

Our ref: A480413: ID3344
Your ref: AU000-HS-PLN-600-00001
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Dear [s 47F - personal information](#)

ENVIRONMENT PLAN SUBMISSION – OPPORTUNITY TO MODIFY AND RESUBMIT – GREAT AUSTRALIAN BIGHT EXPLORATION DRILLING PROGRAM

I write with regard to the Great Australian Bight Exploration Drilling Program environment plan (Document No. AU000-HS-PLN-600-00001), Revision 1, submitted to NOPSEMA on 15 March 2016 by BP Developments Australia Pty Ltd. An assessment of the environment plan (EP) has been undertaken in accordance with NOPSEMA's assessment policies.

Financial Assurance

Regulation 5G of the Environment Regulations 2009 provides that NOPSEMA must not accept an environment plan unless NOPSEMA is reasonably satisfied that the titleholder is compliant with section 571(2) of the OPGSA and that the compliance is in a form acceptable to NOPSEMA.

Please note that the necessary financial assurance documentation has not yet been provided to NOPSEMA. The previously submitted documentation identifies that the APPEA method has been used to determine the level of financial assurance required in relation to this activity. However, the resubmitted environment plan involves activities under title that are outside at least one of the boundary conditions set by APPEA for use of the method.

Consequently, as per the Financial Assurance guideline (GL1381), NOPSEMA advises that BP must develop and apply a validated method to calculate the financial assurance requirement associated with the worst case well blow out scenario(s). To progress this matter further and ensure that the financial assurance demonstration for this activity is in a form that is acceptable to NOPSEMA, please contact the lead assessor to arrange a meeting with the appropriate NOPSEMA personnel.

Assessment Findings

The assessment findings detailed in this letter are indicative of a submission that requires significant modification to comply with the Environment Regulations. As outlined in NOPSEMA's Environmental Assessment Policy (PL1347), NOPSEMA's assessment tests the sufficiency, appropriateness, completeness and accuracy of the information in the EP. NOPSEMA does not infer compliance where information is disparate and not clearly justified in the EP. A key acceptance criterion under

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the Environment Regulations is that all aspects of the EP must be appropriate to the nature and scale of the activity. The potential level for environmental impact and risk and the predictive uncertainty for the proposed drilling activity have not been appropriately addressed within the submission to demonstrate compliance with the Regulations.

In accordance with subregulation 10(1) and 10(2) of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Environment Regulations), this letter gives notice that NOPSEMA is not reasonably satisfied that the EP meets the criteria set out in regulation 10A[a],[b],[c],[d],[e],[g] and [h].

The information below explains why NOPSEMA is giving the titleholder an opportunity to modify and resubmit the EP so that it might comply with the Environment Regulations.

1. The EP is not appropriate for the nature and scale of the activity (10A(a));

1.1. Well blowout: The impact evaluation contained in the EP for a well blowout is not appropriate for the nature and scale of the activity. For example:

- 1.1.1. The evaluation of impacts and risks does not adequately explain how it addresses the level of uncertainty associated with a range of spill risk issues including predicted hydrocarbon properties, worst credible blowout scenario, fate and weathering of an oil spill and limitations of trajectory modelling (as referred to in previous letter point 1.1.4). Consequently, the submission does not address the implications of the range of uncertainties in the evaluation of impacts and risks of a blowout, including any degree of conservatism applied to consideration of spill trajectory modelling, definition of the AMBA and any flow-on effect to assessment of the spill response requirements. It is noted that the EP (p.6-180) identifies that the OSMP framework has been developed to address the uncertainty of potential effects, but this represents a control measure that, in part, addresses uncertainty associated with implementation of the OPEP.
- 1.1.2. The submission does not provide an adequate evaluation of the impacts and risks of naturally dispersed oil at the predicted terminal level for plume dynamics (Attachment 6) or chemically dispersed hydrocarbon plumes following surface dispersant and SSDI operations. For example, no details are provided of the likely size, distribution and transport of subsea dispersed hydrocarbon plumes at depths >100 m from an extended SSDI operation. Further, the evaluation does not adequately address impacts of deep dispersed plumes on sensitive receptors identified in section 4 (e.g. volcanic mounts).
- 1.1.3. Inconsistencies remain in the evaluation of impacts and risks of potential emulsified oil through the submission and referred to in previous letter point 1.1.7. For example:
 - Laboratory analysis of the analogue recorded 70% water content after 24 hours (p.6-136), while deterministic modelling predicted water content of oil arriving at shorelines was 55% OPEP (section 4.4). Further, the effect of the lower asphaltene content of the analogue versus the predicted GAB oil (0.3 vs 7.7%, Table 6.34) is not factored into the consideration of the modelling.
 - The effect of emulsification on predicted weathering rates in mass balance graphs from the deterministic modelling is not addressed.
 - Predictions of oil volumes ashore (Table 6.38) and the evaluation of shoreline impacts does not account for the effect of emulsification, noting that the

OPEP (section 4.4) identifies that predicted stranded volumes need to be increased by a factor or [sic] 2.4.

1.1.4. The submission applies oil spill modelling as part of the evaluation of impacts and risks. There are a number of aspects of the spill modelling and application of the modelling results that are not adequately explained. For example, but not limited to:

- The EP (Table 6.36) identifies a maximum number of modelling cells that restricts the spatial extent of the OSCAR spill trajectory model and this appears to account for the straight line boundaries defining the eastern and western extent of the AMBA (Fig.4.1). However, the stochastic modelling indicates that surface and subsurface oil above threshold levels extends beyond these boundaries and the submission does not address the effect of this on the description of the AMBA and evaluation of potential oil spill impacts. As a consequence of this, sensitive receptors, for example (but not limited to) Walpole and Nornalup Inlet State Marine Park, may have been left out of the description of the environment and all subsequent sections of the Environment Plan i.e. risk evaluation, response planning, monitoring plans even though they may be at risk.
- The EP describes a process in which the majority of oil droplets from a seabed blowout reach the surface, with some being re-entrained into the upper water column by wave action (Table 6.36) to justify the 100 m depth of the spill modelling concentration grid. However, no information is provided on the concentration grid resolution in the z-direction (i.e. how many levels is the 100 m depth divided into for the modelling?) and how this may affect predicted hydrocarbon concentrations in the water column derived from the stochastic modelling (Figs. 6.40-48). For example, if the concentration grid is defined by a single 100 m depth level this may have the effect of underestimating predicted concentrations in the upper water column at depths of 10-20 m where concentrations of oil entrained from the surface are likely to be highest.
- The submission maintains that an oil surface threshold of 5 g/m² is appropriate for the risk assessment based on weathering studies of the analogue which suggests that after weathering it will not behave as a liquid and oil thicknesses <5 g/m² will be difficult to visually detect (Table 6.37). However, the submission does not adequately address a range of socio-economic activities that may be impacted by the presence of waxy flakes and tar balls in the water (e.g. swimming, surfing, snorkelling, diving, angling) at levels <5 g/m².

1.1.5. The submission does not provide sufficient details of the information and analyses applied to support the estimated 35 day capping stack and 149 day relief well drilling timeframes.

- The estimates of weather downtime applied to deployment of a capping stack and relief well drilling with the identified DP vessels does not adequately explain how this was determined to be appropriate for the identified risk. For example, analysis of historic wind and wave data referenced elsewhere in the EP (e.g. spill trajectory modelling (p.6-138), metocean study (OceanMetrix 2014, p.6417), GAB Research Program (4.1)) is not considered to support assumptions and analysis of waiting on weather for transport of a MODU to site and the well construction stage (Table 2.10). Further, no details are provided of any analysis of operating limits of the identified MODUs (Table

2.9) to confirm assumptions about feasibility of deploying these rigs to meet the predicted relief well drilling times having considered predicted weather conditions.

