Bonaparte Basin 3D Marine Seismic Survey Environment Plan

1. Purpose of this report

NOPSEMA has accepted the Bonaparte Basin 3D Marine Seismic Survey Environment Plan (the EP) submitted by INPEX Browse E&P Pty Ltd (the titleholder) for a seismic survey activity in the Bonaparte Basin within the calendar years of 2023 and 2024.

As required by the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (the Environment Regulations), the public was provided with an opportunity to comment on the EP. After this period, the titleholder took into account public comments and prepared a Report on Public Comment which is published on NOPSEMA's website[1].

Following the public comment period, the titleholder submitted the EP for assessment by NOPSEMA on 4 May 2023. NOPSEMA has since completed its assessment of the EP and has determined that it is satisfied that the EP meets the criteria for acceptance[2] on 28 November 2023.

This report explains how NOPSEMA took into account the comments received from the public during the public comment period in making its decision[3]. Comments have been grouped into 'key matters' that capture the key issues, concerns or new information provided during the public comment process.

This report accompanies the accepted Bonaparte Basin 3D Marine Seismic Survey Environment Plan, Revision 5 submitted by the titleholder, which is available on the NOPSEMA website and should be referred to for further information.

1.1. Information relevant to NOPSEMA's decision:

In making the decision to accept this EP, NOPSEMA took into account:

- the Environment Regulations;
- NOPSEMA Assessment Policy (PL0050), Environment Plan Assessment Policy (PL1347), Environment Plan Decision Making Guidelines (GL1721) and Consultation in the course of preparing an Environment Plan guideline (N-04750-GL2086);
- Bonaparte Basin 3D Marine Seismic Survey Environment Plan;
- the information raised by relevant persons, government departments and agencies that is relevant to making a decision;
- the information raised through public comment that is relevant to making a decision;
- Six public comment submissions received during the public comment period with issues raised in relation to the key matters outlined in the below report;

[1] Titleholder report on public comments – Bonaparte Basin 3D Marine Seismic Survey Environment Plan, [dated: 2 May 2023]
[2] Environment Regulations, Regulation 10A Criteria for acceptance of environment plan
[3] Environment Regulations, Regulation 11(3) Publication of notice, etc.

- relevant plans of management and threatened species recovery plans developed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and relevant guidance published by the Department of Climate Change, Energy, the Environment and Water; and
- effectiveness of relevant persons consultation with regards to ensuring a broad capture/identification of relevant persons, as well as the adoption of appropriate measures as a result of relevant persons consultation.

2. Next steps

Responsibility for the ongoing environmental performance of the seismic survey activity remains, at all times, with the titleholder.

NOPSEMA has legislated responsibilities to inspect and investigate offshore petroleum and greenhouse gas storage activities, and to enforce compliance with environmental law. These functions will be applied to this activity in accordance with NOPSEMA's policies.

3. Sensitive Information

Sensitive information received during the public comment period, such as the names and contact details of commenters and specific information identified by the commenter or relevant person as 'sensitive', is not published in this report. Sensitive information is contained in a sensitive information part of the EP which has been considered by NOPSEMA during its assessment process.

4. Further information

If you would like further information about the activity, please contact the titleholder's nominated liaison person specified in the EP and on NOPSEMA's webpage for the Bonaparte Basin 3D Marine Seismic Survey.

If you would like to be notified of regulatory information on the activity, such as start and end dates and enforcement actions (if any), please subscribe to updates from NOPSEMA's website.

How NOPSEMA has taken into account key matters raised during public comments during the assessment and decision making process for the Bonaparte Basin 3D Marine Seismic Survey Environment Plan

