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Assessment findings

Assessment ID	6773
Duty holder:	Santos NA Barossa Pty Ltd
Facility/Activity:	Barossa Development Drilling and Completions
Facility type:	Petroleum Activity
Assessment type:	Environment Plan (Development)

Findings relating to OPGGS(S)

Regulation Clause ID	Regulation Clause	Topic Scope	Comment
1	Environment Plan is appropriate for nature and scale of activity	General	indicates concluding statement where relevant regarding DMG all page numbers in general assessment reference epdf numbers Description of the activity - Reg 13(1) An appropriate, comprehensive description of the activity is generally presented through the activity overview (S1.2) and the activity description (S2) - as summarised on Table 2-1 (p23). Exceptions are noted below. The activity arises from the Barossa Offshore Project Proposal - which was accepted by NOPSEMA in 2018 - [id: https://rms/assessments/4103/tracking]. 1. Reg 13(1)a - drilling locations: location and operational area (S2.1.1/2, Table 2.2 and Fig 1.1). The EP covers the drilling of 6 production wells (2 at each of 3 future production manifolds) in production licence NT/L1, with contingency for 2 further. The operational area is defined as the entire permit area. Water depths in operational area range from 204 to 376m. 2. Reg 13(1)b - construction/layout - rig type/details, vessels: Drilling will be conducted with a semi-sub (not dynamically positioned), light well intervention vessel (up to 7 days per well) also mentioned along with anchor handling and offshore multipurpose - p22. 3. Reg 13(1)c operational details: 4. General details: details of drilling activities (S2.3), summarised on Table 2-1 - The EP covers the drilling of 6 production wells (2 at each of 3 future production manifolds) in production licence NT/L1, with contingency for 2 further. Key aspects other than production well D&C include light well intervention, well flowback (S2.3.8). S2.3 summarises the drilling activities 5. SBM to be used? yes as contingency - p23 - use term non-aqueous. 6. Well completion activities/well flow/testing etc - completion, well clean-up and light well intervention activities may occur concurrently but not on same well. 7. Flaring? yes flaring will take place - see further details in acceptability reg below. 8. ?Reg 13(1)c timetable: duration and timings (S2.1.3) Drilling is planned to occur during a 2022-25 window, and follows a previous Bedout drilling plan https://rms/assessments/3043. To account for potential delays or schedule changes, the environmental assessment encompasses petroleum activities occurring at any time of the year. 9. Reg 13(1)d any additional details relevant to consideration of impacts and risks: The submission does not consider scope 3 emissions for the activity. further details regarding scope 1 also required - as addressed in 'acceptability reg finding below. Background/context: Under the EPBC Act, NOPSEMA considers the impact of direct greenhouse emissions, and on a case-by-case basis, indirect consequences. Policy guidance on the consideration of indirect consequences is available under the EPBC Act Policy guidance series, including the EPBC Act Policy Statement - 'Indirect consequences' of an action: Section 527E of the EPBC Act. [id:https://www.nopsema.gov.au/offshore-industry/environmental-management/greenhouse-gas-emissions-and-climate-change] EPBC Policy Statement - Indirect consequences' of an action: Section 527E of the EPBC Act [id: https://www.awe.gov.au/environment/epbc/publications/epbc-act-policy-statement-indirect-consequences-action-section-527e-epbc-act]. within the context of S527E of the EPBC Act, in the context of the described activity, development drilling would be considered the primary action. It is therefore not clear how impacts related to the subsequent burning of fossil fuels is not facilitated to a major extent by development drilling, should not be considered to be within the contemplation of Santos 10. Regulation 13(6) - The EP must evaluate impacts and risks (including direct and indirect impacts from all operations of the activity).11. OPP - accepted March 2018 - does not consider. Browse referral scoping doc June 2019 first published position on application of S527E of EPBC Act.letter template [id: A805509] to be adopted and adjusted as required for drilling activity - key principles below: Requirement:

12. The Environment Regulation (13(1)d) require a description of information relevant to consideration of environmental impacts and risks for the activity.13. The Environment Regulations (13(4)) require that legislative requirements are described.14. The Environment Regulations (13(5,6)) require that all impacts and risks must be evaluated and reduced to ALARP and acceptable levels.Issue: The EP describes atmospheric emissions, but has not demonstrated that is has included all information relevant to consideration of environmental impacts and risks given it has not considered application of the 'Indirect Consequences Policy' (as above) as it relates to scope 3 GHG. Also Scope 1 issue raised below /acceptability reg for flaring controls, also need to- quantify direct emissions.
Request: Give consideration to the Policy re indirect consequences, and if scope 3 emissions considered relevant, define and carry out risk assessment.
Conclusion: insufficient information

Description of the environment - Reg 13(2), Reg 13(3)
A suitable process has been used to define the EMBA on the basis of a modelled LOWC scenario (consistent with NOPSEMA guidance for oil spill modelling and use of modelling thresholds - see page 237) as outlined on page 31, with EMBA presented on page 35. A clear process to find MNES within the EMBA is outlined, with a recent (15/5/21) protected matter search [App A of App C for EMBA - page 492] applied and results used to inform the description of the existing environment in Section 3.2 (this draws upon App C EMBA for Barossa Values and Sensitivities of the Marine and Coastal Environment - page 353) . App D1 of main document (p524) includes a PMST search for the operational area - which is referred to in the EP page 33. App D2 provides what appears to be replicate of the App C EMBA search, dated 4/6/21. App D3 is a PMST search of the MEVA (moderate exposure value area) - which informs the spill risk assessment. App B of App C (page 521) provides a MNES register which includes provision for updates to details of protected matters to be included in the EP - with no new inclusions identified currently.
Important and relevant values and sensitivities included and described in S3 and App C to inform subsequent impact and risk analyses. Key aspects that map to content requirements include:
The water depths in the operational area are between approximately 204 and 376 m.
WHAs/National heritage - appropriately identified. No overlap in OA, whereas just the 'Scott Reef and surrounds – Commonwealth area' commonwealth heritage areas overlaps the EMBA (page 83)
AMPs - Clear description of the AMPs that overlap the OA and EMBA provided. No AMPs overlap OA (Table 3.4), with the nearest the Oceanic Shoals MP - 33km away. The EMBA overlaps 4 AMPs.
Ramsar/wetlands of International and national importance - EP (Table 3-4) identifies that none are in proximity to the OA, a number are within EMBA.
Threatened species - Section 3.2.4 identifies 19 threatened species and 33 listed migratory species as being potentially present in the in OA, and 98 and 58 species respectively in the EMBA. Appropriate linkages to risk aspects are identified (summarised in Table 3-6).
KEFs - the OA overlaps the Shelf break and slope of the Arafura Shelf KEF, while the EMBA overlaps 9 of them.
BIA/habitat critical - Table 3-7 describes overlap of OA and EMBA with BIAs and habitat critical for marine species. The OA does not overlap any BIAs. The EMBA overlaps critical habitat for 4 protected marine turtle species.
Recovery plans/conservation advices - Table 3.8 provides the recovery plan/conservation advice, threats and requirements how these threats should be managed for listed species within the EMBA. The submission has included advice/management action considerations within the risk assessment sections (s6 and s7) of the EP for specific threats (e.g. noise impacts to cetaceans in s6.1, light and turtles S6.2). Further information provided in general assessment for protected matters.
Director of National parks - has been consulted - see page 95.
Given the nature of a drilling activity, particular attention is required for the understanding of the benthic environment. Section 3.2.2 provides a very brief description of the benthic environment within the operational area. Water depths are noted as being between 204 and 376m. Mention is made of shoals and banks within the EMBA, which Table 3-2 indicate are 38km+ from the operational area. Section 3.2.3.2 states that KEFs are noted to have values of 'unique seafloor features with ecological properties of regional significance' and as supporting enhanced biological productivity and high productivity that attract large aggregations of marine life'. An ambiguous statement is made with respect to the seafloor features associated with the operational area (p41) not being observed with the Barossa marine studies program to support the claim that the activity is not expected to impact the values of any KEF.
Issue: The description of the benthic environment for the operational area is insufficient to provide context for the subsequent evaluation of risks associated with the drilling activity. In particular, Section 3.2.2 lacks detail and is not supported through scientifically robust information. Further, the values of the 'Shelf break and slope of the Arafura Shelf KEF' are not sufficiently defined, and conclusions regarding the presence of its features within the operational area are not substantiated sufficiently to support the claim that the activity is not expected to impact the values of any KEF.
Socio economic values are generally adequately described and includes identification

			of state and commonwealth fisheries (see s3.2.5 - summarised on Table 3-9), traditional indonesian and recreational fishing, oil and gas, defence, shipping, tourism. In terms of cultural heritage, the submission identifies that Sea country is valued for Indigenous cultural identity and Indigenous people have been sustainably using and managing their sea country, including that within the Arafura Marine Park, for tens of thousands of years. Despite limited information and uncertainty, areas have been assumed to be of significance for Traditional Owners. Use of marine resources are, however, reasonably concluded as being generally restricted to coastal waters (p67). The North West Cable System is approx 227km from operational area. Conclusion: insufficient information Impact and risk assessment/suitable controls included - Reg 13(5), Reg 13(6), Reg 13(7) Conclusion: The impact and risk assessment is commensurate to magnitude of the hazards related to the activity, and the level of analysis and evaluation is proportionate to the nature and scale of the activity. The rigour of the environmental assessment meets the requirements of Reg 13(5) - as further outlined for acceptability and ALARP evaluation assessments that follow. The assessment includes appropriate consideration of impacts and risks from the activity, including from emergency conditions as per Reg 13(6). Suitable control measures have been included as outlined in the assessment for acceptability, ALARP, EPSs and EPOs below. Those controls have been addressed via the inclusion of EPOs, EPS and MC as per Reg 13(7). Relevant person consultation: - Reg 16(b) and Reg 11A - see consultation topic for further detail Requirement: Regulation 11A requires that, in the course of preparing an environment plan a titleholder must consult with relevant persons. NOPSEMA's expectation is that the EP must contain a report on all consultations between the titleholder and a relevant person and that report must include the specific requirements set out in subregulation 16(b). The EP must demonstrate that the titleholder has carried out consultation with relevant persons in the course of preparing the EP. The titleholder must provide a reasonable basis for determining who they consider to be 'relevant persons' and name them in the EP (Core concept - EP content requirements Guidance note [id:https://www.nopsema.gov.au/sites/default/files/documents/2021-03/A339814.pdf]). Issue: The EP does not reflect the term relevant person within the EP to provide certainty that regulatory requirements have been met. The submission does not describe a reasonable basis for determining who has been considered to be 'relevant persons' or identified 'relevant persons'. Request: Please amend the submission to provide clarity on the identification of relevant persons. Further, please address the matters raised in letter item xxx regarding consultation. Conclusion: insufficient information Legislative requirements are included and addressed - Reg 13(4) Conclusion: Legislative requirements as they relate to the activity are outlined in Appendix B of the EP (epdf 402). How legislation is relevant to the activity is defined, along with reference to the relevant sections of the EP is provided. These sections describe how the requirements of the relevant requirements are met, consistent with the requirements of Reg 13(4). [note - Reg 13(4) to be referenced in letter regarding indirect consequences]
			Issues were raised in relation to the description of the environment: Issue: Please provide a detailed description of the benthic environment that can be used as context for the subsequent environmental assessment for drilling discharges and ensure that the impact evaluation is updated accordingly (letter point 1.2) Response: Section 3.2.2 has been substantially improved, with significantly more detailed and supported information provided relating to the benthic habitat in the operational area. A benthic habitat survey has been undertaken which is referred to, which was completed in the Barossa field location. This is described in S3.2.2, with 6 field and 4 desktop studies described of relevance to informing the benthic habitat description, published reports dated 2014-2019. The field studies included benthic towed video transects, and benthic sediment and water quality sampling around the well locations. This is then used as a basis for the description provided in S3.2.3 to support the conclusion that the seabed is smooth and featureless, generally lacking in hard substrate, and devoid of sensitive features. An additional control has been added (BAD-CM-003) for procedures for rig move procedures using support vessels to minimise seabed disturbance, along with additional information on seabed disturbance in S6.4.3. In relation to the Arafura Shelf KEF values, support is therefore provided to the claim that the seafloor values are protected (S3.2.4.2), which is the value of concern relating to drilling discharges. It is reasonable to conclude therefore that the KEF Shelf values will be protected. Given these changes, the description of the benthic environment is now appropriate, providing sufficient context for the subsequent risk evaluation of drilling discharges. Issue: spill EMBA ambiguity re re accumulation vs contact (letter point 1.3) Response: Section 7.5.4 has been clarified with an additional statement about a line of best

