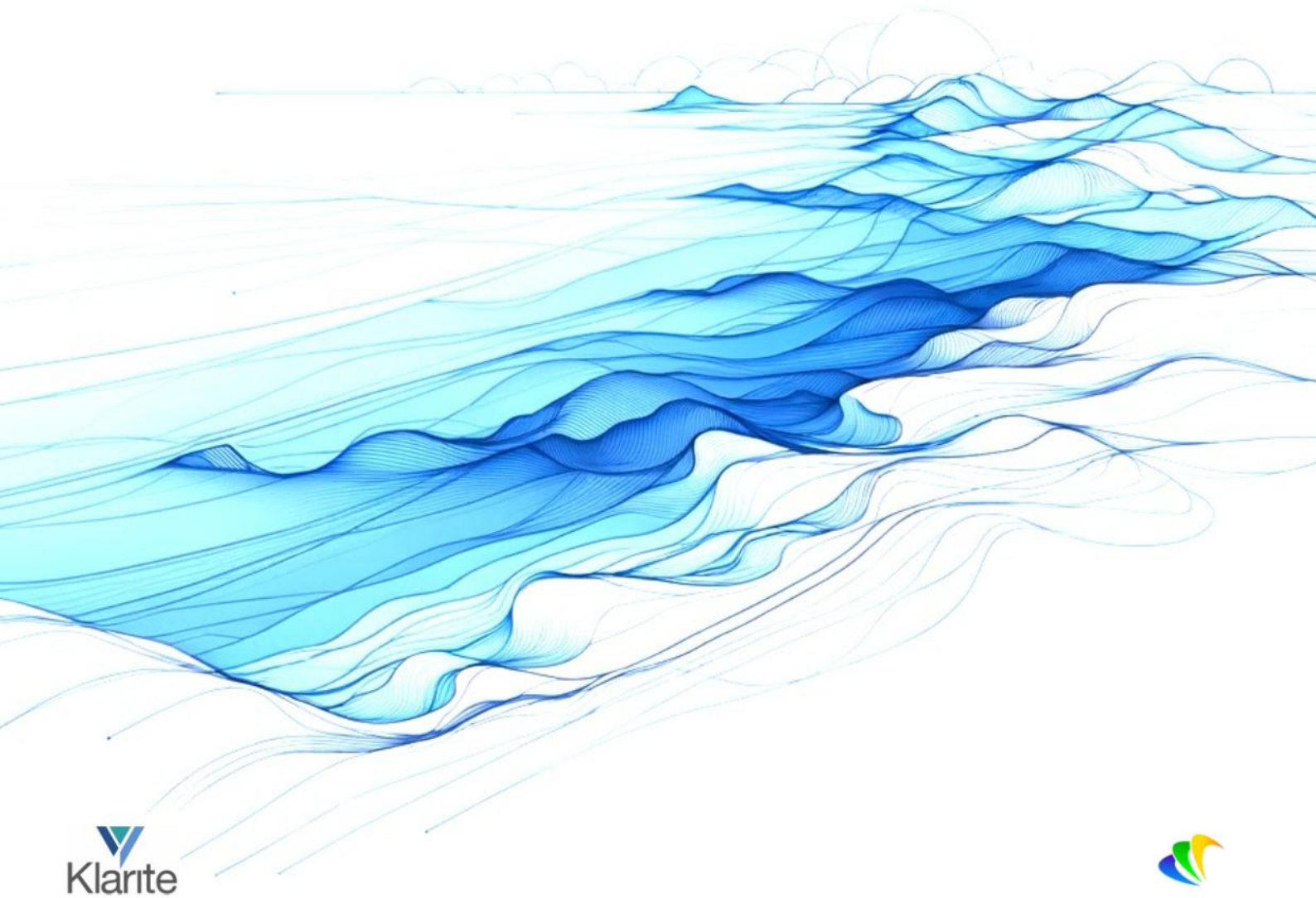
REGIA
Marine Seismic Survey

Impact Assessment
Underwater Sound: Turtles

Appendix E6: REG-EP-025-E6

Rev 5

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Klarite

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1 Introduction

Underwater Sound was identified through the Preliminary Environmental Impact and Risk Assessment (PEIRA) (Appendix B4) as an aspect needing further assessment. Hence this document presents a detailed examination of **Underwater Sound**, as will typically be produced during the proposed Regia Marine Seismic Survey (**Regia MSS**), and its interaction with the environmental receptor we are collectively calling **Turtles.**

This assessment is built on the information contained in the following four core studies, which should be read in the order they are listed:

1. PEIRA.
2. Seismic Sound Studies Report (Appendix B8).
3. Sound Emissions Modelling Report (Appendix B7).

1.1 Purpose and Scope

The purpose of this document is to assess all acceptable sources of information to provide clear outcomes around levels-of-impact, and any associated mitigation and management measures that may be needed.

This assessment is the second stage of the environmental assessment. Its purpose is to rank the impact according to the criteria set out in the Environmental Assessment Process found in Appendix B3. The purpose of this stage of the assessment is to demonstrate that the impact can be managed to an acceptable level through the adoption of mitigation measures and the setting of an appropriate environmental performance outcome.

The measures adopted because of consultation and because of the assessment will be carried through to the ALARP assessment which occurs in stage three of the overall assessment process. Recommendations will be made if there is any further assessment required in the third stage of the assessment.

1.2 Consultation in Preparation of the EP

This document was initially published in draft form and uploaded to the Document Library of the Regia MSS Consultation Hub on 11 September 2023 as a stand-alone document, rather than as part of the much more substantial total EP document. This was done to maximise the ability of interested members of the public to read, interpret and respond within the mandated 30-day public comment period.

As such, public and Relevant persons were invited to comment on the document with an explicit request for feedback on:

- The accuracy of the described environment that may be affected.
- Any omissions of environmental values and sensitivities relevant to the environmental aspect.
- Any errors or omissions of scientific/peer reviewed literature that should be considered.
- Any errors or omissions of relevant legislation or documents of standing that should be considered.
- Any further mitigation or management measures that should be considered.

Up to 22 December 2023, there were no specific comments received on the content of the document.

1.3 Modifications Arising from Further Assessment

To ensure this environmental assessment remains contemporary, accurate, and reflects feedback from the regulator and relevant persons, this document will be updated from time-to-time. In particular, the CGG environmental assessment process requires consideration of whether further assessment was needed to verify, or dive deeper into a topic, to further improve the predictive quality

of the assessment. When this has occurred, reference to such changes will be communicated in the Recommendation section and identified at relevant points in the assessment.

2 Aspect – Underwater Sound

2.1 How the Aspect Occurs

Impulsive underwater acoustic emissions will result from the seismic source releasing compressed air (seismic pulse) that creates a sound wave that is directed downwards into the seabed.

Continuous underwater acoustic emissions are generated by the survey and support vessels and helicopters. Underwater acoustic emissions from vessels are generated by thrusters, engines, and propellers. Underwater acoustic emissions from helicopters are generated via the engine and rotors. Underwater acoustic emissions from Ultra-Short BaseLine positioning beacons are generated within the streamer spread.

2.2 Extent and Duration of the Aspect

Impulsive Sound

Duration: 60 days

Extent: Active Source Area +50 m to 6.25 km based on the furthest distance to modelled sound effect criteria. [Updated in response to Matter: F17]

Seismic acquisition where the seismic source will be active will occur for up to 60 days within the Active Source area.

3 Cause-Effect Pathway

The PEIRA (Appendix B4) identified a cause-effect pathway for underwater sound for the following environmental components

Potential environmental impacts to reptiles identified from the PEIRA are:

- Change in fauna behaviour.
- Change in hearing capacity.
- Change in physical condition.