#	Issues raised for public comment	Titleholder response	NOPSEMA's assessment and decision (based on the final version of the EP)
1	**Matter:** Impacts to the marine environment and marine protected areas. **Claim:** The proposed activities have the ability to impact on the environment including marine impacts and impacts to marine protected areas. The activities have the potential to result in direct and indirect impacts to ecologically significant offshore, nearshore and onshore ecological communities, including impacts to coral reefs, seagrass communities, mangroves, migratory birds, sea turtles, dugongs, whales, diverse finfish communities.	INPEX agrees with commenter opinions that the activity has the potential to result in both direct and indirect impacts to ecologically significant offshore, nearshore and onshore ecological communities. Therefore, in accordance with Division 2.3, Regulation 13(5) of the OPGGS (E) Regulations 2009, an environmental risk assessment was undertaken to evaluate impacts and risks arising from the proposed activity using the methodology described in Section 6 of the EP, that aligns to International Standards and best practice. Potential impacts and risks to identified values and sensitivities have been assessed in Section 7 and 8 of the EP, where control measures and possible alternatives are identified to prevent or mitigate threats. If controls are judged during the impact and risk evaluation as inadequate to manage the identified threat, additional safeguards or controls are proposed. Potential environmental impacts and risks are only deemed acceptable once all reasonably practicable alternatives and additional measures have been taken to reduce the potential impacts and risks to as low as reasonably practicable (ALARP). INPEX has provided further responses within this titleholder report to other specific claims made by the commenter about effects to specific receptors.	NOPSEMA acknowledges the matter raised and agrees that there is the potential for the activity to impact upon ecological communities and marine protected areas such as Australian Marine Parks (AMPs) if not managed appropriately. In making a decision regarding this matter, NOPSEMA took into account the content of the EP (including activity-specific acoustic and hydrocarbon spill modelling undertaken for assessing the extent and nature of potential impacts), NOPSEMA's Decision Making Guidelines (GL1721), the full text of relevant person consultation in the sensitive information report, relevant scientific literature, relevant species conservation management and recovery plans, AMP network management and bioregional plans. During the course of the assessment, NOPSEMA requested additional information about control measures to manage impacts to the Oceanic Shoals Marine Park (marine protected area), which was also a matter raised during the

		No changes have been made to the EP.	titleholder's consultation with the Director of National Parks. In response to this, the titleholder provided information to clarify that any trailing equipment will be stowed if vessels transit through the marine park. NOPSEMA also requested additional information and the adoption of additional control measures to reduce impacts to natural values of the Oceanic Shoals Marine Park including listed cetacean and marine turtle species. In response to this, the titleholder adopted additional adaptive management control measures to reduce impacts of underwater noise to pygmy blue and humpback whales, as well as additional controls from the National Light Pollution Guidelines for Wildlife to reduce impacts of light emissions on marine turtles. The titleholder undertook a comprehensive assessment of the potential environmental impacts and risks to all identified values and sensitivities that may be affected by the planned and unplanned aspects of the activity (including ecological communities and marine protected areas) in Section 7 and 8 of the EP. NOPSEMA is reasonably satisfied that with the adoption of effective control measures, impacts of the survey to ecological communities and

			marine protected areas will be reduced to ALARP and an acceptable level.
2	**Matter:** Timing of seismic survey activities to consider other sensitivities **Claim:** The timing of the seismic survey to avoid critical periods of high biological activity is not given adequate consideration in the EP. The timing of the seismic survey does not give consideration to coral spawning, to avoid impacts to other species that may be attracted to this spawning event.	The timing of key ecological and socio-economic sensitivities relevant to the seismic survey are presented in Section 4.10 of the EP. Where key seasonal receptors have been identified as being sensitive to the effects of underwater sound, timing has already been considered as part of the additional safeguards/control measures (ALARP Evaluation) process, including prawn spawning (Section 7.1.5), fish spawning (Section 7.1.6), marine turtles (Section 7.1.8), commercial fishing operations – Northern Prawn Fishery (Section 7.2.1). Coral reefs and coral spawning are described in Section 4.7.2 of the EP. Coral spawning is not considered to be directly at risk from planned activities, including underwater sound emissions. Dispersal of larvae and coral recruitment is described as being limited to within a few kilometres to a few tens of kilometres from natal reef patches. The Active Source Area is located in water depths greater than 67 m and the predominantly soft sediment seabed habitats in this area of the Joseph Bonaparte Gulf do not include coral reefs. The closest coral reefs are located greater than 85 km away. Given that the effects of sound to eggs, larvae and invertebrates are localised (typically within tens or hundreds of metres from the seismic source), no impacts to coral reefs or coral recruitment at such long distances will occur. The impact assessment in Section 7.1.4 of the EP will be updated to reflect this. Table 4-7 in Section 4.10 of the EP will also be updated to reflect coral spawning periods. Marine fauna (e.g., mobile invertebrates, fish, turtles, cetaceans) that may be attracted to coral spawning events are also acknowledged as having a wider range and may move within or near the Active Source	NOPSEMA recognises that there is the potential for the activity, if not appropriately managed, to have unacceptable impacts on marine fauna during sensitive periods. In making a decision regarding this matter, NOPSEMA took into account the content of the EP (including activity-specific acoustic modelling undertaken for assessing marine fauna sound exposures), NOPSEMA's Decision Making Guidelines (GL1721), the full text of relevant person consultation in the sensitive information report, relevant scientific literature and relevant conservation management, recovery and bioregional plans. The timing of key ecological and socio-economic sensitivities relevant to the proposed activity are identified in the EP. This includes coral spawning which occurs from October to May each year. NOPSEMA acknowledges that the Active Source Area is located within water depths greater than 67m and the seabed habitat within this area does not consist of coral reefs. The nearest coral reef is located more than 85km away. The titleholder undertook a comprehensive assessment of the potential impacts and risks to