fit being drawn about the outermost limits of the low exposure value contours for floating, dissolved and entrained hydrocarbons - with adjustment made to Figure 7-3. Section 7.5.6 has been corrected to state there is no shoreline accumulation (rather than contact). Correction also made in S7.6.2.1 as well as other sections of EP and OPEP.
The description of the environment is thorough, appropriately considers relevant values and sensitivities (including matters protected under Part 3 of the EPBC Act, and matters of NES) and is consistent with the EP content requirements of Reg 13(2) & 13(3). The EMBA is suitably understood through modelling of worst-case spill scenarios consistent with exposure values in NOPSEMA Bulletin #1.

An issue was raised in relation to consultation:
Issue: Relevant persons not defined or listed (letter item 5)
Response: Relevant person terminology has now been included, with relevant persons listed. For further assessment see technical consultation topic
Relevant person consultation has been incorporated meeting the EP content requirements as per Reg 16(b), and the requirements of Reg 11A - as further outlined for Reg 10A(g) assessment below (besides the specific items for which additional RFFWI points will be raised for technical topic - see below)

Issues were raised in relation to consideration of S527E of the EPBC Act and other GHG matters as raised in RFFWI
Issue: Scope 1 emissions estimates and management via control measures (raised in letter under acceptability)
Response: Scope 1 emission estimates: Santos has addressed this issue by providing more appropriate estimates of Scope 1 GHG emissions (as outlined in section 6.3.2). The NGER emissions and energy threshold calculator was applied to reach an estimated 167,568 metric tonnes CO2 equivalent (Mt C02-e) which is less than 0.04% of the total annual Australian GHG emissions. This is defined an Table 6-7 to include fuel use/combustion, flared unprocessed gas, flared crude oil. An updated evaluation is provided of the atmospheric emissions from combustion engines and flaring of well flowback hydrocarbons, in terms of greenhouse gas emissions. The difficulty in attributing climate change to this one drilling activity is outlined and is a reasonable claim given the framing of the 004% proportion of total current national GG emissions. Reporting of GHG emissions under the NGER Act is outlined - as per Appendix B and described in updated Table 8-5 (Monitoring of emissions and discharges).
Updated control measures relevant to these emissions, as per Table 8-2. The control regarding air pollution prevention certification has been clarified to ensure compliance with MARPOL Annex VI, requiring a valid international air pollution prevention certificate for vessels >400 tonnage.
In the previous request for further written information (letter item 3.2), Santos were requested to review and revise the EP to detail the control measures included within well flowback procedures to demonstrate that impacts and risks related to flaring will be reduced to acceptable and ALARP. In response, a control measure has been added for 'reduce or eliminate well flowback' that is rejected. However, this does not sufficiently address the issue that was raised to "ensure effective flaring of hydrocarbons during well flowback, or how such effective flaring relates to reducing impacts to levels that are acceptable and ALARP". Please provide controls that demonstrate that impacts and risks relating to flaring have been reduced to levels that are acceptable and ALARP.
The conclusion is reached that there will be no substantial change in air quality that may adversely impact biodiversity, ecological integrity, social amenity or human health, and the potential impacts are considered acceptable. Given the outstanding issue relating to flaring, this conclusion currently cannot be supported.

Reg 13(1)d - any additional details relevant to consideration of impacts and risk
Issue: Consideration of S527E of the EPBC Act/Requirements of 13(4)
Response: In response to NOPSEMA's RFFWI, Santos has provided 'Appendix B2: Consideration of the Indirect Consequences under Section 572E of the EPBC Act, which concludes that 'drilling and completions activities do not facilitate to a major extent natural gas consumption/combustion and this petroleum activity is not a substantial cause of any associated scope 3 greenhouse gas emissions'. A further statement is made that 'Santos will consider such indirect consequences in its future production operations Environment Plan'. A reasonable argument has been presented to justify the position that 'such indirect consequences' do not need to be addressed in this EP given the nature of the activity, and will be considered in a future production operation EP, where gas extraction does occur. However, it is not sufficiently clear how the requirements of Section 527E will be met in subsequent EP submissions. Further information to be requested to clarify which subsequent EPs will be submitted for the project, and how the requirements of S527E of the EPBC will be addressed. This is also important in the context of the clear interest expressed by relevant persons (see consultation topic).

			Issues were raised in relation to the description of the activity (originally raised for Reg 13(1)d - any additional details relevant to consideration of impacts and risks)/ consideration of S527E of the EPBC Act and other GHG matters: Issue: Please clarify and confirm whether Santos considers scope 3 greenhouse gas emissions to be an indirect consequence of the future production operations activity and if so, that scope 3 emissions will be evaluated in the context of the whole of project emissions via the production operations environment plan. Response: Section 6.3.2 of the EP has been updated to include a commitment to include scope 1-3 emissions in the future Barossa Production Operations Environment Plan section dealing with Greenhouse Gas emissions. Issue: Please provide a description of the control measures that will be implemented to ensure effective flaring of hydrocarbons during well flowback Response: In response Santos has restricted use of flowback (p172), and have also provide additional controls for high efficiency burner heads, such as noise silenced flare to reduce velocity and improve flare stability, monitoring of CO2 to ensure clean flaring, avoiding over-steaming and excess aeration, and use of duel flare boom to mitigate wind impacts on flare efficiency. Conclusion: The description of the activity is suitable, it is consistent with the requirements of EP content requirements as outlined in Regulation 13(1).
2	Environment Plan demonstrates that the impacts and risks will be reduced to ALARP	Emissions and discharges (unplanned)	No material changes since last revision - the current re-submission did not include the OPEP and changes in the EP were largely restricted to GHG and consultation on GHG.
			PREVIOUS ISSUE: The EP offers contradictory RW schedules (77 vs 90 days) and does not present a strong case that one or the other is the best that can be done within the space of a reasonable response. PREVIOUS LETTER POINT #2.1 - ?ALARP demonstration - Relief well rig deployment timeframe 1. Issue: ...Section 9.2.3.2 of the OPEP refers to a 90 day timeframe for control of the well, whilst Table 9-9 refers to a 77 day timeframe. Relatively few details on the access to and timely mobilisation of a capable relief well rig are provided in the submission. 2. Request: Please revise and update the EP to demonstrate that arrangements are in place to achieve the shortest practicable timeframes for accessing and drilling a relief well. SANTOS RESPONSE: "The 77-day timeframe stated in Table 9-9 is an error and has been removed from the revised OPEP." (RFI response table). More detail is provided in the OPEP (and the OPEP ALARP assessment table in the OPEP Addendum) as to why the 90-day schedule is appropriate/ ALARP, based on estimated mobilisation timing and relief well prep and drillingconsiderations. In particular, a RW rig is estimated to be arriving to site no later than by Day 28 and ready to spud by Day 36; 54 days are estimated for drilling, intercepting, and well kill (OPEP Table 9-4, p 78). More below in #4. [C]
			All reasonable control measures have been considered and evaluated Given the water depths (204-376m) and the choice of an anchored semi-sub MODU the activity is open to consideration of all standard source control and oil spill response controls for risks associated with the drilling of development wells. Controls for addressing well integrity risks per se and risks from future installation work as well as the operation of the wells (i.e. production) will have to be addressed in future/ other permissioning documents (i.e. WOMPs and EP/OPEPs). the volatile nature of the hydrocarbon (a condensate with a density of 0.782), makes it unlikely that dispersants would place a central role (as a large part of the release would evaporate on short order even before the dispersants could be applied). 1. Key source control response options provided for a LWC scenario include: Blowout Preventer Emergency Activation via ROV hotstab (if all else fails), capping stack deployment (mobilised from Singapore in 15 days), relief well drilling (inclusive of RW planning), well control expertise retained on contract (WWC), procurement of long-lead items, ROV site survey, SSDI (SFRT).Given the hydrocarbon characteristics (in particular high volatility), many of the standard 'oil' spill response options are not relevant for this release. Strategy options maintained include: 2. Monitoring: OSTM, tracker buoy, vessel & aerial surveillance, sat imagery, water quality, 3. At-sea response options provided for include: Mechanical dispersionISSUE: The EP offers seemingly contradictory RW schedules (77 vs 90 days) and does not present a strong case that one or the other is the best that can be done within the space of a reasonable response. LETTER POINT #2.1 - ?ALARP demonstration - Relief well rig deployment timeframe Requirement: NOPSEMA expects that the EP considers and evaluates all reasonable strategies and controls to reduce the oil pollution risks of the activity to ALARP and acceptable levels. This includes consideration of all reasonable opportunities to minimise