- The assessment of effectiveness of capping stack reliability (Table 6.84) also does not identify any consideration of historical weather records (e.g. as applied to the assessment of containment and recovery, EP section 6.3.6) during the deployment stage.
- Given the range of uncertainties around the drilling of a relief well the submission does not address the consequences of failing to meet the 149 day time frame in the evaluation of environmental impacts and risks and any implications for spill response planning.

1.1.6. Potential oil spill impacts on fauna species are assessed in terms of population level impacts, which may underestimate the level of impact to large local and regional populations and the scale of oiled wildlife response required. For example:

- The evaluation of impacts to pinnipeds (Table 6.49) details potential high shoreline oil loadings at locations identified in the description of the environment as having New Zealand fur-seal adult and pup numbers in the 1,000s (p.4-60).
- The evaluation of impacts on shorebirds (Table 6.51) states that it is “likely that some individual may die. However, it is unlikely to be significant at the population level...”, but does not relate this to actual estimates of potential numbers impacted by the blowout scenario considering the area of predicted surface and shoreline oiling.

1.1.7. The evaluation of impacts of a well blow out scenario to socioeconomic values (e.g. tourism, recreation, fishing, etc) is insufficient. For example:

- The evaluation of impacts to tourism has not adequately considered the flow-on impacts from biological effects e.g. impacts to whale/dolphin presence and prey availability.
- Impacts to fisheries are insufficiently evaluated, and in some instances fail to consider all impact pathways e.g. loss of sardine feedstock for the Southern Bluefin Tuna (SBT) fishery; loss of market share through fishery closure.

2. The EP does not demonstrate that the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable (10A(b));

2.1. **Oil spill response:** Deficiencies in the ALARP demonstration for oil spill response activities identified in Rev.0 (previous letter point 2.3.2) have not been addressed in Rev.1.

2.1.1. The evaluation of response strategies (EP section 6.3) does not explore additional or alternative measures to improve effectiveness of the control measures or demonstrate that adopting additional control measures is grossly disproportionate to the sacrifice compared to the environmental benefit. For example:

- The assessment of effectiveness of surface and subsurface dispersants identifies that there is a dependency on dispersant supply, aircraft, vessels and aerial observers, and that the proposed arrangements are “likely” to be available or meet the response needs, but does not address options to improve the reliability of these dependencies in the demonstration of ALARP.

- A number of oil spill response strategies rely on spot contracts of vessels of opportunity, but it is not demonstrated that to have some/all of these arrangements already in place for the duration of the activity would be grossly disproportionate. Further, there is no assessment of the overall level of resources required or feasibility of sourcing all the types and number of vessels in the required timeframes.
- 2.1.2. In many cases the details provided in the assessment of effectiveness of spill response strategies (previous letter point 2.3.2.1) still does not provide relevant information to address the identified attributes (i.e. functionality, availability, reliability, dependency). For example, shoreline clean-up (Table 6.105) and oiled wildlife response (Table 6.109). Consequently these assessments do not support identifying the level of performance that is reasonable to achieve from these control measures.
 - 2.1.3. The assessment of effectiveness and capacity for implementation of shoreline clean-up is dependent on assumptions about access to a sufficient number of response personnel and equipment (p.6-472, Table 6.105). The submission identifies that a Shoreline Protection and Clean-up Plan consisting of a series of Tactical Response Plans (TRPs), will provide further details on the capacity to implement this response measure. However, while an example TRP (OPEP Appendix I) lists estimated resource levels required for an unspecified spill risk, it does not identify the source or the availability of these resources and response capacity.
 - 2.2. The evaluation of environmental risks and NEBA for the spill response strategies identifies a range of impacts and risks of implementing each strategy. Control measures identified in the risk assessment tables are in many cases not clearly linked to, or assessed in relation to the impacts and risks they are intended to manage in the demonstration of ALARP and acceptability. The information presented in the ALARP analysis (i.e. hierarchy of controls) also does not address the level of risk reduction achieved by these control measures to demonstrate that the impacts and risk are reduced to ALARP and an acceptable level. Further a range of controls for managing impacts and risks of the spill response control measures identified in the submission are not addressed in the evaluation including environmental risk assessments (EP Table 6.107), environmental briefings (Table 6.93), Best Management Practices (OPEP Appendix D) and Field Assignment Environmental Message (IAP) (OPEP Appendix D).
 - 2.3. The EP presents inconsistent statements regarding controls in relation to dispersant selection. For example:
 - 2.3.1. Only OSCA register-listed dispersants will be used in the event of a WCD (p.6-275)
 - 2.3.2. Only dispersants listed on the OSCA register or transition register.....are applied (p.6-293)
 - 2.3.3. Table 6.73 includes a statement that BP has no intention of using Corexit 9500A until it has been demonstrated to meet OSCA Registration requirements.
 - 2.3.4. An EPS (Table 6.78) provides for use of dispersants listed on the OSCA register transition list where ecotoxicity testing is undertaken to determine species protection thresholds. Inadequate information is provided on this unspecified testing and whether it will confirm with the OSCA Policy. A statement that BP considers toxicity testing of international species in equivalent tests a suitable substitute for local species (p.6-273) is not supported or shown to reduce impacts and risks of dispersants to ALARP or acceptable levels for this activity.

- 2.4. The assessment of response effectiveness and capacity for implementation of some of the recommended spill cleanup techniques (e.g. shoreline cleanup, OWR) does not relate the required response capacity to the likely impacts predicted by the spill modelling (e.g. volumes of oil ashore, length of shoreline oiled, numbers of animals at impacted concentrations of fauna) or likely duration of a response with the available resources.
- 2.5. The evaluation of impacts to wildlife does not inform the demonstration of ALARP for OWR resources and OWR strategies identified by the NEBA (Table 6.108) are not related to the assessment of effectiveness of response (Table 6.109). For example the NEBA identifies that NZFS pups have been shown to respond positively to cleaning, but the capacity to implement this response strategy at locations with high numbers of animals (Table 6.49) is not addressed.
- 2.6. It is not demonstrated that the impacts and risks for a number of planned and unplanned activities will be reduced to ALARP using the selected control measures. Examples include:
 - 2.6.1. Drill cuttings and drilling fluid:
 - The controlling of retention on cuttings (ROC) for synthetic-based mud (SBM) to less than or equal to 6.9% wet weight as an average for the SBM sections of wells has not been demonstrated to be ALARP.
 - It is not demonstrated that the numbers of samples proposed for measuring ROC levels under routine and dryer bypass scenarios (p 2-16) will ensure that measures of ROC levels will be accurate and representative.
 - The consideration given to alternative methods/control measures (Table 6.16) is deficient. Although it is expanded from the previous submission (as per letter point 2.1), the scoring/preference outcomes are not substantiated; the 'cost' vs the potential environmental benefit is not adequately detailed or demonstrated to be grossly disproportionate; and measures known to be considered or adopted for other activities, such as riserless mud recovery, are not evaluated.
 - The proposal to discharge all WBM remaining at completion of drilling with WBM is not demonstrated to be consistent with managing impacts and risks to ALARP.
 - The impacts and risks of mud transfers and handling; since a number of control measures have been removed from the resubmission without proper justification for example, pre-SBM readiness audit; controls relating to mud transfers and prevention of whole SBM discharge.
 - 2.6.2. Other planned discharges:
 - The use of temporal and/or spatial control measures to reduce environmental risk associated with underwater sound emissions has not been evaluated.
 - There is no clear commitment to return dry bulks (e.g. excess cement) to shore and it is not demonstrated that it is ALARP to discharge excess cement, including for cement unit testing, overboard.
 - Although the statement that the MODU is designed for zero discharge (as referred to in previous letter point 2.2.4) has been removed, this does not remove the expectation to consider this capability in demonstrating ALARP. The option of zero discharge has not been considered or the costs shown to be grossly disproportionate to the environmental benefits gained.
 - 2.6.3. Chemical selection process:

- There is insufficient detail about the process that will be used for chemical selection to ensure outcomes that reduce impacts and risks to ALARP, as additional assessment considerations are not detailed. In addition, consideration of OCNS substitution and product warnings are not detailed and some OCNS ratings for chemicals that are pre-selected have been incorrectly described (e.g. for the selected BOP fluid p 6-82).