		Area. Potential impacts to transient marine exposed to the moving seismic source (including invertebrates, fish, cetaceans and marine turtles) are already assessed in the various sub sections of Section 7.1, based on an extensive body of peer-reviewed literature and internationally recognised effects criteria. INPEX has reviewed the impact assessments in light of the comments made and these remain valid. Irrespective of the reason for marine fauna moving through the Active Source Area to forage (coral spawning or otherwise), exposures of transient fauna to seismic sound will be temporary and the impacts assessed are the same. INPEX also acknowledges that marine fauna will move through the potential exposure zone defined for spilled hydrocarbons. Potential impacts to coral larvae and marine fauna resulting from exposure to spilled hydrocarbons are assessed in Section 8.2.5. Given that no impacts to coral spawning will occur from exposure to underwater sound and that a vessel collision and hydrocarbon spill are highly unlikely to occur, timing of the proposed activity (avoidance of the coral spawning period) in not practicable or justified.	transient marine fauna that may be attracted to coral spawning events in Section 7 of the EP. NOPSEMA is reasonably satisfied that the titleholder has provided a detailed evaluation of potential impacts and risks to coral spawning and/or the transient marine fauna that may be attracted to these events and impacts of the survey will be reduced to ALARP and an acceptable level.
3	**Matter:** Consideration of the precautionary principle in decision making by the Regulator **Claim:** Due to data gaps and scientific uncertainty, NOPSEMA's decision-making should be delayed until more data becomes available; until	The precautionary principle is that lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment where there are threats of serious or irreversible environmental damage (i.e., if there is scientific uncertainty and potential for serious or irreversible environmental damage). INPEX acknowledges that data gaps and some level of scientific uncertainty exists in relation to the effects of seismic surveys, as is the case with all fields of science. However, an extensive body of	NOPSEMA acknowledges the matter raised and agrees that the precautionary principle should be applied where there is uncertainty regarding the risks and impacts to the environment. In making a decision regarding this matter, NOPSEMA took into account the content of the EP, NOPSEMA's Decision Making Guidelines (GL1721), the principles of Ecologically Sustainable Development (ESD) under the EPBC

	such time that risks can be conclusively established as insignificant; or until such time as alternative technologies or practices are available to mitigate harm.	research, as well as empirical evidence, exists on the effects of seismic surveys and INPEX does not consider that the extent of the data gaps and level of uncertainty is such that reasonable conclusions and decisions regarding the level of potential impacts cannot be made at the present time. The potential impacts to species and ecosystems that may arise from the proposed survey are not considered to be 'serious or irreversible'. It should also be noted a level of precaution is generally applied in the assessments, including conservative effects thresholds or exposure scenarios, and these are described in the EP. For example: • **Plankton:** Most research indicates that the effects of seismic exposure to planktonic organisms are limited to within a few metres or tens of metres from the seismic source. The impacts assessment in the EP applies some conservatism and considers some research which indicates that some chronic effects may occur over several hundreds of metres or more. Even accounting for these more extensive effects ranges, the impacts to planktonic communities are localised and temporary; in the context of natural mortality rates and turnover, plankton communities will recover quickly and limited impacts to the food web or to species recruitment is expected in the context of natural variability. Impacts to plankton communities of the Joseph Bonaparte Gulf will not be serious or irreversible. Further information is included in the assessment in Section 7.1.4. • **Invertebrate communities:** The assessment of impacts to invertebrate communities considers available research into the effects of seismic on different invertebrate organisms. While it is acknowledged that research may not be available at an individual	Act, the full text of relevant person consultation in the sensitive information report, relevant scientific literature, AMP network management plans, bioregional plans and relevant conservation management and recovery plans. The EP provides appropriate and contemporary scientific literature in its evaluation of potential impacts to marine fauna from the activity. NOPSEMA considered the activity-specific acoustic modelling undertaken for this activity in conjunction with control measures that will be implemented to reduce impacts to marine fauna to ALARP and acceptable levels. The titleholder has included appropriate control measures and additional adaptive management measures in order to address uncertainties in predictions of impact. For example, adaptive management measures will be implemented to account for uncertainties relating to unknown life histories of cetacean species such as the Omura's whale, the potential for species to be present outside of their documented core distribution ranges/Biologically Important Areas (BIAs), and to account for periods of low visibility. In making a decision regarding this EP, NOPSEMA has considered the principles of ESD (including the precautionary principle) under the

