Our ref (Block 2C): LW/lj/1688-2

DMPR/PASA Ref (Block 2C): 12/3/248

11 July, 2025

To whom it may concern

Dear Interested and Affected Party:

AUDIT REPORT RECOMMENDATIONS: PETROSA BLOCK 2C EXPLORATION RIGHT LOCATED OFF THE WEST COAST OF SOUTH AFRICA.

1 INTRODUCION

The Petroleum Oil and Gas Corporation of South Africa (PetroSA) holds an Exploration Right over offshore Block 2C, located off the West Coast of South Africa in the Orange Basin approximately 200 km offshore of the Northern Cape province. Regulation 34 of the Environmental Impact Assessment Regulations under NEMA requires PetroSA to have independent audits conducted on compliance with their Environmental Authorisation (EA) and Environmental Management Programme (EMPr).

PetroSA must meet all Regulation 34 requirements, including submitting recommendations to amend the EMPr if the audit finds inadequate mitigation or compliance. Environmental Impact Management Services (EIMS) recently completed such an audit and recommended amendments to the EMPr to address identified shortcomings. These recommendations must undergo a public participation process approved by authorities and be communicated to interested and affected parties.

This letter provides the auditor's recommendations as required by Regulation 34 and is hereby made available to all Interested and Affected Parties and relevant Stakeholders. For further information, please also consult the amended EMPr available for public review and comment.

2 AUDIT RECOMMENDATIONS

This section presents the recommendations made as a result of the Regulation 34 compliance audit and includes recommendations to address identified shortcomings in the adequacy of the impact management requirements and compliance mechanisms, as well as recommendations to address shortcomings regarding the time that has lapsed since the compilation of the EMPr. Further, it is recommended that the documentation retention period requirement in the EMPr be amended to provide for retention for a minimum of 5 years after the validity of the petroleum right ends.

2.1 ADEQUACY OF IMPACT MANAGEMENT

This section aims to present the findings of an evaluation of the current EMPr and the ability of the measures contained in the EMPr to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity. The approach taken included:

- Consideration of the impacts identified and presented in the EMPr, and to determine whether any additional impacts and associated management outcomes and actions should be included.
- Consideration of the current impact management actions, their adequacy and potential changes to align with good international industry practice (GIIP).

The findings of this evaluation are presented in Table 1.

Table 1: Recommended amendments and additions to the impact management outcomes and actions.

Relevant EMPr Section	Comments	Nature of change	Recommendations
EMPr for Seismic Activities (CCA Environmental, 2013)			
Whole EMPr	The 2013 EMPr reflects Anadarko as the responsible entity to carry out the activities and ensuring compliance with the EMPr, it has been indicated by PetroSA that Anadarko exited the Block and PetroSA has been in sole operatorship since February 2021.	Amend	The EMPr must be amended to reflect PetroSA as the responsible entity / exploration right holder.
7.1.2.2	The current stakeholder communications requirements do not include the need to develop and maintain an effective grievance mechanism.	Amend	Compile a Communications Plan that outlines the communications procedures for all stakeholder engagement, including a Stakeholder Engagement Register, responsibilities for review of stakeholder comments, feedback to the stakeholder and close out actions and requirements. The plan must include an effective Grievance Mechanism aligned with the requirements of the International Finance Corporation (IFC), considering mechanisms for grievance input, assessment, action, monitoring, and closure.
7.2.1.2	The current pre-survey notification is 14 days prior. This should be extended to at least 3 weeks, and additional stakeholders included.	Amend	Fishing stakeholders and other marine users who operate in the area shall be notified in writing of seismic activities and the location and presence of exclusion and safety areas at least 3 weeks prior to the scheduled commencement of survey activities. Should seismic activities extend beyond the original time frame stakeholders should be notified within 24 hours. Stakeholders include: • Overlapping and neighbouring users with delineated boundaries in the marine petroleum and mineral prospecting and mining industries. • South African and foreign fishing vessels, who can be informed through the recognized fishing associations and Department of Agriculture, Forestry and Fisheries (DAFF) examples include the South African Deep Sea Trawling Association, Inshore Pelagic, Rock Lobster and Tuna Associations, fishing companies and fishing agents