2.6.4. Physical seabed disturbance:

- The EP includes a control measure to avoid seabed disturbance to two known and mapped seabed volcanic mounts. However, no control is proposed to manage seabed disturbance risk to ALARP in the event that previously unknown or un-mapped seabed features/values/sensitivities are encountered or identified.

2.6.5. Unplanned activities:

- The risk of interference with SBT fishery towing activities is not appropriately evaluated, as the information provided by the titleholder regarding the likelihood of presence is unclear (Table 4.16), and appears to contradict that provided by the ASBTIA (Record 37.10 of consultation).
- The risk of collision with cetaceans is not shown to be ALARP, as key controls such as the use of dedicated MMOs/MFOs are not considered.
- The risk of introduced marine species is not shown to be ALARP, as key controls such as vessel risk assessment or biofouling inspections are not considered.

3. The EP does not demonstrate that the environmental impacts and risks of the activity will be of an acceptable level (10A(c)). Environmental impact assessments do not address all identified or apparently potential impacts, including for matters protected by the EPBC Act, or are not adequately supported to demonstrate that impacts of the activity will be of an acceptable level. Examples include:

3.1. Impacts from Underwater Sound

- 3.1.1. Results of acoustic modelling underpin the analysis of potential impacts for underwater sound emissions associated with MODU presence and vertical seismic profiling. However, it has not been demonstrated the modelled thruster power is representative of the *Ocean Great White* MODU. Specifically, Table 2 of the CMST modelling report suggests that the drilling rig facility has installed thruster power of 8 x 4.2 MW thrusters (and a source level extrapolation appears to have been made on this basis), while Table 2.4 of the EP suggests the *Ocean Great White* MODU has 8 x 4,800 kW (4.8 MW) thrusters. In addition, while the EP refers to measurement data from other BP areas of operation, these data are not supported by verifiable reference(s).
- 3.1.2. Environmental impact assessment for underwater sound emissions associated with the activity is not adequate since it does not adequately evaluate all impacts. The South West Marine Bioregional Plan notes that noise pollution that may "...lead to avoidance by whales of biologically important areas (breeding, calving, feeding and resting areas, and migration routes) and mask sounds that are vital for essential functions and behaviours, including navigating, identifying the location of prey and predators, announcing location and territory, establishing dominance, attracting mates, and maintaining group cohesion and social interaction. These effects may impede successful breeding, calving and other biologically important behaviours". It is noted that the EP includes evidence that the Southern Right

Whale (SRW) migrate through the drilling area in the absence of the activity and that sperm whales were observed on a number of occasions during the Ceduna seismic survey. In this context, the EP does not adequately evaluate:

- Potential ecological consequences for the SRW migratory behaviour or the sperm whale feeding in response sound emissions from the activity. Depending on drilling location, acoustic modelling predicts that migrating whales or feeding areas may be exposed to underwater sound from the MODU at levels within the behavioural disturbance range (Table 6.7) however evaluation does not consider all potential ecological consequences of exposure in this range. For example, the EP concludes that it is unlikely that migrating SRW will be impacted by the drilling activities as their migratory pathway is unlikely to be geographically constrained (p6-25), however it does not evaluate potential consequences of modified migration behaviour or access to food resources. The EP also does not adequately account for the potential impacts of sound on BIA function (e.g. for foraging sperm whales p 6-24), noting that the EP states that some individuals may be exposed to elevated sound levels from the activity (p6-24).
 - The reasoning for not addressing risk associated with temporary threshold shift in fauna exposed to sound emissions from the activity.
- 3.1.3. The EP does not adequately evaluate risk to fish, including any site-attached fish that may be present in the vicinity of a drilling location and listed conservation dependent species (southern blue fin tuna and orange roughy).
- 3.1.4. It is not demonstrated that the impacts of sound emissions will be of acceptable levels using the selected control measures:
- The statement "There are no feeding or breeding areas for sound-sensitive fauna in close proximity to the drilling area" in the acceptability demonstration for noise (Table 6.10) is contradictory to the environment description and impact evaluation provided.

3.2. Impacts from Drilling Discharge

- 3.2.1. The evaluation of environmental impacts associated with the discharge of fluids and cuttings does not adequately reflect uncertainty around the nature of receiving environment or demonstrate how the precautionary principle is applied noting the EP seeks authorisation to drill four wells anywhere within the drilling area. For example:
- In relation to potential impacts on the benthic environment, the EP concludes that given the predicted area of dispersion, distance from sensitive habitats and temporary nature of smothering effects that disposal of drilling solids is considered unlikely to cause any significant impacts. This assessment does not appear to reflect the uncertainty that exists with respect to the nature of seabed habitats on the GAB slope, noting that Rogers *et al.* (2012), which is cited extensively in the EP, finds that despite the likely prevalence of soft sediment habitats on the continental slope, virtually nothing is known about the diversity and distribution of the associated biota. Further demonstration is required for how BP propose to address scientific uncertainty to ensure impacts from proposed discharges of cuttings and fluids will be of an acceptable level.

3.2.2. Environmental impact assessment for proposed discharge of drill cuttings and fluids is not adequately supported. For example:

- Information provided in Tables 6.13 and 6.14 to support conclusions that the two base oils identified in the EP have low bioaccumulation potential is inconsistent with information provided on the CEFAS website, which suggests products with partitioning coefficients greater than three have an elevated risk of bioaccumulation.
- Evaluation of potential risk from deposition of drilling particulates appears to be based on information presented for two SBM base oils individually, but does not explicitly evaluate potential consequences (or uncertainty attached to predictions of those consequences) associated with discharges of chemical product mixtures that typically comprise drill fluid systems.
- The internal BP drilling discharge modelling report (BP 2013), states that "The deposition area...represents a deposition thickness of >1 micron, which in reality defines the boundary of the area within which particulate material associated with the drilling discharges might be detected". The EP does not adequately evaluate the potential environmental impacts associated with particles in these predicted zones of deposition. Further, the EP gives details relating to the influence of oxygen levels on the persistence of SBM base fluids. However, it does not evaluate the potential persistence of drilling fluids in the context of environmental conditions in the GAB.

3.3. Protected Matters

3.3.1. Demonstrations of acceptable levels of impact for planned activities include consideration of requirements of the relevant recovery plans and management plans. However, reasoning that underpins conclusions that predicted impacts from planned activities do not compromise requirements of these plans is not adequately detailed for a number of risks. Furthermore, it is not evident that titleholder has had regard to approved conservation advices for relevant listed threatened species that may be present (e.g. Humpback, Sei and Fin whales).

