water discharges

  - Sewage, grey water and putrescible waste discharges
  - Deck and bilge waters discharges
  - Blowout preventer fluid discharges
- The environmental impacts and risks detailed as resulting from potential emergency conditions are appropriately identified. These include impacts and risks associated with:
  - Introduction of marine pests
  - Marine fauna collision by vessels
  - Chemical and oil spill from mobile offshore drilling unit and support vessels
  - Vessel collision (diesel spill)
  - Loss of well control and major oil spill
- NOPSEMA considered the evaluation of environmental impacts and risks and found that the evaluation was appropriate to the nature and scale of each impact and risk given:
  - a sufficiently robust method has been applied for the demonstration that environmental impacts and risks of the activity will be reduced to as low as reasonably practicable (ALARP), and the implementation of additional control measures would be grossly disproportionate to benefit gained, by evaluating all impacts and risks against one or a combination of the following criteria:
    - hierarchy of controls;
    - decision making criteria considering ALARP tolerability criteria, the type of activity, degree of uncertainty associated with the assessed impact or risk and stakeholder influence;
    - comparison with good industry practice control measures, engineering risk assessment and precautionary approach;
    - comparative options assessment of risks, costs and benefits; and
    - titleholder's risk assessment process.
- A sufficiently robust method has been applied for the demonstration that each environmental impact and risk of the activity will be of an acceptable level by evaluating all against the following criteria:
  - Environmental management in accordance with all relevant international, Commonwealth and State legislation and industry standards and best practice guidance;
  - consistency with relevant species recovery plans, Australian marine park management plans and species conservation advices;
  - appropriateness of the environmental management measures consistent with the nature/sensitivity of the receiving environment;
  - consistency with the principles of ecologically sustainable development as set out in section 3A of the EPBC Act; and
  - demonstrating that impacts and risks have been reduced to ALARP.

- The evaluation considered the impacts and risks using a consistent method with and without implementation of control measures.
- The statements and conclusions drawn by the titleholder regarding impacts and risks have been sufficiently supported with scientific literature, with greater emphasis placed on supporting the evaluation where there is a higher degree of uncertainty and/or higher potential consequences. Appropriate additional studies are provided to support the evaluation of impacts and risks, including but not limited to the use of underwater acoustic modelling to predict received levels in the marine environment and the use of stochastic analysis modelling of 100 hypothetical worst-case spill scenarios to predict the extent of a spill.

29. NOPSEMAs assessment of the EP focused on the higher order impacts and risks of the activity, including underwater noise emission impacts, drilling discharges, unplanned hydrocarbon discharges (including source control, spill response and monitoring).

30. The EP has provided an evaluation of impacts and risks in a manner appropriate to the nature and scale of each impact and risk, and demonstrated that these will be reduced to an acceptable level, and ALARP with the exception of spill risks addressed in condition 3 in the acceptance letter at Attachment 3, for the following reasons:

For underwater noise emission impacts

- The EP has defined acceptable levels of impact from underwater noise for the key marine fauna values of the GAB AMP and the Commonwealth Marine Area.
- The titleholder undertook a comprehensive assessment of the potential for impacts from underwater noise on marine fauna that may be exposed to underwater noise emissions from this activity. This assessment addressed the primary noise sources associated with the drilling activity including the sources which must be operational for the safe conduct of the drilling activity (e.g. MODU thrusters and dynamic positioning acoustic transducers) and those only operational for a short duration (i.e. airguns for vertical seismic profiling).
- This assessment was informed by a comprehensive description of the marine fauna that may be present in the vicinity of the drilling location as well as acoustic modelling for the key underwater noise sources. The acoustic modelling outputs were also evaluated against peer reviewed noise effect thresholds to determine expected effect ranges for different fauna groups and effect types.
- The titleholder considered a range of relevant control measures and proposed to adopt sufficient control measures to ensure that the predicted levels of impact did not exceed the defined acceptable levels of impact. The control measures adopted by the titleholder included:
    - Revising the activity timing to avoid overlap with southern right whale migration;
    - EPBC Policy Statement 2.1 controls during Vertical Seismic Profiling operations.
- After taking into consideration all of the environmental management requirements in place, NOPSEMA was reasonably satisfied that the activity would be managed so that impacts from underwater noise would not be inconsistent with the South West Marine Parks Network Management Plan 2018, the Conservation Management Plan for the Southern Right Whale 2011 -

2021, the Conservation Management Plan for the Blue Whale 2015 – 2025 and the conservation advice for other whales species such as the humpback whale, sei whale and fin whale.

- After taking into consideration the environmental impact assessment and management measures for underwater noise, NOPSEMA was reasonably satisfied that the activity will be managed so that impacts from underwater noise on marine fauna that may be affected by the activity will be managed to ALARP and acceptable levels.

For drilling discharges

- The EP has defined an acceptable level of impact, taking into account suitable context by describing the values and sensitivities and giving consideration to the values outlined in the South-West Marine Parks Network Management Plan and the Commonwealth marine area.
- The titleholder undertook a comprehensive assessment of the impacts and risks associated with drilling discharges, which incorporated findings from a drill cuttings and muds dispersion modelling study.
- The titleholder considered all reasonably practicable control measures and adopted a series of control measures to ensure that the predicted levels of impact did not exceed the defined acceptable levels of impact, including:
    - A limit of 6.9% (dry weight) oil on cuttings;
    - Reduced drilling rates where necessary to ensure oil on cuttings standard can be met;
    - Discharge below the water line reducing the dispersion of cuttings and associated consequences;
    - Pre and post drilling surveys to confirm extent of cuttings deposition;
    - No drilling in absence of drill cuttings treatment equipment;
    - Only use of Offshore Chemical Notification Scheme (OCNS) ranked chemicals that are Gold/Silver or E/D rated, or subject to equivalent assessment;
    - No bulk discharge of synthetic based muds, with mud pit water returned to shore for treatment and disposal.
- The titleholder gave adequate consideration to additional possible controls and carried out an appropriate evaluation to demonstrate that risks were reduced to ALARP.
- After taking into consideration all of the environmental management requirements in place in the EP, NOPSEMA was reasonably satisfied that the activity would be managed so that impacts and risks associated with drilling discharges would be acceptable and reduced to ALARP.

For unplanned hydrocarbon discharges

- The EP clearly describes and delineates all relevant hazards arising from the petroleum activity which could eventuate in the loss of hydrocarbons.
- The titleholder describes the physical and chemical characteristics of any at-risk hydrocarbons, as well as detailed descriptions of potential oil spill scenarios, including the worst case discharge scenario.

- The EP presents appropriate simulation modelling to determine the outer extent of the geographic area that could potentially be exposed to oil in the highly unlikely event of an unmitigated worse case discharge scenario, referred to as the environment that may be affected.
- Key environmental and socio-economic receptors, including EPBC Protected Matters, which are located within the EMBA are detailed and prioritised for response planning purposes.
- The plan describes specific legislation and other requirements that exist in relation to environmental management of the activity and how these will be met by the titleholder. In terms of methodology, the risk assessment process is clear, logical, and adhered to. In terms of implementation, the scope and rigour of the assessment are commensurate to the risk posed by the activity and the response to it. As a result, the oil-spill-related impacts and risks are suitably understood and provide appropriate inputs into the response and preparedness planning that follows.
- The titleholder considered all reasonably practicable control measures to respond to an unplanned discharge of hydrocarbons to the environment. The proposed oil spill preparedness and response controls are consistent with national and international oil spill response theory and practice, and include:
    - Source control activities that include blowout preventer intervention, capping stack installation, subsea dispersant injection and relief well drilling;
    - Oil spill operational and scientific monitoring;
    - Oiled wildlife response operations;
    - Surface dispersant application;
    - Offshore and near-shore containment and recovery operations;
    - Shoreline protection and clean-up operations;
    - Waste management operations.
- For each of the oil spill preparedness and response controls, an ALARP analysis was undertaken of feasible and meaningful options including alternative controls, additional controls and improvements to the proposed controls. The ALARP options analysis clearly and sufficiently describes incremental (extra) costs and benefits associated with each option and defines grossly disproportionate costs in terms of both the potential benefits and foreseeable costs. The ALARP options analysis is appropriate in type and level of detail.
- However, in the context of the control measures for spill risk presented in the EP, NOPSEMA was still not reasonably satisfied that the EP demonstrated that the environmental risks of the activity would be reduced to ALARP. There was considered to be a material environmental benefit in applying additional and improved oil spill response control measures that would contribute to the overall reduction of oil spill risk of the proposed Stromlo -1 exploration well drilling activity and that would not entail a grossly disproportionate sacrifice. To ensure oil spill risks of the activity are reduced to a level that is ALARP, condition 3 as outlined in attached acceptance letter, requires the titleholder to implement additional and improved control measures for timely oil spill prevention, preparedness and response.

- After taking into consideration the environmental risk assessment and oil spill preparedness and response control measures, and the condition imposed on the titleholder, NOPSEMA was satisfied that the activity will be carried out in a manner by which the environmental risks and impacts of the activity will be reduced to ALARP and acceptable levels.

For all additional impacts and risks arising directly and indirectly from the activity

- In addition, the EP included an evaluation of all the impacts and risks arising directly or indirectly from the activity, including under potential emergency conditions, appropriate to the nature and scale of each impact or risk. These included displacement of marine users, seabed disturbance, light emission, atmospheric emissions, cement discharges, cooling and brine water discharges, sewage, grey water and putrescible waste discharges, deck and bilge waters discharges, blowout preventer fluid discharges, introduction of marine pests and vessel collision with marine fauna.
- The EP has defined an acceptable level of impact for each of these aspects, taking into account suitable context by describing the values and sensitivities, and given consideration to the values outlined in the South-west Marine Parks Network Management Plan, and the Commonwealth marine area.
- The titleholder undertook an assessment of the impacts and risks associated with these aspects that was appropriate to the nature of scale of the activity.
- The titleholder considered all reasonably practicable control measures and adopted control measures to ensure that the predicted levels of impact did not exceed the defined acceptable levels of impact.
- The titleholder gave adequate consideration to additional possible controls, and carried out an appropriate evaluation to demonstrate that risks were reduced to ALARP.
- After taking into consideration all of the environmental management requirements in place in the EP, NOPSEMA was reasonably satisfied that the activity would be managed so that impacts and risks associated with the activity, including under potential emergency conditions, would be acceptable and reduced to ALARP.

Environmental assessment – details of control measures

31. NOPSEMA considered the details of the control measures that will be used to reduce the environmental impacts and risks of the activity, including those under potential emergency conditions, to ALARP and acceptable levels and found that:

- control measures in the form of systems, equipment, persons and procedures have been clearly identified;
- these control measures will be appropriate for managing each of the environmental impacts and risks of the activity, given a clear demonstration has been provided by the titleholder through application of the above method of risk analysis, treatment and evaluation; and
- the control measures applied will be effective in reducing the environmental impacts and risks to ALARP and acceptable levels.

Environmental assessment – environmental performance outcomes and standards

32. NOPSEMA considered the environmental performance outcomes, environmental performance standards and measurement criteria and found that:

- environmental performance standards provide statements of performance for control measures identified as being necessary to manage the environmental impacts and risks of the activity, including those under potential emergency conditions;
- environmental performance outcomes have been appropriately set to provide measurable levels of performance for the management of the environmental aspects of the activity, including those under potential emergency conditions, to ensure that environmental impacts and risks of the activity will be of an acceptable level; and
- measurement criteria provided will allow the titleholder to determine whether each environmental performance outcome and environmental performance standard is being met for the duration of the activity.

Implementation strategy for the environment plan

33. NOPSEMA considered the implementation strategy for the activity including monitoring, recording and reporting arrangements and found that:

- The EP included an oil pollution emergency plan (OPEP) (Appendix 9-1) and provides for the updating of the plan;
- the EP includes suitable arrangements for reporting the titleholder's environmental performance of the activity to NOPSEMA, with reporting submitted within three months of completion of the petroleum activity;
- the environmental management system described is consistent with recognised standards (AS/NZS ISO 14001: Environmental management systems and AS/NZS ISO 31000: Risk management - Principles and guidelines) and contains specific measures to ensure that the control measures detailed in the EP will be effective in reducing the environmental impacts and risks of the activity to an acceptable level and ALARP; and that the environmental performance outcomes and standards in the EP will be met;
- the environment management system includes measures to ensure that environmental impacts and risks of the activity will continue to be identified and reduced to ALARP and to an acceptable level;
- a clear chain of command is established in the EP, with set roles and responsibilities of personnel in relation to the implementation, management and review of the EP, including during emergencies or potential emergencies, with the titleholder responsible for ensuring the activity is undertaken in the manner described in the EP;
- there are suitable measures in place to ensure that each employee or contractor working on, or in connection with, the activity is aware of his or her responsibilities in relation to the EP, including during emergencies or potential emergencies, and has the appropriate competencies;
- sufficient arrangements are in place for monitoring, recording, audit, management of non-conformance and review of the titleholder's environmental performance and the implementation

strategy to ensure that the environmental performance outcomes and standards in the EP are being met;

- sufficient arrangements are in place to allow monitoring of, and maintaining a quantitative record of, emissions and discharges (whether occurring during normal operations or otherwise), such that the record can be used to assess whether the environmental performance outcomes and standards in the EP are being met;
- an OPEP has been provided that is consistent with the national system for oil pollution preparedness and response and includes arrangements for responding to and monitoring oil pollution, including:
    - the control measures necessary for timely response to an emergency;
    - the arrangements and capability in place, for the duration of the activity, to ensure timely implementation of the control measures, including arrangements for ongoing maintenance of response capability;
    - the arrangements and capability in place for monitoring the effectiveness of the control measures and ensuring that the environmental performance standards for the control measures are met; and
    - arrangements and capability for monitoring oil pollution to inform response activities are in place.
- arrangements for testing of the response arrangements in the OPEP include a schedule of tests at multiple intervals prior to mobilisation that will be appropriate given the response arrangements and nature and scale of the risk of oil pollution for the activity; monitoring of impacts to the environment from oil pollution and response activities has been provided for in the Stromlo-1 exploration drilling program operational and scientific monitoring program (Appendix 9-2). The scope of the monitoring program and the arrangements to implement the program are appropriate to the nature and scale of the oil spill risk for the activity and will be sufficient to inform any remediation activities;
- the monitoring arrangements include provisions to enhance preparedness through time, adapt to new information and allow for independent expert review and input;
- ongoing consultation arrangements are in place with relevant authorities of the Commonwealth, State and other relevant interested persons or organisations. The titleholder has developed a communication and engagement strategy requiring ongoing identification of new relevant persons, considering and responding to new objections and claims and keeping relevant persons informed of the activity. This occurs through a number of mechanisms including (but not limited to) continuation of consultation currently underway; notification of activities at least 1 month prior to mobilisation and spud dates; Notices to Mariners publication; and notification of completion of activity;
- there was significant stakeholder interest in the environmental management of the proposed Stromlo-1 exploration drilling activity, including public comments received by NOPSEMA. Given this interest, NOPSEMA was still not reasonably satisfied that the implementation strategy provided for appropriate consultation with relevant interested persons (according to regulation 14(9)). In order to address this, NOPSEMA has imposed condition 2 requiring the titleholder to implement additional

measures for ongoing consultation with relevant interested persons and to publish its environmental performance for the drilling activity;

- The implementation strategy complies with the OPGGS Act, the regulations and environmental legislation applicable to the activity.

Details of titleholder and liaison person

34. NOPSEMA considered the details of the titleholder and liaison person provided in the EP and found:

- that details of the titleholder's name (Equinor Australia B.V), business address and ACN (within the meaning of the Corporations Act 2001) and the titleholder's nominated liaison person, their business address, telephone number and email met requirements; and
- there were suitable arrangements provided for notifying the Regulator of a change in the titleholder, the nominated liaison person, or of change in the contact details of either the titleholder or the liaison person.

Other information in the EP

35. NOPSEMA considered other information provided in the EP and found that:

- the titleholder's "corporate environment policy" was provided; and
- details of all reportable incidents, meaning those that have the potential to cause moderate to significant environmental damage relating to the activity, are to be reported to NOPSEMA.

Consultation undertaken in the course of preparing the EP

36. NOPSEMA considered the consultation that the titleholder has carried out as required by Division 2.2A of the Environment Regulations and the measures that the titleholder has adopted, or proposes to adopt because of the consultations and found that:

- in preparing the EP, the titleholder consulted with each of the following (a relevant person):
    - each Department or agency of the Commonwealth, to which the activities to be carried out under the EP, may be relevant;
    - each Department or agency of a State, to which the activities to be carried out under the EP, may be relevant;
    - the Department of the responsible State Minister, or the responsible Northern Territory Minister;
    - each person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the EP; and
    - any other persons and organisations that the titleholder considers relevant.
- a clear process, system or method was used to define and identify relevant persons, formulate a consultation strategy, and maintain consultation records. During the course of the assessment, NOPSEMA challenged the approach taken by the titleholder in the identification of relevant persons. In response, the titleholder provided a rationale and approach that NOPSEMA was reasonably satisfied with, when considering the requirements of the regulations (see Table 2.3 of Appendix 3-1).