		species-specific level, similarities in the physiological characteristics of different invertebrate organisms and their abilities to detect sound and vibration allow the available research to provide a reasonable proxy for the effects to a variety of different organisms. The impact assessment accounts for research that suggests some types of organism (not all) may experience a range of lethal and sub-lethal effects, and that some effects may occur gradually over weeks or months following exposure. Importantly, the Active Source Area is located in an area of soft sediment seabed communities, not an area where particularly significant and diverse invertebrate communities exist. The recovery of similar soft sediment communities subject to much greater levels of disturbance or even complete removal (e.g., dredging) demonstrates that communities recover through recruitment from adjacent areas of seabed. No long-term population or community level impacts are expected, therefore, impacts to invertebrate communities will not be serious or irreversible. Further information is included in the assessment in Section 7.1.5. • **Fish:** An extensive body or literature concerning the effects of seismic on fish is reviewed in the EP. This research includes recent research into the demersal fish assemblages present off northern Australia, undertaken by the Australian Institute of Marine Science which confirms that there are no long-term behavioural changes. A precautionary approach to estimating the proportion of the Joseph Bonaparte Gulf spawning biomass for key species has been applied, and this is found to be negligible. Further information is included in the assessment in Section 7.1.6.	EPBC Act, and is reasonably satisfied that impacts of the survey on marine fauna will be reduced to ALARP and an acceptable level.

		• **Cetaceans:** The area where the proposed activity will be undertaken is not significant habitat for any cetacean species. Short-term behavioural impacts to transient animals only. Precautionary assessment and inclusion of controls for species not listed as threatened/migratory (i.e., Omura's whale) have been included in recognition of uncertainties around their life history in the NWMR. Further information is included in the assessment in Section 7.1.7. • **Turtles:** The assessment notes, that relatively localised and transient behavioural effects on turtles within the foraging BIA may occur; however, brief disturbances do not have potential for serious or irreversible environmental damage. Further information is included in the assessment in Section 7.1.8. No changes have been made to the EP.	
4	**Matter:** Unacceptable/ uncertainty of impacts to marine fauna from seismic activities. **Claim:** There is a large body of scientific literature demonstrating that seismic testing impacts a wide range of species, some of which are expected to include those using the PEZ.	A number of specific references and citations were provided by the commenter, many of which describe the effects of seismic on a range of marine organisms or species. INPEX acknowledges that the sound produced during seismic surveys may result in a range of effects to different types of marine fauna. However, while research provides important understanding of potential effects, it does not always address the matter of consequence (or potential impact). For example, effects such as those reported in the scientific literature, are the broad range of potentially measurable changes that may be observed in individuals, groups of animals, or even habitats as a result of sound exposure (e.g., behavioural response). The resulting impacts or consequences of the effects must consider if the effects to individuals or groups may give rise to consequences of ecological significance. Thus, the role of environmental impact and risk	NOPSEMA acknowledges the matter raised and recognises that there is potential for the activity, if not properly managed, to have unacceptable impacts to marina fauna. In making a decision regarding this matter, NOPSEMA took into account the content of the EP (including activity-specific acoustic modelling undertaken for assessing marine fauna sound exposures), NOPSEMA's Decision Making Guidelines (GL1721), the principles of ESD under the EPBC Act, the full text of relevant person consultation in the sensitive information report, relevant scientific literature, and relevant AMP network management plans, bioregional plans,

		assessment is not to just consider the known or likely effects but to consider location-specific and activity-specific context to suggest what the ecological consequence of those effects may be; the effect does not indicate the significance, whereas the impact/consequence takes into account the extent, severity, and duration of the effect upon animal populations and ecological communities. Many of the references provided by the commenter have already been reviewed and referenced in the EP, along with a broader body of research. Section 7.1 of the EP presents the relevant research as well as the potential exposure scenarios considered to reach conclusions regarding the potential impacts and consequence. Further justification and response to individual claims: • **There are risks to marine mammals from seismic activities due to their reliance on acoustics to communicate, locate food, and navigate.** Refer to Section 7.1.7 where potential effects to marine mammals (including potential auditory impacts, behavioural impacts, and masking of biologically important sounds) have been discussed and assessed. • **Seismic activities have a significant impact on some whale species.** The literature describes effects such as behavioural disturbance and avoidance but does not confirm that seismic activities have a significant impact on marine mammals. Some of the references cited by the commenter in relation to whales are also included in Section 7.1.7 of the EP. A summary of some additional papers cited by the commenter has also now been included in the literature review in Section 7.1.7, although it does not alter the outcome of the risk assessment. Behavioural effects	and conservation management and recovery plans. NOPSEMA considered the activity-specific acoustic modelling undertaken for this activity in conjunction with the control measures that will be implemented to reduce impacts to marine fauna to ALARP and acceptable levels. The titleholder has included appropriate control measures and additional adaptive management measures to address uncertainties in predictions of impact. For example, adaptive management measures will be implemented to account for uncertainties relating to unknown life histories of cetacean species such as the Omura's whale, the potential for species to be present outside of their documented core distribution ranges/BIAs, and to account for periods of low visibility. During the course of the assessment, NOPSEMA requested the titleholder consider adoption of additional adaptive management measures for pygmy blue and humpback whales. In response to this request, the titleholder adopted additional adaptive management measures including increased shutdown zones and start-up delays if pygmy blue or humpback whales are encountered during the activity.