Following review of the NCVA (now AMSIS):

- No important inter-nesting habitat is within or adjacent to the area that maybe affect by underwater sound.
- No habitat critical to the survival of marine turtles are within or adjacent to the area that may be affected by underwater sound.
- No Biologically Important Areas for turtles are within or adjacent to the area that may be affected by underwater sound.

4 Description of the Existing Environment that may be Affected by the Activity

For a description of the baseline soundscape in the region relevant to the Regia MSS, refer to Section 1.1 of Appendix B8.

4.1 Turtles

To identify turtle species that may be present within the area affected by underwater sound a PMST search was undertaken using the Active Source Area with a 6 km buffer based on the furthest distance to a sound effect criterion is 6.25 km (Table E6-2). The PMST Report is available in Appendix B5. PMST searches were run again prior to resubmission to ensure any changes to species or listings were identified to control for passage of time. There are no changes to protected matters information for species that may be impacted by underwater sound [Section added in response to Matters: I16 and I17].

The PMST Report identified three turtle species within the area potentially affected by underwater sound, Green (may occur), Leatherback (likely to occur) and Loggerhead turtle (likely to occur). No BIAs or habitat critical to the survival of the species were identified. Annex 3 provides details on these turtle species and relevant conservation advice or management plans.

Green Turtles nest, forage and migrate across tropical northern Australia, spending their first 5-10 years drifting on ocean currents. They are predominantly found in Australian waters off the Northern Territory, Queensland, and Western Australian coastlines, with limited numbers in NSW, Victoria, and South Australia (DoEE 2017).

Small numbers of Leatherback Turtles nest on the Cobourg Peninsula (NT) and there are unconfirmed accounts of Leatherback Turtles nesting in Western Australia. As pelagic feeders, they are more commonly found foraging in Australian waters along the east coast and in Bass Strait however they are also regularly found in the high latitudes of all oceans (DSEWPaC 2012). The southern waters of Australia are an important feeding area for the Leatherback Turtle with five identified foraging sites (where area restricted behaviour occurs) (DoEE 2017) but no major nesting sites recorded. This has been confirmed with a recent study which compiled historical leatherback turtle observations, and satellite tracking data from their nesting beaches in West Papua, Indonesia, and down to SE Australia and found Leatherbacks in southeast Australia primarily forage in waters above 14°C, highlighting the waters off southeast Australia as important foraging area for this species (Hays et al. 2023).

There are two genetically distinct stocks of Loggerhead Turtles nesting in Australia, one in Queensland (known as the south-west Pacific stock) and one in Western Australia. Loggerhead Turtles forage in all coastal states and the Northern Territory, but are uncommon in South Australia, Victoria, and Tasmania (DoEE 2017).

5 Relevant Legislative Requirements

CGG has considered all the relevant legislative requirements, conservation management and recovery plans for all turtle species that may be affected (see Appendix B2). Measures that must be adopted are as follows:

- Recovery Plan for Marine Turtles (DoEE 2017) which includes:
  - In accordance with the EPBC Act Policy Statement 2.1 – Interactions between Offshore Seismic Exploration and Whales: Industry Guidelines, all seismic survey vessels operating in Australian waters must undertake a soft start during surveys irrespective of location and time of year of the survey. Although these guidelines are specifically designed for interactions with cetaceans, the soft start provision may also afford protection for marine turtles.

6 Defining Acceptable Levels of Impact

Marine turtles are less sensitive to sound than marine mammals as they do not have an external hearing organ. They can detect sound through bone-conducted vibration in the skull with their shell providing a receiving surface (Lenhardt et al. 1985). Morphological studies of green and loggerhead turtles (Ridgway et al. 1969; Wever 1978; Lenhardt et al. 1985) found that the turtle ear is like other reptile ears but has adaptations for underwater listening.

There is limited information on marine turtle hearing. Most studies looking at the effect of seismic noise on marine turtles have focussed on behavioural responses given that physiological impacts are more difficult to observe in living animals. Exposure criteria developed by Popper et al. (2014) based on results from the Working Group on the Effects of Sound on Fish and Turtles as well as Finneran et al. (2017) has been adopted. These thresholds are within Australia as relevant threshold levels.

Sound exposure guidelines for turtles have been established by the American National Standards Institute (ANSI) accredited report of Sound Exposure Guidelines for Fishes and Sea Turtles (Popper et al. 2014).

Though mortality or potential mortal injury to turtles from seismic sound exposure has not been reported, Popper et al. (2014) provides exposure guidelines of >207 dB re 1 µPa PK or >210 dB re 1 µPa2.s SEL_{cum}. Popper et al. (2014) also defined semi-quantitative exposure criteria for potential hearing impairment (recoverable injury and TTS). Finneran et al. (2017) recently proposed thresholds of 232 dB re 1 µPa (PK) and of 226 dB re 1 µPa (PK) for AUD INJ and TTS effects in turtles respectively. Therefore, the Popper et al. (2014) criteria for mortality/mortal injury may be conservative.

Finneran et al. (2017) identified 175 dB re 1 µPa SPL as the level at which marine turtles are expected to actively avoid seismic exposures. However, the Recovery Plan for Marine Turtles in Australia (DoEE 2017) acknowledges the 166 dB re1 µPa SPL reported by McCauley et al. (2000) as the level that may result in a behavioural response to marine turtles.

Based on the above discussion, Table E6-1 justifies and defines the acceptable levels of impact from underwater sound on marine turtles. Further information on studies in relation to seismic acoustic emission impacts to turtles can be found in the Seismic Sound Studies Report (Appendix B8).

CGG defined acceptable levels of impact and risk as part of its decision-making processes and published them as part of its consultation efforts, inviting relevant persons to comment on their appropriateness. During the preparation of the EP, it became clear that assessment specific statements would be necessary to create a stronger link between the defined acceptable level and the predictions of impacts and risks.

As such, Table E6-1 shows the general acceptable level statements which cover the whole of the activity (which are consistent across all environmental impacts and risks), and the corresponding assessment specific defined acceptable levels established for this assessment. This sets the foundation for relevant and targeted demonstration later in this assessment.[1]

[1] Note: The acceptable levels related to demonstrating ALARP and the adoption of specific measures to ensure the effectiveness of control measures can be found in Appendix F2 and B3 respectively. As they are criteria integral to the acceptance of the Environment Plan, and they a documented elsewhere, these criteria are not discussed further in this assessment.

Table E6-1 - Defined acceptable levels of impact from underwater sound effects to turtles

Category	Defined Acceptable Levels (General)	Defined Acceptable Levels (Specific)	Rationale
Principles of ESD	The petroleum activity results in temporary / reversible, small scale, and/or low intensity environmental damage.	Sound exposure to marine turtles must be below a permanent threshold shift at thresholds in exceedance of 232 dB PK.	The behavioural disturbance threshold of 175 dB SPL is lower than the PK threshold for AUD INJ indicating that a turtle is expected to be deterred by the approaching seismic array prior to thresholds for AUD INJ being reached.
	The impact and risk assessment process are based on sufficient information to understand if: Serious/irreversible environmental damage is predicted; or The application of the precautionary principle is applied in the presence of scientific uncertainty.		
	Environmental management of the activity must not be inconsistent with EPBC Act Management Plans and Recovery Plans.		
Biological	Impacts and risks to biological features will be temporary / reversible, small scale, and/or low intensity environmental damage at population levels.		
Ecological	Impacts and risks to ecological features will be temporary / reversible, small scale, and/or low intensity damage to the overall health, diversity, or functioning of the ecosystem.		
Economic	Affected persons will not be worse off because of the activity.	Industries, livelihoods, and ecosystem services remain viable, with no sustained financial or operational consequences resulting from changes in species behaviour, abundance, or access to resources.	For species and sensitivities with social, cultural and/or economic values, if the potential ecological impact or risk is deemed acceptable, it is likely that the corresponding impact on social, cultural and/or economic values will also be considered acceptable, as the physical presence and health of these species are key for maintaining their social, economic and cultural roles. Therefore, predicted levels of impact for social, cultural and economic values for species will be
Cultural	Impacts and risks to cultural features including cultural values, traditions, or practices, will be temporary / reversible, small scale, and/or low intensity.	Culturally important species, places, and practices can continue without disruption to their role, accessibility, or long-term viability.	

