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ENVIRONMENTAL AUDIT REPORT

OFFSHORE EXPLORATION RIGHT 248ER: BLOCK 2C





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List of Abbreviations

Abbreviation	Item
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DFFE	Department of Forestry, Fisheries and the Environment
DMPR	Department of Mineral and Petroleum Resources
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIMS	Environmental Impact Management Services (Pty) Ltd
EMPr	Environmental Management Programme Report
ER	Exploration Right
ERM	Environmental Resources Management
EWP	Exploration Works Programme
FLO	Fisheries Liaison Officer
GIIP	Good International Industry Practice
IFC	International Finance Corporation
MMO	Marine Mammal Observer
MPRDA	Mineral and Petroleum Resources Development Act, Act 28 of 2002
NEMA	National Environmental Management Act, Act 107 of 1998
PAM	Passive Acoustic Monitoring
PASA	Petroleum Agency of South Africa
PetroSA	Petroleum Oil and Gas Corporation of South Africa (Pty) Ltd
SAHRA	South African Heritage Resources Agency
SAMSA	South African Maritime Safety Authority
STLM	Sound Transmission Loss Modelling



EXECUTIVE SUMMARY

Environmental Impact Management Services (Pty) Ltd (EIMS) was appointed by the Petroleum Oil and Gas Corporation of South Africa SOC LTD (hereafter referred to as PetroSA) to undertake an Environmental Audit of the Environmental Management Programme for the Block 2C Exploration Right (PASA Ref:12/3/248) off the West Coast of South Africa.

Regulation 54(a)(2) of the Environmental Impact Assessment (EIA) Regulations (GNR982- EIA Regulations) requires all rights and permits issued in terms of the Mineral and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA) and associated Environmental Management Plans to be subjected to the audit requirements stipulated in Part 3 of Chapter 5 of the Regulations. Part 3, Chapter 5 of the EIA Regulations in turn requires that compliance with the conditions of the environmental authorisation, and the EMPr is audited and an environmental audit report submitted to the relevant competent authority.

The scope of the audit is to assess compliance with the requirements of the EMPr for Block 2C currently held by PetroSA, and to confirm the continued adequacy of the EMPr. The purpose of the audit is to determine and report on:

- The level of performance against and compliance of the conditions with the provisions of the requisite EA and 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 pre-drilling sonar survey activity.

Compliance with the requirements was evaluated using the pre-determined scoring criteria (described in Section 6.2) and the results of the audit are described in detail in Section 7 of this report. A total of 150 commitments were identified in the EMPr that were evaluated. None of these conditions were considered applicable to the current phase of the project.

The level of compliance for each commitment was calculated according to the methodology described in section 6.2. None of the conditions in the EMPr were considered applicable to the current phase of the project and therefore no compliance score is provided.

The Auditor also undertook an evaluation of the adequacy of the EMPr¹ to determine the ability of the EMPr, to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an ongoing basis. It is the auditor's opinion that the 2013 EMPr offers generic, sometimes outdated impact management actions and do not address specific activity and site impacts adequately. Whilst these generic impact management outcomes and actions may be adequate for the purposes of the current exploration work programme (i.e. reprocessing of existing data), they are not adequate for any other future physical exploration activities (including the potential contingent exploration activities). Further assessment is needed when specific location details and technical specifications for future exploration activities are available, likely necessitating amendments and supplements to the current EMPr.

¹ Most recent EMPr refer to the 2013 EMPr for seismic activities (CAA Environmental, 2013).



1 INTRODUCTION

The Petroleum Oil and Gas Corporation of South Africa (Pty) Ltd (PetroSA) is the holder of an Exploration Right for petroleum issued in accordance with the Minerals and Petroleum Resources Development Act (Act 28 of 2002-MPRDA). PetroSA is required to implement the exploration activities in accordance with the requirements of the approved Environmental Management Programme (EMPr). Regulation 34 of the National Environmental Management Act (Act 107 of 1998-NEMA), Environmental Impact Assessment Regulations (GNR982) (EIA Regulations) requires that the holder of an approved EMPr must, for the period during which the EMPr remains valid, ensure that the compliance with the conditions of the EMPr is audited.

This report aims to comply with these obligations to audit compliance with the EMPr and submit the findings of the audit to the relevant competent authority, in this case the Department of Mineral and Petroleum Resources (DMPR).

2 ACTIVITY DESCRIPTION

PetroSA is the holder of an exploration right over offshore area Block 2C. Figure 1 provides a locality map showing the location and extent of the exploration right.

PetroSA's Block 2C license area is located off the West Coast of South Africa in the Orange Basin approximately 200 km offshore of the Northern Cape province. Block 2C covers a surface area of 4951 km² with water depths ranging from 300 to 1500 m.

2.1 INITIAL PERIOD EXPLORATION ACTIVITIES

The original approved exploration work programme and EMPr included the following exploration activities:

- Acquisition of 3D and/or 2D seismic surveys;
- Conducting Seafloor geochemical surveys which includes -
 - Multi-beam bathymetry surveys
 - Seafloor sampling programmes; and
 - Seafloor heat flow measurements.

However, a S102 application for the Initial Exploration Period was made by PetroSA and approved by PASA to reduce the work programme from the acquisition of 3D and/or 2D seismic surveys and conducting Seafloor geochemical surveys to reprocessing of 3D seismic data.

None of the above activities have been conducted in the initial exploration period.

2.2 FIRST RENEWAL PERIOD EXPLORATION ACTIVITIES

A renewal application was submitted on 1 February 2024 to conduct the following activities:

- 3D Seismic Acquisition and Processing.

The application for the first renewal period is pending approval. The approved EMPr (CCA Environmental, 2013) caters for the impact management outcomes and actions applicable to generic 3D and/or 2D seismic surveys, multi-beam bathymetry surveys, seafloor sampling and heat flow measurements. The EMPr and approved work programme does not provide a detailed description of exploration activities or locations (besides falling within Block 2C).

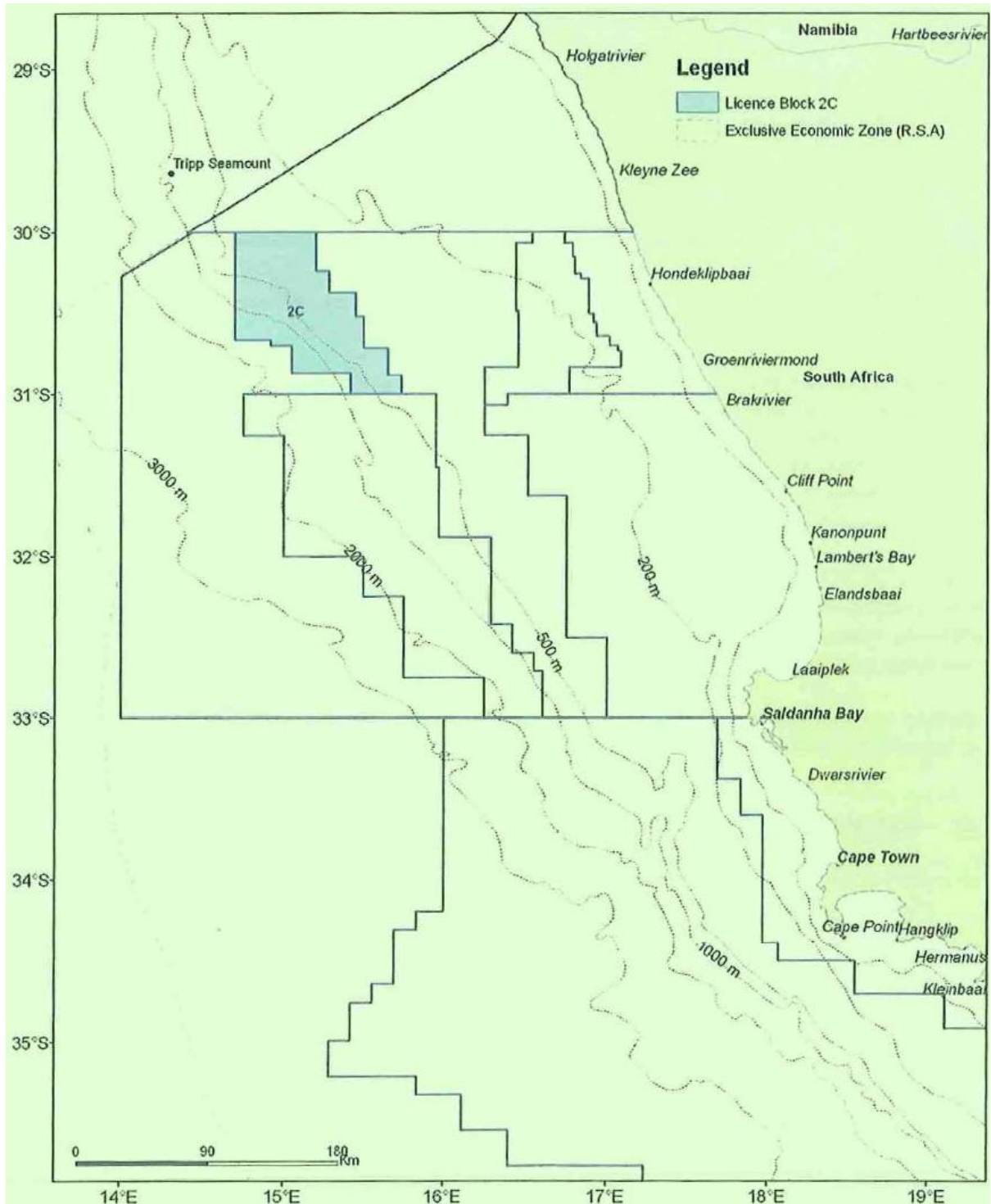


Figure 1: Locality map.