NOPSEMA Bulletin #2 was published after commencement of the consultation topic assessment, however, this did not result in any changes to findings in the assessment;

- the titleholder has demonstrated that each relevant person has been provided with sufficient information and a reasonable period to make an informed assessment of the possible consequences of the activity on the functions, interest or activities of the relevant person, given:
    - information gathered from consultation has been used to inform the preparation of the EP;
    - as part of consultation, the titleholder has provided sufficient information to relevant persons to allow them to make an informed assessment of the possible consequences of the activity on their functions, interests or activities;
    - sufficient time has been given to relevant persons for them to make an informed assessment of the possible consequences of the activity on their functions, interests or activities. In particular, the titleholder provided initial information about the proposed activity in the form of correspondence to relevant persons in late 2018. The EP was published for comment in February 2019 and consultation with relevant persons was continued throughout the assessment of the EP.
- A report on all consultations between the titleholder and relevant persons undertaken in the course of preparing the EP (Section 3 and Appendix 3-1) is appropriate as it includes:
    - a summary of each response made by a relevant person;
    - an assessment of the merits of any objection or claim about adverse impact of each activity to which the EP relates;
    - a statement of the titleholder's response, if any, to each objection or claim; and
    - a copy of the full text of any response by a relevant person;
- the objections and claims raised by relevant persons and assessed by the titleholder include:
    - displacement of commercial and recreational fishing activities;
    - impacts to commercial and recreational fish species and fish stocks;
    - the potential impacts of an oil spill;
    - preparedness to respond to an oil spill;
    - displacement of other marine users and impacts to their activities;
    - impacts to Matters of National Environmental Significance;
    - consultation during the development of the EP and ongoing consultation;
- objections and claims have been sufficiently addressed by the titleholder. Due consideration has been given to each objection and claim made by relevant persons;
- appropriate responses have been provided to relevant persons for each objection and claim made; and
- the consultation undertaken has met the requirements of Division 2.2A and the titleholder has adopted appropriate measures to reduce impacts and risks to an acceptable level.

Acceptance subject to conditions

37. Acceptance of the EP is subject to conditions as outlined in the acceptance letter (see Attachment 3).

Findings on criteria for acceptance of environment plan (Regulation 10A)

38. NOPSEMA was reasonably satisfied that subject to the conditions, the EP:

- is appropriate for the nature and scale of the activity; and
- demonstrates that the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable and will be of an acceptable level; and
- provides for appropriate environmental performance outcomes, environmental performance standards and measurement criteria; and
- includes an appropriate implementation strategy and monitoring, recording and reporting arrangements; and
- does not involve the activity or part of any activity being undertaken in any part of a declared World Heritage property; and
- demonstrates that the titleholder has carried out the required consultations and that the measures that they propose to adopt because of the consultations are appropriate; and
- complies with the OPGGSA Act and the regulations;

and therefore meets the requirements set out in the Environment Regulations.

Signed

Manager - Assessment and Inspection – Drilling and Developments

18 December 2019

ATTACHMENT 1

NOPSEMA letter - request to provide further written information
(27 June 2019)

Our ref: ID: 4832 A677666
Your ref: Stromlo-1 EP
Contact: [redacted]
Email: [redacted]

[redacted]
Equinor Australia B.V.
Level 15, 123 St Georges Terrace
PERTH WA 6000

gabproject@equinor.com

Dear [redacted]

RE: ENVIRONMENT PLAN SUBMISSION – REQUEST FOR FURTHER WRITTEN INFORMATION – STROMLO-1 EXPLORATION DRILLING PROGRAM

I write with regard to the Stromlo-1 exploration drilling environment plan (EP) (Revision 1), submitted to NOPSEMA on 23 April 2019 by Equinor Australia B.V (Equinor).

An assessment of the plan has commenced in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (the Environment Regulations) and NOPSEMA's assessment policies. This includes a general assessment of the whole EP and four detailed topic assessments of the EP content, as follows:

- matters protected under Part 3 of the EPBC Act (focussed on evaluation and management of noise emission impacts);
- adequacy of source control arrangements and capability;
- adequacy and capability of arrangements for timely oil spill response and monitoring;
- consultation with relevant persons.

Subregulation 9A(1) of the Environment Regulations allows NOPSEMA to request the titleholder to provide further written information about any matter required by these Regulations to be included in an EP.

Prior to making a decision on whether to accept the plan, NOPSEMA requests that further written information is provided in relation to each matter outlined in Attachment 1.

Please provide this information in the form of a modified EP, together with a copy showing all changes made to the EP. Please provide this information as soon as practicable from the date of this letter and within **60** days. If Equinor requires a longer period of time, please advise NOPSEMA in writing within 14 days of receipt of this letter with an alternative date for provision of the information. In accordance with subregulation 9A(3), all information provided becomes part of the EP and NOPSEMA must have regard to the information as if it had been included in the submitted EP.

NOPSEMA's preferred method for the submission of electronic documents is through the secure website: https://securefile.nopsema.gov.au/filedrop/submissions. Guidance on the use of the submission system and support contacts may be found on the information page: http://www.nopsema.gov.au/secure-file-transfer.

Please be advised that in accordance with paragraph 10(1)(c) of the Environment Regulations, if NOPSEMA is unable to make a decision on the EP within 30 days of submission, NOPSEMA must give the titleholder notice in writing and set out a proposed timetable for consideration of the plan.

Given the period specified for the provision of information by Equinor in response to NOPSEMA's request for further written information, NOPSEMA proposes to provide you with an assessment decision within 30 days of receiving the requested information from Equinor.

Should you have any queries regarding the above, please contact the lead assessor for your submission, [redacted].

Yours sincerely

[redacted]
***Environment* Manager, Drilling & Developments**
SAN: wA250905

27 June 2019

cc [redacted]

SAN: All regulatory correspondence issued by NOPSEMA, including this letter, bear a signature authorisation number (SAN) in place of a traditional signature. The SAN is a unique, secure identifier applied to the letter upon approval by the named signatory. If you wish to enquire further about SAN and its use in this or other correspondence, please contact information@nopsema.gov.au quoting the reference provided above.

Item number (Reg)	Matters requiring further written information
1. Nature and Scale: A number of items require clarification that have a direct bearing upon the nature and scale of the activity.	
1.1 13(1)	*Preferred activity window* The submission states in a number of locations that the preferred window for drilling is November to February, '*when weather conditions are more conducive to fast and efficient drilling*'. For example, p 291 refers to November to February as a period of the year with better metocean conditions, and during which time there will be lower shoreline loadings of oil; and p 279 refers to lower environmental consequences associated with a Loss of Well Control (LOWC) if drilled during this period. However, this preference is not reflected in the activity description, with activities proposed to be undertaken 1 October-31 May (Section 2.1 of EP). Further, all subsea emergency response (i.e. '*source control*', as discussed in section 6 below) and surface/ shoreline oil spill response would be greatly facilitated by better conditions in summer than rougher weather (i.e. in autumn and winter). a. Please clarify the timing of the activity, giving consideration to the environmental benefits of revising the activity window as outlined in items 3.4, 6.9 and 6.28 below. b. Please show if and how the proposed activity period could be narrowed down to strike an optimal balance between the time required for normal drilling operations, the sea conditions that will be faced by potential emergency operations, such as source control, and reducing interactions with, and potential impacts to, threatened whale species.
1.2 13(1)	*Limitation of the activity to the Petroleum Safety Zone (PSZ)* On p 20 and on p 29 the activity is defined as being limited to any works undertaken within the PSZ. This limitation may not be consistent with definition of a petroleum activity in Regulation 4 and the OPGGS Act. See information provided in the guidance note for petroleum activity (https://www.nopsema.gov.au/assets/Guidance-notes/A336223.pdf) which states that '*The definition of petroleum activity in the Environment Regulations is directly related to a title granted under the OPGGS Act and applies to those petroleum activities that will be conducted within the boundary of a petroleum title*'. Please review and update the EP to clarify the description of the activity is consistent with petroleum activity definition in regulation 4, and where appropriate update the evaluation of impacts of the activity (as well as the environmental performance outcomes (EPOs) noting that the EPOs for vessel strike, sewage, greywater and waste are limited to the PSZ (p267 and 237)).

Item number (Reg)	Matters requiring further written information
1.3 13(1)	*Metocean conditions* Section 2.4 of the EP compares conditions at the Stromlo-1 drilling location to those experienced by Equinor at previous drilling locations, in aiming to show that the extremes for wind, wave, and currents are not dissimilar. However, comparison of the metocean conditions does not equate to an assessment of associated impacts and risks. Section 2.5 does not refer to any specific capability the rig would require for drilling in these conditions. Please provide additional information concerning capability requirements for a rig to drill in conditions likely to be experienced, including the further regulatory requirements and how these will be met. In doing so please note item 6.29.
2. Drilling Discharge Management	
2.1 13(2)	*Description of benthic environment* While the submission describes the Great Australian Bight Research Program and Great Australian Bight Deepwater Marine Program as sources of information on seabed and sea floor state, as well as benthic biota, it does not sufficiently clarify the state of knowledge regarding the benthic environment in the immediate vicinity of the drilling location. Please provide further information to describe the benthic environment in the area likely to be impacted upon by drilling discharges, with reference to and taking into account: • that the South-west Marine Parks Network Management Plan 2018 refers to benthic invertebrate communities of the eastern Great Australian Bight (GAB) as valued as a species group or community that is nationally and regionally important to biodiversity. • the paper by MacIntosh et al 2018 (‘*Invertebrate diversity in the deep Great Australian Bight 200–5000m’*), which describes 401 new species being identified and a high degree of rarity. • input provided by the Director of National Parks (App3-2 p 441) stating that : ‘*benthic invertebrate communities of the eastern GAB are among the world’s most diverse soft-sediment ecosystems’*. Please provide additional impact evaluation and consideration of control measures in relation to the benthic environment.
2.2	*EPO for drilling discharges*

Item number (Reg)	Matters requiring further written information
13(7)b	An EPO for drilling discharges is provided on p 218: '*Long-term impacts on benthic habitats and the water column, from muds and cuttings discharge, will be limited to the immediate area surrounding the well – an area contained wholly within the Petroleum Safety Zone*'. The acceptability of this outcome is not specifically or adequately supported (i.e. what constitutes a long term impact, and why is that impact acceptable?), and does not provide an outcome relevant for areas outside of the PSZ, noting that the App 6-2 modelling report refers to sediment deposition over a wider area (2.34km for 1-10mm). Please provide an appropriate EPO, giving consideration to the summary of consequences outlined on p218, and acceptability criteria on table 6.38.
2.3 13(5,6)	*Chemical Selection* Table 2.8 defines chemicals approved for use as Gold/Silver (CHARM), or E/D (OCNS) rated, or PLONOR (which is industry standard), and includes the words '*or equivalent (i.e. similar internationally recognised system*)'. This is reflected in the EPS on Table 6.37 (p 220), which refers to Gold/Silver or E/D but adds the words '*or have a complete impact assessment*'. Both wordings create ambiguity as it is unclear what the environmental performance of non-CHARM/OCNS rated chemicals will be. a. Please clarify what control measures will be applied to the selection of non-CHARM/OCNS chemicals to demonstrate that associated environmental risks are acceptable and ALARP, and ensure that the Environmental Performance Standard (EPS) provided is consistent with the control measures. b. Further, p 217 contains an ambiguous statement in relation to OCNS: '*it is expected that concentrations will be below the Offshore Chemical Notification Scheme acute toxicity threshold for water column (>100 ppm) and for sediments (>1000 ppm) within 100 m of the mobile offshore drilling unit*'. Please clarify the intent of this statement or remove it.
2.4 13(5,6)	*Treatment of cuttings* The submission contains insufficient information on the cuttings treatment system process, and how monitoring will be undertaken in a manner sufficient to ensure that the limit of 6.9% ROC will be met for the duration of drilling. Please provide details on the treatment system process, such as the configuration of shakers, cuttings dryers, and centrifuges and their application to removal of oil on cuttings. Further, please outline what process will be followed in the event that equipment is not in service at any time during drilling, to ensure that impacts continue to be reduced to ALARP.

Item number (Reg)	Matters requiring further written information
2.5 13(5,6)	*Measurement of ROC* A control measure has been provided for measurement of ROC once a day or every 500ft drilled to a max of 3 measurements a day. It is not clear that one or three measurements of ROC per day would be sufficient to reduce SBM related risks to levels that are acceptable and ALARP. Please provide a suitable frequency of measurement for ROC, also considering the likely rate of penetration during drilling, and provide an appropriate strategy for responding to measurements of ROC that exceed 6.9%.
2.6 13(5,6)	*ALARP assessment for drilling discharge management* Table 6.40 (p 223) provides an ALARP evaluation considering additional control measures to mitigate impacts from drill fluids and cuttings discharges. The justification for exclusion of a number of these control measures is insufficiently supported to demonstrate that environmental benefits do not outweigh costs for implementation. Please provide a robust ALARP evaluation that adequately considers the control measures that are listed and that demonstrates that the adopted control measures are all that is required to manage environmental impacts and risks to ALARP.
2.7 13(5,6)	*Mud pit discharges* The submission refers to discharges of wash water and mud residue from mud pits (p 208). Please provide an evaluation of mud pit discharges, and include a control measure (and EPS) related to discharge/alternate disposal of excess hydrocarbons/base oil.
2.8 13(5,6)	*Well testing fluid discharges* The submission does not include details on use of fluids for testing to verify barrier integrity prior to abandonment. Should fluids be required for such testing, please outline the process used and fate of fluids and how this aspect will be managed (for example, fate from mud pits, if utilised - see above point regarding mud pits).
2.9 13(5,6)	*ROV surveys*

Item number (Reg)	Matters requiring further written information
	A control measure is provided for pre- and post-ROV surveys to quantify cuttings deposition around the well location. Noting that the EPO provided relates to impacts of drilling discharges within the PSZ (see item 2.2 in relation to that EPO), please provide additional information on how these surveys will provide information to be used in determination of whether this EPO will be met.
3. Noise	
3.1 13(3)	*Description of noise-sensitive receptors* There are particular aspects of the environment that may be affected by noise that have not been adequately described to inform the evaluation of noise impacts. Please further describe the following aspects for the Impact EMBA: a. The distribution, behaviour and hearing range of pilot whales, with reference to relevant data and studies for the GAB, e.g. Goldsworthy et al. (2017)[1]. b. The distribution, species composition and characteristics of pelagic fish communities, noting that small pelagic fish of the South-west Marine Region is a key ecological feature and sardines are of commercial importance. If required, please provide additional impact evaluation and consideration of control measures.
3.2 13(5)	*Inputs to sound propagation modelling* The EP states that '*input parameters for seabed properties and the sound speed profile were based on the sound exposure modelling report for the Ceduna 3D Seismic Survey carried out by Curtin University (Maggi & Duncan 2011)*'. Please provide further information on these inputs and why they are appropriate for the timing and location of the Stromlo-1 exploration drilling program.
3.3 13(5)	*Evaluation of noise impacts to whales*

Item number (Reg)	Matters requiring further written information
	The evaluation of MODU noise impacts to whales is based on cumulative sound exposure modelling over a period of 24 hours. The submission explains that sound modelling was based on a conservative assumption that whales will remain stationary. Cumulative sound modelling is used to predict the distance at which effect thresholds for temporary (TTS) and permanent threshold shifts (PTS) in hearing will be reached. For example, the distances at which these thresholds are exceeded extend up to 25 km for TTS and 1.9 km for PTS for low frequency cetaceans. On a number of occasions the impact assessment states that whales would have to remain within a certain distance of the mobile offshore drilling unit for a 24-hour period for sound levels to be sufficient to cause potential auditory injury (e.g. p 170 and 171). However, for a whale transiting through the Permit Area the biggest contributor to cumulative sound exposure levels will be the maximum exposure closest to the MODU and this will be accumulated over a short period of time. Please provide further information on the potential for auditory injury to whales under more realistic sound exposure scenarios in order to demonstrate that the acceptability criteria for blue whales and southern right whales (Table 6.11) will be met (i.e. no injury).
3.4 13(5)	*Timing of drilling relative to southern right whale migration* Southern right whale (SRW) tracking data (Mackay et al. 2015) shows potential for females with calves to leave the Head of the Bight aggregation area and migrate southwards between September and October to a potential foraging area associated with subtropical convergence at latitude of 41 degrees south (south of activity location). The EP acknowledges that SRWs could travel through the EMBA between aggregation/calving areas off southern Australia and foraging grounds to the south. The ALARP assessment does not consider constraining the activity timing window to avoid sensitive periods of October and May and prevent temporal overlap with sensitive life stages (pregnant females and mothers with calves). The consideration for avoiding sensitive periods for SRW's was also raised by the Director of National Parks through consultation and a relevant claim has also been raised by the Curtin University GAB Right Whale Study that '*All drilling activities occur outside of the southern right whale migration period during May 1 and October 31*'. Please provide an assessment of the practicability of constraining the activity window to avoid overlap with the months of October and May. The assessment should consider the uncertainty in the migratory movements of southern right whales and the conservation actions set out in the recovery plan for this endangered whale species.
3.5 13(5)	*Evaluation of noise impacts to fish* <u>Other representative fish species</u>

Item number (Reg)	Matters requiring further written information
	Section 6.3.1.5 identifies potential adverse effects to deep sea and pelagic fish species yet the impact assessment only addresses southern bluefin tuna due to its commercial importance. One of the values of the Great Australian Bight Australian Marine Park (GAB-AMP) is the small pelagic fish of the South-west marine region, including a commercially targeted species, the sardine. Please expand the evaluation of noise impacts to include other representative pelagic fish species as well as deep sea fish species such as those described in Section 4.6.4.1. <u>Southern bluefin tuna</u> The assessment of behavioural impacts to southern bluefin tuna (SBT) as a result of noise has applied the qualitative risk approach from Popper et al. (2014). This assessment has not adequately considered other relevant studies on fish behaviour in response to noise to address various claims from the Australian Southern Bluefin Tuna Industry Association (ASBTIA) about the potential disturbance of SBT migrating into the GAB. In addition, the ASBTIA have raised '*the issue of what occurs to SBT that are not able to move away, because they are enclosed within a tow pontoon. All tuna tows are undertaken beyond the shelf break'* (p 124 of Appendix 3-1). Please revise the assessment of noise impacts on SBT to consider the best available science on behavioural disturbance effects and the potential for noise impacts to SBT within tow pontoons.
3.6 14(3)	*Change management for sound output from rig* Equinor have made a commitment in response to consultation with ASBTIA that '*Should the selected rig produce a louder output to the one modelled, Equinor will re-assess the impacts and if necessary adopt additional control measures to reduce impacts to ALARP and an acceptable level*.' Please provide further information on how the sound output of the selected rig will be determined and include this commitment within the environment plan.
3.7 13(5)(c) 13(7)(a)	*ALARP for VSP operations* One of the control measures outlined in Table 6.20 is for VSP source commencement in day light.