Category	Defined Acceptable Levels (General)	Defined Acceptable Levels (Specific)	Rationale
Social	Measures have been adopted based on the consultation process to address relevant objections and claims of relevant persons. The views of public have been considered in the impact and risk assessment.	People and communities can continue engaging with the natural environment, recreational activities, and heritage values without experiencing long-term or irreversible disruption.	assessed on a receptor level. Native Title will be assessed separately.
Company	Environmental impacts and risks are consistent with the CGG impact and risk assessment process such that for an impact or risk the effect/ consequence rating is medium or below.	As per the general levels.	CGG is a company familiar with managing the effects of seismic sound on the marine environment, and its global operational history supports the reliability of its internal assessment process. The use of CGG's impact and risk matrix, when consistently applied, has not resulted in unacceptable environmental outcomes, which indicates the process produces conservative and realistic assessment outcomes.

7 Consultation Input

CGG carried out the consultations required by the regulations to:

- Improve the predictive quality of this assessment by seeking relevant person input into the preparation of the EP.
- To verify the description of the environment that CGG produced as part of its environmental assessment process through information provided to CGG by relevant persons.
- Receive objections or claims about the adverse effects of the activity on a relevant person's functions, interests, or activities.

The information received from relevant persons can be found in each relevant person consultation report. It has been considered in the preparation of this assessment.

Objections or claims about the adverse of the effects of the activity can also be found in each relevant person's consultation report. They have been assessed for merit and CGG has written a statement of its response to each objection or claim. Any objection or claim relevant to this assessment and subsequently considered in its preparation can be found in Annex 2.

8 Minimisation of Impacts Through Activity Design

As part of planning and design of the activity, several activity limitations were considered in accordance with the hierarchy of controls and through the consultation process (see Annex 2). These limitations were evaluated to determine whether the source of impact could be eliminated or substituted through changes in the timing, technology, or design of the activity. As described in Appendix F3, section 3.16.2, due to the interconnection between the tangible and intangible cultural values, all activity limitations are relevant to safeguarding social, economic, and cultural features and values, ensuring protection across all areas.

8.1 Elimination

Elimination involves removing the source of an impact or risk entirely through changes to the activity design. In the context of underwater sound, elimination involves removing the source of underwater sound or preventing its generation in the first place. One main option was considered:

Continuous Line Acquisition

This method involves maintaining discharge of the acoustic source during vessel line turns to reduce the total number of operational days. In effect, the survey could be acquired without run-ins and run outs. While this could shorten survey duration, it results in longer periods of uninterrupted underwater sound exposure and eliminates natural breaks between sail lines. Furthermore, it increases the risk of degraded data quality due to inconsistent line geometry and off-angle acquisition. If data quality does not meet geophysical thresholds, reacquisition may be necessary, leading to an overall increase in survey footprint and environmental impact. This option was ultimately discarded due to both environmental and operational drawbacks.

8.2 Substitution

Where elimination is not viable, substitution involves altering the timing, location, or sequencing of the activity to reduce the likelihood or consequence of the impact. One main option was considered and subsequently adopted:

Operate the sound source at low power during line turns and if transiting between sail lines anywhere in the Mitigation Source Area, Active Source Area, and Survey Acquisition Area

The use of lower power settings during non-acquisition phases—such as line turns, testing, or soft starts—was explored to reduce unnecessary sound emissions. A Mitigation Source Area (MSA) was developed in response to consultation feedback, particularly from the Director of National Parks, who highlighted the importance of maintaining mitigation sound emissions during non-acquisition phases.

CGG is also investigating the feasibility of acquiring the survey using a reduced source size. Environmental and technical assessments are underway to validate whether a smaller source can meet geophysical objectives. Subject to these findings, CGG commits to using the lowest practicable source power that achieves geophysical data requirements.

9 Predicted Levels of Impact

To arrive at the predicted levels of impact of underwater sound on turtles at this stage in the process requires the reader to have assimilated all prior relevant information that has been assessed on turtles. The EP documentation is coded alphabetically to guide the reader through what is a natural process of temporal accumulation and review of evidence. The following documentation forms the evidence lineage for predictions on plankton as described here.

- B5 – PMST Reports – The Protected Matter Search Tool was used to search for environmental values and sensitivities potentially located within the proposed Regia MSS planning area, with eight specific searches undertaken of which one was for Turtles within the region defined by the Regia MSS Active Source Area with an included buffer area out to 6 km.
- B7 – Sound Modelling Reports - SLR performed a numerical modelling study of underwater sound levels associated with the planned Regia Marine Seismic Survey (MSS) to assist in understanding the potential acoustic impacts on key regional receptors including plankton along with turtles, marine mammals, fish, benthic invertebrates, and recreational divers and swimmers. Acoustic thresholds derived from this document are used to guide assessments of impacts.
- B8 – Seismic Studies Report – This report provides a detailed assessment of the scientific literature related to sound (and specifically seismic) effects on turtles and other fauna. This literature is the key evidence base from which impact levels are derived.

Therefore, all species, taxa or groups identified through B5 have been assessed through the framework provided by B7 and B8. Because of commonalities among species/taxa/groups in their sensitivity to seismic it is not always necessary to describe effects to each species individually but rather as groups defined by their sensitivity to different frequency levels of sound and shared life-history behaviours.

9.1 Change in fauna behaviour, hearing capacity, and physical condition

The predicted maximum distances from the acoustic modelling from the acoustic modelling are detailed in Table E6-2.

Table E6-2 - Modelled Maximum Distances – Marine Turtles.

	AUD INJ		**TTS**		**Behavioural Disturbance**
Modelled Distances	Per pulse	SELcum	Per Pulse	24 hr	Per Pulse
	47 m – 51 m	500 m-1.06 km	59 m-64 m	4.16 -6.25 km	590 m-1.64 km

The predicted effect level to turtle species is assessed as minor as impacts are predicted to have some effect to turtles, but the effect is not considered significant or at a level to affect the population given the following:

- Mortality or mortal injury to turtles is considered highly unlikely based on no documented cases of mortality in turtles exposed to seismic source emissions under experimental or field operating conditions (Popper et al. 2016).
- As detailed above, the per pulse (PK) exposure criteria for AUD INJ and TTS are reached out to 51 and 64 m from the sound source, respectively. The cumulative exposure criteria for AUD INJ is reached out to 1.06 km, TTS is reached out to 6.25 km, and behavioural disturbance may occur out to 1.64 km. It is considered highly unlikely that a turtle would stay within the AUD INJ and TTS effect distances for 24 hours as there are no BIAs or habitat critical to the survival

of the species identified and thus turtles are likely to be transient in the area. [Section updated in response to Matter: F17]

- The Recovery Plan for Marine Turtles (DoEE 2017) identifies acute noise interference from anthropogenic noise sources, such as seismic surveys, as a low-risk threat to the stocks of marine turtles. Thus, population impacts from the seismic survey are not predicted.
- The Regia MSS is consistent with Recovery Plan for Marine Turtles (DoEE 2017) such that:
  - There is no important nesting habitat within or adjacent to the area that maybe affect by underwater sound.
  - Marine turtles will not be displaced from identified habitat critical to the survival from underwater sound.
  - Biologically important behaviours will not be impacted.

The uncertainty level for impact to turtles from seismic sound is assessed as low based on:

- There are long-term tagging studies of sea turtles in Australia, and there are no nesting habitats identified as BIAs within or adjacent to the area that may be affected by underwater sound.
- There has never been a documented mortality or mortal injury to turtles because of seismic source emissions.
- There are several published studies on the sound effect criteria of sea turtles.