3 LEGISLATIVE FRAMEWORK

Regulation 54(a)(2) of the EIA Regulations requires all rights and permits issued in terms of the Mineral and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA) and associated Environmental Management Plans/ programmes to be subjected to the audit requirements stipulated in Part 3 of Chapter 5 of the EIA Regulations.



Regulation 54 states that: *Where a right or permit issued in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) and the associated Environmental Management Programme or Environmental Management Plan approved in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) is still in effect after 8 December 2014, the requirements contained in Part 3 of Chapter 5 of these Regulations apply to such Environmental Management Programmes or Environmental Management Plans, and where-*

(a) the audit or performance assessment cycle of the Environmental Management Programme or Environmental Management Plan exceeds five years, an audit report will be required to be submitted at least every five years commencing from the date of submission of the last audit, for the period during which the right or permit remains in effect; or

(b) no audit or performance assessment requirement was set in the Environmental Management Programme or Environmental Management Plan, an audit report will be required to be submitted to the competent authority no later than 7 December 2021 and at least every 5 years thereafter for the period during which the right or permit remains in effect.

Part 3 of Chapter 5 of the Regulations refers to requirements for auditing and amendment of an Environmental Authorisation or Environmental Management Programme. This audit was undertaken in line with these requirements.

4 DETAILS OF THE AUDITOR

The environmental audit was undertaken by Sikhumbuzo Mahlangu from EIMS.

4.1 EXPERTISE OF THE AUDITOR

Sikhumbuzo Mahlangu is an experienced Environmental Scientist with a B.Sc. Master's in Zoology (Aquatic Health) and over 14 years of professional experience. Sikhumbuzo is a registered Environmental Assessment Practitioner and Professional Natural Scientist. His expertise includes environmental impact assessments, project management, and environmental monitoring, with significant experience in the mining and infrastructure sectors. He has managed large-scale EIAs and conducted environmental due diligence and assessments in compliance with international standards.

4.2 DECLARATION OF INDEPENDENCE

I, Sikhumbuzo Mahlangu, declare that –

- I act as the independent Environmental Auditor;*
- I will perform the work relating to the environmental audits in an objective manner, even if this results in views and findings that are not favourable to the Client;*
- I declare that there are no circumstances that may compromise my objectivity in performing such work;*
- I have expertise in conducting environmental audits, including knowledge of the environmental Acts, regulations and any guidelines that have relevance to the audited operations;*
- I will comply with the relevant Acts, regulations, and all other applicable legislation;*
- I have no, and will not engage in, conflicting interests in the audit process;*
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the NEMA; and*
- I do not have and will not have any vested interest (either business, financial, personal, or other) in the audit other than remuneration for work performed.*



Signature of Auditor

5 SCOPE, PURPOSE AND OBJECTIVE OF THE AUDIT

The scope of the audit is to assess compliance with the conditions of the approved EMPr and to confirm the continued adequacy of the EMPr. The purpose of the audit is to ensure compliance with the requirements of the EMPr and the NEMA EIA Regulation 34 to undertake scheduled compliance audits. The objectives of the audit are to determine:

- The level of performance against and compliance with the provisions of the requisite 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 authorised activities.

The scope of this audit is defined as follows:

- Compliance with the requirements of the approved EMPr (CCA Environmental, 2013) in so far as it relates to the following:
 - Exploration activities which were, undertaken during the initial exploration period (February 2021 - February 2024) (consideration of planning, operational, rehabilitation, closure and post closure management actions as applicable).
- The ability of the measures contained in the EMPr, to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the authorised activities, in so far as it relates to the following:
 - Exploration activities planned for the first renewal period (consideration of planning, operational, rehabilitation, closure and post closure management actions as applicable) as per the work programme submitted with the renewal application (submitted on 1 February 2024).

6 AUDIT METHODOLOGY

6.1 PROCEDURE FOR THE AUDIT

Initial documentation was obtained and reviewed in preparation for the audit. A checklist was prepared based on the requirements of the EMPr. Compliance with the requirements was evaluated using the pre-determined scoring criteria as described in Section 6.2 and the results of the audit are described in Section 7 of this report.

The Environmental Audit is primarily a Compliance Audit against the conditions of the approved EMPr. Findings from the audit that did not relate to an EMPr condition did not contribute to the audit score. However, where deficiencies have been identified that do not necessarily correspond to specific EMPr conditions, these findings have been used to provide recommendations for improvement. Various documentation and records were required during the audit to confirm compliance with the requirements and were made available electronically for review.

There is wide variety of South African environmental legislation, and the organisation is required to comply with all relevant legislation. Whilst consideration was given to the relevant environmental legislation, a full comprehensive legal compliance audit is beyond the scope of this audit.

6.2 EVALUATION CRITERIA USED DURING THE AUDIT

Compliance scoring is based on a pre-determined system, with each EMPr condition weighted equally. The audit used the following compliance scoring criteria:

- Fully Compliant: Indicating that the condition was fully complied with and provided with a compliance rate score of 4.



- Partially Compliant: Indicating that the condition has not been fully complied with and that additional measures are required to obtain full compliance. Partial compliances were provided with a compliance rating score of 2.
- Non-Compliant: Indicating that the condition has not been complied with and provided with a compliance rating score of 0.
- Not Applicable (N/A): Indicating that the condition is not currently applicable. Not applicable conditions were removed from the total number of conditions from which the compliance score was calculated during this reporting period.

It is noted that the overall compliance is presented in both a straight compliance (i.e. strict compliant/ non-compliant) as well as the weighted compliance (i.e. where partial compliance is represented).

6.3 CONSULTATION PROCESS UNDERTAKEN

The findings of this assessment are based only on meetings / interviews and documentation reviewed. No site visit, physical testing or analysis was performed (or necessary) during the assessment and information provided by auditee employees was verified by review only.

As per Regulation 34 of the EIA Regulations, 2014, all potential and registered interested and affected parties should be notified of the submission of the report to the authorities and the report should be made available to anyone on request and it should be made available on a publicly accessible website, where the holder has such a website.

7 RESULTS OF THE AUDIT

This section of the report details the audit results. It comprises a summary of compliance with EMPr requirements, the compliance evaluation results, a summary of findings, and an analysis of the ongoing adequacy of the EMPr.

A total of 150 conditions (commitments) were identified in the EMPr. None of these conditions were considered applicable to the current phase of the project. Seven (7) conditions were noted as they did not include specific auditable compliance obligations or referred to other compliance obligations which were evaluated on their own. Since no exploration activities have been conducted during the initial exploration period, none of the conditions in the EMPr were considered applicable for this audit. Therefore, no compliance score is provided.

Based on the audit, the EMPr is not considered adequate and effective to manage and mitigate the proposed exploration activities planned for the first renewal period. Various recommendations have been provided to ensure that the EMPr is updated and will be effective once operation commences.



7.1 COMPLIANCE EVALUATION

The compliance evaluation of the EMPr is provided in Table 1. The conditions were rated according to the compliance evaluation criteria described in 6.2.

Table 1: Compliance evaluation of the relevant EMPr conditions.

Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
7.1: PLANNING PHASE					
Activity 7.1.1: Legal requirements					
EMPr	7.1.1.1	Prepare a register of all legislation applicable to the exploration programme / activities.	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.1.1.2	Ensure all required permits and approvals are obtained prior to undertaking the exploration programme and adhere to all conditions attached.	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.1.1.3	Prepare schedule of all environmental and compliance monitoring measures required during each exploration activity as well as a schedule of all reports required during and after each activity has been completed. The schedule must specify the inspection and reporting frequency and party responsible for the	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		inspection and reporting, using Activity 7.9.2 as minimum guideline.			
EMPr	7.1.1.4	Contractors must be provided with a copy of the EMP and a written confirmation of receipt must be obtained.	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.1.1.5	Copies of the EMP must be readily available on-board the survey vessels and support vessels at all times and the necessary equipment and personnel are available to meet the requirements of the EMP.	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.1.1.6	Contracts with service providers shall specifically require that the service provider complies with all relevant legislation. Anadarko reserves the right to inspect survey activities at any time during the survey operations to assess compliance to the EMP. Deviations from the EMP without sound justification will be deemed a breach of contract.	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.1.1.7	<p>Audit guidelines</p> <ul style="list-style-type: none">• Audits should, through examination of records retained by the contractor verify that:<ul style="list-style-type: none">○ Legislation register was prepared prior to exploration activities;○ All the required permits were obtained prior to the start of the exploration operations;All license conditions have been complied with throughout exploration operations;○ Schedule of monitoring requirements prepared for all exploration activities;○ Contractors were provided with copies of the EMP and proof of receipt was obtained;	N/A	N/A	No seismic survey contractors currently engaged, and no audits have been undertaken thus far. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<ul style="list-style-type: none"> ○ A copy of the EMP was available on-board throughout the exploration operations; ○ All monitoring requirements have been undertaken in accordance with the scheduled frequency; and ○ All audit guidelines specified throughout this report have been complied with. 			
Activity 7.1.2: Subsidiary plans					
EMPr	7.1.2.1	<p>Ensure that the service providers (survey and support vessels etc.) have the following subsidiary plans in place:</p> <ul style="list-style-type: none"> • Oil Spill Contingency Plan; • Emergency Response Plan, including MEDIVAC plan; • Support Vessel and Helicopter Emergency Response Plans; • Waste Management Plan; and 	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<ul style="list-style-type: none"> Incident Management and Reporting. 			
EMPr	7.1.2.2	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.	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.1.2.3	Ensure that subsidiary plans are aligned with national plans and other regional, provincial, local and Anadarko plans and procedures as relevant (e.g. Integrated Waste Management Plans, Incident Management Plan, Communications Plan, etc.).	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.1.2.1	<p>All contingency response plans contain up to date details of:</p> <ul style="list-style-type: none"> Contact names and numbers for different response contingencies; Clear lines of communication for 	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		specific tasks are tabulated; <ul style="list-style-type: none"> • Clear role and responsibilities allocated to specific staff roles with incumbents particular to the operation specified; • Training and awareness needs and activities, if relevant; and • Formats for reporting e.g. filing incident reports, waste manifests, etc. 			
EMPr	7.1.2.2	All plans shall be readily available and accessible on the survey and support vessels at all times.	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.1.2.3	Anadarko to keep copies of all subsidiary plans (listed in 7.1.2.1) in the Emergency Response Centre during exploration activities.	N/A	N/A	The most recent seismic surveys undertaken in the Block were done in 2002 (>5 years), however, PetroSA not part of the block at that stage. No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.1.2.4	The pre-survey/sampling meeting agenda between Anadarko and Contractor must include a formal handover of subsidiary plans. All relevant staff of the	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		contractor and Anadarko must be familiar with the content of the plans.			
EMPr	7.1.2.5	<p>Audit Guidelines</p> <ul style="list-style-type: none"> Audits should, through examination of records retained by the facility, visual inspections and targeted interviews, verify that: The required subsidiary plans are compiled prior to commencing exploration activities; The plans contain the necessary level of detail to meet the intended purposes while ensuring optimal environmental protection; The plans are aligned with the content of this EMP; and The plans are aligned with relevant National, Provincial and Local Plans where relevant. 	N/A	N/A	No seismic survey contractors currently engaged, and no audits have been undertaken thus far. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
Activity 7.1.3: Survey Contractor Certification					
EMPr	7.1.3.1	Contractors shall be registered with the International Association for Geophysics Contractors (IAGC) and shall be able to	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		demonstrate a track record for maintaining optimum safety and environmental protection.			
EMPr	7.1.3.2	Ensure survey and support vessels are certified for seaworthiness through an appropriate internationally recognised certification programme (e.g. Lloyds Register, Del Norske Veritas).	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.1.3.3	Audit Guidelines •Audits should, through examination of documents retained by Anadarko verify that: o The contractors, where applicable, are registered with IAGC; and o The survey and support vessels hold a valid certificate for seaworthiness through an international certification body.	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
7.2 STAKEHOLDER ENGAGEMENT					
Activity 7.2.1 Stakeholder engagement					