Item number (Reg)	Matters requiring further written information
	Please evaluate the practicability of ensuring that all VSP operations are undertaken during daylight hours to ensure effective whale observation and implementation of control measures, provide supporting information for the decision reached and revise the control measures and EPS where relevant.
3.8 13(7)(a)	*Environmental performance standards* An environmental performance standard (EPS) of '*watching for whales on vessel and/or MODU'* does not provide clarity on the timing, duration and location of observations to ensure the MFO is effective at detecting whales and informing mitigation. Please revise this EPS to ensure it provides clear levels of performance, e.g. relevant context provided in Table 6.23. The EPS relating to implementation of EPBC Policy Statement 2.1 does not specify the sections of the policy statement that are applicable to a static source or the size of precaution zones that will be applied. Please update this EPS to provide clear statements of performance for all key aspects of this control measure.
3.9 13(7(b)	*Environmental performance outcomes* There are two environmental performance outcomes (EPOs) that require revision: a. The EPO provided for underwater noise impacts to the GAB-AMP is '*no long-term effects on the conservation values…*' This does not provide a suitable management goal for the severity of short term effects to ensure consistency with GAB-AMP management objectives. Noting the objective of the Multiple Use Zone (VI) is '*to provide for ecologically sustainable use and the conservation of ecosystems, habitats and native species*.' This may include making links to other EPOs where they address the conservation values of the GAB-AMP, e.g. the EPO relating to whales/protected species. Please revise this EPO to ensure consistency with the South-west Marine Parks Network Management Plan 2018. b. The EPO for protected marine species includes the statement '*no permanent injury*'. The Stromlo-1 drilling activity is proposed within the biologically important area for blue whale distribution and the conservation management plan for the blue whale includes an action of '*Anthropogenic noise in biologically important areas will be managed such that any blue whale continues to utilise the area without injury…*' Please revise this EPO to ensure consistency with the conservation management plan for this species.
4. Oil Spill Risks	

Item number (Reg)	Matters requiring further written information
4.1 13(5,6)	*Application of oil spill modelling to evaluate oil spill risk* While the submission provides an adequate description to define the Risk EMBA using the Worst Case Discharge (WCD) scenario, the application of the oil spill modelling outputs used to ultimately identify and evaluate risks to the environment (section 7.7 of the EP) does not consider all potential oil spill scenarios up to and including the worst case discharge volume. Further, the scenario selected (i.e. mitigated scenario 2) has placed complete reliance on the successful application of subsea and surface dispersant to evaluate potential consequences from a blowout scenario. Please provide further evaluation of the potential consequences to the environment that considers: a. The Worst Case Discharge (WCD) scenario b. Oil spill scenarios that are not constrained by any control measures (e.g. subsea and surface dispersant application) c. Single run analysis for both the '*fastest time ashore*' and '*greatest volume of oil ashore*'. Note - the EP utilises the '*fastest time ashore*' individual model runs to evaluate potential consequences to near shore environments, however it is evident the '*greatest volume of oil ashore*' single model run (Table 45, Appendix 7-1) presents significantly higher volumes of weathered oil ashore.
4.2 13(5,6)	*Risk evaluation process to determine oil spill consequences* Section 7.7.12 of the EP details how the evaluation of potential consequences from an oil spill is restricted to the most vulnerable species within an individual receptor group. Please provide further information to describe how the selected species are representative of the key receptors to inform not only the risk assessment, but also the response planning process. In addressing this point please consider: a. The fate and distribution of oil in terms of potential receptors, as detailed in the modelling report (Appendix 7-1). b. How the selection of key species/receptors are representative across the wide geographic ranges of potential impacts. For example, but not limited to; i. Section 7.7.12 describes impacts to certain seagrass habitats in NSW but omits those in Victoria.

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	ii. The evaluation of spill risks to '*other socio-economic values*' in Section 7.7.12 evaluates the consequence for the southern Bluefin tuna industry but does not address coastal aquaculture or the tourism and ecological value of giant cuttlefish spawning aggregations in the Spencer Gulf.
4.3 13(5,6)	*Identification of Protection Priorities* The evaluation of spill risk from a well blowout (in particular the description of consequences of oil on receptors in section 7.7.12) has not been used to determine the key protection priorities, which in turn provides the basis for understanding whether oil spill response measures are appropriate and commensurate to the level of potential risk. Please use the updated evaluation of spill consequences (in response to Items 4.1 and 4.2 above) to identify key priority protection areas and provide further details on the process that was applied to identify these protection priorities.
4.4 13(5,6)	*Evaluation of oil spill control measures to demonstrate ALARP* Appendix 7-4 provides limited details of the ALARP assessment for the non-source control related response strategies and provides insufficient information regarding the oil spill response control measures (e.g. individual response strategies) to fully understand how Equinor has considered and evaluated ALARP. The following considerations are applicable to the more specific points highlighted in letter points 4.5 to 4.13 below: a. A more robust demonstration is required to determine the response needs (e.g. in terms of the type, quantum and timing required) and ensure the arrangements and capability sufficiently meet this need. It is noted that some State jurisdictions were consulted on this process, however the details are not sufficiently described to support the ALARP demonstration. b. A more thorough examination of the effectiveness (e.g. availability, reliability, feasibility) of the control measures in reducing environmental impacts and risks to ALARP. c. The submission provides limited information about how Equinor considered improvements (e.g. alternatives; additional capability; more timely) to the oil spill response control measures as part of its ALARP demonstration, and where this has been discussed, additional measures identified and adopted in Table 4.1 of Appendix 7-4 are not carried across as control measures with appropriate EPSs in the OPEP. Please refer to the following examples (letter points 4.5 to 4.13) in providing the additional information. Please note that in some cases the examples are only provided for one particular response strategy and Equinor should ensure similar issues are addressed as relevant across other response strategies.

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4.5 13(5,6) 14(8AA)	*Surface dispersant control measures* a. Given Equinor will have access to the AMOSC SFRT, please include the access to the 500m^3 of subsea dispersant this arrangement provides (see OPEP, p 99). b. Table 4.1 of Appendix 7-4 (EP) states that Equinor will undertake just-in-time manufacture of dispersant. Please provide further details on the reliability of the arrangement to manufacture just-in-time dispersant stocks for the ongoing response need required. Please also clarify whether any analysis was undertaken to consider local (Australian) manufacturing of just-in-time dispersant in the event they were required. c. Please provide further details on what testing and approval processes are in place for the use of dispersants that are not OSCA listed or that are from overseas locations and listed as transitional on the OSCA register. d. Dispersant effectiveness is only briefly mentioned in the modelling report (Appendix 7-1). Given the relative uncertainty of the oil type, please provide further details of the justification of the stated subsea and surface dispersant effectiveness. Further, please detail how metocean conditions and oil weathering processes may influence the effectiveness of surface dispersants.
4.6 13 (5,6) 14(8AA)	*Monitoring control measures* a. The submission does not include the specific operational monitoring plans (OMPs) to understand whether the currently stated monitoring capacity meets the response need required for the monitoring control measures to be successful in achieving the monitoring aim and objectives stated in Table 6.1 of the OPEP. Please provide further information to demonstrate that the capacity that will be in place is sufficient to meet the response need. b. Please provide further details on the suitability and effectiveness of the resources listed in the OSMP to undertake dispersant monitoring (OMP4) during a subsea dispersant application. For example, given the absence of the specific monitoring plan (OMP4), it is unclear whether the equipment listed in section 2.5 of the OSMP (App9-2) would be effective to meet the monitoring plan objective. c. Section 12.3 of the OPEP broadly states that some of the operational monitoring resources will be located on three contracted vessels (e.g tracking buoys, infra-red camera, oil spill detection radar, and other primary response equipment), however, given that it is stated that one vessel will always remain in the immediate area with two other vessels up to 30hrs away, please clarify whether this equipment is always available for immediate use in the general vicinity.

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	d. Please provide further information to demonstrate that sufficient trained and competent personnel can be sourced in a timely manner to fill the many office-based leadership and operational management roles required when implementing the OSMP activities.
4.7 13(5,6) 14(8AA)	*Containment and recovery control measures* The submission provides limited information about the containment and recovery resource need and the timeframes required of the response. While there is some discussion of the theoretical efficiency of offshore containment (based on the NOFI current buster under certain metocean conditions - section 3.7 of App 7-4), and constraints of weather conditions in the GAB for this type of response option, it is still unclear what sort containment and recovery response will be implemented. Please provide: a. An assessment of the amount of predicted surface oil available to recover at actionable levels (prior to and post dispersant application) to understand the response capability required (e.g. quantity of recovery systems, vessels, waste storage and transfer, etc.) - i.e. the response 'need'. b. Further details of the types of booming equipment that would be used in the GAB and near shore environments, including the effectiveness and suitability of this equipment that is only broadly summarised in Appendix 2 (e.g. multiple equipment lists). c. Further details to demonstrate that options to improve timeframes (e.g. containment and recovery response commences on day 15) are being considered in the ALARP evaluation.
4.8 13(5,6) 14(8AA)	*Shoreline clean-up control measures* a. Section 3.9 of Appendix 7-4 makes reference to the considerations of the ALARP demonstration but does not detail it in the submission (note – Table 4.1 of Appendix 7-4 only briefly discusses additional capabilities). Please provide a more thorough ALARP demonstration (e.g. alternatives; additional capability; more timely) for the shoreline-clean-up response strategy. b. Section 12.1.2 of the OPEP provides a description of the process used to evaluate shoreline resources and logistics potentially required. Please provide the assessment of this evaluation to support the ALARP demonstration.
4.9	*Oiled Wildlife Response control measures*

Item number (Reg)	Matters requiring further written information
13(5,6) 14(8AA)	a. Section 3.10 of Appendix 7-4 makes reference to the considerations of the ALARP demonstration but does not detail it in the submission. Please provide a more thorough ALARP demonstration (as stated in point 4.8) for the oiled wildlife response strategy. b. Section 12.1.3 of the OPEP states that equipment and resources can be sourced from AMOSC and OSRL, however no details of what, how much and when these resources are required is presented (just a reference to the equipment lists in Appendix 2). Please provide further details and assessment to demonstrate that the oiled wildlife response capability meets the response need. c. The risk assessment in section 8.8.3 that assesses additional risks from implementing an oiled wildlife response provides an evaluation of the typical impacts to wildlife from oiled wildlife actions. While these impacts are recognised in the EP (e.g. hazing, wildlife capture and release, transportation, cleaning and rinsing of oiled wildlife) the control measures (and EPSs) stated in section 8.8.4 are disconnected from the risk evaluation process and it is currently unclear how the risks identified in section 8.8.3 are being managed. Please provide control measures and associated EPSs to specifically manage the risks (as described in section 8.8.3) that may occur during the implementation of an OWR response. Please note: Equinor should review all response control measures in Section 8 of the EP to ensure similar issues are addressed where relevant. d. Section 12.1.3 of the OPEP provides general assumptions about acquiring veterinarians (e.g. general statement about 11,000 vets in Australia and Equinor assumes it can obtain 1% (100) of these vets to adequately cover the oiled wildlife response need). To support this assumption, please provide further information to detail if any specific skills/qualifications are required from vets to undertake an oiled wildlife response capacity. Further, please detail how this arrangement is aligned to State wildlife jurisdictional requirements.
4.10 13(5,6) 14(8AA)	*Waste Management* Section 5 of the OPEP states that the waste management requirements are detailed in the Equinor Stromlo-1 Waste Management Plan (WMP), which is stated will be finalised prior to mobilisation. Notwithstanding this, the submission provides limited details of the current waste management capacity and arrangements in place to meet the response need. Please provide: a. Details of the predicted level of waste that could be generated in the event of a worst case oil spill, to define the capacity required in recovering oil from the sea surface and shorelines. b. Details of the response arrangements (e.g. required contractors, identified treatment facilities and their capacities to treat the identified waste, transportation requirements, etc.) to meet the capacity defined.

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	c. Please provide the Waste Management Plan as part of the next submission to NOPSEMA.
4.11 13(5,6) 14(8AA)	*Logistical arrangements – Vessels* The submission provides a number of statements for identifying potential vessels within Australia and overseas (Section 12.3 & Appendix 7-4, OPEP) that may be available for many spill response activities. Please provide further details of the analysis undertaken to determine: a. Vessel need (e.g. how many and how quickly they need to be deployed) in regards to monitoring activities, containment and recovery response, access to remote shorelines, nearshore protection booming and oil recovery, shoreline assessments). b. The reliability and ongoing availability of obtaining vessels, including any consultation that has taken place with key stakeholders to support the current assumptions in section 12.3 of the OPEP (e.g. % number of suitable vessels that can be contracted). c. Details of the processes that will be in place to continually monitor the status of vessels of opportunity (VoO) leading up to, and during, the drilling campaign to ensure it meets the response need.
4.12 13(5,6) 14(8AA)	*Logistical arrangements – Aircraft* a. The FWAD contract specifies the contracted operating range is up to 200NM from nearest shoreline. Given the expected dispersant spraying application is close to this operating range of the aircraft sought from National Plan resources, please provide details of what assessment has been done to ensure the reliability of supply and how the distance to site may affect dispersant operations (e.g. payload implications / number of sorties, time over slick, additional safety requirements). b. Section 12.5 of the OPEP states that additional aircraft (air tractor type) may be used for aerial spraying, however given the timing of the activity is over the fire season (which may constrain the availability of aircraft), please provide further details of the consultation and assessment to understand the level of confidence in obtaining aircraft. Further, please describe what alternative arrangements are being considered in the event supply cannot be guaranteed.
4.13 13(5,6) 14(8AA)	*Logistical arrangements – Personnel* a. Please provide further details of what the current level of local response personnel from Equinor will be to provide an immediate IMT response prior to the escalation of a Global Equinor (GIMAT) response.

Item number (Reg)	Matters requiring further written information
	b. Please provide further information of the level of resources Equinor would apply to an IMT/CMT at the onset of a blowout event. c. Please provide further details for the arrangements to access personnel from Equinor's global resources (e.g. GIMAT), including expected timeframes to obtain these resources. d. Section 11.2 of the OPEP states that approximately 120 response personnel are available from the industry core group that is administered by AMOSC. Given it is standard practice for industry to accept some conservatism in estimating available core group members (e.g. half available at any one time), please provide further information how Equinor are assured the stated capability can be obtained and maintained.
4.14 13(5,6)	*Oil spill response personnel training and competency requirements* Section 13.1 of the OPEP briefly describes the training requirements for some, but not all key oil spill response and monitoring functions. For example, while training and competencies are listed for the Incident Controller, Operations Section Chief and the Environmental Unit Leader (Table 13.1), it is unclear of the training and competency requirements for the Planning and Logistics Section Chiefs, and the key Source Control Branch personnel. Please provide further details of the following: a. Training and competency requirements for all key oil spill response functions (e.g. Planning Section Chief, Logistics Section Chief, Key Source Control Branch personnel). b. Further details of the requirements to maintain the required oil spill response competencies for the duration of the activity.
4.15 14(8AA)	*Adequate arrangements reflected in the OPEP – Details of control measures* The OPEP currently has insufficient detail of the control measures to implement an appropriate response. Please provide further details in the OPEP to ensure adequate arrangements are in place. In particular: a. Further details are required on what the initial/first strike actions will be in the event of a blowout. The submission currently does not provide a First Strike Plan or guidance of the expected timeframes required to implement the tasks described in Section 4. b. While there is a brief mention of incorporating the NEBA process into the Incident Action Plan (IAP) process in Section 9 and in Section 14 (Measurement Criteria), the OPEP does not provide information for an incident action planning (IAP) process itself and the assigned responsibilities and timeframes expected for its completion and ongoing updates.

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	c. Many of the response strategies (e.g. surface dispersant, containment and recovery) state that the response should be undertaken in accordance with the corresponding Tactical Response Plans (TRP), however there are insufficient details provided about the content or key aspects of the TRPs, and whether they are already developed. Furthermore, no information is provided on who is responsible for implementing/updating these plans and by when. d. Shoreline Tactical Response Plans (TRPs) are described briefly in the submission, however it is unclear how these plans align to the protection priorities for each State. Notwithstanding that State jurisdictions will assume the control agency status in the event mobile oil enters state waters, further details of the actual regions these plans cover/do not cover should be detailed in the OPEP. e. The submission provides limited information about the roles and responsibilities of the IMT functions. While section 4 of the OPEP provides specific tasks that are assigned to a range of incident management functions to implement the individual response strategy, the OPEP does not provide any guidance (e.g. checklists, quick action guides per role) on the roles and responsibilities of the IMT personnel. f. The OPEP (section 12.6.2) briefly discusses the potential requirement for untrained labour hire to assist in implementing some of the oil spill response control measures (e.g. shoreline clean-up), however the tasking section does not provide any guidance or actions for activating and mobilising any additional resources, including the implementation of the required training (including who may undertake this training so they too can be activated).
4.16 14(5) 14(8AA)	*Adequate arrangements reflected in the OPEP - Interface with government and industry plans* Section 6 of the OPEP states the implementation of the OSMP is performed by Equinor under the direction of the Commonwealth Control Agency that in Section 3.2.1 of the OSMP is described as AMSA. Please provide further information that AMSA has agreed to this arrangement. Alternatively, please clarify that Equinor will be the Control Agency when implementing operational and scientific monitoring activities in Commonwealth waters.
4.17 14(8AA)	*Notification requirements to support a timely response* While Section 4.2 of the OPEP provides details of the requirements for notifying Commonwealth and State Government agencies in the event of a significant spill, the OPEP does not detail notification requirements (including contact details) to activate contact key oil spill response providers (e.g. WWC, AMOSC, OSRL, OWR providers, RPS, industry mutual aid resources, etc.). Please detail in the OPEP the notification requirements and details for all critical response providers.