The predicted level of impact based on the effect (minor) and uncertainty (low) is assessed as low. For turtles the predicted levels of impact are beneath levels of perception and/or within normal bounds of variation. Good industry practice (including legislation and standards) has been applied and therefore these impacts are of an acceptable level without further reduction measures being required.

9.2 Measures Adopted to Management Environmental Impacts

The following measures have been adopted to ensure that the impacts associated with elevated levels of underwater sound from the survey and support vessels on turtles will be of an acceptable level.

These measures have been taken through to the ALARP assessment in the next stage of the CGG assessment process. This assessment can be found in Appendix F2.

Measure	Measure Type	Details and Justification
Start-up delay procedure (if sighting)	Procedure	The start-up delay procedures will include provision for turtle detections within 500m to delay the commencement of operations or require movement of the vessel before start-up.
Ramp up of sound source to full power over 30 minutes.	Practice	Mobile marine fauna (including demersal and pelagic fish, octopus, squid, diving birds, penguins, and turtles) are expected to move away from the source before it is at full power, providing them a level of protection. However, once the source passes, animals will be free to move back into the habitat that they departed from. [Paragraph updated in response to Matter I04, I05, E08].
Shutdown procedures	Procedure	The shutdown procedure will include provision for turtle observations to initiate a shutdown of the sound source if there are detections within 500 m of the sound source.

10 Demonstration impacts will be of an acceptable level

10.1 Principles of ESD, Biological and Ecological Categories

Temporary, Reversible, Small Scale and Natural variation

As described in the impact assessment, the Regia Marine Seismic Survey will generate underwater sound primarily through seismic pulses and vessel operations, with modelled acoustic emissions extending up to 6.25 km. The predicted levels of effect to turtles include potential behavioural disturbance up to 1.64km, temporary hearing shifts up to 6.25 km (TTS), and possible exposure above auditory injury (AUD INJ) criteria within 1.06 km. However, turtles are expected to avoid the sound source (O'Hara & Wilcox 1990) prior to reaching AUD INJ thresholds, and there is no identified critical habitat, inter-nesting area, or Biologically Important Area (BIA) in or near the affected zone. The affected environment is therefore not ecologically or biologically sensitive in terms of turtle use. If turtles are present, they are expected to be in low numbers and low densities.

As highly mobile, pelagic animals, turtles are likely to transit through the area without prolonged exposure. Impacts are not expected to disrupt population health, ecosystem function, or biodiversity. Overall, the impact is predicted to be minor, temporary, reversible, and limited in spatial extent.

Based on sufficient information

The assessment utilised acoustic modelling, species presence data (updated PMST searches), and peer-reviewed studies, including exposure thresholds developed by Popper et al. (2014) and Finneran et al. (2017), to evaluate both behavioural and physiological effects. While data on marine turtle hearing remains limited, these studies offer the most widely accepted criteria for evaluating impact. The Recovery Plan for Marine Turtles (DoEE 2017) was also used to assess whether impacts would be serious or irreversible. No evidence of serious harm, irreversible damage, or substantial knowledge gaps requiring application of the precautionary principle was identified. Uncertainty was assessed as low due to the strength of available evidence and absence of critical habitats.

Activity not inconsistent with EPBC Act

The survey design and environmental management measures align with the EPBC Act and its associated Recovery Plans. Three species — Green, Leatherback, and Loggerhead turtles — were identified in the area, but no nesting beaches, BIAs, or critical foraging areas were recorded within the modelled sound footprint. The soft-start (ramp-up) procedures required under EPBC Act Policy Statement 2.1 (designed for whales) are also applied here and considered protective of turtles. The assessment explicitly integrates the objectives of the 2017 Recovery Plan for Marine Turtles, concluding that no inconsistency exists.

10.2 Economic, Cultural and Social Categories

The activity is not expected to result in any material disadvantage to affected persons or cultural groups. Turtles are important in the traditions of many First Nations peoples, but no cultural heritage sites, inter-nesting areas, or foraging habitats of cultural significance occur within the area exposed to underwater sound above behavioural or injury thresholds. Relevant persons raised concerns about the accuracy of modelling and protection of marine fauna. In response, the project team updated the PMST database results, refined the acoustic model to reflect local propagation conditions, and confirmed the absence of critical turtle habitats. These changes, along with soft-start procedures and other standard mitigation measures, were included in the final assessment. The public also provided feedback via the Regia MSS Consultation Hub, with specific concerns about animal welfare, data quality, and transparency. These were addressed through clarification of assumptions and justification of modelling outcomes. Taken together, the views of affected persons, the public, and cultural stakeholders have been appropriately considered and incorporated.

10.3 Discussion on Consistency with Company Processes

The impact assessment followed the methodology in Appendix B3 and applied defined thresholds for physiological and behavioural effects. For turtles, the effect level was assessed as minor, the uncertainty as low, and the final predicted impact level as low. The sound footprint was compared with species distribution, and all mitigation measures required by regulation and good practice were adopted. As no exceedance of thresholds or high consequence outcomes were identified, the final consequence rating is within company limits.

This impact assessment has demonstrated that the effect of underwater sound to turtles has a:

- **Predicted level of effect of minor (2).**
- **An uncertainty of low (2).**
- **Predicted level of impact of low (4).**

11 Environmental Performance Outcomes

Environmental Performance Outcomes (EPOs) are measurable and activity-specific outcomes that describe the environmental performance the titleholder must achieve to ensure impacts and risks are managed to acceptable levels. EPOs are critical to the structure of an Environment Plan because they form the clear link between the defined acceptable level of impact and the predicted level of environmental consequence. Each EPO must be measurable, achievable, and within the control of the titleholder to implement, providing a transparent and enforceable statement against which performance can be assessed.

Table E9-3 - Environmental Performance Outcomes and Justifications

Defined Acceptable Level (From Table E6-1)	Environmental Performance Outcome	Rationale
Sound exposure to marine turtles must be below a permanent threshold shift at thresholds in exceedance of 232 dB PK.	**No death or injury to fauna, including listed threatened or migratory species, from the activity.**	This EPO can be demonstrated through pre-activity acoustic modelling, exclusion zone design, and shutdown protocols when turtles are observed in zones where threshold exceedance is predicted.
Industries, livelihoods, and ecosystem services remain viable, with no sustained financial or operational consequences resulting from changes in species behaviour, abundance, or access to resources.	**Social, cultural, and economic features are protected, sustaining their value for people and communities.**	This EPO ensures that the activity is managed in a way that prevents unacceptable impacts to social, cultural, and economic values associated with marine mammals.
Culturally important species, places, and practices can continue without disruption to their role, accessibility, or long-term viability.		
People and communities can continue engaging with the natural environment, recreational activities, and heritage values without experiencing long-term or irreversible disruption.		
Environmental impacts and risks are consistent with the CGG impact and risk assessment process such that for an impact or risk the effect/ consequence rating is medium or below.	**The activity is conducted such that environmental impacts and risks remain within the range assessed as medium or lower, with mitigation measures in place and functioning as intended.**	This EPO enables ongoing assessment of effectiveness through internal reviews and operational audits. It provides a clear link between the risk assessment process and implementation strategy, supporting regulatory compliance and continuous improvement without requiring environmental outcome monitoring.

12 Recommendations

As demonstrated in this assessment the predicted level of impact level is low, thus, good industry practice (including legislation and standards) has been applied and these impacts are of an acceptable level without further recommendations being required.