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.2.1.1	<p>The specific details of the survey shall be compiled into an Environmental Notification for submission to PASA. The Environmental Notification may include, depending on the activity, the following :</p> <ul style="list-style-type: none">• Survey lines / sampling target areas,• Number of samples;• Survey / sampling timing and duration;• Contractor details;• Vessel specifications (including relevant certificates and insurance);• Plans not included in the EMP (see Activity 7.1.2.1); and• Details of Marine Mammal Observer, Passive Acoustic Monitoring Operator and Fisheries Liaison Officer, where applicable.	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.2.1.2	<p>The following key stakeholders should be consulted and informed, in writing, of each exploration activity (including navigational co-ordinates of the survey/ sampling areas, timing and duration of proposed activities) and the likely implications thereof:</p> <ul style="list-style-type: none"> Fishing industry/ associations (including South African Tuna Association, South African Tuna Long-Line Association, Fresh Tuna Exporters Association, South African Deep-Sea Trawling Industry Association, South African Hake Long-Line Association and South African Pelagic Fishing Industry Association); Government Departments with jurisdiction over marine activities, particularly the Department of Environmental Affairs (DEA), Department of Agriculture, Forestry and Fisheries (DAFF), South African Navy Hydrographer, South African Maritime Safety Authority (SAMSA), Transnet National 	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<p>Ports Authority and local Port Captains; and</p> <ul style="list-style-type: none"> Overlapping and neighbouring users with delineated boundaries in the marine petroleum and mineral prospecting and mining industries. <p>The notification must also invite stakeholders to be included on the daily report distribution list (only those included on the daily notification database will receive further notification during the survey) (see Section 7.2.1.5).</p>			
EMPr	7.2.1.3	<p>The operator must request, in writing, the South African Navy Hydrographic office to release Radio Navigation Warnings and Notices to Mariners throughout the various survey periods. The Notice to Mariners should give notice of:</p> <ul style="list-style-type: none"> the co-ordinates of the proposed survey/ sampling areas; an indication of the proposed survey/ sampling timeframes and day-to- day location of the survey vessel; 	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		and <ul style="list-style-type: none"> • an indication of the proposed safe operational limits of the survey vessel. 			
EMPr	7.2.1.4	<p>An experienced onboard Independent Observer must be appointed to act as a FLO. The FLO should provide a fisheries facilitation role to identify and communicate with fishing vessels in the area to reduce the risk of gear interaction between fishing and survey/ sampling activities. The FLO should thus be familiar with fisheries operational in the area. The FLO should:</p> <ul style="list-style-type: none"> • report on vessel activity daily; • advise on actions to be taken in the event of encountering fishing gear; and • set up a daily electronic reporting routine to keep key stakeholders informed of survey/ sampling activities and progress and fisheries and environmental issues (see Activity 7.2.1.5 below). 	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		In the case of the seismic and multi-beam surveys the FLO should also be able to act as the Marine Mammal Observer (MMO) and thus must also be familiar with environmental monitoring protocols relating specifically to marine mammals, birds and other fauna. The duties of the MMO are presented in Activity 7.5.4.			
EMPr	7.2.1.5	Daily reports shall be submitted, via email, to those stakeholders that request to be notified during the survey (see Activity 7.2.1.3). Daily reports should include, but not limited to, the following: <ul style="list-style-type: none">• Survey / sampling details (incl., where applicable, percentage completion, start-up procedure,);• Vessel interaction;• Meteorological Conditions;• Observation times and sightings;• Waste management; and• Survey strategy (incl.	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		survey progress and next line to be acquired).			
EMPr	7.2.1.6	In the event of the tuna pole fleet moving into the proposed Exploration Right area during surveying/ sampling, the possibility of co-ordinating exploration operations to avoid that particular area for a limited duration should be investigated.	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.2.1.7	Incident and emergency reporting is dealt with in Activity 7.7.	Noted	Noted	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.2.1.8	Stakeholder engagement process will be undertaken in accordance with a Communications Plan (see Activity 7.1.2.2)	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.2.1.9	Anadarko will implement and maintain a Stakeholder Engagement Register which shall include the following information: <ul style="list-style-type: none"> • Contact details of stakeholder; • Date and time of stakeholder input; • Nature of input; 	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<ul style="list-style-type: none"> Stakeholder engagement form reference number; Name of reviewing manager; Date of Review; Result of Review; and Date of communication with stakeholder. 			
EMPr	7.2.1.10	Inform all key stakeholders of the completion of survey/ sampling activities within 24 hours.	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.2.1.11	Marine mammal incidence data and data arising from the survey should be made available, if requested, to the Marine Mammal Institute, DEA: Branch Oceans and Coasts, DAFF and PASA	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.2.1.12	Audit Guidelines <ul style="list-style-type: none"> Audits should, through examination of records retained by Anadarko, verify that: <ul style="list-style-type: none"> A stakeholder engagement register has been maintained; Documents notifying stakeholders have been retained (e.g. Environmental Notification, notification 	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		letters, daily reports and completion of survey / sampling); o Any stakeholder inputs have been reviewed by the responsible manager; o The above stakeholder inputs have been responded to appropriately; and o The stakeholder has been informed of the outcome of the review by the responsible manager.			
7.3 ENVIRONMENTAL TRAINING AND AWARENESS					
Activity 7.3.1: Environmental training and awareness					
EMPr	7.3.1.1	Contractors must be registered with IAGC (see Activity 7.1.3.1) and all staff on the survey and support vessels must be suitably trained and qualified to fulfil their duties as demonstrated by the crew manifest and training records.	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.3.1.2	Toolbox talks or similar shall be used to discuss environmental awareness and to report back on environmental performance applicable to the specific	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		work area. Topics should include content of subsidiary plans as a minimum.			
EMPr	7.3.1.3	All personnel shall receive regular training on the handling and management of waste.	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.3.1.4	Audit Guidelines <ul style="list-style-type: none"> • Audits should verify that: <ul style="list-style-type: none"> o All survey personnel have received appropriate training; o Regular tool box talks or similar have been undertaken on environmental awareness and management; and o Staff members are Familiar with the provisions of the EMP related to their area of work and the general incident and emergency reporting procedures. 	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
7.4 POLLUTION PREVENTION					
Activity 7.4.1: Vessels and other shipping					
EMPr	7.1.4.1	All measures prescribed by SAMSA to minimise the risks of collision of marine traffic with the survey and support	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		vessel(s) must be implemented and maintained.			
EMPr	7.1.4.2	<p>7.1.4.2 Measures to be implemented include:</p> <ul style="list-style-type: none"> • Maintenance of safety and exclusion zones through Notices to Mariners issued by South African Navy Hydrographic Office 24 hours prior to commencement of survey (see Activity 7.2.1.3); • 24-hour chase boat on patrol in exclusion zone during seismic surveying; • Maintenance of standard watch procedures; • Issue Radio Navigational Warnings if visibility of vessel(s) is diminished (e.g. Power outages or failure of fog horn); • Radio communication to alert approaching vessels; • Use warning lights during twilight and at night and in periods of low visibility. • Vessels are to fly standard flags, lights (three all-round lights in a vertical line, with the highest and lowest lights being red and the middle 	N/A	N/A	No seismic survey contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<p>light being white) or shapes (three shapes in a vertical line, with the highest and lowest lights being balls and the middle light being a diamond) to indicate that the seismic vessel is engaged in towing surveys and is restricted in manoeuvrability, and must be fully illuminated during twilight and night;</p> <ul style="list-style-type: none"> • Use of flares and sirens where necessary; • Recording of interactions with vessels in a log book; and • Collisions, near misses or other transgressions with associated pollution risks will be treated as incidents and handled according to the procedure detailed under Activity 7.7. 			
Activity 7.4.2: Helicopter Services					
EMPr	7.4.3.1	Implement procedures to minimise the risk of objects and chemical substances being dropped overboard, during cargo transfer, leaking from storage	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		containers and during handling.			
EMPr	7.4.3.2	<p>Helicopter transfers to and from survey areas shall:</p> <ul style="list-style-type: none"> • avoid flying over bird and seal colonies, coastal reserves or marine islands; • fly at a minimum height of 500 m above sea level and shall not hover or circle over whales, dolphins, sharks, turtles or aggregations of seabirds. Aircrafts may not approach to within 300 m of whales without a permit in terms of the Marine Living Resources Act, 1998; • avoid extensive coastal flights (parallel to the coast within 1 nautical mile of the shore). There is a restriction of coastal flights (parallel to the coast within 1 nautical mile of the shore) on the South-West Coast between the months of June and November to avoid Southern Right whale breeding areas; and • comply fully with aviation and authority guidelines and rules. 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.4.3.3	Helicopter flight logs shall be kept to demonstrate compliance with set flight paths.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.4.3.4	Audit guidelines <ul style="list-style-type: none"> Audits should, through examination of records retained by the logistics service provider, verify that: <ul style="list-style-type: none"> Flight logs are maintained and can demonstrate compliance with set flight paths with reasons provided for any deviations from such routes. 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
Activity 7.4.3: Transfer of Materials / Dropped Objects					
EMPr	7.4.3.1	Procedures shall be implemented to minimise the risk of objects and other materials being dropped overboard during transfer of goods or leaking from storage containers or during handling.	N/A	N/A	PetroSA does not have any equipment, or workshops associated with seismic surveys. No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.4.3.2	The Incident management procedure should be followed in the event of a lost object or other materials (see Activity 7.7.2).	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.4.3.1	<p>Audit guidelines</p> <ul style="list-style-type: none">• Audits should, through examination of records retained by the vessel, verify that:<ul style="list-style-type: none">o Incidents involving dropped objects were recorded in the incident reports;o The response time of incidents is appropriate to their significance;o The decision whether or not to retrieve objects was environmentally appropriate;o Incidents were subject to comprehensive evaluation by management;o Requisite changes were made to operational procedures, where needed, to ensure that the incident is not repeated;o Incidents resulting from the same root cause(s) are not repeated;o Trial runs and/or drills for major incidents are conducted at least annually; ando The response for major contingencies is formally	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		reviewed by management annually.			
Activity 7.4.4 Workshops, Repairs and Chemical Handling And Storage					
EMPr	7.4.4.1	Repair and servicing of loose equipment or machinery shall be undertaken only in defined workshop areas or where adequate drainage is in place to contain spilled liquid and where risk of loss of object overboard is minimised.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.4.4.2	Any spills of liquids or polluting substances shall be treated as an incident and handled according to the procedure detailed under Activity 7.7.1.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.4.4.3	A chemical register shall be maintained and will detail: <ul style="list-style-type: none"> • All chemicals used and stored on the vessel; • Chemical characterisation of each chemical including SABS (or similar) class and hazard rating; • Specific storage handling or disposal requirements for each chemical including Personal Protective 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		Equipment; <ul style="list-style-type: none"> • Emergency response actions for each chemical; and • The process used to verify the information contained in the register. 			
EMPr	7.4.4.4	All fuels, greases, oils and other chemicals shall be stored and handled as per chemical handling procedures specified in the contractor's standard operating procedures and in accordance with the Material Data Safety Sheets (MSDS).	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.4.4.5	All chemicals shall have current MSDS prominently displayed at the location of storage and use.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.4.4.6	Personnel using chemicals shall be trained in their use, disposal and clean-up.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.4.4.7	Expired chemicals shall be labelled as waste and treated in accordance with the disposal requirements specified in their MSDS.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.4.4.8	Appropriate absorbent materials and clean up equipment is on board and easily available in the event of a chemical spill.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.4.4.9	Any liquid spills of more than 5 litres shall be treated as an incident and handled according to the incident procedure detailed under Activity 7.7.1below.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.4.4.10	Any loss of chemicals overboard shall be treated as an incident and handled according to the procedure detailed under Activity 7.7.1.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.4.4.11	Audit Guidelines <ul style="list-style-type: none"> • Audits should verify that: <ul style="list-style-type: none"> o Repair and servicing of mobile equipment and machinery takes place in defined areas with adequate drainage measures in place; o The chemical register is current and verified and storage accords with details contained in the MSDS; o All hazardous chemicals were labelled correctly and the emergency procedures 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		to be adopted in the event of a spill clearly are detailed on MSDS at the site of storage; o Chemical dispensers or drums are positioned on / or over drip trays; o Spills are reported and handled according to the liquid incident management procedure under Activity 7.7.1; o Spill absorbents are available at the location use and that they are appropriate to the nature of the chemical being used; and o Expired chemicals are labelled as expired and handled as waste.			
Activity 7.4.5 Refuelling / Bunkering					
EMPr	7.4.5.1	No bunkering is permitted within 50 nautical miles of the coast.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.4.5.2	The transfer of oil at sea is not permitted within the economic zone (i.e. 200 miles from the coast) without the permission of the Minister or delegated authority.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.4.5.3	If bunkering at sea is found to be necessary, permission must be obtained from SAMSA five days prior to bunkering. An application in terms of Regulation 14 must be to the Principal Officer at the port nearest to where the transfer is to take place.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.4.5.4	Diesel and other fuels must be stored in enclosed and secured tanks, designed to withstand extreme events and conditions.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.4.5.5	Drip trays must be in place to collect leakage from connection and discharge points.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.4.5.6	Offshore bunkering shall not be allowed in the following circumstances: <ul style="list-style-type: none"> • Wind force and sea state conditions of 6 or above on the Beaufort Wind Scale; • During any workboat or mobilisation boat operations; • During helicopter operations; • During the transfer of In- 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		sea equipment; and • At night or times of low visibility.			
EMPr	7.4.5.7	Floating hoses shall be made of flexible double carcass sections and shall be equipped with a breakaway coupling for protection against excessive tension or overpressures in the fuel system. The closure time shall be set to minimise the volume of oil spilled to the sea whilst being slow enough to prevent surge pressure building up. Hoses shall also be fitted with marker lights and shall have built-in buoyancy with a minimum reserve of 25% (to cope with a situation where the hose becomes filled with seawater and immersed). This will also prevent accidental damage to unseen hoses by supply/ crew boats.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.4.5.8	Spillages of fuel during bunkering must be logged as an incident in accordance	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		with the procedures given in Activity 7.7.1.			
EMPr	7.4.5.9	<p>Audit Guidelines</p> <ul style="list-style-type: none"> Audits should, through examination of records retained by the facility, verify that: <ul style="list-style-type: none"> o Proof of SAMSA approval for bunkering and notification of bunkering events; o Fuel is stored and drip trays provided and available for bunkering; o Hoses and other equipment meet the required specifications; and o Incidents recorded in the incident register were investigated and closed out. 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
7.5 SURVEY OPERATIONS					
Activity 7.5.1 Seismic surveys					
EMPr	7.5.1.1	Seismic surveys should, as far as possible, be planned to avoid cetacean migration period from their southern feeding grounds into low latitude waters (beginning of June to end of November). Should a survey be required	N/A	N/A	The most recent seismic survey undertaken in the Block was in 2002. No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		to extend into June for whatever reason, a formal request/ motivation must be submitted to PASA for consideration.			
EMPr	7.5.1.2	<p>7.5.1.2 Passive Acoustic monitoring (PAM) technology:</p> <ul style="list-style-type: none"> • PAM technology must be used during seismic surveys at night and during daytime adverse weather conditions and thick fog. • In addition, PAM technology must be implemented 24-hours a day should surveying extend into the sensitive cetacean migration period (i.e. from the beginning of June onwards). • It is, however, also recommended that PAM be used 24-hours a day for the duration of the survey since most of the offshore migrating baleen whale species likely to be encountered are listed as "Endangered" and that the proposed survey would be undertaken in waters up to 1 500 m depth, including 	N/A	N/A	The most recent seismic survey undertaken in the Block was in 2002. No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<p>night-time, and in the vicinity of Child's Bank, where sperm whales are likely to be encountered.</p> <ul style="list-style-type: none"> In order to avoid unnecessary delays to the survey programme, it is recommended that a spare PAM cable and sensor are kept onboard should there be any technical problems with the system. However, if there is a technical problem with PAM during surveying, visual watches must be maintained by the Marine Mammal Observer (MMO) during the day and night-vision/infra-red binoculars must be used at night while PAM is being repaired. 			
EMPr	7.5.1.3	Turtle-friendly' tail buoys shall be used or existing tail buoys shall be fitted with either exclusion or deflector 'turtle guards'.	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.5.1.4	<p>7.5.1.4 Seismic shooting shall follow the procedure below:</p> <ul style="list-style-type: none">• The use of the lowest practicable airgun volume, as defined by the operator, should be defined and enforced;• All initiations of seismic surveys shall be carried out as "soft-starts" for a minimum of 20 minutes. This requires that the sound source be ramped from low to full power rather than initiated at full power, thus allowing a flight response by marine fauna to outside the zone of injury or avoidance;• "Soft-starts" should, where possible, be planned so that they commence within daylight hours;• "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 night²) that there is no seabird (diving), turtle, seal or cetacean activity within 500 m of the vessel. For	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<p>cetaceans, the period of confirmation should be for at least 30 minutes prior to the commencement of the "soft-start" procedures, so that deep or long diving species can be detected. However, In the case of small cetaceans (particularly dolphins), which are often attracted to survey vessels, the normal "soft-start" procedures should be allowed to commence, if after a period of 30 minutes small cetaceans are still within 500 m of the airguns;</p> <ul style="list-style-type: none">• "Soft-start" procedures shall also be implemented after breaks in airgun firing (for whatever reason) of longer than 20 minutes. Breaks of shorter than 20 minutes should be followed by a "soft-start" of similar duration;• During line changes, at night and when turning within a 5 nautical mile radius of Child's Bank, low level warning airgun discharges should be fired at regular intervals in order to keep animals away from the			