		worst case loss of well control spill duration and with it spill volumes, thus reducing potential environmental consequences. Issue: The submission does not present a robust and well supported demonstration that the proposed timeframe to mobilise a relief well rig and kill the well in the case of a worst-case blowout is ALARP and acceptable. Section 9.2.3.2 of the OPEP refers to a 90 day timeframe for control of the well, whilst Table 9-9 refers to a 77 day timeframe. Relatively few details on the access to and timely mobilisation of a capable relief well rig are provided in the submission. Request: Please revise and update the EP to demonstrate that arrangements are in place to achieve the shortest practicable timeframes for accessing and drilling a relief well. (See also letter item 4.1 re adaptive management for ensuring relief well rig availability/adaptive management). Evaluation of impacts and risks has been informed by suitable control measures As discussed above the evaluation of impacts and risks has informed the selection of suitable control measures, in this case to reduce the consequence of risks. OPEP Table 4-1 "Evaluation of applicable response strategies", for example, excludes the use of in-situ burning (not safe for condensate), SCAT (no shoreline contact shown by modelling), vessel/ aircraft surface application of dispersant (based on non-persistent nature of oil, lack of sufficient slick thickness, overall lack of expected benefit), containment and recovery (lack of recoverable quantities due to low encounter rates), protection and deflection (Modelling indicates no probability of shoreline contact), and Shoreline clean-up (Modelling indicates no probability of shoreline contact). Enough detail of the control measures has been provided The impact and risk evaluation provides sufficient technical detail and justification for the exclusion of the above-listed variables. For strategies that are maintained as options the OPEP provides dedicated sections to each, all with industry-standard and sufficient evaluation. The evaluation of adoption of control measures is based on environmental benefit and is systematic, applied thoroughly, defensible and reproducible As discussed, the evaluation of source control and oil spill response related strategies is handled in the OPEP. Non-relevant strategies are excluded on technical grounds; Controls maintained are all dealt with in a similar, systematic way - for each the controls are described, implementation guidance provided, and environmental performance is described. Relevant person consultation has been incorporated For source control and oil spill response, the group of relevant persons is largely constrained to AMSA (for government) and AMOSC & nearby operators (for industry). The EP stakeholder consultation summary (Table 4-2) and the Sensitive Information Report document that appropriate levels of consultation was undertaken for each of these. No comments received from these (or any other parties) related to the techniques or strategies of source control or oil spill response. It was noted that - outside the scope of this assessment - consultation with two other relevant 'persons' showed some concern about the impacts from oil spills; These parties were the Australian Marine Sciences Association – NT and the Environment Centre – NT.
	General	Issues were raised in relation to consideration to drilling discharge management including: Issue: the limit of 10% w/w oil-on-cuttings appeared to be erroneously presented as 'wet weight' Response: This has been corrected to dry weight throughout the submission. The submission has applied the risk assessment process appropriately for planned aspects of the activity in particular for higher order hazards associated with the activity such as drilling discharges, the control measures adopted seem reasonable for reducing impacts to the environment from the activity
		Issues were raised in relation to consideration to drilling discharge management including: Issue: the limit of 10% w/w oil-on-cuttings for non-aqueous drilling fluid is the best achievable without the use of expensive thermal desorption technology is not supported (letter item 2.2) Response: In response, Santos has provided additional detail regarding why 10% w/w oil-on-cuttings is an appropriate limit. This includes further evaluation on table 6-15 and a reasonable argument is presented as to the appropriateness of 10%. However, on page 189 of the submission, 10% w/w 'dry' weight has been changed to 'wet' weight. Presumably this is in error as 6.9% w/w oil-on-cuttings wet weight is standard industry practice, and is known to approximate 10% oil-on-cuttings dry weight (see page 23 of https://www.esrfunds.org/sites/www.esrfunds.org/files/publications/ESRF166-Jacques-Whitford-Stantec-Limited.pdf), which states: "a 10% dry weight ROC will equate to a lower value wet % and could be as low as 6.9 %, depending on the oil-water ratio of the drilling fluid". Please clarify that dry weight is intended. [note, for purpose of letter this will be raised as an 'acceptable level' item given it relates to

			industry standard practice and not ALARP per se] Issue: the application of RMR as a control is unclear noting it is 'planned for use' - how will its use be maximised? Response: In response, Santos has provided additional detail regarding how RMR will be applied to the 20" section. This includes further evaluation on table 6-15 and a reasonable argument is presented regarding it not being used for the 30" section. The key issue (what is meant by 'performance expectations' - p26 of previous submission) has been clarified (page 27 of EP). What is meant is a reference to reliability of subsea pumps and control systems, or failure to maintain an inhibited mud system in the lower part of the 20 inch interval. The issue has been appropriately dealt with.
			All reasonable control measures considered and evaluated For all risk aspects evaluated in s6 (planned events) and s7(unplanned events) of the EP, an ALARP evaluation has been included that lists additional potential control measures and justifies why standard and additional control measures are either adopted or rejected. [note below aspect however, regarding suitable controls measures for drilling] Evaluation of impacts and risks has informed suitable control measures Planned aspects of the activity: Drilling discharges form the most significant planned aspect of the activity in terms of scale of discharge and associated environmental risk. Section 6.7 describes Drilling and Completions discharges. It is noted that the EP states that riserless mud recovery (RMR) is planned to be used for the 20inch section (p26) - subject to 'performance expectations'. This indicates that a riserless mud recovery system will be on place on the rig, available for use. Often titleholders present an ALARP argument that the sacrifice required to implement RMR exceeds the environmental benefit gained due to the cost associated with contracting RMR, as well as rig space etc. In this case, no RMR control ALARP evaluation is provided, and yet there is no certainty associated with decision making for application of RMR. This is also due to the fact that no evaluation is provided of the environmental benefits gained by application of RMR in terms of reduced drill fluid discharge to the environment due to the , as well as the ability to return and treat solids for overboard disposal. Requirement: Regulation 13(5) requires details of the control measures that will be used to reduce the impacts and risks of the activity to ALARP and acceptable level. Issue: Insufficient information is provided in relation to the potential application of RMR, including whether the system will be available on the rig, as well as performance expectations that need to be met for RMR to be applied. Further, no information is provided on the environmental performance of RMR in terms of reduction of volumes of drill fluids and cuttings discharged and environmental benefit provided. This also relates to letter item xxx regarding the lack of information relating to the benthic environment. Request: Please provide an evaluation of impacts and risks related to drilling discharges that informs the application of RMR as a control. In so doing, outline the environmental benefits of the closed-loop design of RMR for reduced discharge of drilling fluids, and cuttings treatment/overboard discharge vs direct seabed discharge. Please provide this evaluation in terms of the enhanced description of the benthic environment as requested in letter item xxx. Noting that RMR appears to be available for use for this activity, please provide an ALARP evaluation regarding what considerations will apply to its application. The submission provides a limit/EPS of Requirement: Regulation 13(5) requires details of the control measures that will be used to reduce the impacts and risks of the activity to ALARP and acceptable level Issue: The claim that a limit of 10% w/w oil on cuttings for non aqueous drilling fluid is the best achievable without the use of expensive thermal desorption technology is inappropriate, given: 1. the practice of other titleholders in setting a limit of 7% oil-on-cuttings; and 2. the lack of information regarding the 'high costs' of such equipment.Request: Please provide a limit for oil-on-cuttings that is based upon current industry practice, and also detail the high costs of thermal desorption equipment vs environmental benefit gained by its application. Where more sensitive receptors have been highlighted in the impact evaluations (e.g. light emissions impacting marine turtles, noise emissions impacting cetaceans), more detailed evaluations are provided - see protected matters topic for more information. The submission provides sufficient evaluations to inform the discussion and selection of control measures, with controls identified to reduce the potential/severity of associated impacts. However, noting the above issues, it is not possible to conclude that appropriate controls have been included for planned aspects of the activity. Unplanned aspects of the activity: Unplanned aspects of the activity are described in Section 7 and include aspects such as dropped objects, IMS, marine fauna interactions, and spill scenarios. In relation to spill scenarios see spill topics. The other unplanned aspects are appropriately described and evaluated to give confidence that the controls selected are appropriate and that risk is reduced to ALARP.

			Enough detail of the control measures Control measures are provided in sufficient detail to demonstrate they will be effective in reducing the impacts/risks for the duration of the activity. The approach used for the analysis for the adoption or exclusion of control measures is sound. Evaluation of adoption of control measures based on environmental benefit and is systematic, applied thoroughly, defensible and reproducible The evaluation of the adoption of control measures is sound and the ALARP process described in S5 has been followed. The level of detail in the ALARP assessment is commensurate to the nature and scale of the potential impact or risk (notwithstanding the matters requiring additional information). Relevant person consultation has been incorporated The submission generally incorporates important information gathered from the consultation process when demonstrating impacts and risks are ALARP - such as requirements for notifications, for example. Specifically, each impact and risk evaluated in s6 and s7 of the EP (i.e. demonstration of ALARTP tables) makes a clear link to any stakeholder concerns and how these have been addressed. Issue - as raised under consultation reg below regarding timeframe of the activity appearing to be different in fact sheet vs how presented in the EP.
3	Environment Plan demonstrates that impacts and risks will be of an acceptable level	General	Issues were raised in relation to the following: Issue: seabed disturbance Response: In response, Santos has included an additional control (BAD-CM-003) for rig move procedures using support vessels to minimise seabed disturbance. In the context of the improved description of the benthic environment that is addressed above, this matter is appropriately dealt with. (shoreline contact issue is dealt with above for N&S finding, as it matter of flaring) The submission provides an appropriate evaluation of impacts and risks for the activity, and provides justifiable conclusions that these will be managed to an acceptable level.
			Comparison of predicted impacts/risk to acceptable levels is systematic, applied thoroughly, defensible and reproducible An appropriate RA process has been described in s5 of the EP and followed in s6 (planned aspects of the activity) and s7 (unplanned aspects). Table 6-1 identifies planned activities which may impact the environment, all are ranked negligible as residual risk, exception for 'seabed and benthic habitat disturbance', 'operational discharges', 'drilling and completions discharges' and 'Spill Response Operations' which are ranked as minor. For unplanned events the EP describes 1 events/ hazards identified to have a residual risk ranking of Very Low, with 5 having a residual risk ranking of Low - including condensate spill (Table 7.1). The evaluation methods selected been followed and applied thoroughly and the criteria for the acceptability evaluation discussed in s5 has been applied across all impacts and risk and is therefore systematically followed and applied. The conclusions reached and control selections are supported by relevant references and information. The evaluation methods selected has been followed and applied thoroughly and when considering the information presented in the EP with the evaluation and controls, justifiable conclusions can be reached regarding acceptable levels of risk/impact. Acceptable levels defined and compared to predicted levels/considers ESD Acceptable levels are evaluated using information that is considered appropriate including relevant legislation, international agreements and conventions, guidelines and codes of practice including recovery plans, conservation advice and marine park zoning objectives, as well as Santos Environmental Management Policy, information provided by internal context and external stakeholder expectations and the principles of ESD. The assessment of each impact and risk considers these elements and makes explicit reference to ESD. In relation to ESD and greenhouse gas related matters (a matter of concern noted in consultation/third party correspondance), the activity does not provide for the production of hydrocarbons. Noting that the described activity is development drilling, it is reasonable to not identify climate change risks associated with subsequent development activities that would be subject to separate approvals processes (EPs) - notwithstanding the point of clarification requested above regarding nature and scale/indirect consequences. The approval of this development drilling EP will not result in the direct release of significant GHG emissions (noting again, the request for details on scale/scope raised above and clarification on controls). More broadly in relation to ESD, these principles are applied inherently through the EP process, in that conservation of biological diversity and ecological integrity are addressed via the risk evaluations provided for, the precautionary principle is applied where there are areas of uncertainty in relation to potential impacts (ie drilling discharge control considerations/ALARP), and while intergenerational equity considerations are not directly stated per se they are covered through the EP demonstrations of acceptable and ALARP.

EP not inconsistent with key documents
Key documents (such as recovery plans, conservation advices and management plans) are outlined in Table 3.8 and include consideration for relevant receptors and which risk aspect applies. These have been considered in the subsequent environmental assessment sections within section 6&7 for planned/unplanned aspects.