13 Document Control

Date	Revision	Update
12 July 2023	A	Draft prepared for initial comment
23 August 2023	B	Update based on comments and relevant person feedback
12 Sept 2023	0	Approved for release on Regia MSS website
20 Dec 2023	1	EP submission to NOPSEMA
29 May 2024	2	Updated following public comment and rerun of the PMST search.
24 October 2024	3	Updated following NOPSEMA assessment.
16 April 2025	4	Updated following NOPSEMA OMR 1 Letter
5 December 2025	5	Updated following NOPSEMA OMR 2 Letter

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Annex 1

Public Comment

The following consultation feedback was received since the beginning of the public comment period starting 25 January 2024. Table E6-4 shows how this feedback has been incorporated into the environmental assessments.

Table E6-4 - Public comment input.

Matter	Matter ID	Changes made arising from public comment
Matter: Flawed argument regarding animals moving away	I04	CGG has considered these claims and has updated the EP Impact Assessments (Appendices E, and F where relevant) to clarify that, while some displacement is expected from mobile taxa during the Regia MSS, the survey will not preclude animals from the Operational Area in its entirety. Instead, animals are expected to temporarily move away from the active acoustic source, but once the source passes, animals will be free to move back into the habitat that they departed from.
Matter: Effectiveness of mitigation measures	E08	EP Appendices D2 and E5 have been updated to include existing mitigation and management measures that will reduce the likelihood of injury associated with vessel collision and underwater sound including the EPBC Act Policy Statement 2.1 - Interaction between offshore seismic activities and whales (Soft-start Procedure), which provides for marine turtles to move away from the activity before the airguns reach full power.
Matter: Impacts to dive-based fisheries	F17	CGG has considered this claim and, based on the updated secondary sound modelling, has updated EP Appendix E8 (Impact Assessment – Underwater Sound: Surfers, Divers and Swimmers), Appendix A2 (Description of the Activity) and the following Activity limitation: the sound source will not be discharged at full power from areas which have been predicted to result in an exceedance of the safety criterion human health safety criterion for recreational divers, surfers and swimmers along the coastline. CGG has also made updates to modelling in Appendices (E1, E2, E3, E4, E5, E6, E7, F3, and G2).
Matter: Geographic range and all species need to be defined and considered	I16	CGG has considered these claims and has rerun the PMST reports to ensure that all information on the likely/known presence of relevant species within the area, as well as information on their protection status, Biologically Important Areas (BIAs) and behaviours is up to date. The updated PMST reports are provided in full in EP Appendix B5.
Matter: Lack of detail on EPBC-listed species and enforceable measures	I17	CGG has considered these claims and has rerun the PMST reports to ensure that all information on the likely/known presence of relevant species within the area, as well as information on their protection status, Biologically Important Areas (BIAs) and behaviours is up to date. The updated PMST reports are provided in full in EP Appendix B5.

Annex 2

Objections and Claims Raised from Consultation

During the consultation process relevant persons were invited to raise objections and claims about the adverse effects of the activity. An assessment of merit of each objection or claim has been made by CGG which can be found in the consultation report using the Feedback ID number shown in Table E6-5. If an objection or claim had merit and was relevant to this assessment it has been included in the table below.

Table E6-5 - Objections and Claims raised from consultation.

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4030	CGG's email on September 14 indicated that the project's timing has changed to two separate 3-month windows: April-June and September-November. AMCS is concerned that the December sound speed profile may not accurately reflect the physical conditions during these new survey periods. Since acoustic propagation modelling is critical for subsequent analyses and for setting thresholds for mitigation measures required for NOPSEMA approval, AMCS requests an explanation of how the December sound speed profile differs from those in April-June and September-November.	We acknowledge this concern and agree that acoustic propagation modelling is the foundation of subsequent analysis. We will complete another modelling report prior to submission to cover the changed timeframes of the proposed survey.	3384
4226	The email expresses concern about the adverse effects of blasting the Southern Ocean and its creatures, particularly mentioning the geologically sensitive Bonney upwelling.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are in place to reduce any impacts to as low as practicable.	2940
4230	The feedback asserts that seismic testing is harmful to oceans and marine life, highlighting detrimental effects on the ecosystem.	We acknowledge that the Regia MSS will have some short-term, localised and recoverable effects on some parts of the environment. We will try demonstrating to our independent regulator that these impacts are of an acceptable level and not as detrimental as you claim. We welcome any evidence you can share so that we can consider it fully prior to our submission.	2080
4356	Concerns about the harm and damage to the marine ecosystem.	Titleholder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the marine environment within the area of operation. Mitigation plans are in place to reduce any impacts to as low as practicable.	2831
4357	The stakeholder raised an objection to seismic surveys as they negatively affect the fishing industry, local economy and environment.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of commercial fish species and sensitive species within the area of operation. The MSS will also not impact the local economy. Mitigation plans are	424

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		in place to reduce any impacts to as low as practicable.	
4033	Claim that seismic testing is proven to damage and kill marine life.	The titleholder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are also in place to reduce any impacts to as low as practicable.	1024
4050	Concern about the destruction of smaller sea life and the wounding of larger marine animals due to seismic blasting.	Regia EP has conducted thorough assessments of the literature for all relevant receptors including plankton, fish, invertebrates, birds, turtles, and marine mammals. The Regia MSS is required to define acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan. Measures to minimise adverse impacts on relevant biological receptors in the region and relevant mitigation measures are outlined in the EP.	1669
4051	Concern about the detrimental impacts on marine animals.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are also in place to reduce any impacts to as low as practicable.	1452
4053	Concern about the impact on marine creatures due to noise pollution from seismic surveys.	The titleholder acknowledged the feedback, noting that potential impacts from underwater sound to relevant receptors, including plankton, fish, invertebrates, birds, turtles, and marine mammals, are assessed in the Environmental Plan (EP) and can be found in E2, E3, E4, E5, E6, and E7. Measures to minimise adverse impacts on biological receptors are outlined in the EP also and can be found in G2.	3237
4064	Concern raised by the stakeholder regarding the potential damage/kill of marine life due to seismic testing.	Titleholder responded to individual advising that CGG would not propose an activity that would lead to unacceptable impacts to marine life and advised that environmental impact assessments for each aspect of the proposed activity that has the potential to impact marine life were currently being prepared and that they would be based on scientific literature and published shortly for consultation and feedback.	1024

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4067	Concern regarding the repeated seismic blasting in the area, which may have effects on marine life. Stakeholder is questioning the impact of multiple blasts and the potential for further exploration by other companies, particularly regarding the sale of seismic data.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are also in place to reduce any impacts to as low as practicable. Cumulative impacts are also assessed as negligible.	879
4068	Concerned about the harm being inflicted on oceans by unnecessary gas exploration.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are also in place to reduce any impacts to as low as practicable.	1656
4069	Concerned about the harm being inflicted on oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1673
4073	Concerns about impacts both reputational and physical to the region if the activity is allowed.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are also in place to reduce any impacts to as low as practicable.	1244
4075	Concerns about marine life and ecosystems.	The effects of underwater sound have been extensively assessed based on the latest scientific literature. CGG has committed to a variety of protective measures for various marine fauna (see G1)	2117
4076	Concerns about potential disturbance to the marine environment, including marine parks and areas of Biological Importance.	The titleholder acknowledged this concern and noted that potential impacts to the marine environment including marine parks and biologically important areas as a result of the Regia MSS is assessed in E1 to E9 and F3 of the EP. There will be no activities with Australian Marine Parks. All areas of biologic importance have been identified and assessment in the respective impact and risk assessments.	2278
4077	Concerns about potential harm to zooplankton, whales, dolphins, sharks, seals, the Bonney	Titleholder has undertaken a comprehensive assessment of all available scientific literature to develop an appropriate EP. All potential risks have been identified with appropriate	722