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<p>survey operation while the vessel is repositioned. Commencement of surveying thereafter should include a "soft-start" procedure of at least 20 minutes;</p> <ul style="list-style-type: none">• During surveying, airgun firing should be terminated when:<ul style="list-style-type: none">o Obvious negative changes to turtle, seal and cetacean behaviour are observed;o Turtles or cetaceans are observed within 500 m of the operating airgun and appear to be approaching the firing airgun; oro There is mass mortality of fish or mortality / injuries to seabirds, turtles or cetaceans as a direct result of the survey. The survey should be terminated until such time the MMO confirms that:<ul style="list-style-type: none">o Turtles or cetaceans have moved to a point that is more than 500 m from the source;o Despite continuous observation, 30 minutes has elapsed since the last sighting of the turtles or			



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		cetaceans within 500 m of the source; and o Risks to seabirds, turtles, seals or cetaceans have been significantly reduced.			



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.5.1.5	No survey-related activities are to take place within proclaimed Marine protected areas (MPAs).	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.5.1.6	Audit guidelines •Audits should verify that: o The contractor was using the use of the lowest practicable airgun volume, as defined by Anadarko. o All initiations of seismic surveys were carried out as “soft-starts” for a minimum of 20 minutes; o PAM was used as required; and o Airgun firing was temporarily terminated when required.	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
Activity 7.5.2 Multi-Beam Bathymetry Survey					
EMPr	7.5.2.1	The multi-beam bathymetry survey should, as far as possible, be planned to avoid cetacean migration periods from their southern feeding grounds into low latitude waters (beginning of June to end of November). Should a survey be required to extend into June for whatever	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		reason, a formal request/ motivation must be submitted to PASA for consideration.			
EMPr	7.5.2.2	<p>7.5.2.2 Multi-beam shooting shall follow the procedure below:</p> <ul style="list-style-type: none">• Surveying shall only commence once it has been confirmed by the MMO (visually during the day) that there is no large cetacean activity within 500 m of the vessel for a 15-minute period;• If source level is greater than 210 dB re 1 µPa at 1 m the following is recommended:<ul style="list-style-type: none">o Where equipment allows, a "soft-start" procedure shall be implemented for a period of 20 minutes. Where this is not possible, the equipment should be turned on and off over a 20 minute period to act as a warning signal and allow cetaceans to move away from the sound source;o "Soft-starts" should, as far as possible, be planned to commence within daylight	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<p>hours;</p> <ul style="list-style-type: none">o "Soft-start" procedures must only commence once it has been confirmed by the MMO (visually during the day) that there is no large cetacean activity within 500 m of the vessel for a 15-minute period. However, if after a period of 15 minutes small cetaceans (particularly dolphins) are still within 500 m of the vessel, the normal "soft-start" procedure should be allowed to commence;o "Soft-start" procedures must also be implemented after breaks in surveying (for whatever reason) or longer than 20 minutes. Breaks of shorter than 20 minutes should be followed by a "soft start" of similar duration; ando Should surveying in the sensitive cetacean period be unavoidable, PAM technology must be implemented 24 hours a day from beginning of June to end of November. If there is a technical problem with PAM during surveying, visual watches must be maintained			



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<p>by the MMO during the day and night- vision/infra-red binoculars must be used all night while PAM is being repaired.</p> <ul style="list-style-type: none"> Surveying should be terminated temporarily when cetaceans show obvious negative behavioural changes within 500 m of the survey vessel or equipment. The survey should be terminated until such time the MMO confirms that cetaceans have moved to a point that is more than 500 m from the source or despite continuous observation, 15 minutes has elapsed since the last sighting of the cetaceans within 500 m of the source. 			
EMPr	7.5.2.3	No survey-related activities are to take place within proclaimed MPAs	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.5.2.4	<p>Audit guidelines</p> <ul style="list-style-type: none"> Audits should verify that: <ul style="list-style-type: none"> A "soft-start" procedure (20 minutes) was implemented for any 	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<p>equipment with a source level greater than 210 dB re 1μPa at 1 m;</p> <ul style="list-style-type: none"> o PAM was used as required; and o Surveying was temporarily terminated when required. 			
Activity 7.5.3 Maintenance of Exclusion Zones					
EMPr	7.5.3.1	Comply with standard marine navigation warnings requirements issued to keep other marine users informed of survey/ sampling activities (see Activity 7.2.1.2, 7.2.1.3& 7.2.1.5), including Radio Navigational Warnings, Notices to Mariners and email notices to known marine users operating in the area.	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.5.3.2	Keep constant watch for approaching vessels during operations (including radar), and issue warnings by radio and chase boat if required.	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.5.3.3	7.5.3.3 Vessels shall fly standard flags, lights (three all-round lights in a vertical line, with the highest and	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		lowest lights being red and the middle light being white) or shapes (three shapes in a vertical line, with the highest and lowest lights being balls and the middle light being a diamond) to indicate that they are engaged in towing surveys and are restricted in manoeuvrability.			
EMPr	7.5.3.4	Use warning lights during twilight and at night and in periods of low visibility. Lighting on board survey vessels shall be reduced to the minimum safety levels to minimise stranding of pelagic seabirds on the survey vessel at night.	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.5.3.5	Transgressions of the exclusion zone must be recorded as an Incident and adhere to the incident reporting and investigation procedure in Activity 7.7.4.	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.5.3.6	Report any emergency situation to SAMSA.	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.5.3.7	Audit guidelines •Audits should verify that: o The appropriate communications were undertaken and proof of notifications were retained; and o Incidents were recorded and investigated as per requirements in Activity 7.7.4.	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
Activity 7.5.4 Marine Mammal Observer/ Independent Observer and Pam Operator					