Areas of uncertainty identified and addressed
Note the above re considering the principles of ESD, which includes considering uncertainty.
Given the short timeframe of the activity, the greatest risk to the environment from undertaking the activity is an unplanned hydrocarbon spill. In response, the TH has utilised and discussed the limitations / uncertainties of spill modelling predictions and eco tox data/studies. It is clear that the TH has had regard to addressing uncertainty in predicting impacts and risks through appropriate oil spill response and oil spill monitoring strategies. Uncertainty has been addressed in the evaluation impacts and risks from spill scenarios by use of modelling and recognition of assumptions made, and scalability of response options considered.
However, there is a lack of clarity in relation to statements made in relation to shoreline contact, particularly in the context of the OPP.
For further information see spill topic assessment.
In relation to planned aspects of the activity, predictions have been made in relation to risks to the environment that are generally suitably conservative, with the exception of the failure to address uncertainty in relation to potential impacts to the benthic environment from drilling discharges - issue raised below.

All impacts and risks managed to acceptable levels
Typical drilling activity risk aspects are given appropriate consideration, including:
physical disturbance/presence - S6.5: interaction with other marine users.
chemical selection process outlined - S6.7.1.11: commitment to Gold, Silver E or D or risk assessed
Light - S6.2: primarily in relation to risks to marine turtles (see protected matters topic), but also to birds including protected species.
Atmospheric emissions - S6.3: An evaluation of the impacts and risks associated with atmospheric emissions is presented in S6.3. GHG emissions are identified as occurring due to the activity, most notably from the MODU, vessel and helicopter fuel consumption and short term flaring during well flowback. This evaluation describes intermittent and localised releases from these sources, and claims to meet an EPO of no significant change to air, sediment and water quality. However, noting letter point/matter raised above for nature and scale, insufficient description has been provided for the scale of these emissions (other than they are less than 0.034% of annual Australian GHG emissions. A separate item will be raised more specifically around flaring controls (highlighted below). Other controls have been identified for atmospheric emissions, including controls to minimise GHG emissions, such no use of HFO or IFO, use of low Sulphur fuel (p155) and no incineration of waste within PSZ (p302). The EP has identified the National Greenhouse and Energy Reporting Act 2007 as relevant to the activity (p338), but it is identified generically so clarification will be sought (N&S point) regarding its applicability along with the the Safeguard Mechanism administered by Dept of Environment and Energy. For future developments, where the extraction of hydrocarbons for production is included, will be relevant and considered within the assessment (OPP/EP).
Note re flaring/atmospheric emissions:
1. p 132: Underwater noise from flaring will be limited to two to three days per well test and is not expected to exceed vessel/MODU operational noise levels. 2. p 135 flaring during well flowback noise given consideration 3. p147 light from flaring up to 52.4km from MODU - note Oceanic Shoals 33km away p 149, however nearest turtle nesting beach greater than 138km from operational area (p148) 4. p 154 atmospheric emissions flaring during well flowback 5. p 155: Includes control measures that ensure effective flaring of hydrocarbons during well flowback. what are these controls - link in with letter item in N&SNoise - S6.1: an appropriate evaluation has been provided, focusing primarily on cetaceans
Seabed disturbance: The OPP included 2 'key management controls' to achieve the EPO regarding seabed disturbance, regarding procedures for the deployment and retrieval of anchors to minimise seabed impacts, as well as a shallow hazards study prior to drilling to include a review of seabed features. The evaluation of seabed disturbance provided in section 6.4 of the EP does not include consideration of those controls.
Request: Please address the controls outlined in the OPP for seabed disturbance and describe how they will be met for this activity. Include in this evaluation details of how the review of seabed features will be used to minimise impacts to the benthic environment, including those arising from drilling discharges.
Unplanned aspects such as dropped objects, IMS, marine fauna interactions, and spill scenarios are evaluated in Section 7 and are appropriately considered. With respect to marine fauna interactions there is a control for Vessel complying with Part 8 of Environment Protection and Biodiversity Regulations 2000 which includes controls for

	minimising the risk of collision with marine fauna. For IMS controls from OPP are carried over - noting that the commitment to meeting the Aust Ballast water Requirements (>12nm, >200m water depth). drilling and completions discharges - S6.7. WBMs are committed to being used, with provision for NAF if required. Estimates are provided of cuttings, fluids, brines, cement and stock discharges (p178). A bulk discharge decision making process described to minimise dumping of bulk powders, brines and wbm fluids is provided in table 6-11. Note that given well flowback and completions will take place, oily water discharges will occur. It is noted that the previous improvement made by Santos to a previous EP has been brought across - as noted below, to provide certainty on the control. Note re drilling discharges: 6. the risk assessment in relation to benthic receptors is not specific or adequately supported. see above ALARP item. 7. the limit of 10% oil on cuttings for NAF is to be challenged - see above ALARP item. 8. additional control applied for recent Santos EPs has been included - barite metal conc controls have been applied with limits of 1mg/kg and 3 mg/kg for mercury and cadmium respectively (p 304 control BAD-CM-31) 9. additional control applied for recent Santos EPs has been included - 30ppm limit for oil in completions fluid discharges (p 305 control BAD-CM-33)In relation to planned aspects of the activity, the discharge of drill cuttings poses one of the more substantial environmental risks. Matters are raised under the ALARP assessment above. The EP has given consideration to other aspects of drilling activities including: cement operations, drainage, cooling water, brine discharge, sewage, waste management, bunkering and bulk transfers in which industry standard controls have been applied as demonstrated on Table 8-2 (EPS/MC). In relation to unplanned aspects of the activity, Section 7.5 provides a reasonable description of the physical and chemical pathways of oil on marine receptors (Table 7.14) and the potential impacts to broad env / social receptors (Table 7.15) for hydrocarbon spills. A sound process is used to evaluate potential risks to receptors by firstly identifying the spatial extent (e.g. EMBA) of a spill, consideration of which receptors have a high environmental values such as protected areas/BIAs/listed species and then to prioritise response planning by determining Hot Spots (s7.6.4.1) that identify greatest intrinsic value (e.g. highly ranked HEVs), probability and oil concentration. This process was followed in s7.7 (MDO spill evaluation) and s7.6 (crude oil spill) to inform the evaluation of risk. Note that the key management controls outlined in the Offshore Project Proposal have been reviewed to check for consistency with the EP (note above issue for Seabed Disturbance).
	No material changes since last revision
Matters protected under Part 3 of the EPBC Act	No material changes since last revision
	(General level assessment model as per approved scope) Acceptable levels are defined and compared to predicted levels An Acceptable level of risk has been informed for each risk aspect (planned/unplanned) through consideration of consistency with relevant species recovery plans, threat abatement plans, and conservation advice (S5.6). Threats and strategies defined in Recovery Plans, Conservation Advice and Management Plans for protected species relevant to the activity are summarised in Table 3-8 which cross-references the relevant Sections of the EP where they have been evaluated. Within those assessments, examples of the consideration of turtle recovery plans are noted for 'light' (key turtle risk aspect), such as on page 153, and for whale conservation advice and management plans for noise (key cetacean risk aspect) on page 146. Throughout the environmental assessment sections for the various risk aspects, consideration has been also given to relevant legislation, agreements and standards. In relation to best practice note the item raised for the general regarding to levels of oil-on-cuttings. Conclusion - Acceptable levels are evaluated using appropriate information including relevant legislation, international agreements and conventions, industry standards and best practice, relevant species recovery plans, threat abatement plans and conservation advice, principles of ESD and stakeholder consultation. The EP follows a clear and logical process to define an acceptable level of impact to protected matters. The EP considers principles of ESD Conclusion - The principles of ESD are considered in the acceptability evaluation for protected matters. Santos considers all impacts and risks to be assessed and managed consistent with the principles of ESD - see general topic. The EP is not inconsistent with key documents Conclusion - Key documents are outlined in the relevant impact and risk assessments. Santos has demonstrated that the EP is not inconsistent with these key documents. Areas of uncertainty are identified and addressed Conclusion - Uncertainty considered as part of principles of ESD - see general topic. All impacts and risks are managed to acceptable levels

As outlined in Section 5.6, Santos considers an impact or risk associated with the activities to be acceptable if:
1. the consequence of a planned event is ranked as I or II; or a risk of impact from an unplanned event is ranked Very Low to Medium 2. an assessment has been completed to determine whether further information or studies are required to support or validate the consequence assessment 3. the principles of ecologically sustainable development have been addressed 4. acceptable levels of impact and risks have been informed by relevant species recovery plans, threat abatement plans and conservation advice can be demonstrated 5. EPOs, EPSs and controls are consistent with legal and regulatory requirements 6. EPOs, EPSs and controls are consistent with industry standards (for example, National Biofouling Management Guidance Guidelines for the Petroleum Production and Exploration Industry (Marine Pest Sectoral Committee, 2018)) 7. EPOs, EPSs and controls have taken into account stakeholder feedback 8. EPOs, EPSs and controls have been demonstrated to reduce the impact or risk to ALARPLight:
Section 6.2 evaluates acceptability of impacts of light emissions from the MODU, vessels and flaring. The EP provides an appropriately thorough, defensible evaluation of light impacts to marine fauna, with a focus on turtles as the key receptor of concern.
Turtles - The operational areas does not overlap any BIA for marine turtles. The flatback turtle internesting BIA is the nearest, it is over 50km away, with the nearest turtle nesting beaches >138km from the operational area (p148). Given that intermittent flaring is the greatest source of light, and that it is expected to be visible to a range of 52.4km (supported by reference to a Woodside study - p 147), light emissions will not be visible at nesting beaches (nesting activities/hatchlings being most light sensitive stage) . Impacts to turtles from light emissions are expected to be restricted to localised attraction and temporary disorientation, but limited due to limited duration of the activity. The EP demonstrates that the activity will not compromise the objectives as set out in the marine turtle recovery plan and will be managed to acceptable levels.
Seabirds - The operational area does not overlap any BIAs for protected bird species. Whilst individuals of light - sensitive species such as wedge-tailed shearwater may traverse the operational area, the BIA is more than 700km away. Light emissions from the MODU and/or vessels are unlikely to attract and/or affect the behaviour of large numbers of seabirds. The EP demonstrates that the activity will be managed to acceptable levels.
Noise:
Section 6.1 evaluates acceptability of impacts of underwater noise emissions from the MODU, vessels, helicopters, and flaring. The EP appropriately references current, contemporary scientific literature (and thresholds) to inform acceptability evaluation. The demonstration of an acceptable level of impact is linked to EPO-5 [no injury or mortality to EPBC Act listed marine fauna]. Note that the semi-sub to be utilised is not dynamically positioned (p132). Reference is made to the Underwater Noise Impacts on Marine Fauna (JASCO, 2020a) study (not currently published).
Cetaceans - There are no known significant areas/BIAs for cetaceans within the operational area. The nearest BIA is the pygmy blue whale distribution BIA - 51km away (p136). Impacts are expected to be managed in adherence with the Blue Whale Conservation Management Plan and . The EP does not predict any injury or mortality to humpback whales or pygmy blue whales, as the predicted area where behavioural responses may occur represents a small proportion of the overall BIA, noise is unlikely to present a barrier to movement or disrupt migratory pathways or behaviour.
Noise levels from the MODU, helicopters and vessels that may cause behavioural responses to marine fauna are expected to generally be confined to the operational area and concentrated within a radius of a few hundred metres of the noise source metres to within 11.4 km, depending upon the noise sources and operations (p141).
Given the time and distance between other oil and gas activities, there is low likelihood for the potential for cumulative effects.
Santos has referenced contemporary scientific literature, and applied appropriate thresholds to the assessment.
Marine Fauna Interactions:
Evaluation of potential vessel/MODU collisions with marine fauna sets an appropriate acceptable level of impact through an EPO-5 [no injury or mortality to EPBC Act listed marine fauna]. Santos' control measures through procedures for interacting with marine fauna are identified as being consistent with Part 8 of the EPBC Regulations and potential impacts and risks to threatened fauna will be managed consistent with relevant Recovery Plans (p220) and Approved Conservation Advice.
Conclusion - The EP does demonstrate that all impacts and risks are managed to acceptable levels.