Relevant EMPr Section	Comments	Nature of change	Recommendations
			• Government Departments with jurisdiction over marine activities, particularly DEA and PASA, SAN Hydrographer, South African Maritime Safety Authority (SAMSA) and local Port Captains. • DFFE Vessel Monitoring, Control and Surveillance Unit in Cape Town.
7.2.1	Additional engagement requirements for the fishing industry.	Additional	• An experienced Fisheries Liaison Officer (FLO) should be placed on board the seismic or escort vessel to facilitate communications with fishing vessels in the vicinity of the seismic survey area. • Ensure project vessels fly standard flags and lights to indicate that they are engaged in towing surveys and are restricted in manoeuvrability. • Notify any fishing vessels at a radar range of 12 nautical mile (nm) from the seismic vessel via radio regarding the safety requirements around the seismic vessel.
7.3.1.3	Training should include responding to incidents and reporting procedures.	Amend	7.3.1.3. All personnel shall receive regular training on the handling and management of waste, and incident response and reporting procedures.
7.4.1	Impacts of marine biodiversity through the introduction of non-native species in ballast water and on ship hulls was not specifically identified in the EMPr	Additional	• Avoid the unnecessary discharge of ballast water. • Use filtration procedures during loading in order to avoid the uptake of potentially harmful aquatic organisms, pathogens and sediment that may contain such organisms. • Ensure that routine cleaning of ballast tanks to remove sediments is carried out, where practicable, in mid-ocean or under controlled arrangements in port or dry dock, in accordance with the provisions of the ship's Ballast Water Management Plan. • Ensure all infrastructure (e.g. arrays, streamers, tail buoys etc) that has been used in other regions is thoroughly cleaned prior to deployment. • Comply with the requirements of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention).
7.5.	Whilst the general impacts on marine ecology from seismic sources are identified, no acoustic sound transmission loss	Additional	Once specific target areas for future seismic surveys are defined the following must be undertaken prior commencement:

Relevant EMPr Section	Comments	Nature of change	Recommendations
	modelling (STLM) was done. This is accepted standard practice for current EIA's to be able to inform the impact assessment. Without this it is not possible to define the impact zones applicable to the survey and thereby assess the impact. Whilst the generic impacts of seismic surveys on marine ecology are listed, they are not substantiated on a site specific level. This necessitates an update to the impact assessment, informed by site specific marine acoustic modelling once survey details are available. The potential impact on tangible and intangible cultural heritage has not been assessed. The coastal areas adjacent to Block 2C has significant sites of archaeological significance (including shell middens, fish traps, caves, etc). Whilst impacts on these tangible features is unlikely from normal seismic operations they may be impacted in the event of unplanned events (e.g. large spills). The nature and extent of the intangible attachments and cultural significance of the sea to the coastal communities has not been assessed. Intangible heritage is linked to the health of the marine ecosystem as a whole as well as the livelihoods that are dependent on the ocean in the area		• Undertake survey (technical specifications) and location specific sound transmission loss modelling (acoustic modelling) in order to define the magnitude and extent of potential underwater noise. • A cultural heritage impact assessment should be undertaken by a suitable qualified specialist with specific focus on the intangible heritage. • Revise the impact assessment on the basis of the outcomes of the acoustic modelling (with inputs from relevant specialists including but not limited to marine ecology, and fisheries). Impact on Small Scale Fisheries must be included. • Supplement the impact management actions and impacts contained in the EMPr to account for the site and survey specific controls. • Obtain relevant approvals from the competent environmental authority in accordance with relevant legal requirements (e.g. amendments to EA and/or EMPR in accordance with NEMA requirements).
	Although the use of Passive Acoustic Monitoring (PAM) is identified in the EMPr, additional measures related to the monitoring are suggested.	Amend	• All seismic vessels must be fitted with Passive Acoustic Monitoring (PAM) technology, which detects animals through their vocalisations. • The PAM technology must have enough bandwidth to be sensitive to the whole frequency range of sensitive marine life expected in the area. • The use of PAM 24-h a day must be implemented to detect deep diving species.