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.5.4.1	<p>An onboard Independent Observer(s) must be appointed for the duration of the seismic survey to act as the Fisheries Liaison Officer (FLO) and Marine Mammal Observer (MMO). The Independent Observer should be familiar with fisheries operational in the area and must have experience in seabird, turtle and marine mammal identification and observation techniques. The duties of the MMO shall include:</p> <p><u>Marine fauna:</u></p> <ul style="list-style-type: none">• Observe and record responses of marine fauna to the seismic survey, including seabird, turtle, seal and cetacean incidence and behaviour and any mortality of marine fauna as a result of the surveys. Data captured should include species identification, position (latitude/longitude), distance from the vessel, swimming speed and direction (if applicable) and any obvious changes in	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<p>behaviour (e.g. startle responses or changes in surfacing/diving frequencies, breathing patterns) as a result of the survey activities;</p> <ul style="list-style-type: none">• Record airgun activities, including sound levels, "soft-start" procedures and pre-firing regimes; and• Request the temporary termination of a seismic survey, as appropriate. It is important that Observers have a full understanding of the financial implications of terminating firing, and that such decisions are made confidently and expediently. <p><u>Fishing and other users of the sea:</u></p> <ul style="list-style-type: none">• Provide back-up onboard facilitation with the fishing industry and other users of the sea. This would include communication with fishing and shipping / sailing vessels in the area in order to reduce the risk of interaction between the proposed surveys and other existing or proposed activities. The Observer would need to			



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<p>identify fishing vessels active in the area and associated fishing gear; and</p> <ul style="list-style-type: none"> • Daily electronic reporting on vessel activity and recording of any communication and/or interaction should also be undertaken In order to keep key stakeholders informed of survey activity and progress. <p><u>Other:</u></p> <ul style="list-style-type: none"> • Record meteorological conditions; • Monitor compliance with international marine pollution regulations (MARPOL 73/78 standards); and • Prepare daily reports of all observations. These reports should be forwarded to the key stakeholders. 			
EMPr	7.5.4.2	7.5.4.2 A PAM operator must be appointed if seismic surveying occurs during the night, daytime adverse weather conditions and thick fog, and the sensitive cetacean periods from the beginning of June to end of November. However, it is	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<p>recommended that a PAM operator be appointed for the duration of the survey due to the proximity to Child's Bank and since most of the offshore migrating baleen whale species likely to be encountered are listed as "Endangered". The duties of the PAM Operator would be to:</p> <ul style="list-style-type: none"> • Confirm that there is no marine mammal activity within 500 m of the vessel prior to commencing with the "soft-start" procedures; • Record species identification, position (latitude/longitude) and distance from the vessel, where possible; • Record airgun activities, including sound levels, "soft-start" procedures and pre-firing regimes; and • Request the temporary termination of the survey, as appropriate. 			
EMPr	7.5.4.3	A PAM operator must be appointed if multi-beam surveying is to take place during the sensitive	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		cetacean periods from the beginning of June to end of November. See duties above.			
EMPr	7.5.4.4	7.5.4.4 Audit guidelines • Audits should verify that: o MMOs, and where necessary a PAM operator, were employed and records indicate that watch periods and record keeping accord with the requirements indicated 7.5.4.1 & 7.5.4.2above.	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
7.6: Waste Management					
Activity 7.6.1 General Measures for Solid Waste Management					
EMPr	7.6.1.1	The contractor is required to have and provide to Anadarko prior to commencing survey operations, an integrated waste management plan in line with the waste management hierarchy presented in Figure 7.1	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.6.1.2	Waste Management Hierarchy: Eliminate,	Noted	Noted	Context for previous condition- not a standalone action.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		Reduce, Reuse, Recycle, Dispose			
EMPr	7.6.1.3	<p>The survey and support vessel shall maintain a Waste Register which shall detail:</p> <ul style="list-style-type: none"> • Categories and volume estimates of different waste types generated on the vessels • Their source • Their SABS class and hazard rating • Their storage requirements • Their disposal methods, and • Any specific precautions or legislative requirements. 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.6.1.4	The Waste Register shall be updated to record actual waste volumes generated during the survey campaign.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.6.1.5	Waste shall be segregated into the following categories shown in Figure 7.2. Recyclables shall be stored separately as shall hazardous waste.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.6.1.6	All wastes shall be handled according to the flow diagram in Figure 7.3 below while awaiting transport to disposal sites.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.6.1.7	No waste may be stored for more than 30 days on any vessel without formal permission from DEA.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.6.1.8	Wastes shall be stored in sealed containers or bags and protected from the environment according to specifications for storage in the Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste published by Department of Water Affairs and Forestry in 1998 (or the latest update thereof).	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.6.1.9	Incompatible waste may not be stored in the same location (see the hazard ratings for wastes in the Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste published by	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		Department of Water Affairs and Forestry in 1998 for compatibility, or the latest update of this document).			
EMPr	7.6.1.10	Galley waste shall be macerated at sea to pieces smaller than 25mm and deposited overboard at a distance at least 12 nautical miles (\pm 22 km) from shore in accordance with MARPOL requirements. No galley waste to be discharged within 3 nautical miles (\pm 5.5 km) of shore. Alternatively, galley waste shall be incinerated (see Activity 7.6.3).	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.6.1.11	Sewage shall be discharged as outlined in Activity 7.6.2.	Noted	Noted	This action will be audited for compliance under item 7.6.2. No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period.
EMPr	7.6.1.12	The survey contractor shall develop and maintain a waste manifest system which includes: <ul style="list-style-type: none"> • The quantities of different categories of wastes leaving the vessel • The nature and source of the waste types • The date upon which the 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		waste was removed <ul style="list-style-type: none"> • The date upon which they were received by the disposal facility, • Proof of correct disposal by the landfill site (including a safe disposal certificate for any hazardous waste); and • Obtaining completed waste disposal certificates including quantities and method of disposal for different waste types. 			
EMPr	7.6.1.13	Hazardous waste shall be disposed of at a registered waste disposal site, and a safe disposal certificate shall be issued for each load of hazardous waste.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.6.1.14	Waste manifests shall be provided to Anadarko.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.6.1.15	7.6.1.15 Audit Guidelines <ul style="list-style-type: none"> • During survey/ sampling, audits should, through examination of records retained, verify that: <ul style="list-style-type: none"> o The waste register is current and verified; o Storage accords with legal requirements and the details 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<p>contained in the register and waste management plan;</p> <ul style="list-style-type: none"> o Any hazardous wastes were labelled as such; o No wastes are stored on the vessel for longer than 30 days without approval from DEA; o Each container of waste is labelled with its source and contents; and o Safe disposal certificates were obtained for any hazardous waste load. <p>o The post-seismic audit should verify that:</p> <ul style="list-style-type: none"> o Waste reduction targets were met; o All relevant personnel received training in waste management and handling on at least one occasion during the seismic survey; and o A complete record of waste management throughout the seismic campaign for record keeping. 			
Activity 7.6.2 Discharge of Effluent					
7.6.2.1 Deck & Bilge Water					



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.6.2.2.1	Drainage water from deck and bilges shall be routed to separate drainage systems on seismic vessels, and shall include contaminated oily water from closed drains and drainage water from non-process areas (open drains).	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.6.2.2.2	Drip trays or bunds shall be provided to contain contaminated water from all works areas that do not drain or route to a closed drainage system	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.6.2.2.3	No deck or bilge water may be discharged to the sea unless the oil concentration is below 15ppm (MARPOL standard). Monitoring must be undertaken to ensure compliance with this standard.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.6.2.2.4	In the event that the discharged oil concentration exceeds 15ppm the root cause of non-compliance shall be investigated and rectified.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.6.2.2.5	Oil concentration records shall be retained and submitted to Anadarko.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.6.2.2.6	Where possible, environmentally friendly, low toxicity, and biodegradable cleaning materials shall be used.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
7.6.2.2 Sewage					
EMPr	7.6.2.2.1	Sewage shall be comminuted to <25mm in size before discharge to the sea at greater than 12 nautical miles in accordance with MARPOL standards.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
7.6.2.3 Audit Guidelines					
EMPr	7.6.2.3.1	Audits should, through examination of records retained by the contractor and Monthly and Close-Out Reports to Anadarko, verify that: o The waste water streams were monitored at the specified frequency; o The laboratory equipment used for analysis has valid certificates, and is calibrated	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		and maintained according to manufacturer's specifications; o Sewage macerators are maintained and fully functional; o Any elevated levels were investigated and the sources identified and appropriate action was taken; o Any such remedial action was documented and the effectiveness monitored; No waste water was discharged from bilge tanks with a concentration of greater than 15 ppm oil (MARPOL); o Any discharges of concentrations greater than those specified were formally investigated, reported and remedial action taken; and o Any such remedial action was documented and the effectiveness monitored.			
Activity 7.6.2 Gaseous Emissions					
EMPr	7.6.3.1	Incinerators, if used on board, shall be maintained to ensure efficient combustion of waste.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		Instances of release of excessive black smoke shall be investigated and rectified.			
EMPr	7.6.3.2	Incineration of waste must comply with MARPOL standards	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.6.3.3	Sustained emission of black smoke for a period of more than 24 hours shall be recorded as an incident (see Activity 7.7.4) and incinerator waste should be stored separately until the problem is rectified.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.6.3.4	All valves, taps and pipe connections should be inspected regularly in accordance with the maintenance and monitoring schedule to check for leaks and should be immediately rectified in the event of leak detection.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.6.3.5	<p>7.6.3.5 Audit Guidelines</p> <ul style="list-style-type: none"> • Audits should, through examination of records, verify that: <ul style="list-style-type: none"> o Emissions are monitored according to the specified schedule; o The laboratory equipment used for analysis has valid certificates; o The laboratory equipment use for analysis was calibrated and maintained according to the manufacturer's specifications; o Incinerators, if used, have been maintained in accordance with the maintenance schedule; and o Incidents of black smoke for extended duration were investigated appropriately and measures taken to rectify the identified problem. 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
7.7: Incidents and Emergencies					
Activity 7.7.1 Uncontrolled Release of Polluting Liquids					