Comparison is systematic, applied thoroughly, defensible and reproducible
Conclusion - The evaluation methods selected (S5) has been followed and systematically applied thoroughly across all impacts and risk. The conclusions reached and control selections are supported by relevant references and information. Considering the information presented in the EP with the evaluation and controls, common findings can be reached, and therefore it defensible and reproducible.
Relevant person consultation has been incorporated
Yes as per each acceptability evaluation, which includes consideration of stakeholder

			feedback - for example 'managing activity interaction with other marine users including NPF' (page 168)
			No material changes since last revision
4	Environment Plan provides for appropriate performance outcomes, standards and measurement criteria	Emissions and discharges (unplanned)	No material changes since last revision - the current re-submission did not include the OPEP and changes in the EP were largely restricted to GHG and consultation on GHG.
			Days to RW kill: The conflicting 77-day reference for the RW kill has been identified by Santos as an error and removed from the OPEP (it's a 90 period). New explanation and justification for this period has been added to OPEP S. 9.2.3 (p 79), including tow distances and the time to drill a RW of sufficient diameter to kill the blow-out well, etc. An ALARP summary is provided in the OPEP Addendum (p 309 - 313) that makes the case for the proposed maximum time to successfully effectuate a relief well (i.e. 90 days). [C] Monthly RW rig register: OPEP Section 9.2.3.1 indicates that the source control plan (SCP) includes RW planning that involves "a review of the most recent monthly update to the rig capability register to identify the most suitable rig for the well." (p 76) The related EPS/ control standard (Table 9-9) provide confidence that the situation will be effectively monitored "to ensure preferred MODU remains available throughout the activity" (p 92). The OPEP ALARP assessment table in the OPEP Addendum states "MODU Capability Register is monitored monthly" (p 310) [C] Capping stack deployment vessels: OPEP S. 9.2.4 has been updated to confirm the monthly monitoring and constant maintenance of an adaptive management process for CS deployment vessels (like with RW rigs). (p 80). The related EPS/ control standard (Table 9-9) provide confidence that the situation will be effectively monitored "to ensure Capping Stack deployment vessel is available throughout the activity" (p 93) OPEP Table 9-9: "Environmental performance – source control" (p 93) confirms "Suitable Capping Stackdeployment vessel is confirmed to be available prior to drilling". [C]
			EPOs EPOs relating to the LWC/ WCD scenario are described in the EP (S 7.6.3) and OPEP (Table 9-3, S. 9.2). The presented EPOs address the LWC risks covered by this assessment scope, most importantly "No loss of containment of hydrocarbon to the marine environment". The more specific EPOs for this scope are found in the OPEP (See OPEP Table 9-3, p 70). The EPOs read as follows: 1. for LWC/ vessel collision source control (p 70): "Implementation of source control methods to stop the release of hydrocarbons into the marine/onshore environment and to reduce impacts to environmental receptors.." It is noted that this text is consistent with text in a similar context in the Bedout plan (RMS 5570) following an RFI update. 2. for mechanical dispersion (s. 11.3): "To create mixing for oil and water to enhance natural dispersion" 3. for OWR (S. 12.4) "Implement tactics in accordance with relevant State/Territory Oiled Wildlife Response Plans(OWRP) to prevent or reduce impacts, and to humanely treat, house, and release or euthanise wildlife"Observations: 4. EPOs are linked to acceptable levels - yes, the interplay between outcomes, standards, ALARP and acceptability is described thoroughly in S. 5 on impact and risk assessment methodology. 5. EPOs address all identified impacts and risks - yes, for this activity the LWC risk is covered by numerous and relevant EPOs. 6. EPOs reflect levels of environmental performance - yes, each is co-located in a table with numerous relevant EPSs.EPSs General EP-level EPSs can be found in EP Table 8-2 (p 299-), "Control measures and environmental performance standards for the proposed activity". The largest part of LWC/ OSR relevant EPSs are found in the OPEP, across the relevant strategy sections. Given the nature of the hydrocarbon (gas condensate) it is noted above that not all standard response strategies are relevant for the Barossa activity (e.g. dispersant). EPSs are included for all relevant strategies, in particular source control (Table 9-9), monitoring (Table 10-34), mechanical dispersion (Table 11-4), and OWR (Table 12-6). Observations 7. EPSs are all directly linked to control measures 8. EPSs have clear measurement criteria that can easily be monitored for compliance 9. EPOs, EPSs and MC are linked and complementary10. There are a few typographical errors/ inconsistencies in EPSs that should be corrected (See issues) ISSUES - EPS text could be tightened up to deal with contradictions and typos: Days to RW kill: OPEP Section 9.2.3.2 provides a schedule for the mobilisation of a suitable relief well rig and the drilling and kill of a well under loss of well control conditions. That schedule states that the well will be brought under control in 90 days. In OPEP Table 9-9, however, an EPS is provided such that "Relief well drilling controls the well by 77 days." See letter point #2.1 above. Monthly RW rig register: OPEP Section 9.2.3.1 and the ALARP summary (OPEP Addendum)

			describe a register of MODU activity that is updated on a monthly basis. A similar commitment was provided in the Bedout Drilling OPEP (Table 9-6) which states "Relief Well Rig Capability Register is maintained during the activity through monthly monitoring". In the Barossa OPEP (Table 9-9), however, the respective EPS fails to mention the update frequency: "A MODU Capability Register is maintained during the activity". See letter point #4.1 below. Capping stack deployment vessels: The EPS (OPEP Table 9-9) calls for "Vessel availability shall be monitored regularly via Santos' contracted vessel broker", whereas the ALARP summary text in the OPEP Addendum states: "The location of suitable vessels(required vessel specs and Safety Case approval) for Capping Stack deployment are monitored monthly." See letter point #4.1 below.
		General	No material changes since last revision
			No material changes since last revision
			The Offshore Project Proposal EPOs have been reviewed and compared to those presented in the EP. Often those of the OPP are written from the wider Project perspective. When considering this activity (drilling of 8 wells/completions) the EPOs are consistent with those of the OPP. Note that the EPOs provided regarding noise in the OPP are captured under 'no injury or mortality to EPBC Act listed marine fauna' in the EP (page 141). EPOs linked to acceptable levels Table 8-1 summarises all the relevant EPO's for the activity. Eight EPOs are identified in this section and provide suitable linkage to the range of acceptable levels identified throughout the individual environmental assessments for risk aspects of the activity described in s6 and s7 of the EP. EPOs address all identified impacts and risks EPOs address all of the key risk aspects presented in the submission, and address identified impacts and risks appropriately given the nature and scale and short duration of the activity. EPOs reflect levels of environmental performance The EPOs in the submission reflect levels of performance that are required, and logically flow from the environmental assessments provided for the various risk aspects. EPSs linked to control measures The EPSs provided in Table 8.2 of the EP are clearly detailed and able to be matched to the relevant control measures described. Overall, the EPSs provide a reasonable level of detail to secure ongoing compliance throughout the activity. EPSs have clear measurement criteria Table 8.2 of the EP provides clearly stated measurement criteria. EPOs, EPSs and MC that are linked and complementary The EPOs, EPs and MC are linked and complement each other.
5	Environment Plan includes appropriate implementation strategy and monitoring, recording and reporting arrangements	Emissions and discharges (unplanned)	Content requirements of Regulation 14 are included Yes, the content requirements under reg 14 are clearly presented evident in the EP and are appropriately addressed for the nature and scale of the activity (in particular Sections 4 on consultation and 8 for implementation). Evidence that all impacts and risks will continue to be reduced to ALARP and acceptable The controls studied within the scope of this assessment appear to be largely designed with integrated continual/ regular monitoring for keeping risks to ALARP and acceptable levels. Good examples include monthly update of relief well register, on-going maintenance of contracts with oil spill response/ source control OSROs. One issue that arises with the relief well register is what happens after the monitoring itself indicates an issue with RW rig availability. ISSUE: Adaptive Management - As was discussed in relation to the submission for Bedout drilling, currently under assessment, there are no clear commitments in the Barossa submission concerning what Santos would do if, as the spud date approaches, the proposed relief well rig register is unable to document the presence of a suitable rig in the region that meets the requirements set out in the source control plan (SCP). The exact same issue arises in the Barossa plan wrgt capping stack deployment vessel availability. (Note the latter was not an issue in Bedout as that activity did not involve capping stack capability). DRAFT LETTER POINT #4.1 Adaptive management for ensuring relief well rig and capping stack deployment vessel availability Context: The OPEP must include adequate arrangements for timely response to oil pollution. NOPSEMA expects the OPEP to set out how and when the response control measures will be implemented, including how the titleholder will deploy sufficient