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4.18 13(5,6)	*Protected Matters* While the EP risk assessment considers the potential impacts from a blow out to protected matters, the submission does not explicitly incorporate appropriate consideration of protected matters in the response decision making process and the implementation of the oil spill control measures detailed in the OPEP. Please provide: a. Further information as to how protected matters are being considered in the decision-making processes such as the NEBA (section 9 and Fig 9.11) or the IAP process (not described in the submission). b. Please provide details as to how response control measures considers protected matter requirements. In particular: i. oiled wildlife response arrangements under Part 3 of the EPBC Act. ii. dispersant spraying considerations in relation to protected matters. c. Given that protection priorities are not yet detailed in the OPEP it is still unclear what consideration has been given to relevant policies, guidelines, threatened species recovery plans, plans of management, management principles and other documents published on the DoEE website in relation to matters protected under Part 3 of the EPBC Act for these protection priorities. In addressing Point 4.3 please have regard to these areas.
4.19 14(8A),(8B),(8C)	*Testing oil spill response arrangements* Please provide further information regarding the arrangements for testing the oil spill response arrangements in the OPEP. In particular: a. Please provide further details of the testing objectives to demonstrate that the critical components of the response arrangements will be tested (e.g. source control response arrangements) prior to the activity commencing. b. Please provide further details of the required participation in the testing activities. For example, provide further details of the requirements of external third party providers in testing the response arrangements. c. Please provide clarity of the timing of the tests (currently states prior to spud) to demonstrate that sufficient lead time to implement any potential improvements to response arrangements prior to drilling will be achieved.

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	d. Please describe the process that will be used to examine the effectiveness of the response arrangements against the objectives of testing. e. Please describe the process that will be used to address recommendations arising from the testing of response arrangements.
4.20 13(7)	*Environmental Performance Standards (EPS) clarification* A number of the oil spill response EPSs in the EP (Section 8) and OPEP (Section 14) are not written as measurable statements of performance of the control measure. Please revise, and where necessary provide additional, EPS setting out the level of performance required for the control measure to be effective. In responding, ensure measurable statements relevant to both the capability and timeliness elements of the control measures are provided. <u>Performance standards detailed in section 14.1 of the OPEP</u> a. An EPS for spill response equipment and personnel states they will be available in the event of an oil spill. Please clarify what 'available' means in relation to the required timeframes for the equipment and personnel and what particular response control measure this pertains to. b. Please clarify when and how many approved trainers will be available to train response personnel. Further, please clarify what control measure this EPS relates to (e.g. shoreline response, OWR). c. Please clarify what relevant response techniques means in terms of the control measures that would be implemented by personnel requiring in-time training. d. An EPS for vessel surveillance states surveillance will be requested immediately. Please clarify required timeframes for mobilisation and deployment of the number of required resources. Please note, this point is applicable across many of the EPSs for the monitoring control measure. e. An EPS states that for level 2 or 3 spills, oil spill surveillance and monitoring activities will provide a 24-hour capability. Please clarify when this capability will be in place. f. The aerial surveillance control measure does not specifically mention the requirement to have qualified aerial observers. Please include this in the relevant EPS.

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	g. An EPS is provided for having all contracts, agreements and memberships to access their spill response equipment and trained personnel will be in place prior to spud. Please revise the EPS to ensure the control measures will be in place within sufficient time to allow for the testing of spill response arrangements that would involve many of these contractors and their services. Please note, this point is also relevant to the EPS provided for exercises. <u>Performance standards detailed in Section 8 of the EP</u> h. An EPS for the efficacy testing of dispersants is provided. Please clarify the level of effectiveness required of the test. Further, please clarify the frequency of the efficacy testing to ensure the control measure is in place as different dispersant formulations may be applied throughout the response. i. Please clarify what operational period means in terms of updating the NEBA for many of the response control measures with EPSs. j. A number of control measures have EPSs that state an operational NEBA will be undertaken. Please clarify the role of state jurisdictions in the NEBA process for these EPSs (note - for some control measures this has been mentioned in the measurement criteria). k. Please clarify the process used to assess dispersants that are not OSCA-registered. l. Where EPSs for the containment and recovery control measures make reference to documents not included in the submission (e.g. Tactical Response Plan, Waste Management Plan, and Resource Register) further information is required to clarify how those control measures need to perform and be measurable. m. An EPS states that updates to shoreline tactical response plans will be undertaken at least two days prior to shoreline impacts. Please clarify how the standard allows for appropriate time to implementation the response. n. An EPS is stated for the maintenance for accessing OWR personnel through the National and Global OWR Network. Please clarify the minimum level of suitably trained personnel required for an effective OWR implementation. o. The OSMP control measures have EPSs that state: '*activation of the OSMP Implementation Plan'* and '*mobilisation of the SAG*...'. Please clarify when the OSMP implementation plan would be activated and when the SAG would be mobilised.
4.21	*Environment Performance Standards*

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13(7)	EPSs have not been provided for control measures that have significant reliance on obtaining key resources (e.g. aircraft and vessels). Please provide EPSs for the arrangements in place to maintain, monitor, mobilise and deploy key logistical requirements such as vessels, aircraft and ground transportation.
5. OSMP	
5.1 14(8D)	Section 4.6 of the Oil Pollution Risk Management Guidance Note states that '*Environmental monitoring arrangements must be commensurate with the identified risks such that more developed oil pollution environmental monitoring arrangements are expected for higher levels of risk*.' Further information is required on the following key aspects of the OSMP arrangements to ensure they are commensurate with the risk: a. Baseline data: It is noted that the OSMP states that baseline data review/gap analysis is required as part of the preparedness phase (p 38) and the benefits of this are stated to be identification of gaps in baseline data that may be required to be addressed during a response and to understand methodological approaches and align OSMP sampling methods with baseline methods. Please provide evidence that available baseline data has been reviewed and compiled and explain how it has been used to inform sampling methods and prioritise sampling effort. b. Personnel and equipment capacity: The minimum personnel and equipment needs have been set out in Table 8 of the OSMP and equipment/survey platform requirements are stated to be set out in the resources register but this register has not been provided. Further, a statement is made on p 15 that '*contractual arrangements with third parties will be in place with key third-party suppliers, service providers and organisations (e.g. CSIRO, SARDI) as part of a demonstration of preparedness prior to mobilisation*'. Please provide: i. The resources register along with further information to demonstrate that available capacity of personnel and vessels/equipment matches the stated needs for each of the OSMP studies. ii. Further explanation of how a monitoring response could be up-scaled for a long term, large scale monitoring program. iii. Information on the process for engaging third parties including timing, scope and strength of these arrangements. c. Logistical arrangements and sampling plans: The OSMP states that the logistical arrangements for an OSMP response will be contracted directly by Equinor via existing contracts, direct sourcing or MSAs (p 20). The OSMP also refers to other plans that will be prepared, i.e. a field logistics plan (Section 4.6; p 66) and sampling and analysis plans (Table 6; p 25) to guide when, where and how monitoring will be undertaken. Given the remote location and likely logistical challenges, please clarify when these plans will be

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	developed and how it will be ensured that the plans are effective at guiding monitoring efforts with a focus on higher priority/more time critical monitoring scopes, e.g. operational monitoring and reactive baseline data collection. d. Scientific Advisory Group: The OSMP refers to the establishment of a scientific advisory group (SAG) to provide an independent advisory function. Please describe the process and timeframe for establishment of the SAG and clarify their roles and responsibilities.
5.2 14(8D)	The OSMP does not include any information on review and maintenance of OSMP arrangements, i.e. scope, process and frequency of review. Please provide this information.
6. Source Control	
Blowout preventer (BOP)	
6.1 13(5,6) 13(7)(a)	*Equinor commitment to follow API Standard 53 for blowout preventers* Equinor's EPS on BOP systems makes reference to API Standard 53 '*minimum requirements'* (EP Section 7.7.13.4, p 345). Among other topics, API Standard 53 includes provisions for autoshear, deadman, EDS (emergency disconnect sequence), redundant control stations, as well as BOP pressure monitoring systems. The standard also discusses '*optional*' systems, including acoustic subsea control of the BOP as an '*optional secondary control system'*. These types of control measures address BOP reliability and effectiveness in both prevention and response functions of the BOP. Clarification is required to confirm which applicable provisions of Standard 53 Equinor will maintain compliance with, including clarification regarding optional control measures. a. Please confirm that Equinor will commit to all of Standard 53 guidance on BOP system control measures or explain what parts will not be addressed. b. Please confirm Equinor's proposed use/ non-use of an acoustic subsea control system for the BOP and provide an appropriate ALARP analysis for this potential control measure. c. In line with the Standard 53 guidance on BOP pressure monitoring systems, please confirm Equinor's use of real-time monitoring of the BOP and provide an appropriate ALARP analysis for this potential control measure.

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	d. Please update the described EPS on API Standard 53 to clarify Equinor's commitment.
6.2 13(5,6)	*Partial closure of the BOP rams* As part of the supporting evidence that source control measures reduce risk to ALARP, the EP includes statements about the potential effectiveness of a partially closed blowout preventer (EP Sections 7.7.6 and 7.7.13). For example: *'If the blowout preventer intervention does not shut-off the flow, it is likely that it restricts it significantly and reduces the flowrate'* (p 338). Please clarify the statement that a partial closure of the BOP rams would 'significantly' restrict and reduce flow in the context of relevant post-Macondo failure analysis literature on flow-based erosion of seals on partially closed BOP blind shear rams. Please review and amend.
6.3 13(5,6) 13(7)(a)	*Evaluation of pipe-centering rams in the BOP (EP Section 7.7.13)* Evaluation of historic well control events indicates that pipe-centring issues have been a contributing factor to BOP failure. Clarification is required on Equinor's consideration of improvements in BOP ram design that have been made in recent years to reduce the likelihood of pipe-centring issues for blind shear ram operation. a. Please confirm Equinor's proposed use/ non-use of pipe-centring blind shear rams and provide an appropriate ALARP analysis for this potential control measure. b. If adopted please provide an appropriate EPS for the pipe centring capability of blind shear rams in the BOP.
6.4 13(5,6) 13(7)(a) 14(8AA)	*Availability of ROV Standby vessel of BOP intervention* Equinor provides an EPS: '*Should remote closure of the BOP on the MODU fail: ROV vessel will be in field during drilling operations…., ROV BOP closure attempted within 24 hours of the loss of well control*' (p 346). It requires a crane vessel to accomplish this mission, but a subsea construction vessel (SCV) is assigned to BOP intervention *'may have many roles during an incident'* (p 10), including search and rescue (SAR). Given that no other SAR capability is mentioned in the EP, it appears that the first priority of the standby vessel (the SCV) is SAR. Clarification is required to better understand the likelihood that Equinor will meet its commitment for BOP closure attempts within the first 24 hours. a. Please detail Equinor's first-strike SAR capability and evaluate the operational implications of this for the standby SCV vessel in its ability to meet the EPS on 24 hour closure of the BOP through ROV intervention.

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	b. Please evaluate alternatives to vessel availability for SAR such that the SCV vessel can turn to its BOP intervention mission and fulfil the 24 hour EPS for BOP intervention and provide an appropriate ALARP analysis for the potential control options. c. If appropriate please update the EPS for the control measure.
6.5 13(5,6) 14(8AA)	*BOP intervention approach and required equipment* The submission describes the BOP intervention plans at a high level in terms of *'…remotely operated vehicle (ROV) intervention if the automatic systems on the mobile offshore drilling unit (MODU) fail'* (App. 7-4 Section 3.1, p 7). The ALARP discussion (App. 7-4 Section 4.0, Table 4.1) adds some additional detail on the proposed approach, suggesting that the ROV will *'…close the BOP using the accumulator pressure on the BOP by cutting a shear rod.'* (p 28) The provided level of detail on the nature and approach(es) of the expected BOP intervention task(s) is not sufficient to assess the suitability of plans and arrangements. Clarification is required to confirm that appropriate BOP intervention capability is in place such that the 24 hour first strike remote activation of the BOP can be successful. a. Please provide more detail on the BOP intervention tasks proposed. b. Please provide more detail on the equipment required for the BOP intervention tasks including the needs and on-site capability for accumulator capacity. c. Please describe the arrangements that Equinor will have in place to provide the required equipment, including the logistics and timing of supplying that capacity.
6.6 13(5,6) 13(7)(a) 14(8AA)	*Mobilisation of BOP-competent engineers* Equinor provides an EPS that states: *'ROV BOP closure attempted within 24 hours of the loss of well control*' (EP, p 346). While the submission provides some information on arrangements for an ROV vessel to be on standby (App. 7-4 Sections 3.1 and 4.0), it is silent on arrangements for having the required BOP technical expertise on board that vessel. Confirmation of Equinor's on-site technical/ engineering capability is required in order to assess the potential for success or delay in meeting the 24-hour-BOP-intervention EPS. a. Please detail the on-site availability and/or mobilisation of BOP-competent engineers to work alongside ROV operators on the standby vessel.

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	b. Please provide an appropriate EPS for the availability of BOP expertise on the standby vessel.
6.7 13(5,6) 13(7)(a)	*Duration and termination of BOP intervention attempts* The OPEP (Section 4.3) states: *'Whilst mobilising resources, immediately attempt BOP closure. If first attempt is unsuccessful continue to attempt BOP closure/BOP intervention until successful or until capping stack arrives at the well location'* (p 18). This statement appears to contradict the plan's arrangements that foresee all subsea source control work being undertaken by the same subsea construction vessel (in addition to search and rescue and trips to port to collect SSDI and other equipment). a. Please clarify the amount of time available to carry out the BOP intervention. b. Please clarify what BOP intervention tasks would be undertaken/ attempted before unsuccessful operations would be cut off so that the vessel can move on to other source control tasks. c. Please provide an appropriate EPS to describe the nature and duration of BOP intervention efforts.
6.8 13(5,6) 13(7)(a)	*Safety case preparedness work for BOP intervention work* Given the likely situation that a blowout will create risks in excess of 'normal maritime risks' it is highly likely that vessels undertaking BOP intervention work will require NOPSEMA safety case approval before they can commence work and this is not described in the EP. a. Please confirm that the standby vessel will have a safety case in place that foresees BOP intervention such that this emergency response activity can be commenced in the first 24 hours as per EP commitments. b. Please provide an appropriate EPS to describe safety case preparedness for BOP intervention vessel(s).
6.9 13(5,6)	*Implication of proposed activity period for source control* The proposed annual activity period is from 1 October until 31 May (EP Section 2.1, App 7-4 Section 3.1). Wave data presented in the plan and information gained through relevant party consultation indicates that the early and later months of this period are subject to rougher sea conditions than the summer months.

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	Please show if and how the proposed activity period could be narrowed down to strike an optimal balance between the time required for normal drilling operations and the sea conditions that will be faced by potential emergency operations, such as BOP intervention, subsea dispersant injection (SSDI), capping stack deployment, and relief well drilling.
6.10 13(5,6) 13(7)(a)	*Active heave compensation (AHC) crane capability for BOP intervention and SSDI* The plan proposes that the SCV stand-by vessel will be used as the platform for running the BOP intervention operations (App 7-4, S. 3.1, p 7). The plan does not detail the types of equipment that would be used for this operation beyond an ROV. While an ROV *per se* does not require AHC crane capability, there is equipment that could be used in a BOP intervention operation that would require it, for example, equipment that would have to be deposited on the sea bed (e.g. hydraulic accumulator). a. Please describe the potential needs for active heave compensation (AHC) crane capability for all potential aspects of BOP intervention and SSDI and demonstrate that the proposed (standby) ROV deployment vessel is suited for worst case conditions that may be encountered during BOP intervention and SSDI. b. Please provide an appropriate EPS to cover the expected AHC capability of the SCV.
Subsea Debris Clearance	
6.11 13(5,6) 13(7)(a)	*Light-duty subsea debris clearance capability on the standby vessel in preparation for BOP intervention and SSDI* Subsea debris clearance capability is a necessary pre-requisite to all subsea source control work around the blowout wellhead. Relevant person consultation saw the inclusion of a comment on the topic from the South Australian Department of Mines: *'The location of the clearance Remote Operated Vehicle (ROV) is not clear in the OPEP'* (App 3-2, p 828). Equinor's response to this was: *'The clearance ROV will be available on the standby vessel (near the rig)'* (App. 3-2, p 908). The response does not answer the question completely, as it focuses on the ROV for the debris clearance and does not mention any of the tooling required. Debris clearance cannot be attempted without specialist tooling. a. Please describe the immediate response debris clearance capabilities of the standby vessel and its ROV, with particular emphasis on its capabilities with the equipment and tooling on the standby vessel at the time. b. Please provide an appropriate EPS to cover the availability of first strike debris clearance equipment.