Relevant EMPr Section	Comments	Nature of change	Recommendations

			• Ensure the PAM streamer is fitted with at least four hydrophones, of which two are HF and two LF, to allow directional detection of cetaceans.
			• Ensure the PAM hydrophone streamer is towed in such a way that the interference of vessel noise is minimised.
			• Ensure spare PAM hydrophone streamers (e.g. 4 heavy tow cables and 6 hydrophone cables) are readily available in the event that PAM breaks down, in order to ensure timeous redeployment.
			• An independent Passive Acoustic Monitoring (PAM) Operator is required on board at all times. As a minimum, at least one PAM must be on watch at all times while the acoustic source is active. The duties of the PAM operator would be to:
			  ○ Provide effective regular briefings to crew members, and establish clear lines of communication and procedures for onboard operations;
			  ○ Ensure that the hydrophone cable is optimally placed, deployed and tested for acoustic detections of marine mammals;
			  ○ Confirm that there is no marine mammal activity within 500 m of the seismic source array prior to commencing with the "soft-start" procedures;
			  ○ Record species identification, position (latitude/longitude), distance and bearing from the vessel and acoustic source, where possible;
			  ○ Record general environmental conditions;
			  ○ Record seismic source activities, including sound levels, "soft-start" procedures and pre-start regimes;
			  ○ Request the delay of start-up and temporary termination of the seismic survey, as appropriate.

	7.5.1.4. Although a detailed seismic shooting procedure is defined in the EMPr, additional measures related to the seismic source volume and direction are suggested.	Amend	Define and enforce the use of the lowest practicable seismic source volume for production. Design arrays to maximise downward propagation, minimise horizontal

Relevant EMPr Section	Comments	Nature of change	Recommendations
			propagation and minimise high frequencies in seismic source pulses (have this verified by independent evaluators).
	Although impacts on turtles due to ship strikes, collision and entanglement is discussed in the EMPr additional measures are suggested.	Amend	• The vessel operators should keep a constant watch for marine mammals and turtles in the path of the vessel. • Keep watch for marine mammals behind the vessel when tension is lost on the towed equipment and either retrieve or regain tension on towed gear as rapidly as possible. • Ensure vessel transit speed between the survey area and port is a maximum of 12 knots (22 km/hr), except in MPAs where it is reduced further to 10 knots (18 km/hr). • Should a cetacean become entangled in towed gear, contact the South African Whale Disentanglement Network (SAWDN) formed under the auspices of DEA to provide verbal specialist assistance in releasing entangled animals where necessary. • Report any collisions with large whales to the International Whaling Commission (IWC) database, which has been shown to be a valuable tool for identifying the species most affected, vessels involved in collisions, and correlations between vessel speed and collision risk.
7.5.1	The 500m mitigation zone should be defined as being from the seismic source and not the vessel.	Amend	7.5.1 "Soft-start" procedures must only commence once it has been confirmed (visually during the day and using PAM technology and night vision/ infra-red binoculars at night) that there is no seabird (diving), turtle, seal or cetacean activity within 500 m of the vessel. The MMO must be in close communication with the seismic airgun or seabed logging personnel and should issue an “all clear” signal prior to initiating seismic airgun firing or seabed logging.
7.9	As environmental monitoring information gathered during surveys is of high scientific value, such information should be made available (inter alia to SANBI, SAEON, and the DFFE) to	Additional	The environmental monitoring data collected (including the MMO and PAM) must be made available to the DFFE, SANBI and SAEON for their use in future scientific research.

Relevant EMPr Section	Comments	Nature of change	Recommendations
	contribute to the knowledge base of deep-water environments.		

