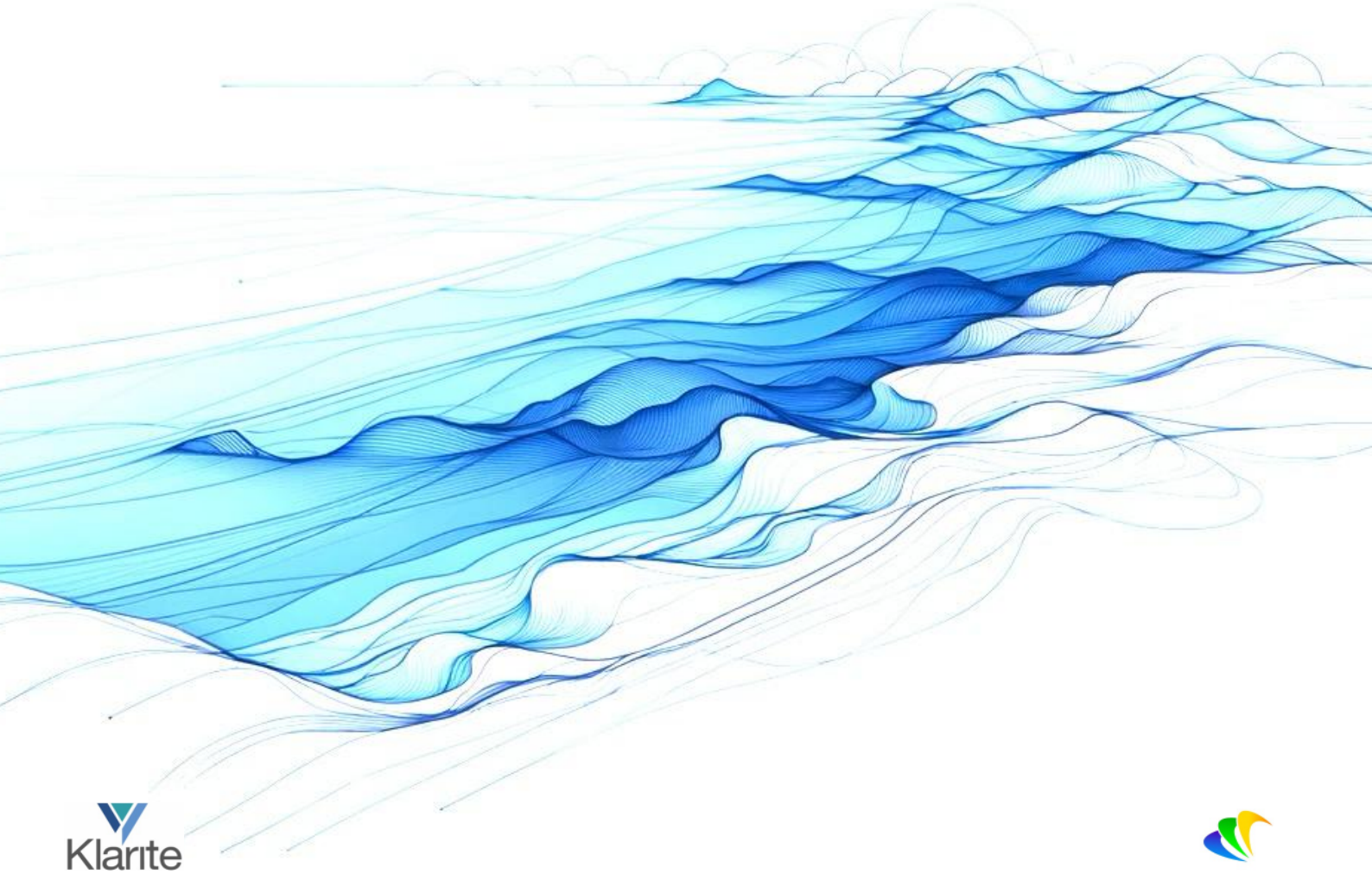
REGIA
Marine Seismic Survey

Impact Assessment
Underwater Sound: Diving, Surfing and Swimming

Appendix E8: REG-EP-027-E8

Rev 5

December 2025



Klarite

Table of Contents

1 Introduction 3
1.1 Purpose and Scope 3
1.2 Consultation in Preparation of the EP 3
1.3 Modifications Arising from Further Assessment 3
2 Aspect – Underwater Sound 5
2.1 How the Aspect Occurs 5
2.2 Extent and Duration of the Aspect 5
3 Cause-Effect Pathway 6
4 Description of the Existing Environment that may be Affected by the Activity 7
5 Relevant Legislative Requirements 8
6 Defining Acceptable Levels of Impact 9
7 Consultation Input 12
8 Minimisation of Impacts Through Activity Design 13
8.1 Elimination 13
8.2 Substitution 13
9 Predicted Levels of Impact 14
9.1 Change in physical condition 14
9.1.1 JASCO Modelling 14
9.1.2 SLR Modelling 16
9.2 Measures Adopted to Manage Environmental Impacts 17
10 Demonstration Impacts will be of an Acceptable Level 18
10.1 Principles of ESD 18
10.2 Biological and Ecological Categories 18
10.3 Economic, Cultural and Social Categories 18
10.4 Consistency with Company Processes 19
11 Environmental Performance Outcomes 20
12 Recommendations 22
13 Document Control 23
14 References 24
Annex 1 25
Public Comment 25
Annex 2 26
Objections and Claims Raised from Consultation 26

1 Introduction

This document presents analysis of an environmental aspect, underwater sound, between the Regia Marine Seismic Survey (Regia MSS) and the existing environment that may be affected by that aspect. This environmental aspect was identified by the Preliminary Environmental Impact and Risk Assessment (PEIRA) (Appendix B4) for further assessment.