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6.12 13(5,6) 13(7)(a)	*Mobilisation and deployment of heavy duty subsea debris clearance capability in preparation for capping stack landing* The capping plans (App 7-4, S. 3.3) all assume that *'the Lower Marine Riser Package (LMRP) has disconnected from the blowout preventer or that debris clearance has been completed prior to the capping stack arriving at the well location well.'* For the case that debris clearance is required (e.g. to remove sections of collapsed riser and the LMRP), the plan suggests that *'The length of time required for debris removal will depend on the type and extent of the incident, but it should be possible to remove debris within a few days.'* a. Please detail the mobilisation and deployment schedule for sufficiently robust debris clearance capability to undertake this work, noting that the first strike debris clearance equipment/tooling may not be as capable as that which is mobilised in the case of an actual incident. b. Please provide an appropriate EPS to cover the mobilisation and deployment of heavy duty debris clearance equipment.
6.13 13(5,6) 13(7)(a) 14(8AA)	*Use of Australia-based subsea debris clearance equipment* The Australian Marine Oil Spill Centre (AMOSC) manages Australia-based debris clearance equipment in conjunction with Oceaneering, in Perth, Western Australia. Their Subsea First Response Toolkit (SFRT) does not appear to have been considered in the EP/ ALARP assessment. a. Please add the potential use of the AMSOC SFRT to the ALARP evaluation and describe additional arrangements if adopted. b. If adopted please provide an appropriate EPS to describe the arrangements, mobilisation, and deployment of the AMOSC SFRT.
Subsea Dispersant Injection (SSDI)	
6.14 13(5,6)	*Predicted daily dispersant release volumes* Understanding potential toxic impacts from any chemical release requires knowledge of both the exposure dosage and the toxic sensitivity to the chemical. The EP does not clearly describe the potential subsea discharge volumes of dispersant from subsea dispersant injection operations (See OPEP Appendix 6, Figure 6.1). Please provide daily dispersant volumes from SSDI operations.
6.15	*Identification of dispersant that would be used for SSDI operations and its supply chain*

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13(5,6) 13(7)(a) 14(8AA)	Understanding dispersant toxicity for the purposes of consequence evaluation requires the clear identification of the dispersants used. The submission is silent on the dispersants that would be used for SSDI operations. However, in its discussion of surface dispersant application (S. 4.6.3) the OPEP names two dispersants in its statement about preferential dispersant types: *'Dispersants approved under the National Plan and listed in the Register of Oil Spill Control Agents (OSCA) will be used preferentially (Dasic Slickgone and Total Finasol). Dispersants with transitional acceptance would only be considered in the unlikely event that a shortfall in supply were to occur.'*(OPEP p 25) Equinor's preference for OSCA dispersants is underlined by the ALARP decision to not undertake ecotoxicity testing of local species given AMSA's local evaluation of dispersants suitable for use in Australia (See ALARP option B5 in App. 7-4 Table 4.1, p 28). The OPEP equipment inventory (Appendix 2) also lists the names of a number of dispersants (including OSCA, non-OSCA, and transitional dispersant stocks) held in stockpiles in Australia and abroad (pp 99, 103-104, and 111-112). Further information is required regarding dispersant selection and use. Further, the quantities presented in Appendix 2 do not appear consistent with the availability table (Table 6.1) and chart (Figure 6.2) provided in Appendix 6 of the OPEP. The OPEP also mentions (Section 4.6.3) that '*international manufacturers (Dasic International Ltd and/or Total Special Fluids)*' will act as tertiary dispersant suppliers. a. Please identify by name all dispersants that would be used for SSDI. b. Please describe the OSCA status for all dispersants to be used for SSDI, confirming that all 'transitional' stocks meet the AMSA definition: *'Transitional acceptance applies to a limited list of dispersant products held in AMSA and AMOSC stockpiles as of 1 January 2012 that are deemed to be OSCA registered on the basis that they have met previous acceptance requirements.'* c. Please identify the sources of the SSDI dispersant, the arrangements under which Equinor has access to them, and the quantities contractually available to Equinor from each source. d. Please describe any just-in-time manufacturing elements to the proposed dispersant supply chain. Provide all technical, contractual, logistical and commercial detail requested for the other dispersants. e. Pleases describe the means by which the SSDI dispersants would be transported to the local staging area for SSDI dispersant and the mobilisation times. f. Please set the SSDI dispersant quantities needed against quantities mobilised on a daily basis to show the relation between dispersant supply and demand.

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	g. Please provide clear EPS(s) on the dispersants that will be used in SSDI.
6.16 13(5,6)	*Consequence evaluation for SSDI dispersed oil given GAB metocean conditions* Further information is required on the evaluation of consequences of dispersant or dispersed oil from SSDI operations. The EP does discuss (separately) many of the key components that would feed into a consequence evaluation (e.g. receptors in Sections 4.6 and 4.7, metocean conditions in Section 4.5, and oil spill fate and trajectory in Appendix 7-1), but does not 'overlay' these to provide a robust consequence analysis that is commensurate to the nature and scale of the risk. The consequence evaluation provided (p 370-374) introduces a few key ecological receptors (e.g. seagrass, birds, etc.), describes some basic exposure pathways, provides a few statements on potential effects, offers some statements on recovery potential, and draws a few conclusions on consequence, in part based on the exposure predicted in the Appendix 7-1 model. In most cases the conclusions presented rest on model results predicting little or no exposure. The provided consequence evaluation is insufficient in describing effects for receptors in areas where oil, dispersant, and dispersed oil are expected. a. Please explain how the fate and behaviour of SSDI-dispersed oil may be influenced by large scale upwelling/ downwelling and circulation in the GAB (reference is made to EP S. 4.5.8 and 4.5.9). b. Please provide a more thorough and detailed consequence evaluation for dispersant use for the worst case discharge scenario. Include: i. more information on the intersection of species presence/ habitat with the predicted fate and trajectory of oil, dispersant, and dispersed oil (i.e. provide a better integration of information on species presence and contamination pathways). ii. building on the analysis of the first bullet, evaluate the sensitivity of the species groups to the oil and dispersed oil to which they are likely to be exposed (i.e. provide a worst case discharge-specific evaluation of vulnerability, toxic sensitivity, physiological/ chemical/ behavioural effects, recovery mechanisms and timeframes).
6.17 13(5,6)	*Relevance of cited dispersant toxicity literature for GAB*

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	ALARP option 'B5' in Appendix 7-4 Table 4.1 (p 28) is the potential option of ecotoxicity testing of local species, the benefits of which are described as *'Improve the knowledge of specific dispersants on local species'*. The option is not adopted because: *'Data on ecotoxicity sensitivities of Australian tempered species is available and use of dispersants approved by AMSA as part of the National Plan'*. This speaks for the use of OSCA-listed dispersants in the first instance as well as for greater study of the relevance of OSCA listing for use in subsea applications. Please describe the relevance of the quoted dispersant toxicity literature for sea life in the GAB, highlighting which of the quoted toxicity studies used species from or similar to the GAB or waters like the GAB, and which did not.
6.18 13(5,6) 13(7)(a)	*SSDI efficacy testing* The OPEP describes in Section 4.6.1 the role of '*Visual ROV observations'* in confirming SSDI effectiveness (p 22). While ROV cameras (in particular where a second ROV is present to take video) should be able to confirm the degree to which the dispersant is effectively injected (or sucked into) the release plume, it cannot be expected that the ROV would be able to visually confirm, given the water depths and available light, the change in state of the oil at any distance from the injection location. Further, the suggestion that effectiveness could be monitored by *'halting and re-starting'* the dispersant injection appear to reflect back to the Macondo experience where SSDI was turned off for other reasons and anecdotal reports were made on the effect this had on surface slicks. It is not clear how such an approach could be justified or carried out in other contexts. For dispersants which Equinor is identifying for SSDI use, please describe efficacy studies using appropriate analogue oils. a. Please describe more operationally realistic alternatives to SSDI efficacy testing and monitoring, including (but not limited to) monitoring approaches described in industry best practice guidance (e.g. '*Water column monitoring requirements'* in IPIECA 'Dispersants: Subsea Application', available at: http://www.oilspillresponseproject.org/wp-content/uploads/2016/02/GPG-Dispersants-Subsea.pdf). b. Please provide appropriate EPS(s) to describe the performance required of the adopted efficacy testing control measures for SSDI.
6.19 13(5,6) 13(7)(a)	*Vessel availability for SSDI operations* Any SSDI operation will require vessel capability to undertake the following functions: • transport of SSDI equipment from the shore base to site (e.g. subsea manifold, dispersant pumping system, coiled tubing) • initial heave compensated deployment of SSDI equipment to the seabed (e.g. subsea construction vessel),

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14(8AA)	• on-going platform for running ROVs for (a) setting up SSDI equipment, (b) operating SSDI equipment (e.g. spray wand), (c) lighting and live video monitoring, and (d) effectiveness monitoring at distance (e.g. ROV/ research vessel(s)) • at-sea platform for dispersant feed into subsea system and reception of new stocks from the shore base (e.g. PSV vessel) • dispersant delivery capability (e.g. PSV vessel) From a technical point of view these functions may be combined or spread across separate vessels, depending on their technical capabilities. There are, of course, logistical, commercial, and permissioning (i.e. safety case) aspects to consider. In its submission Equinor states that it will use the standby subsea construction vessel for SSDI deployment after it has been used for higher priority tasks (e.g. SAR, BOP intervention) and before it moves on to other tasks (e.g. capping stack deployment). A PSV will be used as the SSDI surface platform with dispersant stock and coil tubing unit (App 7-4, p 10). The EP is silent on the ROV capabilities of the two PSVs it will have on contract for the original drilling operation, the vessels that will be used for dispersant effectiveness monitoring, and the vessels that will be used for dispersant restocking. The plan states SSDI is to commence on Day 9, after the SCV completes its SAR and BOP intervention tasks, and that the SSDI equipment/ supplies will be mobilised to site in a timely fashion after the blowout to be delivered to Adelaide port for the SCV to pick them up once it is ready to turn to SSDI deployment (App 7-4, p 12). a. Please evaluate the feasibility, benefits, and costs for options for starting SSDI earlier than Day 9 after blowout. Consider alternatives to the assumptions: (i) that only one vessel is available for SAR, BOP intervention and SSDI, (ii) that SSDI equipment can only be mobilised to site after the blowout. b. Please provide a more thorough description of the vessel fleet that will be used for SSDI operations, describing the minimum specifications for vessels fulfilling each of the described tasks. c. Where vessels will have multiple SSDI tasks assigned to them please describe these, the priority rankings that will be used, and the simultaneous operations (SIMOPS) system in place to ensure tasks get carried out efficiently and as prioritised. d. Please describe the safety case requirements for all the vessels in the SSDI fleet and what preparedness arrangements Equinor will undertake to ensure that obtaining the necessary safety case(s) will not delay operations. e. Please provide appropriate EPS(s) to describe the vessel availability/ operations for SSDI.
6.20 13(5,6)	*SSDI equipment availability*

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13(7)(a) 14(8AA)	The ALARP demonstration in Appendix 7-4 evaluates mobilisation alternatives for SSDI equipment, based on assumptions of vessel availability and prioritisation of tasks (whereby SSDI is not at the top of the priority list). The evaluation also considers road and air freight options, the bulk of items, disparate source locations, the availability over time (e.g. dispersant stock), and ownership/ access rights. a. Please evaluate ownership/ co-ownership/ hire opportunities for all of the required pieces of SSDI equipment and describe feasible options for earlier access to each, including pre-emptive mobilisation. b. Please provide alternative ALARP evaluations for having all of the SSDI-required equipment: (a) on site or (b) in the region (i.e. in the closest anchorages or ports) so that the SSDI operation can begin without delay following a blowout and failure of BOP intervention. c. Please provide appropriate EPS(s) to describe the availability and deployment of SSDI equipment.
Capping Stack	
6.21 13(5,6) 14(8AA)	*Pre-emptive mobilisation of capping stack from USA* Options for the use of a light-weight capping stack from the USA and use of a smaller/light construction vessel were considered and dismissed (App 7-4, S. 3.3), because *'light-weight capping stacks have inadequate flow ratings and may not be feasible for the Stromlo-1 well'* and *'transport from the USA would be slower than from Singapore'* (p 15). a. Please provide more detail on Equinor's analysis that was used to discount the light-weight capping stack from the USA b. Please provide details of Equinor's consideration of pre-locating the capping stack to site (or into the region) as a precautionary measure before installation of the BOP.
6.22 13(5,6) 13(7)(a) 14(8AA)	*Logistics and permissioning for mobilising capping stack* The 15-day scenario (App 7-4, S. 3.3.4) assumes that *'Equinor will get priority on the scheduled B747F freighters already scheduled for Sydney and Melbourne'* (p 17). The 21-day scenario (App 7-4, S. 3.3.3) reviews the option of using an Antonov to fly a capping stack from Singapore to Adelaide. A further, related assumption is that *'Customs clearance procedures have been checked and verified with the operation group of Australian Border Force and our freight forwarding and custom clearance broker. By using correct procedures for emergency material and biological verification before departure in Singapore, customs hold-ups will be at most two hours (24/7)'* (p 18).

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	a. Please provide evidence to support the assumed timely access to the scheduled B747 service. b. Please consider options for ensuring B747 offloading capability for the heaviest loads in South Australia. c. Please consider options for ensuring that suitable air freight charter capacity would be available in a timely fashion for both B747 and Antonov freight services. d. Please describe (pre-spud) preparedness measures to avoid customs clearance delays for the importation of a capping stack and all supporting equipment, manpower, vessels, etc. (App 7-4, S. 3.3.4, item #3). e. Please provide appropriate EPS(s) to describe the required preparedness performance of performance of logistic control measures for capping stack mobilisation. f. Please describe preparedness measures to ensure that the SCV has full safety case approval for the capping stack deployment in a timely fashion such that this does not delay operations.
6.23 13(5,6) 13(7)(a) 14(8AA)	*Port facilities for storing, testing and loading capping stack* In the capping stack scenarios that foresee the air shipment of the capping stack (e.g. 21 and 15 day scenarios), the capping stack parts are trucked from the airport to Adelaide port where the stack-up, testing, and loading procedures are undertaken. The 14 day scenario does not describe how the capping stack is brought into country, but it too undergoes stack-up, testing, and loading in Adelaide port. The EP states that the 14 day option is rejected in part because there is no suitable storage infrastructure in Adelaide where the capping stack could be assembled and tested prior to loading (p 18). a. Please explain how the stack-up, testing and loading of the capping stack in Adelaide port is possible in the 21 and 15 day scenarios and not the 14 day scenario. Please evaluate further the described '*significant*' berth costs and '*inconvenience*' to other port users (see App. 7-4, p 18) and evidence of attempts to surmount these challenges. b. Please provide information on Equinor's consideration of whether this or similar locations are available for capping stacks/ equipment brought in pre-emptively (i.e. before spud or BOP installation such as in the 14-day scenario). c. Please evaluate the feasibility, costs and benefits of options whereby a capping stack is pre-emptively built-up, tested, and loaded onto a vessel appropriate for transport to site.

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6.24 13(5,6) 14(8AA)	*Capping stack hire* A 14-day capping stack scenario is presented (App 7-4, S. 3.3.5, p 18), based on the hire of a 10,000 psi capping stack. a. Please provide more information on the source of this hire cap. b. Please compare and contrast the flow ratings and other technical specifications of this cap to the '*light weight*' capping stack from the USA (described in App 7-4, S. 3.3) for the Stromlo-1 worst case discharge scenario.
6.25 13(5,6) 13(7)(a) 14(8AA)	*Contractual access to capping stacks* Equinor points out that *'Capping stacks are held on non-exclusive contracts with OSRL / WWC and must remain available to other operators in the region'* (App. 7-4, S. 3.3.5, #3, p 18). a. Please describe Equinor's considerations in ascertaining whether any of these holders of capping stacks, or any other potential capping stack providers (globally), are willing or able to make a suitable capping stack temporarily available in the region for the period of risk. b. Please provide additional ALARP analysis for having a suitable capping stack on hand at the time of drilling. Consider the alternatives of having the capping stack stationed: (a) on land in port, (b) on a vessel in a suitable anchorage, and (c) on site within a short distance of the drill site (i.e. no more than a few hours away). c. If adopted, please provide appropriate EPS(s) for the pre-emptive mobilisation of a capping stack.
6.26 13(5,6) 13(7)(a) 14(8AA)	*Mobilisation of a second capping stack* The plan does not describe any intentions or arrangements for mobilising a second capping stack for redundancy purposes in the case that the first proves defect, cannot be deployed or fails. a. Please describe Equinor's intentions with regard to the mobilisation of a second capping stack for redundancy reasons. b. Please provide appropriate EPS(s) for the access arrangements for a second capping stack.
6.27 13(5,6)	*Standby arrangements for capping stack specialists*

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13(7)(a) 14(8AA)	The 14-day scenario is rejected in part (S. 3.3.5, p 18) because it is not *'feasible or commercially viable'* to have Equinor's contracted *'WWC specialists mobilised and present in Adelaide prior to an incident'*. In the description of the 9-day scenario the EP adds: *'the crew members are highly specialised personnel with specific competences, limited in their availability globally, and any incident worldwide relies on using the same crews.'* a. Please provide more information on the consideration of options for having a sufficient number of capping stack professionals on hand to commence operations within the shortest time possible. b. Please provide appropriate EPS(s) for the immediate access to capping stack specialists
6.28 13(5,6)	*Impact of weather on capping stack deployment* As is widely understood and described in EP Section 4.5.10 (p 65) the GAB is subject to persistent swell and large waves. Table 4.2 presents statistics of significant wave heights across the year, both in terms of means and maximum values. From May through October, the means are over 3m; from November through April (Equinor's 'preferred' activity period), the mean values range from 2.5 to 2.7m. The presented maximum wave height values, are significant throughout the year: 10+m in the rougher months (including May, October and November) and approx. 6m to 9+m in the less rough months (larger summer and early autumn). Section 3.3 of Appendix 7-4 (p 15) describes the capping stack alternatives evaluated by Equinor; the only discussion on the implications of swell and waves on capping deployment is found in the rejection of the lightweight cap from the USA. For the other capping stack deployment alternatives, including the one chosen as ALARP, there is no information on weather, waves, and swell keeping capability. While all source control activity will be subject to and hindered by weather and metocean conditions, capping is among the operations most sensitive to swell and waves. a. Please provide more information on the provisions in the landing procedure for dealing with heavy seas (swell and waves). Describe the operating limits for deploying a capping stack in heavy swell and waves and how Equinor would work within these limits. b. Please provide a more thorough and capping stack-relevant evaluation of weather data for all months when a capping stack might be deployed (i.e. from the month when the BOP is installed). In doing so, define (and justify) operationally sufficient weather windows for deployment and describe in statistical terms the probability of these weather windows occurring for all months when a capping stack might need to be deployed.