capability in the required timeframes. The level of detail to be provided in the OPEP regarding the control measures, deployment methods, and deployment timeframes should be commensurate with the complexity of each control measure and the expected level of risk reduction it achieves.
Issue: The Barossa Drilling submission does not outline adaptive management measures in place for taking action in response to any limitations to relief well rig availability that may arise before or during a drilling campaign. The EP also commits to monitoring the availability of capping stack deployment capable vessels on a monthly basis through shipbroker reports (OPEP S. 9.2.4). However, these commitments in isolation are insufficient in that they do not include details of adaptive management measures that will be carried out in response to monthly monitoring to provide assurance that timeframes for drilling a relief well and capping the well will be met in all circumstances.
Request: Please revise and update the EP to describe the adaptive management process in place for taking action in response to monitored limitations to (i) relief well rig availability and (ii) capping stack deployment vessel availability that may arise before or during a drilling campaign such that risk will be held to ALARP and acceptable levels.
Management of change, knowledge and learning processes are included
Yes, the EP explicitly addresses the MoC process (S. 8.10.2). Reference is made to an Environment Management of Change Procedure for any new, or proposed amendment to a control measure, EPS or EPOs.
The titleholder's environmental management system is effective
Yes, the Santos environmental management system is described in S. 8.1 (Implementation system). The considerations outlined there (policies, standards, processes, procedures, tools and control measures) are appropriate for ensuring effectiveness over the duration of the activity.
Appropriate training and competencies
Yes, the EP describes the training and competency program for the activity; the additional training and competency requirements for relevant personnel specific to spill response are described in the OPEP (S. 5.4). The topics covered there appear appropriate (i.e. IMT training and exercises, oil spill responder training, response testing arrangements and audits).
Appropriate Oil Pollution Emergency Plan
Yes, the OPEP, which was provided in a separate document within the submission; it covers all the standard topics, in particular the relevant source control and spill response controls (and their required performance outcomes and standards).
Monitoring, recording and reporting arrangements are adequate
Yes, within the scope of this assessment, incident reporting commitments and arrangements are key. EP S. 8.8 describes these, as arise from compliance with reg 14(2). Most notably (EP S. 8.8) :
1. "a recordable incident, for an activity, means a breach of an EPO or EPS, in the EP that applies to the activity, that is not a reportable incident" 2. "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." This is interpreted as "an incident that is assessed to have an environmental consequence of moderate or higher in accordance with the Santos environmental impact and risk assessment process outlined in Section 5, i.e. a hydrocarbon release (subsurface) from LOWC (IV – Major). This is the same approach taken in the Bedout and Dancer-1 drilling EPs.Audit, review and non-conformance management is included
Yes, in line with reg 14(6) EP S. 8.11 explains that audits will be undertaken in a manner consistent with Santos' Assurance Operating Standard SMS-LRG-OS03. During the activity, an audit against the EP and/or OPEP will be performed at least annually, and may be desktop only or include a field-based component. Audit findings may include opportunities for improvement and non-conformances. Audit non-conformances are managed through a Santos incident and action tracking management system, their "HSE Toolbox" (Section 8.11.3).
Testing of response arrangements evident
Yes, OPEP S 5.5 presents Santos's response testing arrangements and audits for the Barossa drilling activity. The range of tests implemented to ensure that response arrangements function as required include review, audit, equipment check and deployments, desktop exercise, Level 2/3 IMT Exercise. The testing schedule is to be detailed in the Santos Offshore Oil Spill Response Readiness Guideline (SO-91-OI-20001). Objectives are set for all tests and used as benchmarks for the testing of the effectiveness of response arrangements against (using pre-identified Key Performance Indicators, KPIs).
Ongoing consultation arrangements are in place
The EP explicitly foresees ongoing consultation with "relevant regulatory bodies", for example in the case of an emergency: "During any spill response, a close working relationship with relevant regulatory bodies (e.g., AMSA, DEPWS) will occur, thus there will be ongoing consultation with relevant stakeholders on the acceptability of response operations." (S. 6.8.6).
ISSUE - It is not clear if Santos will also be undertaking ongoing relevant persons consultation with parties other than regulatory bodies.
LETTER POINT #4.2 - Ongoing consultation in the case of an oil spill
Requirement: The implementation strategy must provide for appropriate consultation with:

			(a) relevant authorities of the Commonwealth, a State or Territory; and (b) other relevant interested persons or organisations (Regulation 14(9)). NOPSEMA guidance clarifies that the implementation strategy arrangements are to "provide for effective ongoing stakeholder consultation throughout the implementation of the activity as required by regulation 14(9)" (S. 2.5) and that "the plan for ongoing consultation provided in the EP should clearly describe arrangements for who, what, when, why and how ongoing consultation will be undertaken for the life of the activity." (S. 3.10.3.6) Issue: It is not clear if Santos would also be undertaking ongoing relevant persons consultation with parties other than regulatory bodies in the case of an oil spill. The EP states: "During any spill response, a close working relationship with relevant regulatory bodies (e.g., AMSA, NT DEPWS) will occur, thus there will be ongoing consultation with relevant stakeholders on the acceptability of response operations." (S. 6.8.6). Request: Please describe arrangements for who, what, when, why and how ongoing consultation will be undertaken for the unplanned case of loss of well control oil spills.
			PREVIOUS ISSUE: Adaptive Management -... there were no clear commitments in the EP concerning what Santos would do if, as the spud date approaches, the proposed relief well rig register is unable to document the presence of (1) a suitable rig and/or (2) capping stack deployment vessel in the region that meets the requirements set out in the source control plan (SCP). PREVIOUS LETTER POINT #4.1 Request: Please revise and update the EP to describe the adaptive management process in place for taking action in response to monitored limitations to (i) relief well rig availability and (ii) capping stack deployment vessel availability ... SANTOS RESPONSE: OPEP S 9.2.3.1 (p 76) has been updated to specifically detail the Santos adaptive management processes in place for taking action in response to monitored limitations to relief well rig and CS deployment vessel availability: "The activity will not proceed if there is not a least one relief well rig option than could execute a relief well within the timeframes committed to in Table 9-4" (i.e. 90 days, p 79). For the CS deployment vessel, the process foresees identifying "a suitable vessel further afield, along with identifying any pre-work (contracting/logistics plans etc.) that might be needed to mobilise a vessel from further afield." (p 80) [C] PREVIOUS LETTER POINT #4.2 - Ongoing consultation in the case of an oil spill Issue: It is not clear if Santos would also be undertaking ongoing relevant persons consultation with parties other than regulatory bodies in the case of an oil spill. Request: Please describe arrangements for who, what, when, why and how ongoing consultation will be undertaken for the unplanned case of loss of well control oil spills. SANTOS RESPONSE: Santos have rewritten sections of the EP to better reflect their intended on-going consultation during a major incident: “In the event of a Level 2 or 3 spill event ... Santos will apply the stakeholder identification process described in Section 4.2 of the EP to identify relevant persons in addition to those listed in Table 4-1. Relevant persons whose functions, interests or activities that will, or may, be directly affected by the spill event or response arrangements will be notified of the event in accordance with Santos’ Incident Management Process.” This revised approach appears to encompass a much broader reach of potentially spill-relevant persons (i.e. not just agencies or activity-relevant persons, e.g. as stated in S. 6.8.6). As it stands it appears to follow common industry practice, namely the expansion of the concept of 'affected interests from the activity' to 'affected interests from the oil spill/ response.' This is appropriate. [C]
			No material changes since last revision - the current re-submission did not include the OPEP and changes in the EP were largely restricted to GHG and consultation on GHG.
		General	Content requirements of Regulation 14 are included - 14(10) The content requirements under Regulation 14 are evident and appropriately addressed given the nature and scale of the activity. ?The implementation strategy complies with the Act, regulations and other legislative requirements. [noting matters to be addressed below]. Evidence that all impacts and risks will continue to be reduced to ALARP and acceptable - Reg 14(1), Reg 14(3), Reg 14(6) Section 8 of the EP outlines the implementation strategy, including the environmental management system. Section 8.3 states that to ensure that environmental risks and impacts remain ALARP and of an acceptable level during the Activity hazards will continue to be identified, assessed and controlled as described in sections 8.10 - Document/Record Management/MOC and Reviews and 8.11 - Audits and Inspections. The implementation

			strategy and environmental management system provide a range of systems and processes to ensure that impacts and risks will continue to be managed to ALARP and acceptable levels Management of change, knowledge and learning processes are included - Reg 14(3) Management of change is considered in section 8.10.2 of the EP. The MOC process includes consideration for further consultation depending on the nature and scale of the change. The MoC process also allows for the assessment of new information that may become available after EP acceptance, such as new management plans for Australian marine parks, new recovery plans or conservation advice for species, and changes to the EPBC PMST results. Accepted MoCs become part of the in-force EP or OPEP and are tracked on a register and made available on the Santos intranet. The MOC process is well described and supported by Figure 8.1. Section 8.11.4 provides a reasonable description of Santos' continuous improvement process. . The titleholder's environmental management system is effective Reg 14(1) Reg 14(1) - Includes an implementation strategy (S8). Section 8.1 describes that the Santos' EMS is a framework of policies, standards, processes, procedures, tools and control measures and specifically states that the EMS ensures control measures in the EP continue to be effective and that appropriate monitoring is in place (s8.9.2 & Table 8.5) to determine whether levels of performance are being met. Appropriate training and competencies - Reg 14(4) and Reg 14(5) Workforce training and competency is covered in section 8.5 and include activity inductions, and training and competency. Qualifications and training records will be sampled before and/or during an activity. All personnel on the MODU and support vessels will complete an induction that will include a component addressing their EP responsibilities (S8.6.1). Chain of command as well as roles and responsibilities are appropriately addressed in S8.6. Overall, appropriate training to ensure that all employees and contractors have the appropriate competencies is committed to. Appropriate Oil Pollution Emergency Plan - Regs 14(8), 14(8AA), 14(8A), 14(8B), 14(8C), 14(8D), 14(8E) 14(8), 14(8AA), 14(8A), 14(8B), 14(8C) - includes OPEP. Refer to spill topic for further findings in relation to adequacy of arrangements in relation to spill scenarios. 14(8)(D) OSMP - included as Section 14 and Appendix J of OPEP Monitoring, recording and reporting arrangements are adequate - Reg 14(2), Reg 14(6), Reg 14(7) Reporting arrangements are described in s8.9 and Regulatory, other notification and compliance reporting requirements are summarised in Table 8-4. It is noted that while s8.9.2 (monitoring and recording of emissions and discharges) and Table 8-5 is presented at a broad level, it is clear from the control measures and performance standards in Table 8.2 that appropriate monitoring is in place for planned emissions. Regarding the OPEP see spill topics. 14(7) quantitative record of emissions and discharges - these are described on Table 8-5. A number of items have been removed - for example - oily water records, Garbage, sewage, ballast water (these were identified for the Bedout EP) Drill cutting and fluid discharges should also be identified. Further, Recordable incidents - does not identify marine fauna interactions Audit, review and non-conformance management is included - Reg 14(6) Section 8.11.1, 8.11.2 and 8.11.3 of the EP addresses reviews, audits and inspections. Non conformance management (section 8.11.3) will be entered into an incident management system (HSE Toolbox) and assigned corrective actions, time frames and responsible persons. Ongoing consultation arrangements are in place - Reg 14(9) Ongoing consultation is described in Section 4.5, 4.6 and 4.7 of the EP. This includes a process for identifying new stakeholders, sending them appropriate information and notifications as necessary. Quarterly consultation updates are also provided. The ongoing consultation, as required by regulation 14(9) is considered appropriate.
			Issues were raised in relation to maintaining a record of emissions and discharges/reportable incidents Issue: Records of emissions and discharges Response: In response, Santos has updated table 8-5 to include an appropriate list of items to be monitored - list expanded from 4 to 8 items including those requested in the letter. Issue: Recordable incidents - did not identify marine fauna interactions Response: In response, Santos has added incidents that have caused death or injury to marine fauna as a reportable incident (p325) The submission therefore contains appropriate arrangements for reportable/recordable incidents.
			No material changes since last revision
6		General	No material changes since last revision