This analysis is based on information provided in the preceding studies:

1. Sound Emissions Initial Modelling Report (Appendix B7)
2. Sound Emissions Secondary Modelling JASCO and SLR Reports (Appendix B7b and B7d)
3. Seismic Sound Studies Report (Appendix B8)
4.

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 first published in draft form to the Document Library of the Regia MSS Consultation Hub on 11 September 2023. This was done to acknowledge that the final full Environment Plan (EP) can be a large document that is difficult for readers to digest in the 30-day public comment period. As such, the public and relevant persons were invited to comment on the document with an explicit request for readers to provide 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.

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.

2.2 Extent and Duration of the Aspect

Impulsive Sound

Duration: 60 days

Extent: Active Source Area and area of sound propagation within which the human health safety criterion will be exceeded as detailed in the impact assessment sections.

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:

- Divers, surfers, and swimmers.

Potential environmental impacts to divers, surfers, and swimmers identified from the PEIRA are:

- Change in physical condition.

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.

Via stakeholder consultation it was identified that diving, surfing, and swimming occurs along the coastal area adjacent to the Operational Area daily throughout all seasons. Access to Country, including coastal areas, is also a highly valued and key aspect of cultural maintenance for Indigenous peoples. Divers, swimmers, and surfers may be affected at the following popular diving sites are:

- Deen Maar (Lady Julia Percy Reserve)
- Port Campbell Harbour
- Port Fairy – South Beach, Pea Soup Beach, The Passage and Battery Point
- Merri Marine Sanctuary
- Portland Harbour
- Warrnambool Harbour

Popular beaches are:

- Bay of Islands
- Bowkers Beach
- Childers Cove
- Clifton Beach
- Gibsons steps/Gibson Beach
- Massacre Bay
- Newfield Beach
- Rivernook Beach

The JASCO modelling report included 13 representative coastal locations as well as Deen Maar where received sound levels were calculated. These locations were spatially spread out along the coastline adjacent to the Survey Acquisition Area providing considerable coverage for prediction of human health threshold exceedances.

5 Relevant Legislative Requirements

CGG has considered all the relevant legislative requirements, that apply to underwater sound and divers, surfers, and swimmers (see Appendix B2). Measures that must be adopted are as follows:

- Diving Medical Advisory Committee (DMAC 2020) requires that efforts are made to implement a SIMOPS plan in consultation with divers with an appropriate risk assessment undertaken.

6 Defining Acceptable Levels of Impact

Scuba divers, surfers and swimmers exposed to high levels of underwater sound can suffer from dizziness, hearing damage or other injuries to other sensitive (mainly air-filled) organs, depending on the frequency and intensity of the sound.

Underwater, the human ear is about 20 dB less sensitive than it is in air at low frequencies (20 Hz), increasing to 40 dB at mid-frequencies (less than 1 kHz), and increasing to 70–80 dB less sensitive at higher frequencies (Parvin 1998).

Information on studies in relation to seismic acoustic emission impacts and diving is provided Seismic Sound Studies Report (Appendix B8).

Seismic activity results in the transmission of acoustic waves through the water which divers or swimmers experience as vibration or a noise analogous to a piling hammer. Multiple reflections of this acoustic wave from the sea surface, seabed and other structures may result in this sounding like a low frequency rumble (DMAC 2020).

A safety criterion for recreational divers and swimmers of 145 dB re 1 µPa is conservatively used to assess potential adverse effects. This does not imply that this level is associated with the onset of injury, which has not been established due to ethical research protocols. Parvin (2005) reported vibration in forearms and thighs at the much higher level of 180 dB re 1 µPa but no physical injury.

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 E8-1 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]

Table E8-1 - Defined acceptable levels of impact from underwater sound effects to fish

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 coastal users is below the per-pulse safety criterion relating to amenity value of 145 dB re 1 µPa.	This level is based on internationally recognised guidance for human exposure to underwater noise, particularly in relation to comfort and

[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.

Category	Defined Acceptable Levels (General)	Defined Acceptable Levels (Specific)	Rationale
	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.		amenity values for recreational divers and coastal users. An SPL human health assessment (Parvin 2005) supports this threshold. Exceeding this threshold may result in aversion or perceived nuisance, undermining social licence.
	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.	Reflects Commonwealth and State policy objectives for sustainable resource use and protection of ecosystem services.
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.	This level reflects the principle of maintaining cultural values and heritage as protected under national and state legislation. It ensures that activities do not interfere with traditional practices, spiritual connections, or ongoing access to culturally significant areas.
Social	Measures have been adopted based on the consultation process to address relevant objections and claims of relevant persons.	People and communities can continue engaging with the natural environment, recreational activities, and heritage values without experiencing long-term or irreversible disruption.	This level reflects broader social licence to operate, ensuring that environmental activities do not lead to degradation of public amenity, loss of recreational use, or impacts to non-Indigenous heritage values. It aligns with Commonwealth policies promoting public access, well-being, and sustainable use of the marine environment.
	The views of public have been considered in the impact and risk assessment.		