		of seismic are relatively localised and do not typically result in significant impacts to species providing that key life stages and seasonally important habitats (e.g., for breeding, foraging, etc) are not extensively disturbed. Seismic surveys have been undertaken regularly off NW Australia since the 1960s with no apparent significant impact to marine mammal populations; the WA humpback whale population has recovered to the highest numbers of any humpback population globally over the same timeframes and in the same waters as many of these seismic surveys. • **Humpback whales exposed to vessels towing seismic air gun arrays showed a reduction in their social interactions. Current mitigation strategies and recommendations were insufficient to prevent detrimental effects.** The research underpinning this statement is referenced in the EP. The effects cited are relatively localised and temporary. In the broader context of the activity, noting that the Active Source Area and surrounding waters do not provide important habitat for any marine mammal species, and noting that the seismic source is continually moving, the effects will be temporary and transient. • **Humpback whales avoided non-threatening noise stimulus from seismic air gun noise. That is, they were changing their movement behaviours.** As described above. • **There are uncertainties in the magnitude of impacts from seismic testing to cetaceans, fish, and invertebrates.** INPEX acknowledges that data gaps and some level of scientific uncertainty exists in relation to the effects of seismic surveys, as is the case with all fields of science. However, an extensive body of research, as well as empirical evidence, exists on the effects of	The titleholder undertook a comprehensive assessment of the potential impacts and risks to marine fauna in Section 7 and 8 of the EP. After taking into consideration the above, NOPSEMA is reasonably satisfied that impacts of the survey on marine fauna will be reduced to ALARP and an acceptable level.

		seismic surveys and INPEX does not consider that the extent of the data gaps and level of uncertainty is such that reasonable conclusions and decisions regarding the level of potential impacts cannot be made at the present time. The proposed Active Source Area also does not overlap with unique or sensitive habitat for benthic invertebrates, fish or cetaceans; where sensitive habitats for these receptor groups occur in the region, they are at distances significantly greater than physiological and significant behavioural effects ranges for their respective functional hearing groups. • **Higher noise intensities and shallower waters increased the risks to immobile invertebrates (e.g., molluscs).** Acknowledged and assessed in the EP. However, impacts to invertebrate communities are temporary and recoverable. The proposed Active Source Area does not overlap with unique or sensitive habitat for benthic invertebrates; it is in an area dominated by soft sediment communities. • **Exposure to air gun signals damaged rock lobsters mechanosensory organs, impairing complex reflexes, including righting reflex.** These effects and the relevant studies are described and assessed in the EP. The responses are likely within the range of variation that can occur from a range of other common natural and anthropogenic stressors considered in the risk assessment in the EP, which generally do not affect survival. • **Seismic survey operations can result in acute and chronic impacts to a variety of marine taxa.** This is acknowledged and acute and chronic exposures are assessed in the EP.	

		• **Synergistic, additive, or antagonistic interactions between seismic sound impacts and other stressors has not been studied. Single stressors related to sound exposure may show no effects in isolation but when combined with other stressors (e.g., temperature, food competition) effects may become pronounced.** The knowledge gap is acknowledged. Many of the stressors identified are natural variables that are part of the baseline environment. Such complex interactions are likely to vary considerably depending upon location, ecological community structure, environmental conditions, and stressors at the time which are difficult to predict. Noting also that "resident" receptors in the vicinity of the Active Source Area do not include significant benthic or fish communities or significant habitat for other marine fauna, there is not the potential for serious or irreversible environmental damage and INPEX does not consider that the level of scientific uncertainty is such that reasonable conclusions and decisions regarding the level of potential impacts cannot be made at the present time. Observations of marine fauna populations, fish assemblages, fish stocks, ecological communities, etc. following exposure to seismic generally indicate no discernible long-term change, which may indicate that such interactions are insignificant in the context of natural variability (as referenced in Section 7.1 of the EP). • **Sea snakes are sensitive to low frequency sounds. More research is required to further assess the vulnerability of sea snakes to anthropogenic noise.** The research indicates that sea snakes are able to detect low frequency sound, but they are in fact less sensitive than fish and turtles. Therefore, localised and short-term disturbances are unlikely to result in significant	