3.4. Socio-economic Receptors

- The statement "There [sic] drilling area is not located in commercially fished waters or adjacent to or within designated shipping lanes" in the acceptability demonstration for interference with other vessels (Table 6.27) is contradictory to information provided in the environment description and consultation records.

4. The EP does not provide for appropriate environmental performance outcomes, environmental performance standards and measurement criteria (10A(d));

4.1. There are a number of environmental performance outcomes (EPOs) which do not set a measurable level of environmental performance, as required by the Regulations and/or are not inconsistent with core concepts and considerations detailed the NOPSEMA GN on EP content requirements. For example, some outcomes:

- 4.1.1. Are procedural e.g. "Meet resourcing requirements of the Shoreline Protection and Clean-up Plan and SA and WA control agencies." (Table 6.102 of EP).
- 4.1.2. Do not reflect an acceptable level of impact e.g. the estimates of the extent and duration of physical seabed disturbance for the activity (p6-11).

- 4.1.3. Do not address all sources of risk e.g. the EPO for underwater sound emissions relates only to proposed VSP operations (p6-31).
- 4.2. Many of the EPS throughout the submission do not include a measurable level of performance for the relevant control measure and some controls measures are not assigned an EPS. For example:
 - 4.2.1. The EP states there will be no wet storage of equipment on the seabed (p2-28) and no bulk SBM discharges (e.g. tank dumps) will be permitted (p2-16), however the EP does not include appropriate EPS for these controls.
 - 4.2.2. EPS are presented addressing controls to reduce impacts and risks of implementing spill response strategies are often not defined or measurable (e.g. vessels do not anchor in seagrass meadows..., vessel masters maintain buffer distances around cetaceans (Table 6.93), the pilot will remain an acceptable distance from seabird and pinniped colonies" (p 6-267 of EP).
 - 4.2.3. EPS for deploying a capping stack (Table 6.85) and drilling a relief well (Table 6.89) reference the Capping and Containment Response Plan and Relief Well Plan which do not appear to set a level of performance in relation to achieving successful capping, containment or well kill. While an EPO for the well cap identifies an outcome of capping the well in 35 days, the EPO for the relief well is only that the well is killed without specifying a timeframe.
 - 4.2.4. EPS in relation to undertaking response actions in accordance with tactical response plans (e.g. Table 6.107) do not present a statement of the level of performance required of these control measures that makes them effective in reducing risk.
 - 4.2.5. EPS for oil spill operational monitoring activities detailed in the OSMP (Appendix J, Table A.1) do not present appropriate specific or measurable statements of performance for implementation of the monitoring. For example; acquisition of data on released hydrocarbons (OMS3), acquire data to assess potential impact to the environment (OMS4).
- 4.3. Measurement criteria are defined for each environmental performance standard, however, subregulation 13(7)(c) requires that the EP will include measurement criteria that the titleholder will use to determine whether each environmental performance outcome and standard is being met.
- 4.4. In addition, the titleholder should note that EPOs, EPSs and measurement criteria may need to be updated in a resubmission according to other changes made to the plan, such as the introduction of new control measures.
5. The EP does not include an appropriate implementation strategy and monitoring, recording and reporting arrangements (10A(e));
 - 5.1. The implementation strategy does not contain specific measures to be used to ensure that, for the duration of the activity the environmental impacts and risks of the activity continue to be identified and reduced to a level that is as low as reasonably practicable; control measures detailed in the environment plan are effective in reducing the environmental impacts and risks of the activity to as low as reasonably practicable and an acceptable level; and environmental performance outcomes and standards set out in the environment plan are being met as required by Regulation 14(3). For example:

- 5.1.1. The mechanism for ENVID review has been removed (previously Section 5.5.). Consequently, it is not clear how new or changed impacts or risks will continue to be identified and reduced to ALARP, as performance monitoring measures contained in the EP are focused on compliance with existing controls and commitments, rather than identification of new threats/risks.
- 5.1.2. There are no specific measures described to evaluate the effectiveness of the identified control measures in reducing impacts and risks to ALARP and acceptable levels.
- 5.2. The implementation strategy does not contain sufficient measures for monitoring, management of non-conformances, audit and review as required by Regulation 14(6). In particular:
 - 5.2.1. It is noted that Diamond's procedures will be implemented in the case of MOC or management of non-conformance actions that influence the MODU (Sections 7.5 and 7.9.1). It is also noted that the safety case is referenced for detail on these processes. However, no detail is provided on how these processes will address management of non-conformance and review of environmental performance and the implementation strategy to ensure EPOs and EPS are being met.
 - 5.2.2. Insufficient detail is provided on the scope and frequency of monitoring and audit/inspection activities to demonstrate that these will be effective tools to ensure EPOs and EPSs are being met. The pre-mobilisation audits are noted, as are EP compliance audits (Section 7.9.3), however, the weekly checklists previously referenced have been removed, and replaced by 'regular' audits on specific aspects of EP compliance. Consequently, it is not clear that the frequency and scope of these activities will be adequate to ensure that EPOs and EPS are being met in timeframes which allow meaningful corrective actions; nor that the outcomes will be used to review the implementation strategy.
- 5.3. OPEP: The submission does not demonstrate that adequate spill response arrangements and capabilities are in place to meet the identified response needs as required by Regulation 14(8AA). Inadequate consideration is given to outputs of modelling (e.g. shoreline loadings, impacts to sensitive receptors), scale of required resources, logistics and likely duration of a response. Further, the submission presents inconsistent information in relation to analysis of response needs. For example:
 - 5.3.1. OPEP (3.14) states that "for planning purposes a number of assumptions have been made and where necessary these assumptions have considered parameters that are worse than those predicted by the modelling". Further, OPEP (section 3.14) states that the assessment for shoreline protection and resources assumes that no intervention has taken place. However, the analysis of waste volumes (OPEP 3.13) is based on predicted shoreline loadings following successful deployment of the SSDI and achieving 80% dispersant effectiveness.
 - 5.3.2. EP (p.6-505) identifies an estimated 40,000 m³ waste from shoreline cleanup of the worst case scenario, while the OPEP (p.84) identifies 14,000 tonnes possible waste (based on successful SSDI).
 - 5.3.3. OPEP (section 4.4) notes that predicted stranded volumes from modelling need to be increased by a factor or [sic] 2.4 to derive the tonnage of oil emulsion beached, but it is unclear how or if this has been applied to the predicted oil volumes ashore.
 - 5.3.4. The OPEP does not provide consistent or adequate information on specific controls to be applied to each response strategy to reduce the impacts and risks to ALARP and meet relevant environmental performance standards.