Category	Defined Acceptable Levels (General)	Defined Acceptable Levels (Specific)	Rationale
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. Two main options were considered:

No seismic acquisition within 17 km of Deen Maar / Lady Percy Julia Island

This option has been considered by CGG to eliminate the risk of exposing divers to sound pressure levels that may exceed safe thresholds in shallower waters where sound energy is more likely to reflect and concentrate, thereby increasing potential exposure and associated risks. By eliminating operations in shallower depths, the activity design ensures that risk to diving personnel is avoided in the most sensitive depth zones.

Excise areas of the acquisition area that have been identified to cause exceedances of safe diving thresholds

This approach eliminates potentially high-risk areas within the acquisition area. It ensures that seismic activities do not occur in locations where modelling or empirical data indicate the potential for unsafe sound exposure levels to divers. The limitation was accepted by CGG to prioritise diver safety and reduce the need for more complex mitigation measures during operations. By eliminating high-risk segments of this area, the project reduces the likelihood of adverse impacts while maintaining operational objectives.

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. No substitution-based limitations were required in this case, as the elimination measures applied were sufficient (when applied with other measure types) to reduce the identified impact to an acceptable level.

9 Predicted Levels of Impact

To arrive at the predicted levels of impact of underwater sound on divers at this stage in the process requires the reader to have assimilated all prior relevant information that has been assessed on birds. 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 birds as described here.

- Sound Modelling Reports - JASCO Applied Sciences (JASCO) and 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 birds, marine mammals, fish, turtles, benthic invertebrates, plankton 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 birds and other fauna including divers and swimmers. This literature is the key evidence base from which impact levels are derived.

9.1 Change in physical condition

9.1.1 JASCO Modelling

Based on the second acoustic modelling report (Appendix B7b) there is the potential for received sound levels at coastal areas where diving, surfing, and swimming occurs to exceed the human health safety criterion. As this would not be acceptable, CGG will adapt the Regia MSS so that received level at coastal areas is below the safety criterion for recreational divers and swimmers. The area in which the sound source would operate at full capacity (Survey Acquisition Area) has therefore been further constrained to the area from where the human health safety criterion would not be exceeded at any coastal location assessed. This involves avoiding acquisition using the sound source at full power in the area in red in Figure E8-1.

The second iteration of acoustic modelling undertaken deliberately introduced an assessment of sound exposure at 14 relevant sites across the coastline adjacent to the Survey Acquisition Area. Guidance issued by the Diving Medical Advisory Committee (DMAC 2020) suggests that adverse effects to divers may be experienced at distances of up to 27 km from the seismic source, which is within the range of the modelling distance for the Regia MSS. Five of the coastal locations assessed were within 27 km.

A per-pulse safety criterion of 145 dB re 1 µPa was applied which the modelling indicated could be exceeded at:

- Killarney Beach (150.6 dB re 1 µPa)
- Port Fairy Lighthouse (154.6 dB re 1 µPa)
- Deen Maar / Lady Julia Percy Island (154.8 dB re 1 µPa)
- Merri Sanctuary (151.8 dB re 1 µPa)
- Middle Island (151.8 dB re 1 µPa)

The two closest coastal sites to the Active Source Area (Port Fairy Lighthouse & Deen Maar) at 20.7 and 16.6 km distance, respectively. Figure E8-1 illustrates the sound source location where the safety criterion would be exceeded at any of the coastal sites assessed. Received sound levels at the three

other coastal sites within 27 km of the sound source (Deen Maar, Middle Island and Merri Sanctuary) were below the safety criterion.

The activity design parameters have continued to evolve throughout the preparation of the Regia MSS EP. As such, the northern most lines of the survey area have been removed such that modelled sound impulse sites 1, 2, and 3 are no longer the drivers of the exceedance levels shown above. Analysis of the remaining relevant sound impulse sites (4 – 15) shows that all dive sites now have exposures below 140 dB re 1 µPa, except for waters around Deen Maar / Lady Julia Percy Island (Site 15).