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	c. Please evaluate the likelihood and consequence of larger-than-average waves on the operations, up to and including rogue waves. Please confirm that the '*maximum wave heights*' described in Table 4.2 are the greatest wave heights that may be observed in the respective months. d. Please evaluate the availability and cost of vessels or systems that provide greater heave compensation capability than that provided for in the EP (i.e. 4m Hs). Also, evaluate the feasibility of systems that avoid the need for heave compensation on landing (e.g. subsea based landing systems). e. Consider in all responses any operating limitations arising from toxic and or explosive air plumes.
Relief Well	
6.29 13(5,6) 14(8AA)	*Availability assumptions for relief well rigs* The ALARP assessment (App 7-4, S. 3.4, p 21) describes 5 relief well scenarios with potential drilling rigs coming from Singapore (140 or 102 days), the Northwest Shelf (88 days), the Bass Strait (73 days), or Port Lincoln (68 days). a. Please describe considerations to firm up access to and availability of a relief well rig sooner than the 102 days. b. Please describe the required technical specifications for the drilling MODU and for the backup rig, including heavy-weather requirements. Provide information on any planned differences in required specifications between the original rig and the relief well rig, based for example, on differences in the well design, drilling plan, and/ or metocean conditions. c. Please provide evidence to support the assumption that there will be '*at least one warm stacked rig (i.e. idle and readily deployable) with all equipment specifications needed, and a valid Australian Safety Case close to Singapore*.' (p 22) d. Please provide stronger evidence to support the assumption that there will be a suitable rig on the North West Shelf and Bass Strait (p 23) e. Please provide appropriate EPS(s) to describe the minimum technical specifications of the original drilling rig and those of a relief well rig. f. Please provide appropriate EPS(s) to describe the access to and mobilisation of a suitable relief well rig.

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6.30 13(5,6) 13(7)(a) 14(8AA)	*Options for ensuring the availability of relief well rigs and required drilling supplies* The ALARP demonstration does not explore options for ensuring regional availability of a relief well rig. a. Please evaluate options for contractually ensuring the pre-spud Singapore availability of a suitable MODU with a valid Stromlo-1 relief well safety case. b. Please consider options for contractually ensuring that a suitable MODU is present in the NWS (and consider the same for the Bass Strait) with a complete Stromlo-1 safety case. c. Please consider options for contractually ensuring that a suitable MODU is present in the GAB (e.g. on a concurrent campaign) with a complete Stromlo-1 safety case. d. Please describe the consumable drilling materials (e.g. riser) that would be required for outfitting a borrowed drilling rig from NWS or Bass Strait. Identify all long lead items and discuss the supply chain for them. e. If adopted please provide appropriate EPS(s) to describe the contractual arrangements for access to and mobilisation of a suitable relief well rig.
6.31 13(5,6) 14(8AA)	*Standby location/ status of relief well rig* In reference to relief well option 4 (68 days – '*Rig on stand-by east of Port Lincoln'*, App 7-4, S. 3.4.5, p 24), please explain: a. Why the standby rig would have to be held near Port Lincoln? b. The option of holding the relief well rig at sea or near the Stromlo area (to remove the 3-6 days transit time). c. What pre-spud activities could/ could not be undertaken in a preparedness stage? d. How *'The costs associated with holding a MODU on standby and the two support vessels for supply and crew changes would be commercially non-viable.'* e. How *'The rig would need three days (P90) to take on supplies and personnel before departure.'*

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	f. The feasibility and costs of drilling a relief well at the same time of drilling by a second rig (i.e. a lagging top hole).
7. Consultation in the course of preparing an EP	
7.1 11A (1) (d)	*Definitions – person or organisation whose functions, interests or activities may be affected* Table 3.3 defines '*functions, interests and activities*', but provides no basis for the definitions chosen to identify persons that may be affected. The EP refers to a *'Table 3.4*' which has not been included. Consideration should be given to the interpretation in NOPSEMA's Decision Making Guidelines (DMG). Please provide detail on the basis for these definitions; noting that additional persons may become relevant if the definitions applied are modified.
7.2 10A(g) 11A (1) (d)	*Persons and organisations who have raised claims* A range of groups have raised claims through the public comment process that they are relevant persons and appear to have some operations linked to the region. For example, Abalone Industry Association of South Australia; The Wilderness Society; Sea Shepherd Australia; the Mirning and Ngarrindjeri people; Adventure Bay Charters, and others. Please clarify Equinor's consideration of these groups under the provisions of regulation 11A (1)(d) and (e), noting that Table 2.2 of Appendix 3-1 identifies persons considered but not deemed relevant for consultation.
7.3 14(9)	*The implementation strategy must provide for appropriate consultation* It is noted that triggers for ongoing consultation are included in S9.5 of the EP; however it is unclear how unresolved/new objections/claims will be considered. S3.6 of NOPSEMA's Consultation Information Paper provides clarification: '*The process should also ensure that objections and claims raised in relation to ongoing activities are appropriately assessed and managed*.' Please clarify the treatment of information provided and objections/claims raised in ongoing consultation.
7.5 14(9)	*The implementation strategy must provide for appropriate consultation in the event of a spill*

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	Section 9.5 of EP and S8.4 of OPEP do not identify '*a clear process that will facilitate timely identification and communication with stakeholders and the broader community who may be affected in an oil pollution emergency*' (as detailed in S6.1 of NOPSEMA's DMGs). Please describe the process that will be implemented for this purpose in the event of a spill.
7.6 16(b)	*Report on consultation - Assessment of merits - Consultation with SA DEM and DPC-AAR* Appendix 3-1 includes a request (p 36 e-copy) from SA DEM to consult with coastal communities – the response to this was '*noted (see DPC - AAR section)*'. That section (S3.1.15 of Appendix 3-1) states that Equinor are consulting with a variety of coastal Aboriginal communities; however no stakeholders of this nature have been included in the lists of relevant persons in the EP (S3.2.2 of the EP and S2 of Appendix 3-1). The consultation log for DPC-AAR also noted concerns from the relevant person about '*consulting*' vs '*informing*'; and about potential assistance to Aboriginal people to enable attendance at consultation. From the response provided, it is not clear what consultation measures Equinor is establishing with relevant Aboriginal persons; and whether these objections/claims have been appropriately addressed. Please provide additional detail in accordance with regulation 16(b) and undertake an assessment of merits of this claim.
7.7 16(b)	*Report on Consultation - Assessment of merits – SA Department of Environment and Water (SA DEW)* The records of consultation with SA DEW (p39 and 41) shows that a relevant person raised issues regarding Aboriginal groups, state resourcing of spill response, and inaccessible shorelines that have not been addressed in the assessment of merits. Please address these issues in the consultation report.
7.8 13(2) 13(5,6) 16(b)	*Report on consultation - Cultural values* The submission does not contain appropriate consideration of cultural/spiritual values of the GAB, which has been raised in public comment received. Indigenous groups have indicated their relevance on these matters, including potential impact to dreamtime stories and insufficient consideration of cultural significance of whale migration and populations. It is noted that Appendix 7-3 contains the statement: '*The only known traditional Indigenous connection with the area is that of the Mirning people (coastal Aboriginal people whose lands are west of Ceduna), who identify as having a dreamtime connection to whales, which may be present in the area*.'

Item number (Reg)	Matters requiring further written information
	Please provide a further description of the cultural values of the region and ensure they are appropriately reflected in the evaluation of environmental impacts. Consideration should be given to obtaining this information through further engagement with the Mirning people. Please review and amend the EP to reflect the cultural/spiritual values of the existing environment; including an assessment of potential impacts.
7.9 10A(g) 16(b)	*Assessment of merits - Consultation scope – unplanned activities - Australian Southern Bluefin Tuna Industry Association (ASBTIA)* S3.1.1 of the EP and p 134 of Appendix 3-1 identifies that consultation was undertaken with ASBTIA in specific relation to emergency response preparedness; but states that it is not considered to form part of the regulatory consultation and so is not included in the EP. This is not considered appropriate, as the objections/claims relate to the activity and its potential impacts and risks; and so the information should be included as per the requirements of this regulation. NOPSEMA's DMGs (S8.2) state that '*Once a person or organisation has been identified as a 'relevant person' all consultation is to be documented in the report on consultation*'. This philosophy should apply to all consultation undertaken; please give consideration to the guidance on 'objections and claims' in S8.1 of the DMGs. Please include details of all consultation undertaken with relevant persons under regulation 11A, including that related to unplanned activities, and address objections/claims in accordance with regulation 16(b).
7.10 10A(g) 16(b)	*Report on consultation – Australian Southern Bluefin Tuna Industry Association (ASBTIA)* It is noted that Appendix 3-2 (p 4156) contains a response to some concerns regarding unplanned activities, but it is not clear whether this constitutes all consultation with ASBTIA; and it has not been appropriately addressed in the consultation report. ASBTIA have raised a significant number of concerns (p 118-136 Appendix 3-1 e-copy; and p 3965 onwards in Appendix 3-2) which have not been adequately addressed or had their merits appropriately assessed; with many just being assessed as 'N/A' and 'noted', or deferred until later consultation, stating '*We will respond to these comments on unplanned activities and related compensation issues prior to the public comment period*'. Please provide further detail on the full extent of consultation with ASBTIA, and address all objections/claims as per the requirements of this regulation.
7.11	*Report on consultation - Assessment of merits – Curtin GAB Whale Study*

Item number (Reg)	Matters requiring further written information
10A(g) 16(b)	Objections/claims raised by the Curtin GAB Right Whale Study regarding the potential impacts from noise and oil spills have not been appropriately addressed in the assessment of merits or response to the relevant person. In particular, the statement that objections/claims about oil spills are outside the scope of the consultation (p 177 e-copy Appendix 3-1) is not justified. Please address all objections/claims from relevant persons as per the requirements of this regulation.
7.12 10A(g) 16(b)	*Report on consultation - Assessment of merits - Consultation and relationship with public comment* There are objections/claims raised in public comment by relevant persons which have been included in the full text of consultation (Appendix 3-2, e.g. Wildcatch Fisheries SA p 4354) which have not been addressed in the consultation report (Appendix 3-1). It is unclear whether this information has been taken into account, whether responses have been provided, and therefore whether the requirements of consultation have been met. Please provide further information on how public comments from relevant persons have been included in the consultation, and address objections/claims as per the requirements of this regulation.
8. Miscellaneous items	
8.1 13(2)	*Mislabelling of scenarios* Please correct the figures in the OPEP that represent the deterministic modelling outputs. They currently state that the modelling is an amalgamation of 100 oil spill models. Further, please ensure EP Tables 7-2 and 7-4 align to correctly represent the probabilities of the scenarios discussed (i.e. describe how the statistics were produced, describe the relevant time periods covered, locations, petroleum activity types, etc.).
8.2 13(1)	*Benefits of SBM* On p 36 statements are made regarding the use of SBMs. One requires correction, in that it is stated that SBMs are beneficial for their *'greater kick tolerance due to gas solubility'*. This is not accurate, in that SBMs are also a disadvantage given gas dissolving in the oil solution can make kick detection more difficult. Further, the bubble point where gas breaks out of solution may be in the riser, resulting in rapid expansion and potential unloading.

Item number (Reg)	Matters requiring further written information
	Please provide clarity and accuracy in statements made in relation to SBM.
8.3 13(4)	*Removal of infrastructure/decommissioning* On p 39 reference is made to leaving the wellhead in situ, on the basis that there will not be any impact upon other marine users due to the depth. It is stated that wellheads are typically removed to prevent interference with other users. However, subsection 572(3) of the OPGGS Act requires removal of all equipment and other property as a base case. Please address this requirement and provide an appropriate evaluation to demonstrate that risks are acceptable and reduced to ALARP.
8.4 13(5,6)	*Clarification regarding spill modelling thresholds* For the purpose of modelling, App 7-1 states 6ppb and 10ppb instantaneous thresholds have been applied, whilst the EP is not clear in relation to these thresholds, that is, p 281 refers to 1 hour exceedances in modelling, but table 7.5 refers to 96hr exposure. Please correct the EP to reflect App 7-1 in terms of how modelling thresholds were applied.
8.5 13(5,6)	*AMSA request for additional control measures* AMSA requested that additional shipping traffic control measures (p 403-409 e-copy App 3-2) be applied, and these have been committed to by Equinor in App 3-1 p 16, with a note that they are addressed in Section 9 of the EP. AMSA noted that the activity is in the vicinity of a shipping route so requested all available lighting used at night, continuous surveillance of marine traffic, and positioning of support vessels to best alert marine traffic. It is not clear that these control measures have been applied. Please provide additional information in relation to the specific control measures identified by AMSA.
8.5 13(5,6)	*Squid spawning impacts* Concerns were raised by fishers regarding impacts to squid spawning (p 4410 of App 3-2). The response outlined on p 153 of App 3-1 is that it is not a seismic survey but short profiles. Spawning of Gould's squid identified as occurring year round on Table 4.4 p 91 of the EP, and Southern Calamari spawning period from September to December is identified on Table 4-5 (not in impact EMBA). On p 172 the statement is

Item number (Reg)	Matters requiring further written information
	made regarding invertebrates (including spawning) that there are no population-level or ecosystem-level effects. However, it is not clear how this conclusion has been reached, particularly in relation to the abovementioned fisheries. Please provide additional information on the impacts and risks upon squid spawning to justify conclusions reached.
8.6 13(5,6)	*Crab fishing trap locations* Crab fishers raised concerns regarding potential effects on trap locations. A commitment was made to liaise with crab fishers regarding trap locations relevant to support vessel movements (p 4473 e-copy App 3-2). This has not been reflected in the EP. Please update the EP to reflect this concern and address any required control measures.
8.7 13(7)a	*Missing EPS* P 264 contains a control measure for biosecurity: '*All vessels used in both planned and unplanned activities will adhere to Commonwealth Government biosecurity requirements and practices consistent with the National Biofouling Management Guidance for Petroleum Production and Exploration Industry'.* Please provide an EPS for this control measure.
8.8 14(6)	*Monitoring, audit, management of non-conformance and review* The submission does not include sufficient clarity or commitment in relation to how monitoring, audit, management of non-conformance and review will take place for the duration of the activity (and in the lead up to the activity). Further, the EMS has not been described as including specific measures for ensuring that impacts and risks continue to be reduced to ALARP, and that EPOs/EPSs are being met (as required by Reg 14(3)). The generic statements in section 9.8 do not provide assurance that such a process will take place, sufficient to meet the requirements of the Regulations. Please outline how audit and management of non-conformance and review will take place. Further, provide information on what specific measures will be in place to meet Reg 14(3) as outlined above, including consideration for any updates to the contextual setting be it with respect to consultation, or changes to plans of management for protected matters.
8.9	*OPEP review*

Item number (Reg)	Matters requiring further written information
14(8)	The OPEP provides for updates in response to triggers outlined in Section 14.2, such as changes to state or Commonwealth management, changes via MOC process, and outcomes of exercises but does not have a set date/frequency of review. Please provide an appropriate frequency of review, noting the Oil pollution risk management guidance, which states: '*The frequency and depth of reviews to update an OPEP will depend on the duration of the activity, potential impacts and risks and complexity of response arrangements*'.
8.10 16(b)	*Consultation report – incorrect statement* The stakeholder consultation report (Appendix 3-1, p 45 e-copy) informs the SA DEW that the NEBA tool '*has been specifically set up for this activity and is based on the ConocoPhillips tool that is considered appropriate, effective and acceptable to NOPSEMA*.' This is not considered to be an appropriate statement, given that NEBA tools are not specifically accepted in EP assessment or inspection activities, and can only be truly evaluated in the event of a spill or exercise. Please remove this statement from the EP and provide correct information to the relevant persons.
8.11 16(b)	*Full text consultation records* When resubmitting Appendix 3-2 (full text copies), please remove duplicate records (e.g. multiple copies of presentations; the SA government consolidated response; copies of the submitted OPEP, etc) and instead refer to other relevant records/copies provided.
8.12	*Public comment process* A matter raised in the public comments, relevant person consultation and third party correspondence to NOPSEMA has been the adequacy of consultation conducted. Issues raised include inaccessibility of public comment to remote communities without computers, inadequacy of information provided, and issues with the practices, timing and accessibility of the consultation (including public open days and the public comment process). This has not been addressed in the EP or the Response to Public Comment. Please provide further consideration of the issues raised above.

ATTACHMENT 2

NOPSEMA letter - request to modify and resubmit the EP
(8 November 2019)

Our ref: ID: 4832; A700243
Your ref: Stromlo-1 EP
Contact: [redacted]
Email: [redacted]

[redacted]
Equinor Australia B.V.
Level 15, 123 St Georges Terrace
PERTH WA 6000

gabproject@equinor.com

Dear [redacted]

RE: ENVIRONMENT PLAN SUBMISSION – REQUEST TO MODIFY AND RESUBMIT THE PLAN – STROMLO-1 EXPLORATION DRILLING PROGRAM

I write with regard to the Stromlo-1 exploration drilling environment plan (EP) (Revision 2), and associated documentation submitted to NOPSEMA on 18 September 2019 by Equinor Australia B.V (Equinor).

An assessment of the plan has commenced in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (the Environment Regulations) and NOPSEMA's assessment policies. This includes a general assessment of the whole EP and four detailed topic assessments of the EP content, as follows:

- matters protected under Part 3 of the EPBC Act (focussed on evaluation and management of noise emission impacts);
- adequacy of source control arrangements and capability;
- adequacy and capability of arrangements for timely oil spill response and monitoring;
- consultation with relevant persons.

Previously, NOPSEMA had requested further written information for a number of matters. As these items have not been sufficiently addressed, in accordance with regulation 10(1) and 10(2) of the Environment Regulations, this letter gives notice that NOPSEMA is not reasonably satisfied that the EP meets the criteria set out in regulation 10A (h). The information in Attachment 1 explains the further information required, forming the basis for why NOPSEMA is giving the titleholder an opportunity to modify and resubmit the EP so that it might comply with the Environment Regulations.

Please provide this information in the form of a modified EP submission, together with a copy showing all changes made to each document no later than 21 days from the date of this letter. If Equinor requires a longer period of time, please advise NOPSEMA in writing within 14 days of receipt of this letter with an alternative date for provision of the information.

Please note the importance of addressing the matter outlined above and further detailed in Attachment 1, as failure to do so will likely result in NOPSEMA not being able to accept the EP.

If an EP is not resubmitted within the timeframe established through the above process, NOPSEMA may refuse to accept the EP, or accept it in part for a particular stage of the activity or accept the EP with limitations or conditions, in accordance with subregulation 10(5).

Modification and resubmission of the EP does not constitute a new submission and does not attract an additional EP Levy.

NOPSEMA's preferred method for the submission of electronic documents is through the secure website: https://securefile.nopsema.gov.au/filedrop/submissions. Guidance on the use of the submission system and support contacts may be found on the information page: http://www.nopsema.gov.au/secure-file-transfer.