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.7.4.1	The contractor shall comply with the incident management steps outlined in Activity 7.7.1.2 below and with the contractor's Incident Management Plan and Emergency Response Plan in place prior to commencing survey activities.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.7.4.2	<p>Incident management shall entail the following key steps:</p> <ul style="list-style-type: none"> • Incident detection • Rapid assessment of incident severity • Implement response actions, as follows: <p><u>Routine Incident:</u> In the case of an onboard spill or leak confined to the seismic vessel or other incident that does not pose a risk of major harm to the environment or people, then the following steps may be taken:</p> <ul style="list-style-type: none"> • Mobilisation of onboard response person or team to: <ul style="list-style-type: none"> o contain the spill and shut off or control the source of the incident event, and 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<p>o clean up the spill or take steps to rectify the incident consequences</p> <ul style="list-style-type: none"> • Complete an incident report form • Conduct an investigation, and • Close out the incident <p><u>Major Oil Spill (Emergency):</u> In the case of an oil spill to sea with serious potential consequences to marine and human life, the following key steps will be required:</p> <ul style="list-style-type: none"> • Classify the spill scenario, size and nature of the spill • Notify Anadarko, who will in turn notify DEA, SAMSA and other relevant authorities to respond depending on the nature of the emergency • Mobilise on-board resources and take all practical steps on the seismic vessel to contain the oil spill • Adhere to all notification, investigation procedures, and reporting requirements. 			
EMPr	7.7.4.3	An incident and the results of any investigation shall be recorded and submitted to	N/A	N/A	



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		PetroSA in the Monthly Report			
Activity 7.7.2 Materials and Equipment Lost Overboard					
EMPr	7.7.2.1	<p>If a solid object falls overboard, the incident shall be managed as follows:</p> <ul style="list-style-type: none"> • Retrieve object if possible to do so • If object not retrievable, record location (GPS Coordinates) and assess whether it will pose a hazard to other marine users. • If object poses a hazard then notify Anadarko who in turn shall inform SAMSA / HydroSAN • Complete the Incident Report Form and Dropped Object Log; and • Conduct an Incident Investigation through to close out. 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.7.2.2	<p>Notifiable incidents as set out in the Incident Management Plan shall be reported by the contractor to Anadarko within 48 hours. Incidents posing a threat to human life or significant marine pollution should</p>	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		immediately be reported to the designated Emergency Coordinator of Anadarko.			
Activity 7.7.3 Injury or Death of Marine Fauna					
EMPr	7.7.3.1	<p>Notifiable incidents related to death or injury of marine fauna that may be discovered during surveys shall follow the general incident reporting requirements of outlined in Activity 7.7.4 below, and shall include:</p> <ul style="list-style-type: none"> • completion of an incident reporting form including recording of details such as time of observation, status of seismic/ multi-beam firing, location in relation to survey vessel and streamers, GPS coordinates, type and number of animals involved, and other comments relating to possible correlation with survey activities. • immediately reported to Anadarko; • Anadarko shall immediately report to the DEA: Oceans and Coasts who will in turn follow the correct 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		procedures to investigate or retrieve injured or dead animals. <ul style="list-style-type: none"> Follow up investigations and close-out of the incident. 			
EMPr	7.7.3.2	All seabirds stranded on vessels shall be retrieved and released according to appropriate guidelines.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
Activity 7.7.4 General Incident Reporting and Auditing					
EMPr	7.7.4.1	General Reporting <ul style="list-style-type: none"> All incidents that may occur during seismic surveys will require the following investigation and reporting, and which shall be detailed in the Incident Management Plan: <ul style="list-style-type: none"> Assessment of the nature and source of the incident Assessment and evaluation of the impact and affected environmental receptors Recording the date and time Description of incident Actions taken to remedy the incident and report the incident Investigation into root 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		cause o Identification of measures to prevent reoccurrence and communication of such.			
EMPr	7.7.4.2	7.7.4.2 Audit Guidelines • Audits should, through examination of records retained by the contractor or Anadarko, verify that: o Maintenance and system checks were undertaken in accordance with specifications and all spill preventive measures recorded as fully operational; o All incidents have been reported and recorded as per specifications indicated in the sections above; o All incidents have been investigated to identify root causes {if applicable, depends on the severity of the incident); o The incident reports detail the results of the investigations into root causes and advises on amendments to procedures	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<ul style="list-style-type: none"> o or equipment as needed; o The advised changes are implemented; o A trend analysis on incidents is conducted monthly; o Incidents are reported within an appropriate timeframe, along with the root cause analyses; o Sufficient oil and chemical spill containment and absorbent equipment and materials are stored in sufficient quantities in areas where spills are most likely to occur; and o The emergency response plan and oil spill contingency plan is current and in particular all contact details are up to date. 			
Activity 7.8.1: Decommissioning and Close Out					
EMPr	7.8.1.1	Retrieve all deployed equipment and any dropped objects from marine environment prior to cessation of survey activities.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.8.1.2	Inform all key stakeholders (see Activity 7.2.1.10) of the closure of survey activities within 24 hours.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.8.1.3	Dispose of all waste retained onboard at a licensed waste site using a licensed waste disposal contractor and obtain a final waste disposal certificate (see Activity 7.6.1)	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.8.1.4	Compile a Close Out Report at the end of each exploration activity which shall document compliance with the provision of this EMP, deviations from specified standards, and details of any incidents arising. arising (see Activity 7.9.2.2.4 for contents).	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
Activity 7.8.1: System Administrative Requirements					
Activity 7.9.1 Monitoring					
EMPr	7.9.1.1	Deck & bilge water discharge: oil concentrations to ensure compliance with MARPOL standards of <15 ppm (Refer to Refer to Activity 7.6.2.1).	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.9.1.2	Solid waste production and disposal (Refer to activities 7.6.1.3 and 7.6.1.12)	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.9.1.3	Marine fauna: sightings (Refer to Activity 7.5.4).	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.9.1.4	Survey procedure (Refer to Activities 7.5.1& 7.5.2}	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.9.1.5	Monitoring results shall be reported to Anadarko.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.9.1.6	Anadarko shall report monitoring results to PASA in the Quarterly Report.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
Activity 7.9.2 Reporting					
EMPr	7.9.2.1	Reporting Requirements for a survey/sampling campaign are indicated in the flow chart below.	Noted	Noted	
EMPr	7.9.2.2	Reporting by Anadarko to PASA	Noted	Noted	
EMPr	7.9.2.2.1	EMP: In accordance with the requirements of the MPRDA, 2008 (Act 49 of 2008),	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		Anadarko shall submit an EMP to obtain approval for an exploration right (as per this EMP).			
EMPr	7.9.2.2.2	<p>Notification of PASA:</p> <ul style="list-style-type: none">•Anadarko shall notify PASA in writing of the commencement of survey activities 14 days prior to starting activities (see Activity 7.2.1.1).•The specific details of the survey shall be compiled into an Environmental Notification for submission to PASA. The Environmental Notification shall provide details on the following:<ul style="list-style-type: none">o Survey lines / sampling target areas,o Number of samples;o Survey/ sampling timing and duration;o Contractor details;o Vessel specifications (including relevant certificates and insurance);o Plans not included in the EMP (see Activity 7.1.2.1); and <p>Details of Marine Monitoring Operator applicable.</p>	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.9.2.2.3	Quarterly Reports: <ul style="list-style-type: none">•Anadarko shall submit Quarterly Reports to PASA, which shall include key information on:<ul style="list-style-type: none">o the progress of survey/sampling activities and any changes to the exploration scheduleo any incidents (e.g. pollution spills, navigational incidents, loss of equipment etc.), ando non-compliance with or exceedance of monitoring standards and steps taken to rectify these.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.9.2.2.4	Close Out Report Anadarko shall submit a Close Out Report to PASA within 60 days completing a survey/sampling Campaign. The information contained in this report shall be based on the monthly reports compiled by the MMO, Survey Contractor and other data and records compiled during the seismic campaign. The Close Out Report shall contain a full description of all aspects of survey	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		campaign, including: <ul style="list-style-type: none"> • The contractor and vessel details • Marine mammal observer details • Description of the survey/sampling campaign (location, timetable & duration) • Establishment information (e.g. receipt of EMP by Contractor and notification of other sea users/stakeholders) • Operational Phase Activities (e.g. environmental awareness, communications, provision for emergencies, waste management, lost equipment, helicopter use, acoustic emissions; faunal monitoring results (including final MMO report) • Monitoring and performance assessments • Decommissioning and Closure (e.g. notification, close out reporting and final waste disposal) 			
EMPr	7.9.2.3	Contractor Reporting to Anadarko and	Noted	Noted	