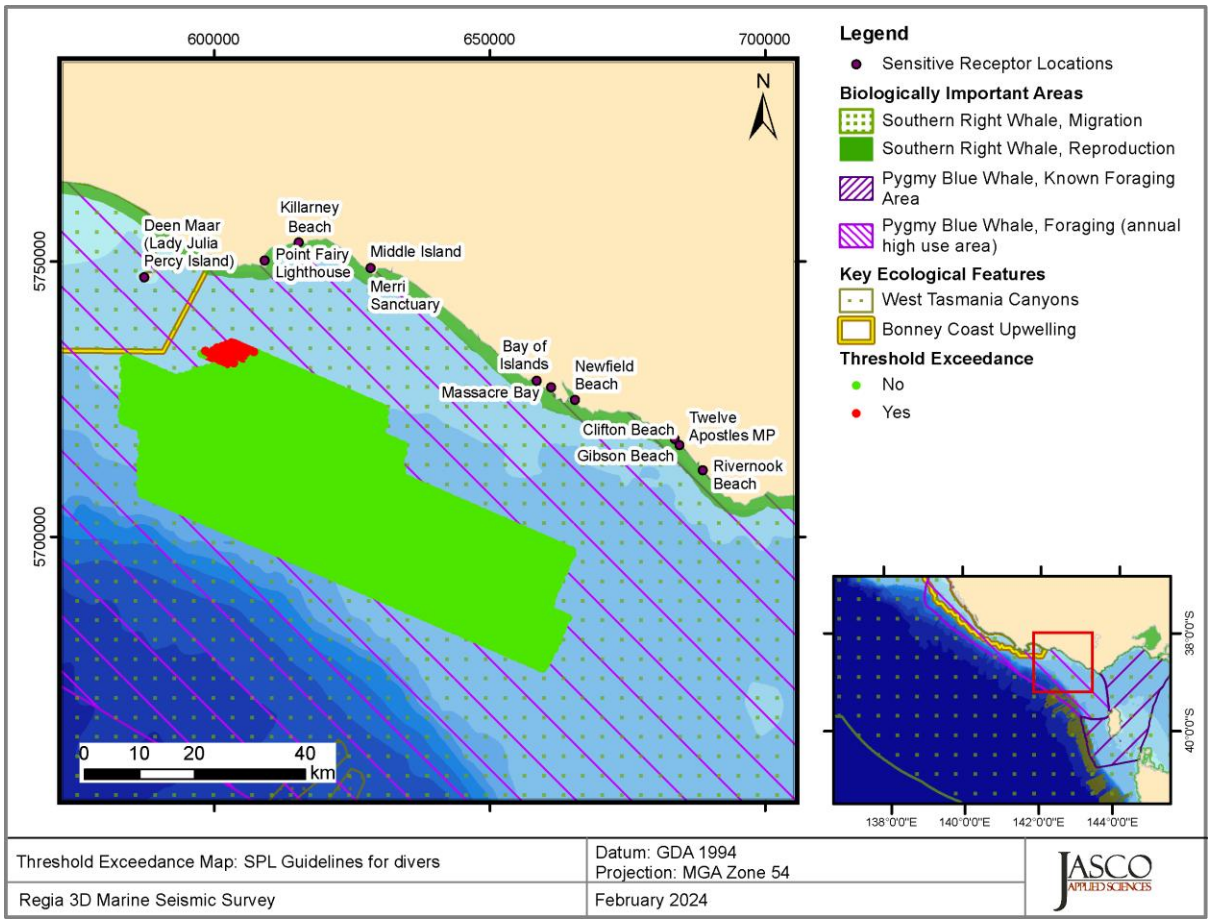


Figure E8-1 - Assessment of safety criterion exceedance at any coastal sites from within the proposed active source area. Area within the proposed active source area from where exceedance of the safety criterion may occur is indicated in red.

9.1.2 SLR Modelling

SLR was commissioned by CGG to conduct an underwater acoustic study using a lower sound source (see Appendix B7c). While SLR did not model received levels at specific receiver locations, this study modelled 3 sites from the JASCO report, sites 15, 10 and 7 (see Figure E8-2 below). A per-pulse safety criterion of 145 dB re 1 μ Pa was applied to each site. The maximum distance at which this threshold was exceeded was at 42.35km from the sound source.