	Environment Plan does not involve the activity or part of the activity being undertaken in any part of a declared World Heritage property		No material changes since last revision
			No activity will occur in a World Heritage Property
7	Environment Plan demonstrates appropriate level of consultation	General	See consultation topic issues and nature and scale item for general
			Please see N&S regulation above as well as consultation topic for matters to be raised
			Consultation - Reg 16(b), Reg 11A Noting the matters raised in the technical assessment for consultation (and how these have been addressed), it can be concluded that the EP has demonstrated the consultation process has been followed and the measures adopted because of the consultations are appropriate because: · The EP demonstrates that effective consultation has taken place, with accurate information provided to stakeholders. Relevant persons have been appropriately identified in accordance with Reg11A, with Table 4.1 providing a description of how stakeholders are considered 'relevant persons' for the proposed activity. Their functions, interests and activities are defined in s4.2. · Information gathered through consultation is included in the EP · Objections and claims have been resolved as far as reasonably practicable - with Table 4.2 summarising feedback and response. · The report on consultation (s4 of the EP) is in line with the content requirements - it includes the consultation process undertaken, how the TH has identified relevant persons, the name of the relevant person consulted, a brief description of their functions, interests and activities, the dates the consultation occurred, the method of consultation, a summary of each response made by a relevant person received during the preparation of the EP and an assessment of the merits of each specific objection or claim with a response or proposed response.
		Socio-economic	Consultation Section 4 Stakeholder consultation - Details relevant regulatory requirements Section 4.1 provides a consultation history and a summary of consultation and specifically details consultation activities undertaken for the purposes of complying with relevant Regulations. The EP states that relevant stakeholders and other interested parties (Table 4-1) were informed of activities covered in this EP via several consultation channels, including: 1. meetings in May and June 2021 2. distribution of the Barossa Development Drilling and Completions Stakeholder Consultation Package in June 2021 (Appendix E). 3. distribution of the Barossa Development Drilling and Completions Additional Information for Commercial Fishers Package in June 2021 (Appendix E).Regulation 11A(1) - Relevant person ISSUE - the EP doesn't adequately identify who Santos consider relevant persons as defined by the regulation. The EP refers to persons consulted as “relevant stakeholders” or “interested parties”. The EP specifically does not use term Relevant persons. As such it is unclear who Santos have classified as being a relevant persons as defined by the regulations (person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the environment plan) Section 4.2 details process for identifying “relevant stakeholders” and “interested parties” (relevant persons). The EP states Santos began the stakeholder identification process for this EP with a review of its stakeholder database, including stakeholders consulted for other recent activities in the area. The list of stakeholders was then reviewed and refined based on the defined operational area (refer to Section 2) and the relevance of the stakeholder according to Regulation 11A of the OPGGS (E) Regulations, and NOPSEMA Bulletin #2 Clarifying Statutory Requirements and Good Practice Consultation (November 2019). ISSUE - The process for identifying relevant persons for the purpose of consultation does not appear to comply with the requirements of the regulations. Specifically, the process references NOPSEMA Bulletin #2 Clarifying Statutory Requirements and Good Practice Consultation (November 2019) that has been withdrawn and potentially appears to limit relevant persons to only those persons that are directly connected to the operational area. Further while the EP refers to Regulation 11A the EP does not identify the functions interest or activities of the relevant persons. Table 4-1 lists the Stakeholders/Interested Parties that have been consulted in the preparation of the EP and the reason for engagement. The list appears to include relevant State and commonwealth government agencies / dept, relevant industry bodies, commercial fisheries and “community-based stakeholders”. Regulation 11A(2) and 11A(3) - Sufficient information and time ISSUE - While the information contained in the initial “standard” Stakeholder consultation

packages provided to relevant persons is generally consistent with the information contained in the EP there are inconsistencies. The consultation information states that the activity consists of 6 wells not 8 as detailed in the EP. Further the consultation pack identifies that the 6 wells will take approx. 18 months to complete. Based on the estimated 90 days to drill each well the activity would take closer to 24 months to complete 8 wells. Otherwise the type of information and level of detail originally provided is consistent with initial consultation material commonly provided to relevant persons for the purposes of 11A, noting that the original information did not provide predicted oil spill volumes / oil spill modeming outputs or estimated greenhouse gas emissions.
Commercial fishers were also provided additional information specific to the fishery within which they operate.
Santos requested that feedback be provided within four weeks of receiving the initial consultation material, however has accepted and responded to stakeholder feedback after this period. Given the level of detail provided in the initial consultation packages 4 weeks appears to be a reasonable time frame for relevant persons to provide feedback, indicate their intention to provide feedback or seek further information.
ISSUE - It has not been demonstrated that sufficient information has been provided to all relevant persons. While it's noted that not all relevant persons found that original information provided was sufficient, upon request, additional information has been provided. It is noted however that in some cases, the specific additional information requested has not been provided, or the level of information provided has not been to the satisfaction of the relevant person. For example the Australian Marine Science Association – Northern Territory and Environment Centre – Northern Territory requested the full draft EP (noting that on submission to NOPSEMA it was made publicly available so is now available for relevant persons to review) and Environment Centre – Northern Territory requested information in relation to total greenhouse gas emissions of the Project, the warming scenarios with which the Project and those emissions are consistent, and any proposed control measures such as CCS or offsets. While noting Santos has provided some information relevant to the broader Project, generally, in response to such requests Santos has limited the information provided to the drilling activity as described in the EP. While noting the regulations refer to the "activity", further information is required to demonstrate that information provided is sufficient given the requirements of the regulations.
ISSUE - Further it has not been demonstrated that sufficient time has been provided to allow relevant persons to make an assessment. While noting that the original consultation fact sheet was distributed on 11 June 2021 during the course of preparing the EP both AMSA-NT and ECNT have explicitly stated that they require more time. Further, while its noted that additional information was provided to relevant persons the second response provided to ECNT was provided on the same day that the EP was submitted to NOPSEMA. As such it has not been demonstrated that sufficient information or time has been provided to comment on the information or make an informed assessment of adverse impacts.
Regulation 11A(4)
Cover letter sent to conveys the information required by 11(4)(a) to each relevant person. No one identified that they did not wish to have information published.

Regulation 16(b)(i)
The Regulations require a summary of each response made by a relevant person
Summary of consultation - The EP contains a summary consultation (Table 4-2) as required Regulation 16 (b)(i). The Summary generally appears to provide an accurate account of interactions between Santos and persons consulted. Generally, the summary of each response made is an accurate summary of the material (full text – sensitive information) provided by each person. It is noted that while the submission provides a summary as required by the regulations the process of summarising information received from relevant persons can and appears to have contributed to a failure to adequately identify and assess the merit of all claims and objections - see assessment of merit.
Regulation 16(b)(ii)
The Regulations require that an assessment of the merits of any objection or claim about the adverse impact of each activity to which the environment plan relates
NOPSEMA Decision making guidelines state that when making a decision NOPSEMA will consider if "Information gathered through the consultation process has been incorporated into the rest of the EP where it is most relevant and any recommendations from relevant persons have been evaluated for their merit".
Assessment of Merit (classification) – Section 4.4 details Santos's internal process for assessing objections and claims made by "all stakeholders". The EP states that Santos classifies the material received from persons consulted as either and an objection or claim or as information or request. The process described for addressing objections or claims from a process level appears to align with the requirements of the regulations.
ISSUE - The EP however then states that a "similar" process was applied to information provided and requests made by stakeholders not deemed to be an objection or claim implying that the process for addressing information and requests is managed differently. This "similar" process is not described. Santos has then summarised the responses received from relevant persons and categorised the responses as either objection or claim or as

information or request. This is an issue because several claims have been incorrectly classified as information or request. Allowing them to be classified in this way implies that they can be addressed through a process different but similar to the process described for addressing objections or claims that may or may not comply with the regulations. Further to add to the issue none of these terms are defined in the Act, Regulations or in the EP.
ISSUE - In my view there are several comments that have not been classified by Santo as an objection or claim that should have been. For example:

4. Australian National University – individual
5. Northern Prawn Fishing Industry.
6. Government Departments (Australian Maritime Safety Authority, Department of Agriculture, Water and the Environment – Biosecurity (marine pests), Director of National Parks)

ISSUE - Further the process described in section Section 4.4 and the headings in table 4-2 "Assessment of the merits of objections and claims (OPGGS(E) Regulation 16 (b)(ii)), information and requests" and "Statement of response, or proposed response, to the objections and claims (OPGGS(E) Regulation 16 (b)(iii)), and information and requests" appears to indicate that Santos only believe that the material classified by them as being an objection or claim is subject to the requirements of the regulations.
It is unreasonable for relevant persons to be required to explicitly state if the material provided is specifically an objection or claim and as such it is reasonable for the titleholder to take a board interpretation of what is considered an objection or claim.
Commonly to avoid doubt, titleholders address all response in accordance with the requirements of the regulations. This removes any doubt.
Assessment of Merit (General)
ISSUE - The EP does not adequately assess the merit of each objection or claim or information or request. For example:
The assessments of merit presented is often a summary of the response provided not an assessment of merit of the objection or claim. e.g. CLAIM 4 ECNT.
Some responses have been overly summarised, and the objections and claims combined, in such a way that the merit of each objection and claim does not appear to have been assessed e.g. Australian National University (ANU) – individual INFORMATION -001.
Some statements of response to objections or claims do not clearly set out the measures Santos proposes to adopt because of the consultation. Department of Agriculture, Water and the Environment – Biosecurity (marine pests) - INFORMATION 001
Some statements of response are contained in the assessment of merit e.g. Australian Maritime Safety Authority - REQUEST 001, 002, 003.
The assessment of merit should be sufficient to support the statement response to the objection or claim.
Regulation 16(b)(iii) - Statement of response (in the EP)
The regulations require the TH to a statement of the titleholders response or proposed response if any to each objection or claim.
NOPSEMA Environment plan content requirement Guidance Note states that "the EP must demonstrate that the measures (if any) that the titleholder has adopted, or proposes to adopt, as a result of the consultations are appropriate" and "where relevant persons have made an objection or claim, a titleholder should provide an assessment of the merits of the objection or claim, and a statement of the response which reflects information that is to be presented in the EP"
ISSUE - The statements of response to the objection or claim presented in the EP are often vague or contained in the assessment of merit.
The assessment of merit should be explicit, and the statement of the response should clearly reflect information that is to be presented in the EP e.g. should detail the measures (if any) that the titleholder has adopted, or proposes to adopt, as a result of the consultations.
Regulation 16(b)(iv)
It appears that a copy of the full text of any response by a relevant person has been provided in the sensitive information report.
Regulation 9 - (on going consultation - Implementation Strategy)
Section 4.5 details ongoing consultation process. The EP states that Santos will continue to update relevant stakeholders listed in Table 4-1 via the Barossa Development Quarterly Consultation update. Further Santos will notify the relevant persons listed in table 4-1 prior to commencement and upon completion of the activity.
Additionally the EP states that should new stakeholders or other interested parties be identified, they will be added to Santos' database and included in future correspondence as requested.
Provision of additional information to stakeholders relating to potential EP changes will be managed as described in Section 8.10. – Note this is in relation to MoC. EP states that additional stakeholder consultation may be required, depending on the nature and scale of the change.
Section 4.5.2 states that Santos will maintain ongoing dialogue with stakeholders and other interested parties to ensure feedback opportunities are available. Santos will assess all feedback, information requests, objections and claims in accordance with Section 4.4. Records of all consultation will be maintained.
Third party correspondence

NOPSMEA CEO received (cc'd) letter form [redacted] to Santos CEO dated 27 May 2021 requesting to be consulted.
NOPSEMA CEO received a letters from the Environmental Defenders Office dated 12 and 17 November 2021. The letters reiterates that they believe that the ECNT are a relevant person. The letter states that they are of the view that the information provided was narrowly limited to drilling EP only and that this is inappropriate.