- 5.3.5. Shoreline clean-up arrangements are dependent on completion of the Shoreline Protection and Clean-up Plan consisting of a series of TRPs. Information to demonstrate the adequacy of these arrangements is not provided including:
- The basis for the estimated number of personnel and equipment required for a spill response presented in the example Shoreline TRP (OPEP Appendix I) and to be applied to each shoreline segment and any consideration of predicted shoreline oiling derived from stochastic or deterministic spill modelling.
 - OPEP Table 3-11 identifies that TRPs will include site-specific arrangements for labour hire. The example Shoreline TRP (OPEP Appendix I) details an estimated number of personnel and equipment required for a spill response, but does not identify the availability or sources of this response capacity.
 - The submission identifies that TRPs are to provide further detail on the capacity to implement the response measures (e.g. p.6-475) and the assessment of effectiveness of shoreline protection (Table 6.100) states that detailed availability analysis (for personnel and equipment) will be provided in the TRPs. No details are provided on the proposed process of availability analysis or how BP plans to ensure that any resource gaps identified by this analysis will be met. Further, in relation to response resources the OPEP states that "BP will continue to expand on these resources and service providers prior to spud date" (OPEP p.104), but does not provide details of the process for determining any additional resource requirements.
- 5.3.6. The submission states that BP will maintain an independent capacity to mount an oiled wildlife response including the timely mobilisation of equipment and appropriately trained personnel to capture, treat and rehabilitate affected wildlife (OPEP 3.12). However, OWR arrangements are dependent on completion of an OWR bridging document (OPEP 3.12) and TRP (OPEP 4.5), and OWR checklist timescales (OPEP 1.6) are referenced as being "illustrative for an effective response". Insufficient information is provided to demonstrate the adequacy of these response arrangements or that the identified OWR resources will meet the response needs for the duration of a response.
- 5.4. Oil spill surveillance and operational monitoring arrangements detailed in the OPEP and OSMP framework do not adequately address the scope of information required to monitor the effectiveness of spill response control measures or to inform response activities as required by Regulation 14(8AA).
- 5.4.1. The submission does not demonstrate that BP has adequate arrangements or capacity to implement the operational monitoring having regard to the range of potential oil spill and spill response impacts and scale of the response. For example:
- The OPEP references OMS6 Rapid Shoreline Assessment (e.g. EP Table 6.107, OPEP Table 3-6) which has not been included in the OSMP framework.
 - The OSMP framework (e.g. Table 2.2) does not identify or present operational monitoring studies aligned with wildlife impacts.
 - Operational studies for monitoring hydrocarbons in the water column (i.e. OMS2 & 5) do not address requirements for subsurface plumes of naturally and chemically dispersed oil at depths predicted by the nearfield modelling (EP Attach. 6).

- Insufficient information is provided to support arrangements for monitoring oiled shorelines and wildlife noting that the worst case shoreline oiling scenario (OPEP 4.4) predicts oiling of 650 km coastline at 125 days after the spill, increasing to 750 km after 300 days)
 - Insufficient arrangements for timely reporting of operational monitoring to meet response planning requirements.
- 5.4.2. The OPEP response resources overview (Table 3.10) cross-references resources as per OSMP (Appendix J). However the OSMP framework (Table 2.4) only provides limited details of resource requirements, in the field logistics, mobilisation and demobilisation details and does not address the potential scale of resources required. Further, for monitoring of shoreline impacts and response (e.g. OMS2, SMS4), OSMP Table 2.4 indicates that TRPs have been developed detailing preferred tactics and resource requirements including operational monitoring of effectiveness. However, the sample shoreline TRP (OPEP Appendix I) does not address operational monitoring requirements.
- 5.4.3. A number of operational monitoring requirements identified in the submission are not reflected in the operational monitoring studies detailed in the OSMP framework, for example:
- The SSDI strategy scope identifies that a second ROV provides lighting and video footage to monitor the subsea dispersant use to assess whether it is being effective and to provide information about the locations of dispersed oil plumes in the water column and their potential risk to marine organisms (p.6-298)
 - At-sea monitoring of surface dispersant effectiveness (p.6-403)
 - Monitoring impacts of in-situ burning (ISB) is undertaken in accordance with the ISB Operations Plan as well as OSMP Scientific Studies #1 and #2 (p.6-438)
 - Measurement criteria for environmental performance standards associated with implementation of the OSMP (Table 6.66) references detailed measurement criteria for individual Sampling and Analysis Plans (SAPs) outlined in the OSMP.
 - Wildlife reconnaissance by trained wildlife observers (OPEP 1.6)
 - During dispersant application, operational monitoring shall follow the Special Monitoring of Applied Technologies (SMART) protocol (OPEP p.39)
- 5.5. Testing response arrangements: It is not demonstrated that the frequency and scope of oil spill response testing arrangements are appropriate to the arrangements and the nature and scale of the oil pollution risks for the activity. The GAB emergency response exercise schedule (OPEP Appendix G) identifies that annual desktop exercises are to be undertaken. However, the submission does not demonstrate that the proposed exercise schedule is appropriate for testing the scope of response arrangements (for example, deployment of personnel and equipment or external parties and implementation of Tactical Response Plans,) and at a frequency that will be relevant to this activity and location, including testing the arrangements in the environment in which they would be required.
- 5.6. Monitoring the impacts of oil pollution: The implementation strategy does not include appropriate arrangements for monitoring impacts to the environment from oil pollution and response activities (14(8D)). For example,

- 5.6.1. The AMBA is not appropriately defined to ensure that all of the ecological and socio-economic receptors that may be affected by an oil spill are addressed by the OSMP, given the truncated boundaries in the modelling output. In addition, relevant stakeholders may have not been consulted with respect to development of the OSMP.
- 5.6.2. As noted in the previous letter (point 6.5.2), the post spill monitoring plans do not appear to include consideration of lessons learnt from monitoring carried out to assess the impacts and recovery from previous spills. For example, but not limited to, monitoring methods and sampling designs to be used, selection of relevant receptors and requirements for baseline data.
- 5.6.3. As noted in the previous letter (point 6.5.3), it is not clear that scientific monitoring will be carried out in the event of a diesel spill, if warranted. The submission states (p7-24) "in the event of Level 2 or 3 hydrocarbon spill operational and scientific monitoring will be triggered", that Level 2 spills 'may trigger activation of all or some of the OSMP studies' (s3.1 Appendix J) and that activation will be 'determined in consultation with stakeholders' (s3.3 Appendix J). However, 'level 2' has been removed from the initiation criteria in Table A.1 Appendix J and the performance outcome for a diesel spill includes only operational monitoring to support the spill response and does not refer to not scientific monitoring (Table 6.33). Subsequently the submission does not provide clear decision criteria about the scientific monitoring that will be initiated in the event of a Level 2 spill. In this context, potential impacts to wildlife resulting from a diesel spill that are described in the EP (p 6-119) (e.g. impacts to seabirds in a foraging BIA, the SBT fishery, plankton and matters of national environmental significance such as feeding whales) may not be evaluation as required by subregulation 14(8D). In addition, see points 5.4.1 and 5.4.3 regarding visual monitoring for wildlife at sea as part of operational monitoring, which may also be relevant for triggering scientific monitoring studies in the event of a diesel spill.
- 5.6.4. Acknowledging that additional detail about a post spill monitoring framework has been provided, sufficient preparation for monitoring has not been demonstrated (previous letter point 6.5.4) with respect to the nature and scale of the spill scenario and compared with industry benchmarks. It is not clear:
 - That baseline information obtained is matched to the monitoring proposed.
 - How monitoring will be prioritised among the receptors described as 'focus areas' in s2.2 Appendix J, for example, but not limited to, if there is seasonal variation in sensitivity of receptors, according to the different response strategies used e.g. dispersant use or other factors.
 - How monitoring will address requirements of management plans for listed species, commonwealth marine reserves, Ramsar wetlands and state marine parks (previous letter point 6.5.7).
 - How input from government agencies and relevant stakeholders has been included into the design of the OSMP and/or will be considered at the time of the spill.
 - What sampling and experimental designs will be used if baseline data is not available
 - How impacts to heritage features, if any, will be addressed, given that Table 6.53 highlights potential impacts of spilled oil to cultural heritage and native

title values in the AMBA, which has been used to inform the sensitivity assessment (p6-257).