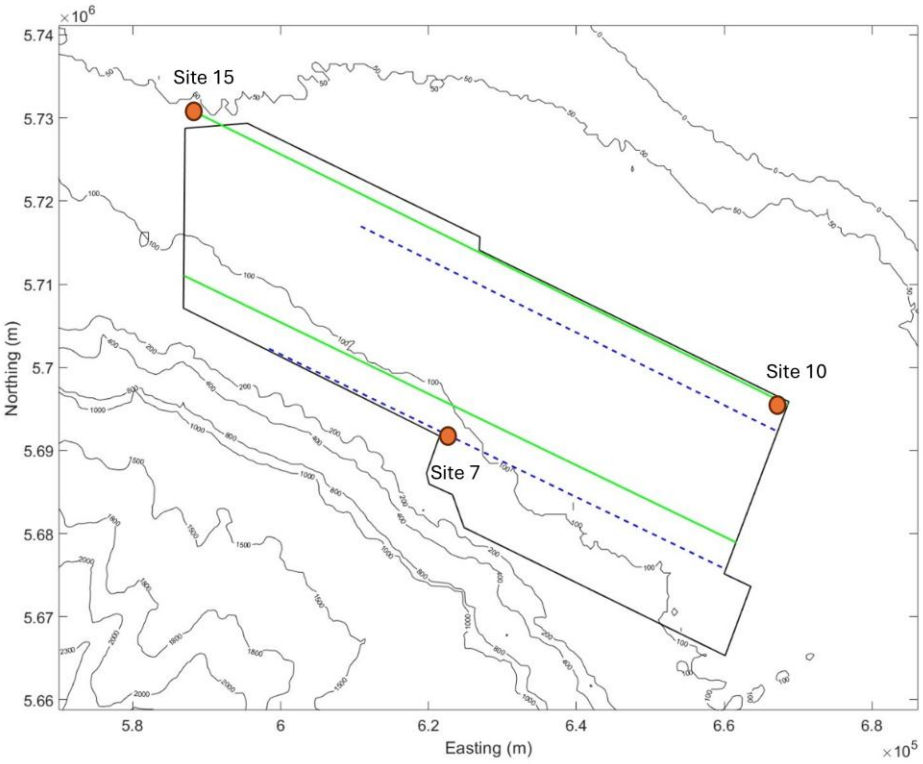


Figure E8-2: A map showing the modelled sites in the SLR underwater sound study.

The uncertainty level for impact to divers is assessed as low based on:

- The conservative human health safety criterion used to identify where potential adverse effects may be experienced (of 145 dB re 1 µPa).
- There were concerns raised throughout consultation with relevant person regarding sound levels at recreational dive sites close to the Operational Area (Event ID 2028).
- Following these concerns, CGG commissioned JASCO to undertake underwater sound modelling report that deliberately assessed received sound levels at 13 representative locations across the coastline adjacent to the proposed Active Source Area as well as Deen Maar.
- CGG also commissioned SLR to conduct underwater sound modelling and found the 145 dB re 1 μ Pa will be exceeded at 42.35km from the sound source.
- The Active Source Area has been further constrained to areas where the human health safety criterion is not exceeded anywhere on the adjacent coastline or at Deen Maar.

The predicted level of impact based on the effect (negligible) and uncertainty (low) levels is assessed as low. 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 Manage 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 divers, surfers, and swimmers 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
Diving SIMOPs Plan	Resource	Best endeavours will be used to ensure this plan is developed with local divers and commercial divers that is consistent with DMAC guidelines.
Consultation Management System	System	Local newspapers will be used to notify the public of the SIMOPS Plan and the timing of the activity.
Sail Line Plan	Resource	This plan is used by all staff and vessels to align on the operational parameters, schedule, and conduct of the survey within the activity limitation required by this EP.

10 Demonstration Impacts will be of an Acceptable Level

10.1 Principles of ESD

Temporary, Reversible, and Small Scale

As described in the impact assessment, the Regia Marine Seismic Survey will generate impulsive underwater sound from an airgun array with a total volume of 2,630 in³, active over 60 days in a 90-day period. SLR modelling shows that the predicted distances at which regulatory thresholds for harm to divers may be exceeded are extremely small: Parvin (2005) and NATO (2006), 184 dB re 1µPa (rms) exposure limit which can cause physiological damage to divers is exceeded only within 520 m of the source, and the more conservative 170 dB re 1µPa (rms) limit for divers which is the tolerance limit is exceeded only within 2.72 km. Swimmers and surfers are not expected to be exposed to these levels given these distances are based on modelled site that are in water depths of more than 50m. . These distances are highly localised compared to the total survey area and survey vessel speed (4–6 knots), meaning any potentially affected area moves continuously and is of short duration. There are no planned survey operations in nearshore waters where these activities commonly occur. Therefore, any potential environmental harm from underwater sound exposure to people is predicted to be of low intensity, short duration, reversible, and confined to a very limited spatial scale. The predicted levels of impact are beneath levels of perception and/or within normal bounds of variation. There is however the potential for received sound levels at coastal areas where diving, surfing, and swimming occurs, but they should not exceed the safe diving criterion.

Based on sufficient information

The impact assessment used peer-reviewed literature, national standards (AS/NZS 2299.1:2015), international health guidance, and site-specific acoustic modelling to define thresholds for safe exposure. Sound propagation modelling was conducted using JASCO's and SLR's established methodology and considered average seasonal propagation conditions. Thresholds from the Australian Standard for occupational diving and conservative limits for recreational and public exposure were applied. There is no evidence of serious or irreversible harm at or beyond the modelled distances, and swimmer and diver hearing injury thresholds (e.g. 230 dB SEL) are not predicted to be exceeded at any distance. The assessment concluded that sufficient information was available to characterise impacts, and uncertainty was low. The precautionary principle was not triggered.

Activity not inconsistent with EPBC Act

Underwater sound exposure to humans is not regulated under the EPBC Act, which focuses on environmental and species conservation. However, the assessment reviewed and followed applicable occupational health standards and international marine planning guidance. The EPBC Act was also considered in relation to sensitive cultural values or protected areas that could coincide with recreational water use, and none were identified within the survey area. No recovery or management plans applicable under the EPBC Act address human use of the marine environment in relation to sound exposure. Accordingly, the activity is not inconsistent with the Act or any associated instruments.

10.2 Biological and Ecological Categories

Not applicable to this impact pathway, no marine fauna or biotic components are assessed in this section. The focus of this assessment is on potential harm to humans engaging in in-water activities. There are no pathways by which diver or swimmer exposure would generate damage to ecological features or ecosystem functioning.