		impacts. Further, the survey area is not an area of particular significance for sea snakes. • **Visual monitoring for large marine fauna during seismic surveys is unreliable.** INPEX agrees that this statement is true. However, a gradually approaching seismic source and increasing sound levels provides opportunity for animals to move away and avoid close-range auditory impacts, in addition to visual observation and shut-down procedures. Studies referenced by the commenter acknowledge that such management practices are likely appropriate to prevent physiological and auditory impacts. The potential for behavioural impacts may extend beyond visual observation ranges, but these impacts will be temporary given the transient nature of the survey and marine fauna within the survey area. • **Further targeted research on the effects of seismic surveys to marine fauna is needed.** Further research is always welcomed to improve understanding. However, INPEX does not consider that the extent of the data gaps and level of uncertainty is such that reasonable conclusions and decisions regarding the level of potential impacts cannot be made at the present time.	
5	**Matter:** Risks from hazardous emissions to the marine environment. **Claim:** Additive and cumulative effects of marine discharges are not discussed.	Liquid discharges associated with 3D MSS are limited to standard marine vessel routine discharge which are permissible in accordance with the relevant AMSA Marine Orders and MARPOL 73/78. Given the discharges are relatively small volumes for a short-term activity (up to 65 days), no cumulative or additive impacts are expected particularly as the vessels will be moving and all discharges undertaken in accordance with Marine Order requirements.	NOPSEMA acknowledges the matter raised and agrees there is the potential for impacts to the marine environment from discharges (vessel based) if not managed appropriately. In making a decision regarding this matter, NOPSEMA took into account the content of the EP (including the evaluation of risks and impacts and control measures associated with liquid

		The discharge of firefighting foam (the only fluorinated surfactant that could be used during the activity) would only occur in the event of an incident and is regarded as a safety critical element whose discharge cannot be eliminated. No changes have been made to the EP.	discharges in Section 7.5.3), views expressed by relevant persons, the requirements of relevant international conventions and Australian legislation including AMSA Marine Orders and MARPOL 73/78, and NOPSEMA's Decision Making Guidelines (GL1721). NOPSEMA acknowledges that if concurrent activities were to occur in the Operational Area, liquid discharge plumes associated with the use of vessels are not expected to overlap due to the transient movements of the vessels and the dilution and dispersion of these discharges in the marine environment. The defined acceptable level of impact for liquid discharges to the marine environment in the EP are aligned with MARPOL requirements. After taking into consideration the above, NOPSEMA is reasonably satisfied that impacts to the marine environment from vessel-based discharges will be reduced to ALARP and an acceptable level.
6	**Matter:** GHG emissions – unacceptable impacts and/or management **Claim:** EP does not adequately consider the cumulative impacts of its	Section 7.5.2 (Table 7-26) provides an impact and risk evaluation for atmospheric emissions from the vessels and helicopters associated with the activity. Within Table 7-26, the particular values and sensitivities identified as potentially being impacted by atmospheric emissions, includes climate and marine avifauna. A further assessment and acknowledgement is then presented stating that the "various sources of atmospheric emissions generated from the	NOPSEMA acknowledges the matter raised and agrees there is the potential for the activity to result in increased greenhouse gas emissions. In making a decision regarding this matter, NOPSEMA took into account the content of the EP (including the evaluation of risks and impacts

	GHG emissions alongside other offshore petroleum industry activities, whereby the release of GHG emissions from the EP activity will add to local and global GHG concentrations and will, therefore, influence climate change.	activity will add to overall global GHG concentrations". Based on the relatively short-term and temporary duration of the activity (up to 65 days), the contribution arising from vessels and helicopters (such as from fuel combustion) is considered to be insignificant in volume on a global scale (8,851 tCO2-e). The activities and proposed controls to manage atmospheric emissions detailed in the EP are compliant with industry standards, relevant international conventions and Australian legislation, specifically AMSA Marine Order 97: Marine Pollution Prevention – Air Pollution, the Protection of the Sea Act, the Navigation Act 2012, and MARPOL, Annex VI. No changes have been made to the EP.	and control measures associated with atmospheric emissions in Section 7.5.2), views expressed by relevant persons, the requirements of relevant international conventions and Australian legislation including AMSA Marine Orders and MARPOL 73/78, and NOPSEMA's Decision Making Guidelines (GL1721). NOPSEMA acknowledges that direct greenhouse gas emissions associated with the proposed activity will be limited to a low volume generated from the combustion of fuel from the seismic survey vessel, the support vessel(s) and the helicopter. The defined acceptable level of impact for atmospheric emissions to the environment in the EP are aligned with MARPOL requirements and there are appropriate control measures in place to reduce emissions where practicable. After taking into consideration the above, NOPSEMA is reasonably satisfied that impacts from atmospheric emissions will be reduced to ALARP and an acceptable level.
7	**Matter:** Carbon sequestration in depleted gas fields is an unproven and a risky technology.	Technologies such as renewable energy, improved energy efficiency and fuel switching are aimed at preventing the creation of CO2 emissions. CCS complements these technologies by addressing emissions that currently cannot be avoided, such as CO2 emissions from industrial processes like steel or cement manufacturing	NOPSEMA acknowledges that the injection and storage of carbon dioxide is not proposed as part of the activities defined within the EP.