5.6.5. Initiation and termination triggers have the option to be at the discretion of the IMT (Table A.1 Appendix J).

6. Consultation: The EP does not demonstrate that the titleholder has carried out the consultations required by Division 2.2A; and the measures (if any) that the titleholder has adopted, or proposes to adopt, because of the consultations are appropriate (10A(g));

6.1. Summaries of engagement have been supplied to each relevant person in the consultation records (Attachment 2 to the submission). However, a number of these make references to information contained in file notes or sections of the revised EP which do not appear to have been provided (e.g. responses to the SA government p328 of e-copy; to PIRSA p350 of e-copy; to PLCC p475 of e-copy); and so it is not clear that relevant persons have been provided with an adequate response to their objections, claims, proposed measures, and/or information requests.

This is particularly relevant when measures proposed by the relevant persons are not being adopted (e.g. on-site capping stack requests from a number of relevant persons).

6.2. A number of relevant persons have proposed measures for BP to adopt which have not been adequately evaluated, and the rationale for not adopting the measures is not appropriately justified. Examples include:

6.2.1. Proposals by relevant persons (e.g. ASBTIA, SAOGA, TWS) to have relief rigs, capping stacks, and associated equipment positioned closer to the activity to reduce spill response times.

6.2.2. Proposals by relevant persons (e.g. TWS) to use lower spill modelling thresholds to evaluate potential impacts to fisheries.

6.2.3. Proposals by relevant persons (e.g. ASBTIA, SAOGA) to conduct toxicity testing of oil, dispersant, and oil/dispersant mixtures on local species.

It should be noted that the justification for not adopting control measures should be included in the relevant impact and risk evaluations and ALARP demonstrations in the EP; as well as provided in responses to relevant persons.

6.3. A number of responses to relevant persons are referenced in Table 3.4 but not included in the full text records. Consequently, it is not clear that all objections/claims have been appropriately evaluated and responses provided. Examples include:

6.3.1. The response to objections/claims raised by the SA EPA in Records 8.9 and 8.10 is stated to be contained in Record 8.13. However, Record 8.13 is not included in the submission, and those objections/claims are not specifically addressed in the integrated response to the SA government contained in Record 7.14.

6.3.2. The response to objections/claims raised by the ASBTIA in Record 37.13 is stated to be contained in Record 37.14. However, Record 37.14 is not included in the submission, and subsequent correspondence from ASBTIA indicates that they had not received a response to their concerns.

6.3.3. The response to objections/claims raised by IFAW in Record 54.3 is stated to be contained in Record 54.5. However, Record 54.5 is not included in the submission.

6.4. The evaluation of spill response strategies states that the Shoreline Protection and Clean-up Plan has been prepared in consultation with the State Combat Agencies (DoT and DPTI) so ultimately the strategies outlined in the Plan are 'endorsed' by those agencies (p.6-

476). However, the consultation records and OPEP (4.5, 5.3.3 & 5.3.4)) indicate that these plans have not yet been completed or provided to the States.

7. The EP does not comply with the Act and the regulations (10A(h)).

- 7.1. A footnote on p 7-15 for Section 7.5 (Management of Change) references the Section 25 (OPGGS Act) definition of significance. However, this definition applies to the potential economic impact of petroleum operations on other petroleum or greenhouse gas operations, and therefore is not relevant to environmental management.

In addition to the above items, NOPSEMA requires further written information in accordance with subregulation 9A(1) of the Environment Regulations in relation to matters outlined in Attachment 1. NOPSEMA requests that clarifications in response to the request for further information be included within the modified EP upon resubmission.

Please also note that during the course of the assessment the items identified that are detailed in Attachment 2, which whilst not being material to NOPSEMA being able to make a decision, are items that should be addressed during the development of any future EP resubmission.

Resubmitting the Environment Plan

NOPSEMA has determined the Great Australian Bight Exploration Drilling Program EP must be modified and resubmitted by no later than 60 days from the date of this letter.

If BP Developments Australia Pty Ltd has circumstantial considerations affecting their ability to meet this timeframe, a written submission should be made to NOPSEMA within 60 days of receipt of this letter setting out those considerations. NOPSEMA will consider these in its determination of what constitutes a reasonable opportunity in this instance. Should a written submission not be made within the time specified, NOPSEMA will proceed on the basis that the date identified above will be met.

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

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

Please consider the following advice on resubmitting an EP at this stage of the assessment process:

- In resolving the identified issues in this notice, it is the titleholder's responsibility to consider whether any amendments will affect other components of the EP and to ensure that any subsequent submissions meet all the requirements of the Environment Regulations.
- Titleholders are reminded that in order to demonstrate that identified risks have been adequately assessed, and that control measures will manage risks to acceptable levels and ALARP, all relevant supporting information must be included in an EP, including resubmissions.
- NOPSEMA's assessment of the resubmitted EP will be in accordance with the provisions of subregulation 10(4).

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

Should you require further information or clarification of the information contained in this notice,
please contact [s 47F - personal](#) who is the lead assessor for your submission, on [s 47F - personal information](#)

Yours sincerely,
[s 47F - personal information](#)

Environment Manager

16 May 2016

Attachment 1 – Content that requires further written information.

#	Section of Submission	Environment Regulation	Further written information requested
Oil spill scenario			
1.	EP Figs. 6.49 and 6.54, OPEP Fig. 4-3	13(5),(6)	<p><u>Behaviour and fate of oil:</u></p> <p>A predicted mass balance graph from deterministic modelling of the relief well simulation for maximum oil ashore without deployment of SSDI shows a large decrease in surface oil and a corresponding increase in dispersed oil at about ten days after the spill and appears more consistent with expected effects of deploying SSDI at ten days after the spill.</p> <p>Please clarify the accuracy of the graph and whether it represents a prediction of oil behaviour without SSDI.</p>
2.	Table 6.87	13(5),(6)	<p><u>Relief well:</u></p> <p>The EP identifies that the Stromlo-1 Relief Well Plan is included in Attachment 2, but is not included in the submission.</p> <p>Please provide a copy of this Attachment if it was intended to be included in the submission or ensure that the submission includes the relevant details from this plan to support the assessment of the effectiveness of drilling a relief well.</p>
3.	Fig. 6-64, pp.6-142, 6-392	13(5),(6)	<p><u>Hydrocarbon concentrations:</u></p> <p>There are inconsistencies in the descriptions of the hydrocarbon concentrations of dispersed and dissolved oil.</p> <p>Please clarify the following descriptions of hydrocarbon concentrations which appear inconsistent with the 58 ppb water column threshold defined for the stochastic modelling (p.6-142): modelling outputs of SSDI scenarios (Fig. 6-64) are presented with a minimum 0.01-0.1 ppm range and the text references a "10 ppm threshold" (p.6-392) for dispersed and dissolved oil.</p>
4.	Section 6, Attachment 6	13(5),(6)	<p><u>Biodegradation of oil:</u></p> <p>The EP (6.3.5) cites studies into hydrocarbon degrading microbial communities in the GAB and notes that it has a "naturally low density of hydrocarbon bacteria".</p> <p>Please provide further information on how these studies informed the predicted biodegradation rates for the nearfield modelling (e.g. Attach. 6 predicts 9.2% biodegradation after 3 days), stochastic modelling of a blowout and the effect of SSDI application (Figs. 6.49, 6.54), and any level of conservatism applied to the predicted biodegradation rates given uncertainties around the oil type and the application of an analogue.</p>
5.	OPEP p.92	14(8AA)	<p><u>Tactical Response Plans:</u></p> <p>Please provide further information on the proposed gap</p>