10.3 Economic, Cultural and Social Categories

During consultation, relevant persons including recreational divers, coastal tourism operators, community groups, and marine safety agencies raised concerns about potential impacts on in-water

activities and public safety. Several requested exclusion zones or formal warnings in advance of survey operations. In response, CGG committed to implementing a public notification plan that includes regular updates to the Consultation Hub, coordination with marine safety advisories, and targeted outreach to recreational diving clubs and tourism operators. These measures ensure that water users can make informed decisions and avoid the limited zones where sound levels might exceed recreational or occupational exposure thresholds. The modelling demonstrated that no survey operations would occur near popular dive sites, beaches, or surf breaks. Indigenous harvesting of coastal resources such as torbos, pipis, abalone, limpets, mussels, elephant snails, crayfish/lobster, oysters, cockles, and crabs was identified as culturally significant, along with Native Title non-exclusive rights including access to and use of the land and waters, and the taking of resources from the land and water (Appendix F3 Section 3.16.1). As the activity is located 20km offshore, no disruption to access, use, or harvesting is anticipated, with diving, surfing and swimming not expected to be impeded. The consultation process confirmed that affected persons will not be materially worse off and that all relevant claims were appropriately addressed and incorporated into the final EP.

10.4 Consistency with Company Processes

The impact assessment followed the process set out in Appendix B3, using defined consequence criteria and uncertainty ratings. These ratings reflect the short duration, small spatial extent, and avoidance of exposure above regulatory thresholds. All adopted mitigation measures align with good practice and are within the titleholder's control. The final consequence rating remains within company limits.

This impact assessment has demonstrated that the effect of underwater sound to divers, surfers and swimmers has a:

- **Predicted level of effect of negligible.**
- **An uncertainty of low.**
- **Predicted level of impact of low.**

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 E8-2 - Environmental Performance Outcomes and Justifications

Defined Acceptable Level (From Table E8-1)	Environmental Performance Outcome	Rationale
Sound exposure to coastal users is below the per-pulse safety criterion relating to amenity value of 145 dB re 1 µPa.	**Received sound levels at coastal areas accessible by coastal users will not exceed the human health safety criterion relating to amenity value.**	This EPO can be supported through acoustic modelling calibrated against real-world measurements and by verifying compliance with predicted exposure contours for coastal areas and dive sites. The predicted levels of impact are beneath levels of perception and/or within normal bounds of variation. There is however the potential for received sound levels at coastal areas where diving, surfing, and swimming occurs, but they should not exceed the safe diving criterion.
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.**	Predicted impacts to fish are low intensity damage at the population level and within currently accepted levels of impact to these species as applied by the commercial fishing industry. The Otway Adjustment Protocol will be implemented to ensure that affected fishers will not be worse off because of the activity.
Culturally important species, places, and practices can continue without disruption to their role, accessibility, or long-term viability.		The Budj Bim eel traps are protected under the World Heritage Area listing, the eels themselves are not. No impacts to the World Heritage Area are predicted. The predicted impacts to eels are low intensity at a population level and within current accepted levels of impact as applied to the commercial fishing industry. The Yarra Pygmy Perch occurs in lakes, ponds, and slow flowing rivers (Saddlier and Hammer 2010). Because of their freshwater affiliation no impact from underwater sound from offshore seismic is predicted.
People and communities can continue engaging with the natural environment, recreational activities, and heritage values without experiencing long-term or irreversible disruption.		Predicted impacts to fish are low intensity damage at the population level and within currently accepted levels of impact to these species as applied by the commercial fishing industry.

Defined Acceptable Level (From Table E8-1)	Environmental Performance Outcome	Rationale
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

The impact assessment has adopted a conservative approach to estimation of the predicted level of impact. Good industry practice (including legislation and standards) has been applied and impacts are therefore considered to be of an acceptable level without further recommendations being required.

13 Document Control

Date	Revision	Update
6 June 2023	A	Draft prepared for initial comment
20 August 2023	B	Update based on comments and relevant person feedback
11 Sept 2023	0	Approved for release on Regia MSS website
20 Dec 2023	1	EP submission to NOPSEMA for public comment
14 May 2024	2	EP submission to NOPSEMA for assessment
24 October 2024	3	Updated following NOPSEMA assessment
16 April 2025	4	Updated following NOPSEMA OMR 1 Letter
6 December 2025	5	Updated following NOPSEMA OMR 2 Letter

14 References

DMAC 2020. Safe Diving Distance from Seismic Surveying Operations. DMAC 12 Rev 2.1. Diving Medical Advisory Committee.

Koessler MW, Muellenmeister AM, Connell SC & McPherson CR. 2023. Regia Marine Seismic Survey: Initial Acquisition Area. Initial Acquisition Area. Document 03076, Version 1.0. Technical report by JASCO Applied Sciences for Klarite.

Parvin SJ. 1998. The effects of low frequency underwater sound on divers. Proceedings of Undersea Defence Technology, pp227- 232, Wembley.

Parvin S. 2005. Limits for underwater noise exposure of human divers and swimmers. Subacoustech. Presented at the National Physics Laboratory Seminar on Underwater Acoustics, Teddington, UK.