	Claim: Environmental risks from the proposal to assess the suitability of offshore reservoirs for CO2 storage as outweighing any likely benefits.	(Geosciences Australia: https://www.ga.gov.au/scientifictopics/energy/resources/carbon-capture-and-storage-ccs). No changes have been made to the EP.	Any future carbon dioxide injection and storage activities (including the assessment and management of risks and impacts) would be subject to separate assessment and approvals processes in accordance with relevant legislative requirements.
8	**Matter:** Consultation process and identification of relevant persons **Claim:** Claim was made that INPEX inappropriately applied the IAP2 consultation criteria by removing some key components of the IAP2, thus reducing its responsibilities to meaningfully consult with stakeholders. Consultation with a much wider group of "relevant persons" is required based on the location of the EMBA and PEZ, specific example of such relevant persons were traditional owners. Several commenters identified themselves as	Following the appeal decision of the Federal Court of Australia in Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 on 02 December 2022, and in accordance with the NOPSEMA consultation guidance published on 15 December 2022, INPEX is undertaking further identification and consultation with relevant persons. Two commenters and another organisation representing a relevant person identified themselves as relevant persons in the public comment period and INPEX has initiated further consultation with them. Section 5 of the EP has been rewritten to reflect the revised INPEX methodology used to identify relevant persons and undertake appropriate and meaningful consultation. The outcome of the additional and ongoing consultation will be reflected in the resubmitted EP (relevant person consultation log and sensitive matters report).	NOPSEMA recognises that concerns were raised regarding the titleholder's process for identifying and consulting with relevant persons. NOPSEMA acknowledges the importance of appropriate consultation that provides relevant persons with sufficient information and a reasonable period, and that any objections and claims made are appropriately dealt with by the titleholder. In making a decision regarding this matter, NOPSEMA took into account the content of the EP, NOPSEMA's Decision Making Guidelines (GL1721), NOPSEMA's Consultation in the course of preparing an Environment Plan Guideline (GL2086), the full text correspondence with relevant persons, the extent of the consultation effort by the titleholder, how the titleholder addressed the merits of objections and claims made, and the appropriateness of measures adopted as a result of consultation. During the course of the assessment NOPSEMA required the titleholder to provide additional

	relevant persons under Regulation 11(A) of the OPGGS E Regulations.		information pertaining to the process for relevant persons identification. Additionally, NOPSEMA requested further evidence to demonstrate that each relevant person had been provided with sufficient information and a reasonable period to allow the relevant person to make an informed assessment of the possible consequences of the activity on their functions, interests and activities. Taking into consideration the nature and scale of the activity and the consultation records in the EP, NOPSEMA is reasonably satisfied that the titleholder has carried out the consultations required by Division 2.2A and the measures adopted because of the consultations are appropriate.
9	**Matter:** General objection to offshore seismic exploration being approved or conducted. **Claim:** There is an unknown impact on marine mammals and phytoplankton.	The effects of sound on marine mammals and phytoplankton are well studied. While there is opportunity for further research, INPEX does not consider that the extent of the data gaps and level of uncertainty is such that reasonable conclusions and decisions regarding the seismic survey cannot be made at the present time. The commenter references a recent whale stranding event off Tasmania's coast as a reason for ceasing seismic surveys. INPEX presumes they are referring to the mass stranding of pilot whales near Macquarie harbour on Tasmania's west coast in September 2022. Making such assumptions regarding the cause of the strandings is misleading. No seismic survey activities took place in the region	NOPSEMA recognises that there is potential for the activity, if not properly managed, to have unacceptable impacts to marine mammals and other marine communities. In making a decision regarding this matter, NOPSEMA took into account the content of the EP (including activity-specific acoustic modelling undertaken for assessing marine fauna sound exposures), NOPSEMA's Decision Making Guidelines (GL1721), the full text of relevant person consultation in the sensitive information report, relevant scientific literature and