Should you have any queries regarding the above, please contact the lead assessor for your submission, [redacted].

Yours sincerely

[redacted]
Environment Manager, Drilling & Developments
SAN: wA277878

08 November 2019

cc [redacted]

SAN: All regulatory correspondence issued by NOPSEMA, including this letter, bear a signature authorisation number (SAN) in place of a traditional signature. The SAN is a unique, secure identifier applied to the letter upon approval by the named signatory. If you wish to enquire further about SAN and its use in this or other correspondence, please contact information@nopsema.gov.au quoting the reference provided above.

Attachment 1 – Reasons for the decision and matters which require further written information.

Item number (Reg)	Matters requiring further written information, including examples
1. Source Control	
1.1 13(5,6)	*Secondary BOP control - Acoustic control vs ROV intervention capability (previous letter item 6.1 and 6.5)* The updated ALARP analysis (App 7-4, S. 4.1.1) states that Equinor "commits to meeting American Petroleum Institute Standard 53 requirements for blowout preventers." Equinor's interpretation of the listing of key applicable provisions of this Standard includes the item: "Remote Operated Vehicle-based secondary control system, or alternative such as an acoustic subsea secondary control system." However, NOPSEMA's interpretation of the Standard and its position on the necessary arrangements for secondary BOP control is that it may include acoustic control but must include appropriate ROV-based intervention capability. Please clarify that Equinor will maintain appropriate ROV intervention capability (for example the BOP intervention skid discussed in App 7-4 S. 4.1.1) to meet its environmental performance standard (EPS) of BOP intervention within 24 hours regardless of whether or not an acoustic subsea BOP control system is available on the drilling rig used by Equinor.
1.2 13(5,6)	*Crane vessel specifications for source control tasks (previous letter item 6.10 and 6.28)* The updated ALARP analysis (App 7-4, S. 3.8) presents a comparative analysis of Hs 3m and Hs 4m crane specifications for emergency source control work. The greater specification (Hs 4m capability) is chosen and the statement made that: “Further increase in Hs specification would have insignificant impact on timing, at a higher cost" (App 7-4, S. 3.8). In response, please: a. Provide supporting evidence and analysis for the rejection for this application of crane vessels with greater heave compensation capability, e.g. Hs 5m. b. Illustrate the expected wait-on-weather durations for an Hs 5m vessel as was done in App 7-4 Figures 3.1 and 3.2 for the lesser specification alternatives. c. Analyse and compare the costs and benefits of Hs 4m and Hs 5m crane vessels for the source control work that could potentially be required. d. Compare this application to Equinor's past use of Hs 5m crane vessels for subsea work elsewhere and based on the above information include an assessment showing that the Hs 5m specification would/ would not provide a safer and more reliable solution for this activity.

1.3 13(5,6)	*The cost of pre-emptive capping stack deployment (previous letter items 6.21 and 6.23)* The updated EP (App 7-4, S. 4.3) describes five alternative pre-emptive capping stack hire and deployment options which could result in deployment timeframes of 6, 8, 9, 11, or 14 days and compares these to an emergency-only deployment time frame of 15 days. While the benefits of each of these alternatives can be easily quantified and differentiated in terms of oil spill days avoided (ranging from 9 to 1 day(s) respectively), the updated EP provides insufficient information to substantiate the costs of each to differentiate between the five alternatives and thus show that costs would be grossly disproportionate. The costs for each are simply described as "10-50% of project cost". Please re-assess the ALARP position in relation to each of these five alternative pre-emptive capping stack hire and deployment options. In doing so, please: a. Clearly list the types and quantities of equipment, personnel, and vessels that would be required for each of the respective options. b. Provide more comprehensive evidence and analysis to demonstrate whether the arrangements for the required equipment, personnel, and vessels could or could not be made for each of the pre-emptive mobilisation options. c. Provide more detailed analysis of the cost of each of the pre-emptive capping stack deployment options.
1.4 13(5,6)	*Availability assumptions for relief well rigs (previous letter items 6.29 and 6.30)* The updated ALARP assessment (App 7-4, s 4.4 and Table 5.1) describes a number of relief well scenarios with potential drilling rigs coming from Singapore (102 days), the Northwest Shelf (88 days) or other areas in Australia. Some options involve pre-emptive mobilisation of a relief well rig or the use of the main rig for drilling top sections of a relief well. As part of the EP resubmission Equinor provided the following new commitment: "Equinor has committed to having a relief well rig with an Australian safety case identified and in the region before drilling into the reservoir". In relation to this point NOPSEMA notes some new information provided in Equinor's RFFWI-response table dated September 2019 (see #6.29a) on the projected availability of rigs in Australia in 2020-2021, namely that: "...there will be at least three ultra-deep DP rigs on contract in Australian waters in Q4 2020 – Q1 2021, when we plan to drill." Given the new information on rig availability in Australian waters please consider a clear commitment to the 88-day scenario as the ALARP base case. That is, a commitment that Equinor will not drill into a potential hydrocarbon-bearing zone without confirming access to a suitable and mobilisation/ drilling ready rig in Australian waters such that a relief well could be drilled and the well killed in 88 days.
1.5 13(7)(a)	Mobilisation of a second capping stack (previous letter item 6.26) The EP (Section S7.7.13.4, page 390) provides a new EPS, the meaning of which is not clear: "Evaluate to mobilise second capping stack depending on location within 5 days". Please clarify: a. The decision criteria for mobilising a second capping stack and the time frame for that decision making. b. The mobilisation and deployment schedule for a second capping stack, once the decision is made to mobilise.

1.6 13(5,6)	*Modelling of subsea dispersed oil* Section 8.5.1.1 includes the statement “Modelling of a 102-day oil spill indicates potential of resurfacing entrained oil to reach coastal areas in a less weathered state”. The sentence is unclear and should be clarified; in doing so please make reference to modelling maps in the EP which demonstrate the effect.
1.7 13(5,6) 13(7)(a)	*Administrative Points relating to source control* Please address the following items: a. OPEP Figure 8.7 does not match its caption, it appears to be a repeat of Figure 8.6. b. Please ensure that explanations provided in Equinor's RFFWI-response table are reflected in the EP, even for ALARP options that are rejected, as it is important that all ALARP analysis for all options is complete and correct. Important examples include: i. New information on the projected availability of rigs in Australia in 2020-2021 as found in Equinor's response to #6.29 "a" and "c", in particular the section including the statement: "...there will be at least three ultra-deep DP rigs on contract in Australian waters in Q4 2020 – Q1 2021, when we plan to drill." ii. Equinor's commitment to re-assess relief well rig options in the GAB in response 6.30 "c". iii. New information on riser and long lead items in response 6.30 "d". c. Following the previous letter item 6.7 and Equinor's response, please update OPEP table in S. 3.3 to reflect new text added in the same section. In particular, the statement: "If first attempt is unsuccessful continue to attempt BOP closure/BOP intervention until successful or until capping stack arrives at the well location", as it contradicts the statement: "After the 48 hours, the subsea construction vessel is expected to port to pick up sub-sea dispersant injection equipment and debris clearance equipment arriving from Singapore." d. There is some inconsistency in new text describing dispersant controls and EPSs. In the un-numbered table in EP Section 8.5.4, the control is now described as "surface dispersant" while the corresponding set of EPSs is described as SSDI application. The bullets underneath then relate to both surface and subsurface dispersant use (page 421).
2. Oil Spill Risk	
2.1	*Evaluation of oil spill control measures to demonstrate ALARP - Shoreline Clean-up Response (previous letter item 4.8)*

13(5,6)	Acknowledging that Equinor has provided additional information to describe the ALARP evaluation for shoreline clean-up, it remains unclear how Equinor has determined that the required shoreline clean-up response capacity (e.g. number of personnel required) meets the response need (e.g. based on oil volumes ashore). Please provide further information on the following: a. Details of the analysis for determining the number of personnel that would be required throughout the duration of a shoreline clean-up response that is based on the predicted volumes of oil ashore. b. In addressing the point above, please provide further clarification of the bulking factor (e.g. x2.5) used to estimate the bulked volume of accessible shoreline loading. The cited reference in Section 6.2 (OPEP Waste Management Plan - OWMP) does not seem to support the bulking factor calculation used, which is considerably different to what is commonly applied across industry (e.g. a bulking factor of 10 is commonly applied to address varying clean-up methods and shoreline types - see IPIECA Good Practice Guides for both Shoreline Response and Waste Minimisation). c. Please clarify how the current arrangement for obtaining additional personnel (described in section 11.6.2 of the OPEP) is scalable to meet the response need. For example, from the description provided (and also as stated in a performance standard in Section 13 of the OPEP) it is difficult to understand whether the stated number of personnel is the upper limit that will be applied to the shoreline clean-up response.
2.2 13(7)	*Environmental Performance Standards (EPS) Clarification (previous letter item 4.20)* There is one occasion where an EPS for oil spill response does not capture an appropriate level of performance and two occasions where important commitments are not captured within the suite of environmental performance standards. Please revise the EPS or provide additional EPSs for oil spill response that address the following points: a. Given the importance of the Incident Action Plan as a control measure, please amend the associated EPS to ensure it is written as a measurable statement of performance (e.g. to reflect the commitments stated in Section 9.2 of the OPEP regarding timeframes and review periods). b. A number of key commitments in the submission have not been captured as EPSs, including: i. The sourcing of a suitable oil tanker for oil recovery operations on day 1 of a LOWC. This is raised because the management of liquid waste offshore is a key limiting factor for the containment and recovery operation, and because Equinor has clear commitments in the OWMP (Section 9.4.8) for when a suitable tanker for oil waste storage will be sourced and in place to start operations. ii. The development and activation of the Shoreline Protection and Deflection Tactical response Plan (TRP). This is raised because Section 13 (OPEP) provides an EPS for the activation of the Dispersant and Containment and Recovery Tactical Response Plan (TRP) and Section 8.7.4 (EP) has an EPS for developing site-specific TRPs. Following this logic, there is no EPS for the development and activation of the Shoreline Protection and Deflection TRP that is discussed in Table 9-2 of the OPEP.

2.3 14(6) 14(8AA) 14(8D)	*Implementation strategy - Adequate arrangements* Many oil spill response and monitoring commitments are spread across the submission and there is a risk that commitments are missed or not implemented effectively. For example, commitments for response measures are found in Section 13 (OPEP) and Section 8 (EP), or described in the non-operational section of the OPEP (i.e. Part 3). Similarly, a number of commitments to enhance monitoring preparedness are scattered throughout the Oil Spill Monitoring Plan (OSMP). In response, please address the following: a) Where appropriate, include or provide the appropriate linkage to the following commitments within the operational section of the OPEP to ensure the implementation strategy is clearly understood by end users during a response: i. The dispersant approval process, noting that the operational section of the OPEP (part 2) doesn't fully capture the dispersant approval process explained Section 8.5.4 of the EP (and as an EPS) to ensure the dispersant approval process for non-OSCA listed dispersants is captured. ii. The decanting approval process, noting that the containment and recovery operational section of the OPEP (part 2), while making mention of waste management, does not capture the decanting approval process discussed in Section 8 of the EP (as an EPS) and the OPEP Waste Management Plan. b) Consolidation of OSMP preparedness commitments (that Equinor commit will be done prior to the oil spill exercise) to ensure they can be effectively implemented and monitored for compliance. These include preparation of sampling and analysis plans (page 18), engaging third parties (page 33), review of the resource register (page 33), preparation of field logistics plan (page 68) and review of baseline data (Appendix A; page 84). c) Please describe the environmental assurance process that will be applied to ensure that oil spill preparedness is enhanced and maintained through time, noting that Section 9.7 of the EP does not sufficiently address unplanned activity aspects.
2.4 14(8AA) 14(8D)	*Capacity to implement the OSMP* Section 2.5 of the OSMP includes new text stating that third parties will be engaged via contracts or Master Services Agreements and call-off contracts prior to the oil spill response exercise. The scope and strength of the engagement of third parties is left open ended (e.g. scope and strength will depend on requirements of Equinor and resource provider) and no statement of performance is provided in terms of the scope of resources (numbers and qualifications/experience of personnel relative to the various OSMP survey unit requirements) that will be available from third parties and whether it will be adequate to meet OSMP resourcing requirements. Please describe the process that will be implemented to ensure that arrangements for access to third party resources are sufficient to allow timely access to required OSMP resources.

2.5	*Administrative points related to spill risks and OPEP* Please consider the following points when updating the submission: a. Table 9-2 (OPEP) duplicates the Dispersant and Containment TRP description. b. Section 8.2 (OPEP) seems to have an incorrect reference to the role-specific checklist. c. Figure 8.15 (NEBA process) in Section 8.5 (OPEP) makes reference to Appendix 8. Should this read Appendix 9? d. The EPS for surface dispersant efficacy testing (Section 8.5.4 of EP) should be reviewed to ensure the dot points align to the correct dispersant application (e.g. SSDI or surface dispersant). e. The start of Section 7.7.11 (EP) seems to have an error referring to hazardous substances instead of a LOWC event.
3. Consultation	
3.1 14(9)	*The implementation strategy must provide for appropriate consultation (previous letter item 7.3)* a. The process for ongoing consultation should ensure that objections and claims raised in relation to the activity are appropriately assessed and managed. The current process (Section 3.2) states that unresolved disputes will be considered by NOPSEMA. This statement should be clarified, as NOPSEMA expects that objections/claims are resolved as far as possible by the titleholder. NOPSEMA may act in a regulatory capacity (e.g. through inspection or enforcement) in relation to unresolved objections/claims; but this will not occur in every instance. Please ensure the process described in the EP is clear that primary responsibility for resolution of objections/claims rests with the titleholder. b. Given the pending change in control agency status for marine pollution response in South Australia (e.g. from DTPLI to the Fire Services), please provide further details of any recent consultation with the State in this regard, including the ongoing consultation process to ensure oil spill response arrangements reflected in the OPEP are continually maintained.
3.2 14(9)	*The implementation strategy must provide for appropriate consultation in the event of a spill (previous letter item 7.5)* Section 7.4 and Table 7.3 of the OPEP details the spill notification processes to be implemented in a level 2/3 spill scenario. Section 7.4 states the objective of the communications is to initiate consultation by providing relevant authorities and other relevant interested persons and the broader community with timely, accurate and factual information in the event of an oil pollution incident, but it does not detail how Equinor will identify relevant interested persons in the spill risk EMBA. Equinor's identification of relevant persons (defined in section 3.2) is currently based on those stakeholders who have functions, interests and activities within the "Impact EMBA" and not the risk or spill EMBA. Equinor indicate that self-identification is expected as a result of media releases (including trajectory modelling output publication); it is considered that this is appropriate for

	implementation of the compensation framework. However, there will be persons outside of the impact EMBA who may become relevant interested persons shortly after a spill, and who may need to take actions in a short time period – reliance on self-identification is not considered appropriate in this circumstance. Please clarify the process by which Equinor will identify which stakeholders will be notified/consulted in the event of a spill.
3.3 16(b)	*Definitions – person or organisation whose functions, interests or activities may be affected (previous letter item 7.1)* Both the resubmitted EP and Equinor response note refer to "the objectives of the Act and regulations" and "Section 280(2) of the Act" when defining the terms 'functions, interests and activities'; but the interpretation provided in the Decision Making Guideline has not been applied, integrated or discussed when presenting the alternative definitions in Table 3.3. Given that NOPSEMA has provided interpretation of the terms 'functions, interests and activities' in its Decision Making Guideline, please adjust the methods used for identifying relevant persons by applying these definitions.
3.4 16(b)	*Persons and organisations who have raised claims that they are relevant persons (previous letter point 7.2)* a. Table 2.3 has been included in the consultation report (App 3-1) with those stakeholders that have raised claims that they are relevant persons. This table contains statements that the stakeholders have 'no functions, interests or activities that may be affected by the planned activities', but very little justification as to why they may not be affected. Some of the entries relate to whether they are present in the impact EMBA, but others contain no explanation as to why they may not be affected. Please provide an analysis against each potentially relevant person in Table 2-3 that addresses why their functions/interests/activities may not be affected by the activity. b. The response note to NOPSEMA's previous RFFWI letter states that "the Mirning and Ngarrindjeri peoples did not claim they were relevant persons during the public comment process". This is not considered a sufficient reason to determine that the Mirning and Ngarrindjeri people are not relevant persons; and is incorrect in the case of the Ngarrindjeri people. It is also noted that the Mirning people have repeatedly and publicly expressed their desire to be consulted. Please include an analysis in the EP against the Mirning and Ngarrindjeri peoples that addresses why their functions/interests/ activities may not be affected by the activity.
3.5 13(2) 13 (5,6)	*Impact evaluation - Cultural values (previous letter item 7.8)* Section 5.3 of Appendix 7-3 has been expanded with additional detail on native title claims and indigenous cultural values in the EMBA. Section 1.4.18 of Appendix 7-5 identifies the potential for impacts to heritage values in the event of a LOWC scenario; and it is also mentioned in section 7.7.12 in

	the EP. However, the impact evaluation presented refers to the assessment of impacts to heritage-significant species such as cetaceans and pinnipeds (which addresses ecological impacts to the species only) and does not evaluate the potential impact to the cultural heritage values described. The response note states that further engagement with the Mirning people is pending; and that a previous meeting did not raise a discussion over impacts. This does not preclude a proper assessment of impacts to be performed by the titleholder, but as previously noted, engagement with the Mirning people would likely deliver information to assist in the evaluation. Please provide a robust evaluation of the potential impacts to cultural values from the activity (including emergency conditions). In addition, please ensure that context/information from Equinor's RFFWI response table discussing the engagement is included in the EP.
3.6 16(b)	*Assessment of merits - Consultation scope – unplanned activities (previous letter items 7.9, 7.10 and 7.11)* Section 3.1.12 of the EP states that "engagement on unplanned activities…. does not form part of the regulatory consultation". The assessment of merits provided in section 3.3.1 of Appendix 3-1 also repeatedly states that the objections "do not meet our criteria as having merit". This is contrary to regulation 11(A)(2). The consultation report required by regulation 16(b) is incomplete because it does not provide an assessment of merits which considers the specific objection/claim raised and a titleholder response to the relevant persons which addresses the objection or claim. This should be performed for all other relevant persons whose objections/claims about unplanned activities have been treated in this manner. Specific examples include (but may not be limited to) the Curtin GAB Right Whale Study, Wildcatch Fisheries SA and the ASBTIA (noting item 3.7 below). Please revise the consultation report to include an appropriate assessment of merits for all objections/claims raised by relevant persons regarding the activity and its potential impact. Following the assessment of merits, please provide a response to relevant persons which addresses the objection or claim raised and Equinor's consideration and treatment of the issue in the EP.
3.7 16(b)	*Report on consultation – Australian Southern Bluefin Tuna Industry Association (ASBTIA) (previous letter item 7.9)* Since the public comment period, significant additional correspondence (with detailed objections/claims) has been provided to Equinor by ASBTIA. There is no evidence in the consultation log (App 3-1) or the full text copies (App 3-2) to indicate that additional responses have been provided to ASBTIA regarding their objections/claims since 20 May 2019. No evidence has been provided to demonstrate that ongoing consultation has occurred to try and resolve the objections and claims raised by ASBTIA. For example, the Equinor response (letter dated 20 May 2019) to ASBTIA's letter of 7 May 2019 contains no content addressing the objections or claims raised about emergency conditions, and no additional correspondence is evidenced subsequent to NOPSEMA's RFFWI letter which identified a number of deficiencies in the consultation.