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
	Upwelling, rock lobster fishery and other local fishing industries.	mitigation methods applied where necessary. There are no identified levels of harm that would endanger the population stability of any taxa.	
4078	Concerns about seismic testing and drilling rigs impacting marine life and fishing activities.	Titleholder has undertaken a comprehensive assessment of all available scientific literature to develop an appropriate EP. All potential risks have been identified with appropriate mitigation methods applied where necessary. There are no identified levels of harm that would endanger the population stability of any taxa.	917
4080	Concerns about the impact of seismic testing on various marine species.	Titleholder has undertaken a comprehensive assessment of all available scientific literature to develop an appropriate EP. All potential risks have been identified with appropriate mitigation methods applied where necessary. There are no identified levels of harm that would endanger the population stability of any taxa.	2179
4081	Concerns about the impact on whale habitat, endangered marine life, and commercial fisheries	Titleholder acknowledged this concern and noted that potential impacts to whales and relevant endangered marine species is assessed in the EP Chapters on underwater sound and light (E2-E7, and E9). Any interactions with seismic are mitigated and managed through spatial boundaries and a comprehensive fauna management plan. Advised that control measures to reduce impacts to commercial fishers as a result of displacement are outlined in the EP and include Adjustment Protocol stipulates an adjustment process will be implemented if a commercial fisher has a financial loss due to the Regia MSS. The adjustment process will be developed in consultation with the fishery associations that represent the commercial fishers that fish within the Operational Area.	4551
4085	Concerns of damage to the marine environment by seismic blasting and gas extraction	All available scientific evidence is used to inform the environmental assessment on seismic impacts. There are no impacts identified that will affect the population stability of any taxa.	825
4088	Condemns seismic testing, asserting that it is deadly to marine life and unacceptable for ocean ecosystems. Call for a total ban, citing the large number of marine animals harmed by the practice. Argument that the destruction of marine ecosystems and the fishing industry is unjustifiable and express frustration, telling the parties responsible to stop.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are also in place to reduce any impacts to as low as practicable. Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-	422

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	
4093	Doubted the effectiveness of mitigation measures and believed the reports/information provided were absent of action /intention.	The mitigations applied by CGG are industry standard and comply with government policy. They have been proven to be as effective as reasonably practical for a number of years. The measures adopted to protect species from the aspects of the activity are found in the respective impact and risk assessments.	2830
4096	Environmental Risk: Concerns about the environmental impact of seismic testing on marine life and the clash between business interests and environmental protection.	Regia EP has conducted thorough impact assessments for all relevant receptors including plankton, fish, invertebrates, birds, turtles, and marine mammals, in relation to underwater sound and artificial light as aspects of the activity. Other marine users have also been considered in another impact assessment that considers physical presence as an aspect of the activity. The Regia MSS is required to define acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan. Measures to minimise adverse impacts on relevant biological receptors in the region and relevant mitigation measures are outlined in the EP.	2766
4118	Impact on marine animals, which are the livelihood of the community.	Regia EP has conducted thorough impact assessments for all relevant receptors including plankton, fish, invertebrates, birds, turtles, and marine mammals. The Regia MSS will not impact the population stability of any taxa within the area of operation. Measures to minimise adverse impacts on relevant biological receptors in the region and relevant mitigation measures have been outlined in the EP.	2274
4123	Insufficient information about potential damage from seismic testing.	The titleholder is confident that sufficient relevant and available information has been used to inform this this EP and to complete a comprehensive assessment of relevant aspects of the activity. Information used	4190

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		based around sound, peer reviewed scientific literature.	
4130	Lasting and unrecoverable damage mentioned.	The titleholder acknowledged the feedback, noting that risks and impacts are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise adverse impacts on marine life are outlined in the EP in G1.	4808
4133	Mass destruction of marine populations through the blasting process.	Regia EP has conducted thorough impact assessments for all relevant receptors including plankton, fish, invertebrates, birds, turtles, and marine mammals. The Regia MSS will not impact the population stability of any taxa within the area of operation. Measures to minimise adverse impacts on relevant biological receptors in the region and relevant mitigation measures have been outlined in the EP.	2274
4136	Mention of considerable damage to marine life outweighing the benefits of mapping seafloors for gas drilling.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are also in place to reduce any impacts to as low as practicable.	1389
4145	Opposes seismic exploration claiming it is dangerous to all marine life. Cannot ensure zero risk.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are also in place to reduce any impacts to as low as practicable. Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	427
4146	Opposes seismic testing, claiming it will have catastrophic effects on marine life due to high decibel blasting sounds. States activities can harm various marine species and may cause whales to beach themselves from the pain, making them unacceptable in a whale sanctuary area.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are also in place to reduce any impacts to as low as practicable. Regia EP has found seismic impacts to cetaceans can be mitigated and managed through appropriate timing of the survey and a	537

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		comprehensive fauna management plan	
4154	Questions a previous statement that indicated there would be no mortal effects from seismic activities.	The titleholder acknowledged the feedback, noting that impacts and risks to the marine environment are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise adverse impacts on the marine environment are outlined in the EP in G1.	2088
4155	Raised concerns about sound levels from the survey and associated effects on marine mammals and other species.	Acknowledged concerns and outlined the predicted effects of sound levels of different species of marine mammals including difference between high and low frequency cetaceans, sound propagation and modelling, and different effect level thresholds. Also outlined the whale management and mitigation measures in place for Southern Right Whales and Blue Whales including timing of the activity, vessel-based monitoring (MMO's and PAM Operators), detection technology trails, and citizen science program access. Also outlined the effects on zooplankton and the case for acceptability of these	3697
4158	Reference to the destruction and degradation of the marine environment observed during diving trips.	The titleholder acknowledged the feedback, noting that impacts and risks to the marine environment are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise adverse impacts on the marine environment are outlined in the EP in G1.	2830
4173	Seismic blasting has adverse effects on the marine environment, with critical gaps in understanding the effects on individual species and the marine environment as a whole.	The titleholder responded with an explanation of the information sources used to inform the Regia MSS impact and risk assessments, and explained how these information sources and resulting measures are specific to the potential impact. The titleholder also made reference to documents relevant to this claim within the environment plan (Event ID 4092).	4091
4175	Seismic blasting is harmful and disruptive to marine life of many species.	The titleholder acknowledged the feedback, noting that impacts and risks to marine life are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise adverse impacts on marine life are outlined in the EP in G1.	3343
4176	Seismic blasting negatively affects not only whales but also crucial marine life, including fish, crustaceans, and zooplankton, all of which play vital roles in the marine ecosystem.	The titleholder acknowledged the feedback, noting that impacts and risks to marine life are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise adverse impacts on marine life are outlined in the EP in G1.	2074

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4177	Seismic blasting would have a significant negative effect on marine creatures and ecosystems.	The titleholder acknowledged the feedback, noting that impacts and risks to marine life are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise adverse impacts on marine life are outlined in the EP in G1.	3343
4179	Seismic sounds have far-reaching effects on the marine environment, causing damage and suffering to species.	The titleholder acknowledged the feedback, noting that impacts and risks to marine life are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise adverse impacts to marine life are outlined in the EP in G1.	3237
4180	Seismic testing and gas exploration/drilling pose undeniable risks to marine fauna, flora, ecosystems, local fishing, and tourism industries.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	2118
4186	Stakeholder expressed concern about the destruction and depletion of the ocean due to the activity.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	2963
4187	Stakeholder expressed concern about the potentially devastating impact of seismic testing on ocean marine life.	The titleholder acknowledged the feedback, noting that impacts and risks to marine life are assessed in the Environmental Plan (EP) and can be found in D1 to D4 and E1 to E9, and F3. Measures to minimise adverse impacts to marine life are outlined in the EP in G1.	3209
4189	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-	1653

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	
4190	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1655
4191	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1659
4192	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1661
4193	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels.	1662

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	
4194	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1663
4195	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1665
4196	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1667