Stephen T.J., V.E. Warren, S.C. Connell, M.W. Koessler and C.R. McPherson. 2024. Regia Marine Seismic Survey: Acoustic Modelling for Assessing Sound Exposures. Document 03301, Version 2.0. Technical report by JASCO Applied Sciences for Klarite.

Annex 1

Public Comment

The following consultation feedback was received since the beginning of the public comment period starting 25 January 2024. Table E8-3 shows how this feedback has been incorporated into the environmental assessments.

Table E8-3 - Public comment input.

Matter	Matter ID	Changes made arising from public comment
Matter: Impacts on 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 Activity limitation, to reflect that the sound source will not be discharged at full power from areas which have been predicted to result in an exceedance of the 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, F1 F3, and G1).

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 E8-4. If an objection or claim had merit and was relevant to this assessment it has been included in the table below.

Table E8-4 - Objections and Claims raised from consultation.

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4003	Risks to the wellbeing of the human population	The risks to divers, surfers, and swimmers have been thoroughly assessed in E8 and a SIMOPS plan will be developed to ensure the amenity value of the diving/swimming/surfing experience is unaffected.	5114
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 in place to reduce any impacts to as low as practicable.	424
4007	A concern was raised regarding the potential exceedances of safe diving thresholds, highlighting the risks associated with seismic activities on divers.	The risks to divers, surfers, and swimmers have been thoroughly assessed in E8 and a SIMOPS plan will be developed to ensure the amenity value of the diving/swimming/surfing experience is unaffected.	2028

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
4020	Any threat to the ocean, poses a threat to my health.	The effects on the amenity value of the diving, swimming, surfing experience have been assessed in E8 and limitations put in place to ensure the thresholds for human health are not exceeded.	2857
4022	Attendees voiced concerns about how seismic activities could impact the sustainability and fish-ability of the immediate and nearby areas.	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.	1529
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
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
4037	Commenter expresses concern that seismic surveys will severely damage the local area and pose significant risks to divers during testing.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. Activity Limitation plans are also in place to remove/ reduce any impacts to as low as practicable. There will be no significant impacts on divers from the Regia MSS.	1432
4049	Concern about the blasts going off while swimming and the harmful sound waves reaching the shores of Port Fairy.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. CGG has assessed impacts to divers and swimmers in E8. The MSS will be operating at >25km from the coast and beyond depths greater than 50m hence significant impacts are not expected. Mitigation plans are also in place to reduce any impacts to as low as practicable.	1452
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	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.	879

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
	potential for further exploration by other companies, particularly regarding the sale of seismic data.	Mitigation plans are also in place to reduce any impacts to as low as practicable. Cumulative impacts are also assessed as negligible.	
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 Upwelling, rock lobster fishery and other local fishing industries.	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.	722
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	917

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		of harm that would endanger the population stability of any taxa.	
4082	Concerns about the noise and effects of seismic surveying on swimming, snorkelling, and observing marine life.	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.	1263
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-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	422
4091	DMAC guidelines had been followed, meaning that the threshold used was one of aesthetic value of the experience rather than a physiological effect.	The titleholder acknowledged this claim and provided the project website which contains relevant information.	2282
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
4100	Expresses concern that while the proposed exclusion zone for seismic testing is set at depths less than 40 meters, this may not be sufficient to protect abalone divers. Comment that a safer distance of 10.3 kilometres away from the 30-meter	The 40m exclusion was put in place for abalone and other shallow water molluscs/invertebrates, rather than only for commercial divers. Abalone belong to the phylum Mollusca and are considered a benthic invertebrate in the sound modelling study. The 10.3km buffer is the	1846

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
	contour should be maintained to ensure that abalone are not exposed to damaging sound levels, similar to the protections applied around Deen Maar.	behavioural response distance for marine mammals. The appropriate distance for abalone is 52m at 40m water depth (Event ID 1846).	
4115	I live in Warrnambool and enjoy the marine life it offers - whale watching, swimming and snorkelling. All of which would be affected by this drilling.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will be operating at >25km from the coast and beyond depths greater than 50m hence significant impacts are not expected. Mitigation plans are also in place to reduce any impacts to as low as practicable.	1459
4117	Impact on enjoyment and overall experience at the beach.	Stakeholder interests were noted and used to inform the analysis and assessment of impacts arising from the Regia MSS. Multiple measures were taken to manage any potential impacts to users enjoyment	1263
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
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	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS	537

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
	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.	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 comprehensive fauna management plan	
4150	Outlined concern about any exceedances of safe diving thresholds.	Titleholder acknowledged this concern and noted that potential impacts to divers from the Regia MSS is assessed in E8 of the EP. To ensure divers are not exposed to noise levels above the human threshold for safety, CGG will implement the following measures: No seismic acquisition will be undertaken in water depths shallower than 50 m, Excise areas of the acquisition area that have been identified to cause exceedances of safe diving thresholds, Diving SIMOPs Plan, Consultation System and a sail line plan (see G1).	2282
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
4157	Reference to CGG's acoustic modelling report and the predicted sound waves reaching 140-160db at Port Fairy.	Title holder has undertaken a thorough analysis and assessment of all relevant literature to inform its decisions. The MSS will be operating at >25km from the coast and beyond depths greater than 50m hence significant impacts are not expected. Mitigation plans are also in place to reduce any impacts to as low as practicable.	1452
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	2830