Effective consultation has taken place
See findings above
Information gathered through consultation is included in the EP
While the TH statement of response often states that the material provided will be taken into consideration in the drafting of the EP it is often not evident that this has occurred. The statement often applies to multiple responses and given the issues associated with the TH assessment of merit its unclear if the information was considered relevant
Report on consultation is included
A report has been provided in the EP

Regulation 11A(1) - Relevant person
EP has been amended and clearly identifies who Santos consider relevant persons as defined by the regulation (See Table 4-1). The table has also been amended to provide justification for why they are considered relevant as defined by the regulations. The list of relevant persons and justification appears reasonable. All of the "stakeholders" identified have been classified as a relevant person.
Section 4.2 details the stakeholder identification process. While the EP still states that the list was refined based on operational area the EP also states that the relevance of the stakeholder according to Regulation 11A of the OPGGS (E) Regulations was also considered during the identification process. The relevant persons consulted appears reasonable and consistent with previous EPs. Justification for classifying "stakeholders" as relevant persons has been provided and appears reasonable and reference to superseded guidance has been removed.
Conclusion - Relevant persons have been adequately identified and classified as relevant persons.
Regulation 11A(2) and 11A(3) - Sufficient information and time
Sufficient Time
Section 4.1 provides a consultation history and a summary of consultation and specifically details consultation activities undertaken for the purposes of complying with relevant Regulations. Consultation undertaken in the course of preparing the EP commenced in May/June 2021. The EP states that relevant persons (Table 4-1) were informed of activities covered in this EP via several consultation channels, including:
1. meetings in May and June 2021 2. distribution of the Barossa Development Drilling and Completions Stakeholder Consultation Package in June 2021 (Appendix E). 3. distribution of the Barossa Development Drilling and Completions Additional Information for Commercial Fishers Package in June 2021 (Appendix E).Relevant persons were initially given four weeks to review consultation packs and provide feedback or indicate their intention to provide feedback or seek further information, however as would be expected and is common during the "iterative" process of preparing an EP Santos responded to relevant persons throughout the EP preparation period covering a further 8 weeks.
Conclusion - Based on the consultation record it appears that relevant persons have been given sufficient time
Sufficient Information
The type of information and level of detail originally provided to relevant persons via fact sheet is consistent with initial consultation material commonly provided to relevant persons for the purposes of 11A, noting that the original information did not provide predicted oil spill volumes / oil spill modeming outputs or estimated greenhouse gas emissions. Commercial fishers were also provided additional information specific to the fishery within which they operate.
Santos have clarified that while throughout the EP 8 wells are discussed the intention is to drill six wells only. However as is common Santos wish to have the contingency for two additional wells approved should technical difficulties be encountered. Having the contingency wells approved will remove the need to revise the plan in the future should they need to be drilled to complete the program. To ensure that impacts and risks were adequately addressed in the EP (eg worst case) Santos have done the evaluation of impacts and risks based on 8 wells.
The Fact sheet states that six wells are anticipated to be completed within ~18 months (approx. 90 days per well). The fact sheet further notes that the provision for a re-spud is carried should technical difficulties be encountered. This is a reference to the potential “contingency wells”. The information appears sufficient to allow relevant persons to determine if there functions inters or activities will be affected or if they need additional information. The EP also contain the provision for ongoing consultation with relevant persons throughout the activity should these additional wells be required.
While it’s noted that not all relevant persons found that original information provided

sufficient, upon request, additional information has been provided as is common during a consultation process. While Santos has provided additional information during the consultation process the information has generally been limited to information regarding the activity as described in the EP and information detailed in the publicly available OPP despite requests for broader project information form some relevant persons.
Conclusion - Based on the additional information provided by Santos regarding the consideration of the Indirect Consequences under Section 572E of the EPBC Act (Appendix B2), the subsequent publication of the draft EP on NOPSEMAs website and the consultation records provided in the EP including the sensitive information document it appears that relevant persons have been given sufficient information. Reg 11A(2) states that for the purpose of the consultation, the titleholder must give each relevant person sufficient information to allow the relevant person to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of the relevant person. Based on the scope of the activity as described in the EP and the functions, interests and activities of relevant persons it appears that Santos have provided sufficient information (direct correspondence and publication of full EP) regarding the activity as defined in the EP to all relevant persons.
Regulation 11A(4)
Cover letter sent to relevant persons conveys the information required by 11(4)(a) to each relevant person. No one identified that they did not wish to have information published.
Conclusion - Titleholder complied with requirement.

Regulation 16(b)(i)
The Regulations require a summary of each response made by a relevant person
Conclusion - The EP contains a summary consultation (Table 4-2) as required Regulation 16 (b)(i). The Summary generally appears to provide an accurate account of interactions between Santos and persons consulted. The summary of each response appears to sufficiently capture the key claims and objections made by the relevant persons.
Regulation 16(b)(ii) and Regulation 16(b)(iii) - Statement of response (in the EP)
The Regulations require that an assessment of the merits of any objection or claim about the adverse impact of each activity to which the environment plan relates / The regulations require the TH to a statement of the titleholders response or proposed response if any to each objection or claim.
Section 4.4 details Santos's internal process for assessing objections and claims made by relevant persons. The process described for addressing objections or claims from a process level appears to align with the requirements of the regulations.
Conclusion - Santos have summarised the responses received, identified the claims and objections made by relevant persons, assessed the merit and provided a statement of response including the measures if any implemented in response to the claims or objections (See table 4-2). Generally it appears that the process has been adequately implemented.
ISSUE - As noted above some relevant persons have claimed that they require information regarding the broader Barossa Project (Specifically in relation to the projects projected GHG emissions) that has not been provided by Santos. Further information is required to demonstrate that Santos has adequately assessed the merit of this claim and provided an adequate response or proposed response to these claims.
Regulation 16(b)(iv)
It appears that a copy of the full text of any response by a relevant person has been provided in the sensitive information report.
Regulation 9 - (on going consultation - Implementation Strategy)
Section 4.5 details ongoing consultation process. The EP states that Santos will continue to update relevant stakeholders listed in Table 4-1 via the Barossa Development Quarterly Consultation update. Further Santos will notify the relevant persons listed in table 4-1 prior to commencement and upon completion of the activity.
Additionally the EP states that should new stakeholders or other interested parties be identified, they will be added to Santos' database and included in future correspondence as requested.
Provision of additional information to stakeholders relating to potential EP changes will be managed as described in Section 8.10. – Note this is in relation to MoC. EP states that additional stakeholder consultation may be required, depending on the nature and scale of the change.
Section 4.5.2 states that Santos will maintain ongoing dialogue with stakeholders and other interested parties to ensure feedback opportunities are available. Santos will assess all feedback, information requests, objections and claims in accordance with Section 4.4. Records of all consultation will be maintained.
Third party correspondence
NOPSMEA CEO received (cc'd) letter form [redacted] to Santos CEO dated 27 May 2021 requesting to be consulted.
NOPSEMA CEO received a letters from the Environmental Defenders Office dated 12 and 17 November 2021. The letters reiterates that they believe that the ECNT are a relevant person. The letter states that they are of the view that the information provided was narrowly limited to drilling EP only and that this is inappropriate.

			Effective consultation has taken place See findings above Information gathered through consultation is included in the EP The EP adequately demonstrates where information gathered through consultation is included in the EP (Table 4-2) Report on consultation is included A report has been provided in the EP
			As previously identified, some relevant persons have requested broader project information, that has not been provided. Table 4-2: Relevant persons consultation summary has been updated. While information more relevant to the assessment of merit is sometimes detailed in the the response/proposed column, the assessment of merit and response / proposed response regarding claims for additional information relating to the broader Barossa project in particular, GHG emissions appear adequate and comply with the requirements of the regulations. Further where broader project information has been requested by a relevant person and not been provided, the full text response from the TH adequately communicates that information is limited to the drilling activity only. No additional correspondence from relevant persons has been received since previous submission. No additional third party correspondence has been received since previous submission. --- Conclusion Regulation 11A(1) - Relevant persons have been adequately identified and classified as relevant persons. Regulation 11A(2) and 11A(3) - Sufficient information and time - Based on the consultation record it appears that relevant persons have been given sufficient time and information. Regulation 11A(4) - Titleholder complied with requirement. Cover letter sent to relevant persons conveys the information required by 11(4)(a) to each relevant person. Regulation 16(b)(i) - The EP contains a summary consultation (Table 4-2) as required Regulation 16 (b)(i). The Summary generally appears to provide an accurate account of interactions between Santos and persons consulted. The summary of each response appears to sufficiently capture the key claims and objections made by the relevant persons. Regulation 16(b)(ii) and Regulation 16(b)(iii) – Titleholder has summarised the responses received, identified the claims and objections made by relevant persons, assessed the merit and provided a statement of response including the measures if any implemented in response to the claims or objections (See table 4-2). Regulation 16(b)(iv) – Full text has been provided Effective consultation has taken place - While some relevant persons appear to be unsatisfied with the level of information provided the titleholder has complied with the requirements of the regulations. Information gathered through consultation is included in the EP - The EP adequately demonstrates where information gathered through consultation is included in the EP (Table 4-2) Report on consultation is included - An adequate report has been provided in the EP
8	Environment Plan complies with the Act and regulations	General	No material changes since last revision
			Consistent with the principles of ESD The risk assessment process (s5.6) highlights that when evaluating the impact and risk acceptability it will consider whether the assessment and management of risks have addressed the principles of ESD. This is then followed through in the impact and risk assessments in s6 and s7 of the EP, where individual acceptability evaluations stated risks and impacts are being managed in a way that are consistent with the principles of ecological sustainable development. These are simple high level repeated statements without specific validation. However, given the object of the Env Regulations is to ensure that petroleum activities are carried out in a manner consistent with the principles of ESD, this is reasonable. Note that the letter item regarding GG emissions/indirect impacts and others require clarification to confirm that the principles will be met. Content requirements of Regulation 13-16 are included. EP content requirements not described elsewhere above: 11(2B) An EP summary statement has been included in the EP as required by NOPSEMA policy at page 15. 11A /16(b) - consultation is described in the EP in S4 and summary considering claims and responses is provided. sensitive info report also provided separately [id: A806166].report on consultation and full text is provided in EP and the sensitive information report. Note consultation topic for further details Reg 15(1) (2) (3): Details of the titleholder are provided on page 19 including the titleholders nominated liaison person, and commitment to notify NOPSEMA in the event of

			changes. Reg 16(a): The titleholders Environment Policy is provided at page 333 16(c) - reportable incidents - these are outlined on page 310 and include IMS introduction, hydrocarbon releases. Typically marine diesel spills and marine fauna interactions would also be included. While the marine diesel spill could reasonably be considered to be of a lower consequence given distance to shoreline receptors, this is not the case with marine fauna interactions - will be queried. Table 8-4 summarises activity notification and reporting requirements for relevant State and Commonwealth regulatory agencies, DFAT (in the event of a spill entering international waters), DAWE, AMSA , in accordance with the requirements under Regulation 29 & 30. Notifications will also be made to 'identified relevant' commercial fishers. Other Requirements of the Act - S572 removal of infrastructure: - p 25: Upon MODU departure, anchors will be retrieved to the MODU and/or vessels. - p 28 if well is P&A'd, well casing and conductor above seabed will be recovered. - regarding other equipment, the activity is for the installation of xmas trees. There is no other mention of other equipment being left on the seabed, in keeping with the nature of the activity. The requirements of S572 are therefore met.
			Issue: Recordable incidents - did not identify marine fauna interactions Response: In response, Santos has added incidents that have caused death or injury to marine fauna as a reportable incident (p325)