2.2 ADEQUACY OF COMPLIANCE MECHANISMS

It is necessary to evaluate the ability of the EMPr to ensure compliance with the provisions contained therein. The EMPr provides clear mechanisms for reporting and auditing, which are aligned with current practice. The EMPr does not however specifically provide for independent auditing as is required by Regulation 34 of the EIA Regulations. It is recommended that the EMPr be amended to incorporate this requirement (Activity 7.9.3 of Section 7). The following requirements should be added to the EMPr:

- The Holder must appoint an independent Environmental Control Officer (ECO) prior to commencement of any offshore exploration activities.
- The ECO should have appropriate training and/or experience in the implementation of environmental management specifications. The ECO must preferably have a tertiary qualification in an Environmental Management or appropriate field. The ECO's key role is auditing the implementation of the EMPr.
- The ECO will be responsible for the auditing function as well as the clarification of environmental conditions contained in this EMPr to anyone working on the site. The ECO does not necessarily have to be onboard the survey vessel, provided that relevant information is provided by the MMO / PAM.
- The ECO roles include:
    - Recommendations for review and update of the EMPr;
    - Liaison between the Applicant, Contractors, authorities and other lead stakeholders on high importance environmental concerns;
    - Ensures that correct shape files have been uploaded into the vessel navigation systems to support effective implementation of spatial controls;
    - Review the site induction training to ensure environmental issues receive adequate attention and important site-specific issues are included;
    - Conduct environmental audits of the site/contractors including relevant documentation on a monthly basis;
    - Validating the regular site inspection reports, which are to be prepared by the relevant contractor's EO or Lead MMO/PAM (who will be tasked with the onsite responsibilities of the ECO);
    - Maintain a record of all non-conformances and incidents to ensure that measures are put in place to remedy such;
    - Maintain a public consultation register in which all complaints are recorded, as well as action taken; and
    - Verification that all environmental monitoring programmes (sampling, measuring, recording etc. when specified) are carried out according to protocols and schedules.

2.3 EMPR SHORTCOMINGS AND RECOMMENDATIONS

It was the auditor's opinion that the 2013 EMPr offer generic, sometimes outdated impact management actions and failed to address specific activity and site impacts adequately. Further assessment is needed when specific location details and technical specifications are available, likely necessitating amendments and supplements to the current EMPr. This requirement has been incorporated into the recommended amendments to the EMPr presented in the preceding sections.

Based on the time that has lapsed between the latest EMPr update in 2013 the following is recommended:

- The social landscape may have changed significantly since the latest 2013 EMPr update. It is recommended that additional stakeholder engagement be undertaken once the project plans are finalized in order to determine if any updates to the EMPr are required and to determine if the list of stakeholders identified in the EMPr is still adequate. If significant new issues are raised during the engagement process, then the EMPr may need to be amended to address these issues.
- At the time the original EIA was conducted no climate change assessment was required to be undertaken. It is recommended that a climate change specialist be engaged to determine if any updates are required to the EMPr in order to effectively deal with climate change adaptation and vulnerability.

3 CONCLUSION AND WAY FORWARD

This letter contains the recommendations that were made in the audit report by the auditor. As stated, these recommendations must undergo a public participation process approved by authorities and be communicated to interested and affected parties, and is hereby, made available to all Interested and Affected Parties as per Regulation 34. For further detail and information, please refer to the amended EMPr, which has also been made available for public review and comment.

As required by Regulation 34, the independent Environmental Assessment Practitioner will collate all submissions made by Interested and Affected Parties and Stakeholders on these recommendations and the amended EMPr and submit these to the Competent Authorities i.e. the Petroleum Agency of South Africa (PASA) and the Department of Mineral and Petroleum Resources (DMPR), together with the final audit report and amended EMPr for decision making. Further, as per Regulation 34, within seven days of submitting the audit report, PetroSA will notify stakeholders and make the report publicly available.