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4197	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1670
4198	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1672
4199	Stakeholder noted concern for harm being inflicted on our oceans by unnecessary gas exploration.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	2586
4200	Stakeholder noted that dolphins use clicks and whistles as a complex form of communication, with observations of bottlenose dolphins using distinctive whistles for individuals within their pod, similar to how humans use names. Claimed that blasts from seismic testing could cause temporary and permanent hearing loss in dolphins and whales, citing instance near Peru, where some 900 long-beaked common dolphins and black porpoises washed up dead along a stretch of beach, shown to have had fractures in their ear bones and	A Preliminary Environmental Impact and Risk Assessment is undertaken during an impact assessment process (our PEIRA is available here). The PEIRA is compiled to identify environmental values and sensitivities, to provide an evaluation of the environmental impacts and risks associated with the project. The PEIRA is then used to inform the environmental assessment documents, and as above, the environmental impact and risk treatments, which are being uploaded in the document library. The draft Environmental Impact Assessments are in the document library now, for review	2886

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
	signs of bleeding from their middle ears. - LINK provided.	and feedback. For transparency we are uploading the entire documents, however if there is a concern you would like a summary or specific information on, please let us know. Further information on marine mammal treatments is covered below in response to concern 6.	
4202	Stakeholder objects to the proposed blasting activity due to its detrimental effects on marine ecosystems.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	2255
4211	Stakeholder stated they were extremely concerned about the risks, damage and destruction caused by exploration activities in the marine environment.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan.	1049
4217	Strong objection to the proposal for 3D seismic blast in the Otway Basin due to harm to oceans and unacceptable environmental impact or risk.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are also in place to reduce any impacts to as low as practicable.	1656
4218	Strong opposition to seismic testing in the ocean due to its effects on both wildlife and the fishing industry. Individual firmly disapproves of the practice.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are also in place to reduce any impacts to as low as practicable. Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-	425

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		date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan.	
4226	The email expresses concern about the adverse effects of blasting the Southern Ocean and its creatures, particularly mentioning the geologically sensitive Bonney upwelling.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are in place to reduce any impacts to as low as practicable.	2940
4230	The feedback asserts that seismic testing is harmful to oceans and marine life, highlighting detrimental effects on the ecosystem.	We acknowledge that the Regia MSS will have some short-term, localised and recoverable effects on some parts of the environment. We will try demonstrating to our independent regulator that these impacts are of an acceptable level and not as detrimental as you claim. We welcome any evidence you can share so that we can consider it fully prior to our submission.	2080
4232	The feedback expresses frustration over repeated seismic blasts in the same area, emphasising the significant environmental impacts associated with these activities. It calls for accountability from NOPSEMA to prevent future occurrences, highlighting the ongoing threat to the environment.	The Regia MSS is targeting areas that have not been surveyed before though we acknowledge there may be some overlap with previous surveys. We have to show that the environmental impacts are short-term, localised, or recoverable and that they are controllable with appropriate measures in place.	2104
4253	The possible effects to marine life and ecosystems are my primary concern	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	2117
4259	The proposed works will harm and damage the climate and ocean life.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation	2256

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		process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	
4260	The protection of wildlife in the Otway Basin is directly affected by drilling and seismic surveying.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan.	1901
4265	The seismic process is going to affect local marine life, ecosystems, and the climate in the community.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are also in place to reduce any impacts to defined acceptable levels and as low as reasonably practicable.	1259
4267	The Stakeholder also objected to the project on the basis that it would impact every marine creature and sea bird.	Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan. Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are in place to reduce any impacts to as low as practicable.	2064
4268	The stakeholder argues that it is impossible to ensure zero risk from seismic activities, emphasising that only zero risk is acceptable. This position reflects a strong concern regarding the potential negative impacts of seismic exploration on the marine environment.	The legislative framework in Australia permits some impact from offshore petroleum if it is managed and of an acceptable level. We believe that responsible development of gas is essential for maintaining the current quality of life we all enjoy and ensuring we pass that quality of life on to future generations. Gas is part of the Labour governments energy transition plan.	2107
4270	The stakeholder asserts seismic surveying has been proven to be harmful and disruptive to marine life of many species.	Regia EP has conducted thorough impact assessments for all relevant receptors including plankton, fish, invertebrates, birds, turtles, and marine	3343

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		mammals. The Regia MSS will not impact the population stability of any taxa within the area of operation. Measures to minimise adverse impacts on relevant biological receptors in the region and relevant mitigation measures have been outlined in the EP.	
4271	The stakeholder asserts that seismic blasts will have a direct negative impact on marine life, specifically mentioning that an "exclusion zone" will not effectively prevent the effects of the blasts from travelling through the ocean.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are in place to reduce any impacts to as low as practicable. The titleholder is aware of the environmental, cultural, and spiritual importance of Deen Maar and will talk with local traditional owners to learn more about Deen Maar and understand how to protect and preserve the values of this site.	2108
4272	The stakeholder asserts that the survey will have a harmful effect on millions of sea creatures.	It would be unacceptable to have long-term or permanent/unrecoverable impacts, fortunately, impacts from marine seismic surveys are short-term, temporary, and recoverable. (Event ID: 3419)	3343
4274	The stakeholder claims that seismic exploration poses a significant danger to marine life in general. This claim suggests a strong opposition to the practice due to its perceived harmful effects on the marine ecosystem as a whole.	The titleholder publicly responded to this interactive map comment explaining that legislative framework in Australia permits some impact from offshore petroleum if it is managed and of an acceptable level. We believe that responsible development of gas is essential for maintaining the current quality of life we all enjoy and ensuring we pass that quality of life on to future generations. Gas is part of the Labour governments energy transition plan.	2107
4276	The stakeholder does not accept the blasting activity as beneficial or more important than existing marine life and structures.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	2255
4278	The stakeholder expresses an active interest in the wellbeing of the coastline and its flora and fauna, indicating a general concern for environmental conservation.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any taxa within the area of operation. Mitigation plans are in place to reduce any impacts to as low as practicable.	1325

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4285	The stakeholder noted their concern as a resident of Port Fairy: noise (land and sea), impact on marine life, potential impacts on the environment and the future potential if gas is found.	We are also concerned about the welfare of marine fauna. We have undertaken an impact assessment process that includes whale, seals, pelagic and shorebirds. As part of this assessment, we must show that impacts to these species will be of an acceptable level. We have determined that it is acceptable to have temporary behavioural changes, such as moving away from the survey vessel, and no injury or long-term impacts. Our Preliminary Environmental Impact and Risk Assessment document has been published on the project website and is available here. We are also publishing environmental impact, risk and mitigation documents as they are completed, in the document library. We are publishing the entire documents in order to remain transparent, but I have also attached a summary document.	1747
4287	The stakeholder objected to the activities due to sound levels/acoustic trauma experienced by sea creatures	The scientific literature supports that marine fauna may potentially be displaced due to a seismic survey but that these impacts are typically short term with no impact to ecosystem function. Large scale studies undertaken in Australia that you may be interested in are: Australian Institute of Marine Science. North West Shoals to Shore Marine Noise Monitoring and Impacts https://www.aims.gov.au/research-topics/monitoring-and-discovery/north-west-shoals-shore Behavioural Response of Australian Humpback whales to Seismic Surveys https://www.brahss.org.au/ Assessing the impact of marine seismic surveys on southeast Australian scallop and lobster fisheries https://www.frdc.com.au/project/2012-008 Marine Seismic Survey Impacts on Fish and Invertebrates: Final Report for Gippsland Marine Environmental Monitoring Study https://ecat.ga.gov.au/geonetwork/srv/api/records/2292f4a7-ba2e-3533-e053-12a3070aaf2c Maxima 3D Marine Seismic Survey at Scott Reef https://www.sciencedirect.com/science/article/abs/pii/S0025326X13006528 https://www.sciencedirect.com/science/article/abs/pii/S0025326X18300687 Regarding Marine Fauna Observer's (MFOs), companies that contract MFOs such as Blue Planet Marine	2389

