| # | Comments received (in general terms)  | Titleholder response  |
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| 3 | ***Matter:*** *Fundamental issues* Claim considers that the activity, and therefore the EP, is inconsistent with these key principles (outlined below).***Claim:*** Refer below | Santos’ Environmental Hazard Identification and Assessment Guideline (EA-91-IG-00004) includes consideration of the principles of Ecologically Sustainable Development (ESD). For each of the identified aspects in Sections 6 and 7, Santos has considered whether the associated risks and impacts are consistent with the principles of ESD. No changes have been made to the EP regarding this matter.  |
| 3.1 | ***Matter:*** *Precautionary Principle*Claim that this activity is fundamentally inconsistent with the principles of Ecologically Sustainable Development (**ESD**) including the Precautionary Principle***Claim:*** The EP does not identify any climate change risks associated with the activities of exploring and developing new fossil fuel resources. That is, the EP fails to identify that there is a threat of serious and irreversible damage associated with anthropogenic climate change | Santos’ Environmental Hazard Identification and Assessment Guideline (EA-91-IG-00004) includes consideration of the principles of Ecologically Sustainable Development (ESD). Santos clarifies that this EP is only for an exploration drilling activity and not for the development of fossil fuels which would be subject to separate approvals which are required to consider the effects of atmospheric emissions from development and fossil fuel production. For each of the identified aspects in Sections 6 and 7, Santos has considered whether the associated risks and impacts are consistent with the principles of ESD. No changes have been made to the EP regarding this matter. |
| 3.2 | ***Matter:*** *Intergenerational Equity Principle*Claim that development of additional petroleum and gas resources is fundamentally inconsistent with long-term health, diversity and productivity of the environment due to the long term and irreversible impacts of climate change.***Claim:*** The EP cannot be made consistent with the aim of maintaining and enhancing the health, diversity and productivity of the environment for the benefit of future generations, as required by the Intergenerational Equity Principle | Santos’ Environmental Hazard Identification and Assessment Guideline (EA-91-IG-00004) includes consideration of the principles of Ecologically Sustainable Development (ESD). For each of the identified aspects in Sections 6 and 7, Santos has considered whether the associated risks and impacts are consistent with the principles of ESD. No changes have been made to the EP regarding this matter. |
| 3.3 | ***Matter:*** C*onservation Principle*Claim that a proper application of the conservation principle must prioritise conservation of biological diversity and ecological integrity.*Claim:* The EP does not achieve the “fundamental” aims of the Conservation Principle.  | Santos’ Environmental Hazard Identification and Assessment Guideline (EA-91-IG-00004) includes consideration of the principles of Ecologically Sustainable Development (ESD). For each of the identified aspects in Sections 6 and 7, Santos has considered whether the associated risks and impacts are consistent with the principles of ESD. No changes have been made to the EP regarding this matter. |
| 4 | ***Matter:*** *The titleholder has not included explicitly required content in the activity Description section of EP, in accordance with NOPSEMA policy****Claim:*** The titleholder has not disclosed information about the projected future of the oil field in the EP, as explicitly required by NOPSEMA’s policy guidelines. | Santos understands the requirements of Environment plan content requirement guidance note (2020) and submits that the activity description is adequately and appropriately described (the drilling of exploration and/or appraisal wells) for the petroleum activity to be assessed.Santos is unable to provide a detailed description of the “projected future of the oil field” until exploration is undertaken. Assessment of projected future of the oil field would be information provided in any future EPs for development drilling and/or operations, if any field discovered was assessed as being commercially viable. No changes have been made to Section 2 or elsewhere within the EP regarding this matter. |
| 5 | ***Matter****: OPEP does not include content explicitly required to address specific risks involved with a multiple campaign drilling program, in accordance with OPGGS Regulations and NOPSEMA Policy.****Claim****:* That the Proponent has not demonstrated that the proposed management measures are sufficient for reducing the increased environmental risks associated with multiple campaign drilling and the titleholder has failed to include any source control plans for the proposal in the EP. | Santos notes that the EP describes the activities as a multi-well campaign whereby the wells are not drilled concurrently, but sequentially across the life of the EP. The EP has been written in accordance with the OPGGS Environmental Regulations and NOPSEMA guidance publications on the required content and therefore the EP addresses the environmental impacts and risks of a loss of well control event. The EP is not required to assess the well integrity aspects of a loss of well control event and consequently has no requirements that need to be met with regard to Section 5 of the OPGGS(RMA) Regs. These relate specifically to Well Operations Management Plans and are not relevant to Environment Plans. The WOMPs, which are also assessed by NOPSEMA, provide a description of the measures and arrangements that will be used to regain control of the well if there is a loss of integrity. This includes details on source control planning. For any well drilled under this EP, the Source Control Plan is encompassed by that well’s Well Operations Management Plan, not the EPThe EP therefore provides a high-level description of the function of the source control plan as it is implemented via the OPEP, and how this relates to a reduction in environmental impacts.No changes have been made to the EP regarding this matter. |