		during, or in the days or weeks prior, to the stranding event or the previous mass stranding event at the same location two years prior. Cetaceans have always been known to strand, for a variety of reasons, most of which are natural causes, though sometimes the cause is not known. Macquarie Harbour is well known for cetacean strandings. Cetacean stranding experts undertook necropsies of the stranded whales at Macquarie Harbour and ruled out any possible unnatural causes. They attribute the Macquarie Harbour strandings to a combination of prey movement, the shallow seabed and shape of the coastline near the harbour entrance, and strong tidal currents. See: https://www.theguardian.com/environment/2022/sep/24/tasmanias-whalestranding-what-caused-it-and-can-it-be-stopped-in-the-future The commenter also references a research paper (Gordon et al. 2003) and a news article in relation to potential effects of seismic sound on marine mammals and areas of scientific uncertainty in their submission. The research paper and variable findings regarding the effects of seismic sound on marine mammals are acknowledged. However, INPEX refers the commenter to the broader body of literature referenced in Section 7.1.7 of the EP, which includes more recent publications that review many of the same studies referenced in Gordon et al. (2013) and provide internationally recognised recommendations for impact assessment. The commenter also queries the effects of seismic sound on zooplankton and subsequent impacts to marine mammal populations, and references a research article (McCauley et al. 2017). INPEX refers the commenter to the body of literature referenced in Section 7.1.4 in the EP, which includes the McCauley et al. (2017) paper, among other studies. In the context of natural mortality rates	conservation managements plans and advices for relevant marine mammals. For example: • Conservation Management Plan for the Blue Whale; • Approved Conservation Advice for *Balaenoptera borealis* (Sei whale); and • Approved Conservation Advice for *Balaenoptera physalus* (Fin whale). Although the Operational Area does not overlap any BIAs for marine mammals or represent any unique or significant habitat for any whale species, the EP acknowledges the potential for transient individuals to be encountered during the activity. To assess whether impacts to marine mammals will be reduced to ALARP and acceptable levels, NOPSEMA considered the activity-specific underwater noise modelling undertaken for this activity in conjunction with contemporary auditory impact thresholds for relevant marine mammal species and control measures outlined in the EP that will be implemented for the duration of the activity. The defined acceptable levels of impact for marine mammals from underwater noise for this activity are aligned with the EPBC Act Policy Statement 2.1, the Significant Impact Guidelines

		and turnover, plankton communities will recover quickly and limited impacts to the food web or to species recruitment is expected in the context of natural variability. It is further emphasised that the area where the proposed activity will be undertaken is not known to provide unique or significant habitat for any cetacean species. Only short-term behavioural impacts to transient animals are likely to occur. Precautionary assessment and inclusion of controls for species not listed as threatened/migratory (i.e., Omura's whale) have been included in recognition of uncertainties around their life history in the NWMR. No changes have been made to the EP.	1.1 - Matters of National Environmental Significance, the Australian Whale Sanctuary protection measures established under the EPBC Act and relevant conservation management documents. NOPSEMA considers that, with effective implementation of the control measures outlined in the EP, impacts to marine mammals will be reduced to ALARP and acceptable levels. NOPSEMA acknowledges the potential impacts from seismic surveys on planktonic communities. The impact evaluation in the EP highlights the potential for some localised mortality to zooplankton, fish eggs and larvae as the seismic source transits the Acquisition Area; however, in the context of natural mortality rates and turnover, planktonic communities will recover quickly and impacts to the food web are unlikely to be discernible from the natural variability in mortality rates (such as from predation and other environmental factors). After taking into consideration the above, NOPSEMA is reasonably satisfied that impacts from the survey on marine mammals and planktonic communities will be reduced to ALARP and an acceptable level.

10	**Broad objections or comments not related to EP content.** With an eye to the longer term, I encourage INPEX to consider that multiple seismic surveys during the period of carbon dioxide injection into this permit may not be ALARP and acceptable.	The comment relates to potential future activities that may be required in the event a carbon capture storage project is realised. Due to the irrelevancy of the comments received, these have not been considered further in preparing the EP. INPEX notes that any other future seismic surveys will be assessed by the regulator, and any such surveys would be managed by an accepted EP.	NOPSEMA acknowledges that the injection and storage of carbon dioxide is not proposed as part of the activities defined within the EP. Any future carbon dioxide injection and storage, and activities required for monitoring, measurement and verification purposes (including seismic surveys and the potential cumulative impacts associated with these) would be subject to separate assessment and approvals processes in accordance with relevant legislative requirements.