#	Section of Submission	Environment Regulation	Further written information requested
			assessment and purchase strategy to be applied to equipment listed for the BP GAB Supply Base including whether this information relates to other equipment analysis (e.g. detailed availability analysis (for personnel and equipment) to be provided in the TRPs
6.	OSMP	14(8D)	<p><u>OSMP triggers:</u></p> <p>The initiation and termination triggers provided in the OSMP framework do not specify whether they are 'and' or 'or' triggers.</p> <p>Please describe the initiation and termination triggers to clarify what circumstances are required to be met before a monitoring scope is initiated and terminated so that the OSMP is appropriate to the nature and scale of the potential environmental impacts</p>
7.	OPEP 5.3.3, 5.3.4	14(8E)	<p><u>Response structure</u></p> <p>Responder checklists (OPEP Appendix C) identify that the IC will establish a unified command structure with appropriate government agency On-Scene Coordinators where appropriate, and OPEP (3.5) states that relevant State agencies will be part of the unified coordination of the IMT. Consultation records also show that BP held discussions with WA and SA oil spill response agencies in relation to the need to establish a unified command structure in the event of an oil affecting Commonwealth and State waters (e.g. consultation records 7.11 & 29.2) and made a commitment to distribute an incident structure/framework including BP/DoT/SA/AMSA (record 29.2).</p> <p>Please provide a detailed description of the proposed unified command structure to be established with State spill response agencies and how response decision-making will operate under this structure.</p>
8.	OSMP	14(8D)	<p><u>Monitoring the impacts of response activities:</u></p> <p>Currently the objective of OMS4 is to investigate the fate and behaviour of dispersed hydrocarbons, and SMS5 is to determine, quantify and monitor the impacts of dispersant use and ISB on the marine environment, though only water quality will be examined. Impacts of dispersed oil, ISB, shoreline response activities and OWR may also be detected through other currently proposed SMS studies e.g. SMS6, SMS7, SMS8, SMS9, SMS10, SMS11.</p> <p>Please provide information to demonstrate how the OSMP studies proposed will provide for monitoring of the impacts to the environment from aspects of the response activities, such as dispersant application, in situ burning, impacts to the shoreline from protection, clean-up and waste management activities and OWR.</p>

#	Section of Submission	Environment Regulation	Further written information requested
9.	Table 7.3 and S2.4.2 Appendix J	14(8D)	<p>Currently a role listed in Table 7.3 includes a contactor "New Ventures GWO" with an Environment Manager and a Crisis and Continuity Manager that ensure competency of the BP IMT.</p> <p>Please include information about competency of the IMT with respect to making decisions regarding the OSMP.</p> <p>Additionally, please include specific competency requirements for defining 'experience', 'relevant qualifications', 'training' and 'knowledge' for the BP 'in house specialists' and 'Group marine Science Expert'.</p>
10.	EP 6.2.6 Table 6.33 and 6.2.7 Table 6.66	13(7)(b)	<p>The performance outcome for diesel spill is 'no diesel spills to the sea' while the performance outcome for a well blowout is 'prevent the uncontrolled release of oil to the sea'. These EPOs are not consistent with each other.</p> <p>Please provide an appropriate environmental performance outcome for a well blowout consistent with the performance outcome for a diesel spill.</p>
Protected matters			
11.	Section 4	13(3)	<p><u>BIA for listed bird species:</u></p> <p>While details are given regarding existence of biologically important areas (BIA) for listed threatened, migratory and some marine birds within parts of the AMBA, it is unclear whether these BIA may overlap the drilling area.</p> <p>Please provide further information clarifying the presence of BIA for EPBC Act listed bird species in the drilling area.</p>
12.	Section 4	13(3)	<p>Section 4 of the EP (description of the environment) includes information that is not consistent with information in published management plans or in some cases the information is absent.</p> <p>Please provide further information to:</p> <ul style="list-style-type: none"> - Ensure maps included in the EP that show distribution information and biologically important areas for the Pygmy Blue Whale and the Great White Shark are consistent with the information shown by maps in the relevant recovery plans for these listed threatened species; - Detail the presence of the listed migratory Killer Whale; and - Describe, using the most recent information, the ecological character of listed Ramsar wetlands that may be affected. - Describe the full range of conservation values for CMRs e.g. seafloor features and upwellings, which may inform priorities for

#	Section of Submission	Environment Regulation	Further written information requested
			<p>spill response and monitoring activities.</p> <ul style="list-style-type: none"> - Describe beaked whales, which are listed marine species, have been identified but not described. - Describe deep water crabs that have been identified in the risk evaluation but have not been described under the description of the environment.
13.	Table 6.10	13(7)	<p><u>VSP:</u></p> <p>An EPS for application of EPBC Act Policy Statement 2.1 for VSP sets a level of performance for a night time and low visibility procedure. It does not refer to the consideration of whale instigated power downs as per the Policy Statement.</p> <p>Please clarify what consideration has been given to the implementation of power downs to meet the EPS for the night time and low visibility procedure.</p>
Risk assessment and management			
14.	p6-43	13(5,6)	<p><u>Representativeness of modelling - metocean conditions:</u></p> <p>BP's drilling discharge modelling report (BP 2013), which while not included in the submission is available on line, states that "Current and wind data for 2010 was considered to be representative of recent and normal met ocean conditions, hence was selected as the "timeframe" for drilling discharge dispersion modelling".</p> <p>Please provide further detail to explain the selection of the modelling timeframe to demonstrate it is appropriate and representative for environmental impact assessment.</p>
15.	Section 6.1.5	13(5,6)	<p><u>Representativeness of modelling – drill cuttings:</u></p> <p>The EP outlines a 6-string base case well design and provides estimated volumes of drill cuttings and fluids discharge (Table 2.6). The EP also states that modelling was performed based on 7-string well and fluids designs and that of the designs available at the time of modelling, that with the largest overall casing/hole volume was used to ensure worst-case discharges were considered (p6-45).</p> <p>Please provide information to demonstrate that cuttings and fluids discharges associated the 7-string well and fluids design is representative of the proposed activity and appropriate for informing the evaluation of all environmental impacts and risks for drilling-related discharges.</p>
16.	Table 6.4	13(5,6)	<p><u>Benthic disturbance:</u></p> <p>A control is proposed to avoid direct disturbance around and known seabed volcanic mounts (implementing a 3 km buffer between drilling and Anna's Pimple and</p>

#	Section of Submission	Environment Regulation	Further written information requested
			<p>Murray's Mount).</p> <p>Please provide a description of how this control will be implemented as described (e.g. what points are the references used to measure the required buffer distance of 3 km?)</p>
17.	Table 6.16	13(7)	<p><u>Drill cuttings:</u></p> <p>The control measure for SBM operations is to ensure discharge contain <6.9% ROC. The corresponding EPS is for the ROC to be less than 6.9% (wet weight) as an average for the SBM sections of the well.</p> <p>Please clarify if average ROC is calculated for each section of a well drilled using SBM or over all sections drilled using SBM, and why this is considered appropriate to determine whether the EPS is met</p>
18.	(p3-53, p3-9)	14(3)	<p><u>Underwater noise:</u></p> <p>BP has made undertakings in response to stakeholder concern to:</p> <ul style="list-style-type: none"> - ground truth modelling against actual engine noise once afloat (p3-53) and capture this work within an internal tracking system (p3-9); and. - to have an acoustic doppler current profiler (ADCP) to monitor real time currents in the vicinity of the rig (p3-53), <p>Please provide information to describe how results from implementing these measures will be used within the environmental management system, to ensure that for the duration of the activity impacts and risks will be of an acceptable level and reduced to ALARP consistent with requirements of regulation 14(3).</p>
19.	Section 4.8.6	13(2)	<p><u>Shipping traffic:</u></p> <p>The shipping traffic information presented is dated December 2014, despite updated information being available monthly on AMSA's website (as advised in early consultation).</p> <p>Please update the description of the environment, and where relevant the assessment of impacts and risks (including control measures if required), to account for up-to-date information on shipping traffic.</p>
20.	Section 2.6.6	13(5)	<p><u>Wellhead removal:</u></p> <p>Section 2.6.6 states that the wellhead is intended to be left permanently in place. An assessment of the impact of this is included in Section 6.1.1, with the environmental risks stated to be low.</p> <p>Please demonstrate why not removing the wellheads as part of the activity is ALARP and Acceptable (noting titleholder obligations under the OPGGS Act (S572 and 270)).</p>