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		and RPS Group provide training for MFOs. As part of contracting MFOs we will ensure that the persons provided meet the requirement of the Australian Government EPBC Act Policy Statement 2.1 – Interaction between offshore seismic exploration and whales, that requires MFOs to be trained and experienced in whale identification and behaviour, distance estimation, and be capable of making accurate identifications and observations of whales in Australian waters. The Regia MSS Implementation Strategy, which will form part of the environment plan to be submitted to NOPSEMA, details the competency requirements for MFOs and ongoing awareness (page 23 and 24). The Regia MSS Implementation Strategy is available on the Regia MSS Website Document Library see https://klarite.mysocialpinpoint.com.au/regiamss/document-library As detailed in the Regia MSS Implementation Strategy, which will form part of the environment plan to be submitted to NOPSEMA, CGG will only use appropriately experienced MFOs as determined by a review of their CVs (page 23). The Regia MSS Implementation Strategy also details how CGG will monitor the performance of the control measures during the activity (page 25). For example: Audits and Inspections Post acceptance of the EP, conformance will be monitored on an at least quarterly basis by the Client Site Representative, or delegate, via audits and inspections, as well as through the commitments under the Management of Risk, Management of Change, and Management of Knowledge parts of this Implementation Strategy. During the activity, conformance will be monitored on an at least fortnightly basis by the Client Site Representative, or delegate, via audits and inspections during the activity. Conformance auditing or inspection while the EP is in-force will be based on the Conformance Register and will target the following: • Conformance with regulatory requirements detailed in the accepted EP. • Management strategies and procedures to ensure EPOs and EPSs are being implemented, monitored, measured, and evaluated. • Emissions and discharges are being monitored, measured, and	

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		documented As stated in the previous email, matters of national energy policy are not within the purview of CGG or the Regia MSS. We will however register claims related to the ongoing need for gas and provide those to NOPSEMA. Please find attached a brochure from NOPSEMA that describes this and may be of use to you.	
4288	The stakeholder objected to the project on the basis that it would impact the Stakeholder personally and every person in the community who love the ocean. Stakeholder noted that they do not support the activity and find it distressing to even think about the damage that could be caused for thousands of creatures and the future of herself, other people of Port Fairy and the greater community.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan.	2064
4301	The stakeholder stated that the proposed activity is environmentally unsound irrespective of the assessment process and predicted environmental risk.	Petroleum activities do not operate to a no-impact standard. Instead, the Regia MSS is required to define the acceptable levels of impact and risk, and work below those levels. Acceptable levels of impact are established based on relevant up-to-date technical and scientific studies, government advice, and are considerate of the information gathered through the consultation process. This information is used to make predictions of the levels of impact we expect to occur and compares those to the previously defined acceptable levels and is presented in the Environment Plan	1747
4306	The stakeholder was concerned about potential negative impacts of gas exploration and development on Country, the marine and coastal environment, the local economy, Traditional Owners, and local communities.	The titleholder acknowledged the feedback, noting that all relevant impacts are assessed in the Environmental Plan (EP) and can be found in E1-E9. Measures to minimise adverse impacts on functions, interests and activities on relevant receptors are also adopted and can be found in G1.	3152
4309	The stakeholder was concerned about the impact on marine life sensibilities and populations.	Regia EP has conducted thorough impact assessments for all relevant receptors including plankton, fish, invertebrates, birds, turtles, and marine mammals. The Regia MSS will not impact the population stability of any taxa within the area of operation. Measures to minimise adverse impacts on relevant biological receptors in the region and relevant mitigation measures have been outlined in the EP.	2273

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4315	The statement suggests that the significant harm caused by seismic activity to marine life and commercial fisheries, along with the existing natural gas supplies and climate change issues, renders the industrialisation of Port Fairy's coastline unacceptable. It emphasises community disapproval of allowing major oil companies to profit at the expense of the local environment and tourism.	We believe impacts from our activity can be managed to below acceptable levels. Further development of the offshore area would be subject to multiple future approvals. The visual impact from this survey would be temporary and similar to the shipping/fishing activity that already occurs in the region (Event ID 2076).	2076
4323	There will be potential permanent damage to marine life due to sonic testing and drilling.	Titleholder responded and listed various information needs related to the activity, environmental assessment process, environmental aspects, predicted levels of environmental impact and risk, environmental management, consultation processes, and regulations or regulatory processes. Links to the project website and document library was provided.	1046
4354	Uncertainty about the full extent of damage to the marine ecosystem.	Titleholder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the marine environment within the area of operation. Mitigation plans are in place to reduce any impacts to as low as practicable.	2831
4358	The stakeholder was concerned about the impacts on flora and fauna being damaged and killed away from the coastline.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will not impact the population stability of any flora or fauna within the area of operation. Mitigation plans are in place to reduce any impacts to as low as practicable.	2821
4362	Concerns about the lack of environmental reviews of seismic surveys at necessary scales to assess, mitigate and monitor impacts.	The titleholder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The titleholder responded providing links to large scale studies on seismic undertaken in Australian waters and offered to provide individual with impact assessments when they became available.	1389
4363	Stakeholder noted opposition to the harmful effects on marine life and the pristine coast.	The titleholder provided information on identifying potential impacts and risks and putting mitigations in place such as, conducting survey during time of year marine mammals are less likely to be in area, reducing sound source to lowest setting and reducing number of times activated, implementing marine mammal and fish monitoring programs, exclusion zones, following strict NOPSEMA guidelines. Provided link to PEIRA and document library on website.	786
4364	Concern about the future of ocean health for children and sea life, including whale children.	Titleholder responded in Event ID: 1416, describing CGG's commitment to safeguarding marine mammals, the assessment process, regulations and	1410

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		measures currently in place. The stakeholder was provided with consultation information and invited to engage.	
4365	Concerns about the lack of definitive clarification on how seismic testing affects the marine environment and the clash between economic interests and environmental risks.	The titleholder acknowledged the feedback, noting that they have undertaken a thorough analysis and assessment of all relevant literature to inform the impact assessments conducted to assess potential impacts from underwater sound to relevant receptors, including plankton, fish, invertebrates, birds, turtles, and marine mammals in the Environmental Plan (EP). These findings can be found in E2, E3, E4, E5, E6, and E7 under Section 8: Predicted Levels of Impact. Additional assessments of key receptors were also completed to demonstrate that environmental impacts and risks arising from the activity will be of an acceptable level (F3). Titleholder also conducted an assessment to investigate potential impacts to other marine users from physical presence resulting from the activity (E1).	2383
4417	The relevant person was concerned that about the proposed seismic activity effecting the behaviours of certain species.	Event ID 6880 - The Regia team responded in-meeting that the first half of the EP is associated with assessment work undertaken prior to commencing the activity. First and foremost, because there are so many different species, they explained that they had grouped species together from a physiological perspective. Secondly, the Regia team explained that their focus is on the mega-fauna and species which have protection under the EPBC act.	6880

Annex 3

Underwater Acoustic Sensitive Species

Common Name	Presence	Threatened Category	Migratory Status	Migratory Category	Marine Status	Biologically Important Area	Management Plan Conservation Advice Listing Advice
Green Turtle	Species or species habitat may occur within area	Vulnerable	Migratory	Migratory Marine Species	Listed	NA	Recovery Plan for Marine Turtles (DoEE 2017)
Leatherback Turtle, Leathery Turtle, Luth	Species or species habitat likely to occur within area	Endangered	Migratory	Migratory Marine Species	Listed	NA	Recovery Plan for Marine Turtles (DoEE 2017) Approved Conservation Advice for *Dermochelys coriacea* (Leatherback Turtle*)* (DEWHA 2008)
Loggerhead Turtle	Species or species habitat likely to occur within area	Endangered	Migratory	Migratory Marine Species	Listed	NA	Recovery Plan for Marine Turtles (DoEE 2017)