| 6 | ***Matter:*** *The titleholder has not provided sufficient baseline information in relation to ecological values of the nearby Bedout Island, nor demonstrated technical confidence that the risk to those values has been reduced to ALARP in the event of a loss of well control****Claim:*** The assessment of acceptability lacks any precision whatsoever and is assumed to apply to all identified ecological values across the NWMR.That the Proponent has not ‘thoroughly assessed’ what baseline information is required commensurate with the level of risk associated with the proposed activities and to ensure that all impacts on these values can be fully remediated. Additionally, the proposed measures are not sufficiently detailed in the OPEP to demonstrate any technical confidence that the titleholder is in possession of sufficient baseline information | Assessment of acceptabilityThe EP describes how the modelling is used to identify the high environmental value (HEV) receptors contacted by surface, subsurface (entrained hydrocarbon and DAH’s), and shoreline accumulation (Section 7.5.5). Bedout Island is identified as a high environmental value receptor (Value of 4 based on its ecological values) and a hotspot and priority protection area (based on the spill modelling). To ensure that all the HEVs identified within the EMBA are assessed appropriately, a consequence assessment is conducted in line with the Santos risk assessment approach (detailed in Section 5) against all HEVs. This is provided in Appendix G2 and clearly shows the consequence assessment against all the HEVs, noting that Bedout Island is assessed as potential consequence of Moderate (III). Within Table 7-18, the overall worst case consequence is provided (IV – Major) against any one of the HEVs; the likelihood does not change as this relates to the event occurring as discussed above.No changes have been made to the EP or the likelihood or risk assessment outcomesBaseline Information A recent review of the operational and scientific monitoring (OSM) baseline data by Santos in 2021 showed that recent surveys (2016 and 2017) conducted at Bedout Island by DBCA are rated as being of fair quality (in the context of application for OSM purposes).Santos acknowledges the concerns regarding baseline data for operational and scientific monitoring for Bedout Island and has updated the details within the Scientific Monitoring Capability Assessment in Appendix R of the OPEP to provide further information on the various methodologies available for collecting baseline data in the unlikely event of a major oil spill, which includes post-spill pre-impact scientific monitoring, use of reference sites, a gradient approach, and potential use of remote sensing data. The techniques selected will be appropriate to the receptor type. The extent of ecological baseline data information gathering for OSM purposes is commensurate to activity risk profiles. The worst-case MDO oil spill modelling releases indicate that out of a total of 450 modelled oil spill scenarios, less than 3% show shoreline contact with Bedout Island in less than the 72 hours required to mobilise OSM resources. The equivalent figure for a loss of well control (LOWC) is 4%. This shows that post-spill pre-impact monitoring can be conducted well within this time in 94% and 96% of modelled worst-case release scenarios for MDO and LOWC, respectively. Proposed control measuresA worst-case LOWC scenario is not a planned discharge; it is an unlikely accidental event given the control measures that are put in place to reduce the risk of LOWC. These control measures are based on industry best practices. The control measures in the EP and OPEP are commensurate with the level of risk associated with the Bedout Multi-well drilling project. The OPEP also commits to the provision of well/campaign specific SCPs, which will be submitted as part of the WOMP(s), as detailed in response 5 above. No changes have been made to the EP |
| 7 | ***Matter:*** *Cumulative impacts of acoustic emissions on migratory species in the area has not been fully addressed****Claim:*** That the compounding effect of noise emissions from nearby oil and gas drilling pre-exist the proposed activities in the EP, and the validity of the argument that cumulative effects from the activity are not expected is questionable and relies on outdated knowledge | Santos notes that, as part of the activity, Vertical Seismic profiling (VSP) is planned. However, there will be no vessel-based seismic activities occurring and hence, that does not form part of the scope of the activity as outlined in Section 2 of the EP. VSP has a much shorter transmission pathway compared with seismic surveys and air guns, therefore VSP has a smaller total volume and impact on marine fauna compared with seismic surveys (Kent et al., 2016).Cumulative impacts will only occur where the effects of previous activities overlap the same area and when recovery of the impacts from these activities has not occurred prior to the Bedout multi-well activity commencing. Duarte et al (2021) states that noise is typically a point-source pollutant, theeffects of which decline swiftly once sources are removed.Due to the low sound levels emitted during the proposed drilling activity including from VSP, as described within Section 6.1.2 of the EP, and the proposed control measures, the potential impacts to marine fauna are limited to behavioural impacts confined within the short durations when VSP is conducted (12-18 hour windows). Therefore, recovery of marine fauna from noise emitted by the proposed activity will occur within a short duration and when they have moved away from the area. Therefore no long term effects are predicted. Given the time and distance between other drilling activities there is not considered to be any potential for cumulative effects due to the short-term nature of the VSP operations and the low sound levels generated by continuous noise sources during drilling and vessel based activities. In addition, control measures proposed will limit the potential impacts to migratory species such as whales and whale sharks.ReferencesDuarte, CM, Chapuis, L, Collin, SP, Costa, DP, Devassy, RP, Eguiluz, VM, Erbe, C, Gordon, TAC, Halpern, BS, Harding, HR, Havlik, MN, Meekan, M, Merchant, ND, Miksis-olds, JL, Parsons, M, Predragovic, M, Radford, AN, Radford, CA, Simpson, SD, Slabbekoorn,H, Staaterman, E, Van opzeeland, IC, Winderen, J, Zhang, X, Juanes, F (2021) The soundscape of the Anthropocene ocean, Science, 371(6529), eaba4658, <https://doi.org/10.1126/science.aba4658> .Kent, C.S., McCauley, R.D., Duncan, A., Erbe, C., Gavrilov, A., Lucke, K., and Parnum, I. (2016). Underwater Sound and Vibration from Offshore Petroleum Activities and their Potential Effects on Marine Fauna: An Australian Perspective. *Centre for Marine Science and Technology (CMST). Curtin University.*  |