#	Section of Submission	Environment Regulation	Further written information requested
21.	Section 2.6.6	13(5)	<p><u>Wellhead removal:</u></p> <p>The EP identifies a seabed disturbance impact as the “potential for wellheads to act as an artificial substrate for marine growth, thereby changing the spatial distribution of fish among known and potential environmental impacts for seabed disturbance”. However potential consequences for the natural environment associated with changing spatial distribution of fish have not been evaluated.</p> <p>Please also provide further information regarding the potential ecological consequences associated with changes in fish distribution that may occur due to the presence of wellheads.</p>
22.	Table 6.6	13(5,6)	<p><u>VSP:</u></p> <p>A 33dB adjustment is made estimate a 24 hour unweighted SEL for vertical seismic profiling. It is unclear on what basis this adjustment factor was determined and hence whether it is appropriate for analysing risk associated with exposure.</p> <p>Please explain reasoning for the 33dB adjustment to demonstrate that impacts from VSP are reduced to ALARP.</p>
23.	Section 6.1.2	13(5,6)	<p><u>VSP:</u></p> <p>There is a potential for concurrent VSP and seismic survey operations to occur in the area.</p> <p>Please provide further information to detail considerations relevant to potential cumulative impacts associated with concurrent operations of VSP and other seismic sound sources that may reasonably expected to interact.</p>
General			
24.	Page 2-8 (Section 2.5.1)	13(1)	<p><u>Scope of the petroleum activity:</u></p> <p>The description of the scope of the EP is inconsistent. Page 2-8 of the EP (Section 2.5.1) states that movement between wells is not considered a petroleum activity. However, Section 1.3 states that the petroleum activity is defined as ‘Works undertaken from the time that the MODU arrives at the first well location until it demobilises from the Petroleum Safety Zone (PSZ) of the last well location.’</p> <p>Please provide a consistent definition of what constitutes the petroleum activity taking into account the links between a petroleum activity and the rights conferred, or obligations imposed, on a titleholder under the <i>Offshore Petroleum and Greenhouse Gas Storage Act 2006</i> (refer <i>NOPSEMA Guidance Note GN1343</i>).</p>
25.	Section 7.10	14(3)	<p><u>EP Review:</u></p>

#	Section of Submission	Environment Regulation	Further written information requested
			<p>Section 7 of the EP includes descriptions of an EP management of change process (section 7.5) and ongoing EP and OPEP review (section 7-10). Section 7.10 acknowledges the likely generation and publication of new information over the duration of the activity and that lessons may be learned from drilling initial wells which may lead to revision of management controls. EP review and revision is proposed to occur at least annually. The EP also states it will also be updated following significant findings or new information becoming available from, for example, audits, investigations, exercises, changes to organizational structures or changes to industry best practice.</p> <p>Please provide further information to demonstrate that the EP review and update process will be responsive to the release of new environmental and management information or in view of lessons learned from drilling any well so that new/additional/alternative information will be applied to the management of any well in the sequence.</p>
26.	Table 7.7	16(c)	<p><u>Reportable incidents:</u></p> <p>It is noted that a consequence level has been assigned to define the reportable incident threshold. The definition of a reportable incident in Regulation 4 describes "moderate to significant environmental damage". A consequence level of 'E/F' on BP's matrix describes a "moderate degradation of the environment". However, this consequence level has not been assigned as the threshold for a reportable incident.</p> <p>Please provide justification for the selection of a severity level above this for reportable incidents taking into account the definition of a reportable incident provided in the Environmental Regulations.</p>
Consultation			
27.	Table 3.1	16(b)	<p><u>Consultation:</u></p> <p>Some stakeholders have been removed from the list of consulted relevant persons (e.g. WA Department of Fisheries; the GAB Trawler Industry Association). However, it appears that consultation for these relevant persons was never included in Rev 0; and there is no justification for their removal as relevant persons.</p> <p>Please provide clarity on whether these relevant persons were consulted; and relevant consultation records if applicable.</p> <p>If they were not consulted, please provide rationale as to why they are not considered relevant.</p>

Attachment 2 – Items for consideration

During the course of the assessment the following of items were identified which whilst not being material to NOPSEMA being able to make a decision, are items that should be addressed during the development of any future EP resubmission. However, NOPSEMA does not require a formal written response to these items.

No.	Section of Submission	Item for amendment
1	Section 6	<p>There are statements within the impact and risk evaluation which are not material to the NOPSEMA assessment findings and; should be removed or supported by an appropriate level of analysis.</p> <p>Examples include stating that impacts of spill response strategies may be offset by the use of vessels from the local fishing fleet (Table 6.90); and stating that "In most instances, the increased activity associated with cleanup operations will be a welcome boost to local economies" (p6-461).</p>
2	Table 4.4 & p4-54	The EP identifies the sperm and killer whales as 'listed marine species', although they are 'listed migratory species' as identified by the titleholder's protected matters search.
4	P 6-48	<p>"The predicted thickness of deposited drill solids >1 mm consists of a circular zone:</p> <p>Summer - about 1 km in radius (0.785 km²)..."</p> <p>Modelling report describes a circular zone about 500m in diameter. For a circular zone the area would be 2.5km²</p>
5	P 6-47	<p>"The area of cuttings deposition thickness >1 mm covers an area of approximately:</p> <p>Winter... with a maximum thickness of approximately 12 cm extending out over a 100 m radius on the seabed from the well location".</p> <p>The model report does not detail the extent of the thicker deposition zone and it does not appear that the extent could be accurately estimated from figures provided given their resolution.</p>
6	P 6-126	<p>There is an incomplete sentence in risk evaluation p6-126</p> <p>"However, because such large numbers of eggs and larvae are generally produced by most species and because they have large spawning grounds, such spills are unlikely to create m".</p>

7	EP 6.2.6 P 6-130	<p>A statement has been added to risk evaluation in table p6-130, that BP has not identified any social impacts arising from the event of a diesel spill and 'since there are no unresolved stakeholder concerns...BP interprets this event to be socially acceptable'.</p> <p>However, this statement is contradictory to the risk evaluation that includes relevant discussion of potential oiling to fishing gear and fish taint. Furthermore, in the event of a large diesel spill there may impacts to recreation and tourism. BP should consider removing this statement as it is unlikely that a large diesel spill will be viewed as 'socially acceptable'.</p>
8	EP 6.2.7	<p>The statements that appear in some summary tables for each impact i.e. "BP has not identified any social impacts arising from this event" and "no unresolved stakeholder concerns have been raised" with regard to response activities and "therefore BP interprets this event to be socially acceptable" The statement does not accurately identify that all stakeholders have not been provided with the OPEP.</p>