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		on the marine environment are outlined in the EP in G1.	
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
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
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-date technical and scientific studies, government advice, and are considerate of the information gathered through the	1653

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		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. 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	1662

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		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
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	1670

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		acceptable levels and is presented in the Environment Plan	
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 signs of bleeding from their middle ears. - LINK provided.	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 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.	2886
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
4213	Stakeholder wanted to enjoy recreational activities without the disruption and destruction caused by the proposed activities.	Titleholder responded advising that displacement of recreational marine users is an assessed impact of the activity that is temporary and recoverable. The activity occurs no closer than 25km to the coastline at its closet point (south of Port Fairy) and lasts for no longer than 90 days.	820
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

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.	
4226	The email expresses concerns 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 must show that the environmental impacts are short-term, localised, or recoverable and that they are controllable with appropriate measures in place.	2104
4257	The primary concern raised was regarding the safety of divers and effective management of simultaneous operations (SIMOPS).	Identified two measures that need further analysis to confirm exactly what to do next. The first was to remodel the sound propagation into shallower waters noting that CGG has made a commitment to offset from popular dive beaches already (Event ID 3367). The second measure was to develop a SIMOPS plan. Asked if abalone divers were likely to dive at night, which was confirmed as unlikely (Event ID 3367). Stated that CGG would do more work to understand the areas that it wanted to access, and the offset distances that would be required, to determine whether CGG needed to commit to certain lines being acquired at night-time only.	3367
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	1901

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		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.	
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
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
4273	The stakeholder claimed that their leisure interests and activities would be affected by the issue as wildlife and coastal creatures will be scarce in the area affecting swimming, diving, whale watching and fishing.	The titleholder acknowledged the feedback, noting that impacts are assessed in the Environmental Plan (EP) and can be found in E1. Measures to minimise adverse impacts on functions, interests and activities on swimming, diving, whale watching and fishing are outlined in the EP.	2060
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,	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.	1325

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
	indicating a general concern for environmental conservation.	Mitigation plans are in place to reduce any impacts to as low as practicable.	
4285	The stakeholder noted the following concerns 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/a	2389

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		rticle/abs/pii/S0025326X18300687 Regarding Marine Fauna Observer's (MFOs), companies that contract MFOs such as Blue Planet Marine 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	

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		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 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
4289	The Stakeholder outlined concern about any exceedances of safe diving thresholds.	The Regia team discussed the sound modelling that has been completed to date and that the DMAC guidelines had been followed meaning that the threshold used was one of aesthetic value of the experience rather than a physiological effect. (Event ID 2282)	2282
4300	The stakeholder stated that sound impacts to human health were unacceptable.	The titleholder acknowledged the feedback, noting that potential impacts of underwater sound to surfers, divers and swimmers is assessed in the Environmental Plan (EP) and can be found in E8. Measures to minimise adverse impacts on functions, interests and activities on humans are outlined in the EP.	1890
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	1747

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		acceptable levels and is presented in the Environment Plan	
4304	The stakeholder stated that they were concerned about the correlation between the risk of shark attacks and sound caused as a result of a seismic activity.	CGG has completed an assessment of the impacts to divers from elevated levels of sound. Whilst preparing this document a literature review was complete to explore the claim that sharks may be more aggressive or predatory as a result of exposure to elevated levels of sound. No relevant literature was found.	1890
4310	The stakeholder was concerned about the sensitivity of different divers to sound exposure.	This has been thoroughly assessed in E8 and a SIMOPS Plan will be developed with local divers to ensure that the amenity value of the diving experience is maintained.	2282
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
4329	This feedback highlights the uncertainty regarding the long-term impacts of seismic blasting on abalone populations, particularly emphasising that the effects may not be immediately observable and could depend on the juvenile stages at the time of blasting.	We have recently installed an exclusion zone down to the 40m bathymetry contour primarily as a result of discussions with abalone fishers who dive down to 30m. This will help protect early life-cycle stages of abalone. Further, seismic surveys have occurred in this region for many years and the two industries (fishing and petroleum) have successfully coexisted over time (Event ID 2095).	2095
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
4355	Request for seismic blasting not to occur within 20km of specific beaches.	Titleholder acknowledged this concern and commissioned specialist underwater sound modelling to assess impacts to divers and swimmers (see E8). This was done to ensure sound exposure to coastal users is below the per-pulse safety criterion relating to amenity value of 145 dB re 1 µPa. CGG advised that control measures to reduce impacts to divers and swimmers as a result of the survey are outlined in the EP and include a sail line plan, a SIMOPS plan, an activity limitation where no acquisition will occur in in water depths shallower than 50 m, and the Regia MSS will avoid any areas	2831

Feedback ID	Objection or Claim Summary	Titleholder Response	Event ID
		where there are exceedances of safe diving thresholds.	
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 measures currently in place. The stakeholder was provided with consultation information and invited to engage.	1410
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