	In addition, the response provided in Appendix 3-1 often does not appropriately address the actual objection/claim, for example (of many): a. ASBTIA requested development of remediation plans (page 142 e-copy App 3-1) - Equinor's response was that they are required to fund remediation. This does not address the objection/claim. b. ASBTIA requested spill modelling outputs to include time-to-contact for areas such as sardine spawning locations (page 145 e-copy App 3-1) - Equinor's response was that times could be inferred from the existing maps and tables. This is not an appropriate response to a reasonable request from a relevant person. c. ASBTIA objected that information on the distribution of oil/dispersant mix was not provided to stakeholders that will be impacted (page 158 e-copy App 3-1) - Equinor's response relates to AMSA dispersant testing. This does not address the objection/claim. d. ASBTIA objected that some dispersants implicated in exacerbating the GOM ecological impact were available for 'transitional acceptance' (page 159 e-copy App 3-1) - Equinor's response does not relate to the objection/claim. Please provide evidence that appropriate consultation is ongoing with relevant persons (including but not limited to ASBTIA) where: e. Objections/claims have not been adequately assessed or responded to. f. Relevant persons have requested updates or further engagement. g. New information has been provided to Equinor by relevant persons since May 2019.
3.8 16(b)	*Report on consultation - Assessment of merits - Consultation and relationship with public comment (previous letter item 7.12)* Section 3.1.12 of the EP states that input from relevant persons received during the public comment period on unplanned activities has been recorded for completeness but were not responded to as submissions on unplanned events were responded to in the public comment report. This is not considered sufficient, as objections or claims raised by relevant persons (through whatever mechanism) must be assessed and a response provided as per Regulation 16(b). Specific examples include the objections or claims raised by ASBTIA and Wildcatch Fisheries SA through the public comment process (e.g. summaries page 169 and 186-191 App 3-1) which have not been assessed or responded to, instead referring to the public comment response report. This report only deals with objections and claims in extremely broad and general terms, and does not adequately address specific content from relevant persons. This is not considered sufficient information to enable NOPSEMA to determine whether the EP complies with regulation 10A(g) Please revise the consultation report to include an appropriate assessment of merits for all objections/claims raised by relevant persons (including during public comment) regarding the activity and its potential impact. Following the assessment of merits requested, please provide a response to relevant persons which addresses the objection/claim raised and Equinor's consideration/treatment of the issue.

3.9 16(b)	*Report on consultation – Consultation and relationship with public comment* Information provided by relevant persons through the public comment process has not been fully integrated into the EP. For example, ASBTIA noted in their submission dated 20 March 2019 that the value of the SBT industry was incorrect in the EP (see page 174 of App 3-1), and that the assessment of economic impact to fisheries failed to consider the SBT quota structure. The relevant EP content (Table 4.9) still contains the incorrect value information; and the description of the fishery (S4.7.1.2 of EP) and assessment of impact to fisheries from a loss of well control (App 7-5) does not address the detail provided by ASBTIA regarding the relationship between the quota system and potential financial impacts. Consequently it is not clear that impact and risk assessments have been performed with regard to correct information about the existing environment. Please review and amend the EP to ensure that information provided by relevant persons in consultation and through the public comment process has been accurately integrated into the EP, and considered when performing impact and risk evaluations.
4. Drilling Discharge Management	
4.1 13(2)	*Description of benthic environment (previous letter item 2.1)* In the response table (page 17), reference is made to a new subsection being added to Section 4.6.3 regarding the benthic environment of the well location. This section, however, has not been incorporated into the EP. Further, the discussion provided in the response table relating to the three sources of additional context raised by NOPSEMA (the South-west Marine Parks Network Management Plan 2018, the paper by MacIntosh et al 2018, and the comment by Director of National Parks) should be reflected in the EP, as they describe the contextual information that belongs within the submission itself. In addition, the apparent divergence with the comment by the Director of National Parks regarding '*benthic invertebrate communities of the eastern GAB that are among the world's most diverse soft-sediment ecosystems*' (page 25 of App 3-1) does not appear to have been addressed through response to and further discussion with the Director of National Parks. It is therefore not able to be determined if the Director of National Parks is aware of how its comments have been addressed by Equinor in this regard, as they appear to be divergent to the advice provided. Without this context, the sensitivity of the benthic environment has not been sufficiently described. Please: a. Include the new subsection (as per page 17 of the response table) for Section 4.6.3. b. Address the 3 sources of context mentioned above (the South-west Marine Parks Network Management Plan 2018, the paper by MacIntosh et al 2018, and the comment by Director of National Parks) in the EP.

	c. Demonstrate that appropriate consultation has taken place with DNP with respect to the nature of the benthic environment at the drilling location, and ensure that it is appropriately presented in the submission. Should the description of the benthic environment be adjusted, please ensure that this is reflected in an updated risk assessment and ALARP evaluation relating to drilling discharges.
4.2 13(5,6)	*Chemical Selection (previous letter item 2.3)* Equinor has provided clarification regarding a process for chemical selection. However, insufficient information is provided in relation to what criteria will be applied to determine what levels of toxicity, biodegradation or bioaccumulation will be applied as part of this process. Please provide clarification regarding criteria for toxicity, biodegradation and bioaccumulation that will be applied to assessment of chemicals that are not suitably OCNS rated or PLONOR, to demonstrate that such a process will result in the selection of chemicals that meet the criteria for acceptability and ALARP.
5. Noise	
5.1 13(5,6)	*Evaluation of underwater noise impacts to whales* In responding to NOPSEMA's RFFWI letter item 3.3 the evaluation of noise impacts to whales was substantially revised. The revised evaluation is entirely focused on noise emissions from the MODU thrusters and does not address the noise emitted by the MODU transponders. Please provide a well-reasoned and supported evaluation of noise impacts to whales from MODU transponders that accounts for differences in this noise source, i.e. high frequency, impulsive noise.
5.2 13(5,6)	*Incorporation of noise modelling results into evaluation of impacts* There are two occasions where the results of noise modelling have not been accurately incorporated into the evaluation of impacts to whales and these are outlined below. a. Figure 29 of the underwater sound modelling report (Appendix 6-1) indicates that a sound level of 160 dB SEL would be exceeded out to a range of approximately 10 km during VSP operations. However, Table 6.18 of the EP indicates that this threshold is not exceeded at any distance for VSP operations. This modelling output also does not appear to have been considered in determining the appropriate precaution zone size. The low power zone size has been set as 1 km in Table 6.20 with no justification provided.

	b. The 'predicted impact distance' value for behavioural disturbance to cetaceans from VSP operations in Table 6.18 of the EP (9 km max) is inconsistent with Table 7 of the sound modelling report (16 km max). The incorrect value is then applied to the impact assessment of VSP noise to cetaceans on page 190 of the EP. Please update the evaluation of noise impacts to whales to ensure it incorporates the correct outputs from the sound modelling report and uses these outputs to inform the predictions of impact and design of control measures, where relevant. If control measures are revised please provide revised EPSs.
6. Miscellaneous items	
6.1 15(1) 15(2)	*Titleholder details* Under Regulation 15(2) of the Regulations, the EP must include the titleholder's ACN number, and the phone number of the TH liaison person. Arrangements are also required for notifying the Regulator of a change in contact details for either the titleholder or the liaison person. These details have not been provided in the EP (page 17). Please provide these details in the EP.
6.2 13(1)	*Reference to new location* Section 12.2 of App 9-1 contains reference to response arrangements being tested *'if a new location is added to the EP for the* activity'. Please remove reference to a new location being added to the EP for the activity, or clarify that this will be subject to the EP being revised/resubmitted.
6.3 13(5,6)	*Exposure level values* The 'exposure level' values included in Table 6.18 only relate to impulsive sounds (relevant to VSP and MODU transponder) and the exposure values for non-impulsive sounds (MODU thrusters) are not provided. Please add these values to Table 6.18.
6.4 16(c)	*Reportable incident definition* On page 453 a statement is made that reportable incidents are defined as “a breach of an environmental performance outcome that has caused, or has the potential to cause, moderate to significant environmental damage”.

	Please remove the limitation of reportable incidents to those that are a breach of an EPO, in accordance with Regulation 4 which states that a reportable incident for an activity means an incident relating to the activity that has caused, or has the potential to cause, moderate to significant environmental damage

ATTACHMENT 3

NOPSEMA letter - acceptance of the EP with conditions
(18 December 2019)

Our ref: ID: 4832: A708344
Your ref: Stromlo-1 EP
Contact: [redacted]
Email: [redacted]

[redacted]
Equinor Australia B.V.
Level 15, 123 St Georges Terrace
PERTH WA 6000

gabproject@equinor.com

Dear [redacted]

RE: ENVIRONMENT PLAN ACCEPTANCE WITH CONDITIONS – STROMLO-1 EXPLORATION DRILLING PROGRAM

Please be advised that the whole of the Stromlo-1 exploration drilling program environment plan (EP), comprising:

- Stromlo-1 exploration drilling environment plan, Revision 3, dated November 2019;
- Appendix 1-1: Relevant legislation, Revision 3, November 2019;
- Appendix 2-1: Operability and forecasting, Revision 3, November 2019;
- Appendix 3-1: Relevant persons consultation records, Revision 3, November 2019;
- Appendix 3-2: Relevant persons consultation records (Sensitive Information), Revision 3, November 2019;
- Appendix 4-1: Protected matters search tool report for the Impact EMBA, Revision 0, November 2019;
- Appendix 6-1: Underwater sound modelling report, Revision 3, November 2019; and
- Appendix 6-2: Drill cuttings and muds dispersion modelling study, November 2019;
- Appendix 7-1: Oil spill modelling study, Revision 2, November 2019;
- Appendix 7-2: Protected matters search tool report for the risk EMBA, Rev 0, November 2019;
- Appendix 7-3: Existing environment of Risk EMBA, Revision 3, November 2019;
- Appendix 7-4: ALARP assessment for loss of well control, Revision 3, November 2019;
- Appendix 7-5: Risk assessment for unmitigated worst-case scenario, Revision 3, November 2019.
- Appendix 9-1: Oil pollution emergency plan, Revision 4, dated November 2019; and
- Appendix 9-2: Operational and scientific monitoring program, Revision 3, dated November 2019;

has been accepted subject to conditions in accordance with regulation 10(6) of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Environment Regulations).

ABN: 22 385 178 289

An assessment of the EP was conducted in accordance with the Environment Regulations and NOPSEMA's assessment policies. This includes a general assessment of the whole EP and four detailed topic assessments of the EP content, as follows:

- matters protected under Part 3 of the EPBC Act (focussed on evaluation and management of noise emission impacts);
- adequacy of source control arrangements and capability;
- adequacy and capability of arrangements for timely oil spill response and monitoring;
- consultation with relevant persons.

This letter gives notice under regulation 11(1)(c) that the EP has been accepted subject to the conditions detailed in Attachment 1. Whilst the conditions do not form part of the EP, NOPSEMA will monitor compliance and undertake enforcement to secure compliance with these conditions in the same way as the accepted EP. Please be advised that in accordance with regulation 7, an activity must not be undertaken in a way that is contrary to the EP in force for the activity, or any condition applying to operations for the activity under the Environment Regulations.

The reasons for my decision to accept the EP with conditions provided in Attachment 1 are:

- In the context of the EP for the proposed Stromlo-1 exploration drilling activity, there is need for improved control measures to demonstrate that the oil spill risks of the activity will be reduced to as low as reasonably practicable.
- In addition, a number of conditions have also been imposed to ensure clarity regarding communicating environmental performance of the activity.

As agreed, the accepted EP in full (excluding personal information) will be published on the NOPSEMA website to meet the requirements for an EP summary for public disclosure in accordance with regulation 11(3).

To provide transparency of its assessment decision, NOPSEMA will also publish a key matters report and statement of reasons for NOPSEMA's decision to accept the EP, subject to conditions.

This acceptance is based on the document submissions provided in accordance with the Environment Regulations. Please note that the responsibility for ongoing environmental performance of the Stromlo-1 exploration drilling activity remains, at all times, with Equinor Australia B.V.

You are reminded that in accordance with regulation 29, Equinor Australia B.V. must notify NOPSEMA at least ten days before commencement and within ten days after completion of any activity described in the EP.

Should you have any queries regarding the above, please contact the lead assessor for your submission, [redacted]

Yours sincerely

[redacted]
Environment Manager, Drilling & Developments
SAN: wA284644

18 December 2019

cc [redacted]

SAN: All regulatory correspondence issued by NOPSEMA, including this letter, bear a signature authorisation number (SAN) in place of a traditional signature. The SAN is a unique, secure identifier applied to the letter upon approval by the named signatory. If you wish to enquire further about SAN and its use in this or other correspondence, please contact information@nopsema.gov.au quoting the reference provided above.

Attachment 1

In accordance with regulation 11(1)(c) NOPSEMA gives notice that acceptance of the EP is subject to the following conditions applying to operations for the Stromlo 1 Exploration Drilling Program EP:

1. Timetable of the activity

1.1. Equinor Australia B.V. shall ensure the drilling activity does not occur outside of the periods of 1 November 2020 to 30 April 2021 or 1 November 2021 to 30 April 2022.

2. Communication about Environmental Performance

2.1. To ensure appropriate communication of environmental performance of the activity, Equinor Australia B.V. shall:

a) Prior to commencing the drilling activity, continue community engagement efforts with interested persons, including community, conservation and environmental based non-governmental organisations with a past history of actively seeking protection of the Great Australian Bight, regarding how the activity will be carried out in a manner that is in accordance with the accepted EP;

b) Publish weekly status updates on its website whilst conducting the petroleum activity describing Equinor Australia B.V.'s environmental performance for the petroleum activity against the relevant environmental performance outcomes and environmental performance standards detailed in the EP to the satisfaction of NOPSEMA; and

c) Publish a report on environmental performance for the petroleum activity detailing compliance with these conditions and the environmental performance outcomes and standards detailed in the EP. This report must be to the satisfaction of NOPSEMA and submitted to NOPSEMA within three months of completion of the petroleum activity.

3. Incident Prevention, Preparedness and Response

3.1. Equinor Australia B.V. shall ensure that relevant control measures for the drilling activity are implemented by the drilling rig contractor and are in place before the drilling activity commences.

3.2. To ensure that timely mobilisation arrangements are in place for a capping stack and source control equipment prior to commencing drilling the Stromlo-1 well, Equinor Australia B.V. shall:

a) Engage a suitable competent third party agreed by NOPSEMA to undertake a validation of capping stack mobilisation logistics and provide the validation report to NOPSEMA; and

b) Engage a suitable competent third party agreed by NOPSEMA to undertake an audit of source control preparedness to confirm that all the necessary pre-operational requirements are in place before drilling the well.

3.3. To ensure that a relief well could be drilled to permanently stop the flow of hydrocarbons from the well in the shortest possible time:

a) Before commencement of drilling into the reservoir, Equinor Australia B.V. shall confirm to NOPSEMA that it has access and can maintain access to a suitable relief well drilling rig located in Australian waters with the equipment and supplies necessary to drill a relief well; and

b) In the event a relief well is required to permanently stop the flow of hydrocarbons from the well, Equinor Australia B.V. shall ensure it has access to a suitable second relief well drilling rig and access to the equipment and supplies necessary to drill another relief well.

3.4. To confirm that prudent and timely triggers for mobilisation of Source Control Equipment are in place, Equinor Australia B.V. shall:

a) Place its well source control service and equipment providers on standby for the duration of the drilling activity;

b) Notify the source control equipment and expertise providers, in the event of a Well Control Incident that has the potential to cause moderate to significant environmental damage or has the potential to escalate, to ensure actions will be taken that will enable immediate mobilisation; and

c) Immediately mobilise the necessary Source Control Equipment and expertise in the event of an uncontrolled escape of reservoir fluids to the environment.

3.5. To minimise the consequences to the environment in the remote likelihood an oil spill occurs, Equinor Australia B.V. shall only use dispersants where their use reduces the impacts of spilled oil to the marine environment.

4. Definitions

For the purposes of this notice, unless otherwise specified all terms have the same meaning as in the Environment Regulations.

Environment Regulations: means the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009

EP: is taken to mean the Stromlo-1 Exploration Drilling Program Environment Plan (Revision 3)

OPEP: is taken to mean Stromlo-1 Exploration Drilling Program Oil Pollution Emergency Plan (Revision 4)

Petroleum activity: means the Stromlo-1 well drilling activity

Source Control Equipment: is taken to be the source control measures defined in Section 8.5 of the EP

Titleholder: for the purposes of this notice is taken to be Equinor Australia B.V.

Well Control Incident: is taken to be a loss of primary well control barrier