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		Documentation Requirements			
EMPr	7.9.2.3.1	<p>Pre-Seismic Survey and Agreements and Documentation</p> <ul style="list-style-type: none"> • Prior to survey/sampling, the following documentation will be provided to Anadarko by the Contractor: <ul style="list-style-type: none"> o Signed Contractor's Acknowledgement of Receipt of EMP o Environmental Safety and Health Policy o Subsidiary Plans (see Activity (7.1.2); o Certificates of Sea Worthiness and Safety & Pollution Prevention Certificates. o Plan for supply of information to compile the Environmental Close Out report. 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.9.2.3.2	<p>Monthly Report</p> <ul style="list-style-type: none"> • The following information shall be compiled by the survey contractor, and submitted to Anadarko on a monthly basis in the form of a Monthly Report: 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<ul style="list-style-type: none"> o Incidents, including tangling of gear, incidents with marine fauna, spills and discharges, encroachments in the exclusion zone, etc o Amount and type of waste generated and disposed of; and o Times and durations of acoustic firing including number and duration of soft starts. 			
EMPr	7.9.2.4	Reporting by Anadarko to other government department and Institutes	Noted	Noted	
EMPr	7.9.2.4.1	Marine mammal incidence data and data arising from surveys shall be made available, if requested, to the Marine Mammal Institute, DAFF and PASA.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
13.3 Auditing					
EMPr	7.9.3.1	General			
EMPr	7.9.3.1.1	Compliance with the environmental management plan shall be subject to an internal audit before, during and at the end of a seismic campaign. The findings of	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		these audits shall contribute towards Anadarko's annual performance report on EMP compliance.			
EMPr	7.9.3.1.2	The audits should review and report on the auditing guidelines detailed in each section of this EMP.	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
EMPr	7.9.3.2 Pre-survey/sampling				
EMPr	7.9.3.2.1	<p>The pre-survey audit shall check the following:</p> <ul style="list-style-type: none"> • The EMPr has been approved by PASA and all reporting requirements have been complied with. • The Contractor has received a copy of the EMP, understands the content; the content of the EMP is aligned with the survey contractor's standard operating procedures, and has agreed to its implementation; and • The Contractor has the necessary equipment and protocols in place and staff on the vessel are suitably trained to implement the 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		monitoring requirements outlined in the EMP.			
EMPr	7.9.3.3 During survey/sapling audit				
EMPr	7.9.3.3.1	<p>Audits during the survey campaign shall check the following:</p> <ul style="list-style-type: none"> • Monitoring is being undertaken in accordance with the requirements described in this EMP for the variables summarised in Activity 7.9.1; • Monitoring data are retained and all deviances reported correctly in the Monthly Reports. • Incidents, where relevant, have been reported as per the incident reporting and investigating requirements (see Activity 7.7). • Observations made on the vessels check the contractor's commitments to good housekeeping and waste management protocols, and • General audit measures indicated in Activity 7.9.3.4.2. 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
EMPr	7.9.3.4 Post-survey/ Sampling audit				
EMPr	7.9.3.4.1	<p>The post-seismic audit shall take the form of a close out report shall check and include the following:</p> <ul style="list-style-type: none"> • Monitoring was undertaken in accordance with the requirements described in this EMP for the variables summarised in Activity 7.9.1; • Monitoring data are retained and all deviances reported correctly in the Monthly Reports. • Incidents, where relevant, have been reported as per the incident reporting and investigating requirements and have been closed out (see Activity 7.7); and • All records comply with EMP requirements and are stored in an accessible and logical manner 	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.
	7.9.3.4.2	<p>Audit Guidelines</p> <ul style="list-style-type: none"> • Audits should, through examination of records retained by the contractors and Anadarko, verify that: <ul style="list-style-type: none"> o All records required by 	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<p>this EMP have been retained and are stored in an accessible and logical manner;</p> <ul style="list-style-type: none"> o All reports required by this EMP have been completed and submitted to the designated recipient; o All monitoring has been completed and any deviances responded to accordingly; and o Management reviews have been conducted and were comprehensive and any action required has been Implemented. 			
Activity 7.9.4 Record keeping					
EMPr	7.9.4.1	<p>The following records shall be maintained as part of the EMP and cross-referenced for auditing purposes:</p> <ul style="list-style-type: none"> • Effluent discharge volumes, quality results, including non-compliance • Incident reports, including incident close out results • Water manifests and disposal certificates • Training records • Prosecutions/ notices of non-compliance 	N/A	N/A	No seismic survey or logistics contractors currently engaged. No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<ul style="list-style-type: none"> • Stakeholder inputs and the review thereof • Audit reports • Results of management reviews • Weekly, monthly and annual internal reports • Planned maintenance reports/ logs • All previous versions of the EMP • All EIAs and application for environmental authorisations • Correspondence with permitting authorities such as PASA, DEA, SAMSA etc 			
Activity 7.9.5 EMPr Review and Revision					
EMPr	7.9.5.1	<p>The EMP shall be subject to review at least upon renewal of exploration right and updated if required. The review shall consider the following information:</p> <ul style="list-style-type: none"> • Audit reports • Feedback from stakeholders • Technology changes • Performance assessment reports; and 	N/A	N/A	No exploration activities have been conducted during the initial exploration period. Therefore, this condition is not applicable to this audit.



Type	Ref #	Condition	Compliance Y/N	Compliance Rating	Comments/ Verification
		<ul style="list-style-type: none">Changes in regulations/legal compliance			



7.2 FINDINGS OF THE AUDIT

No findings were noted during the audit as none of the conditions in the EMPr were considered applicable to the current phase of the project.

7.3 CONTINUED ADEQUACY OF THE EMPr

As per the requirements of Regulation 34(3) of the EIA Regulations (GNR982), the environmental audit report contemplated in sub-regulation (1) must determine- the ability of the EMPr, to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an ongoing basis. The continued adequacy of the EMPr is discussed in this section of the report.

The latest EMPr (seismic and seafloor geochemical surveys) provided by PetroSA was evaluated².

7.3.1 EMPr EVALUATION

The evaluation of the adequacy of the EMPr considers the following:

1. Compliance with the EMPr content requirements defined in Appendix 4 of the EIA Regulations (GNR982);
2. Review of latest compliance audit findings;
3. Review of the authorised activities to confirm that all relevant impacts have been identified and adequately assessed, and that relevant impact management outcomes and actions are adequate.
4. Review of the EMPr to confirm adequate measures to ensure compliance with the provisions of the EMPr.

The remaining sub-sections present the evaluation and consequent recommendations.

7.3.1.1 COMPLIANCE WITH NEMA EMPr REQUIREMENTS

Appendix 4 of the NEMA EIA Regulations provides for the requirements of an EMPr in compliance with Section 24N of the NEMA. Table 2 below provides a breakdown of the prescribed requirements, an evaluation of compliance with the current EMPr, and recommendations to address shortcomings. Note that this evaluation aims to check whether the prescripts of the regulations are included in the current EMPr and does not aim to evaluate the completeness or adequacy thereof. The adequacy of the EMPr impact management outcomes and actions are evaluated in Section 7.3.1.2.

² (CCA Environmental , 2013)



Table 2: NEMA EIA Regulations Appendix 4 Evaluation.

Requirement		Evaluation EMPr's	Recommendations
NEMA Regulation 982 (2014) Appendix 4			
Appendix 4(1)(1)(a):	<p>Details of –</p> <ul style="list-style-type: none"> i. The EAP who prepared the EMPr; and ii. The expertise of that EAP to prepare an EMPr, including a curriculum vitae; 	<p>The EMPr provides details on the authors (Jeremy Blood and Jonathan Crowther) from CCA Environmental. The details include a summary of the authors relevant experience and qualifications. Full curricula vitae are not included.</p>	<p>EMPr to be revised to reflect the details, including curriculum vitae, of the EAP responsible for amending and updating the EMPr.</p>
Appendix 4(1)(1)(b):	<p>A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;</p>	<p>Section 1 provides an Introduction to the project. Section 2 provides the legal framework, general approach and methodology followed in drafting the EMPr. The context to the activities, receiving environment and impacts, are detailed in Section 3, 4 and 5, respectively.</p> <p>The EMPr provides a generic description of activities with no site-specific definition (beyond the block boundaries). The EIA Regulations require a detailed description. The generic description provided is inadequate.</p>	<p>As and when the Holder defines the specific location, and extent of future exploration activities, further assessment of the impacts of these activities in the relevant site-specific context must be undertaken and the EMPr consequently amended. Formal EMPr amendment processes as prescribed by Regulations 31 to 33 of the EIA Regulations or alternative as agreed to with the Competent Authority.</p>
Appendix 4(1)(1)(c):	<p>A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;</p>	<p>Section 1 of the EMPr includes a locality map of the entire exploration right block. No site-specific detail is provided in respect of proposed exploration activities. Sections 4.1. and 4.2 of the EMPr identify and describe, at a high level, the environmental components and sensitivities likely to be affected by the activities.</p> <p>The sensitivities described and depicted spatially in the reports are dated (2013) and require update and amendment to reflect current</p>	<p>As and when the Holder defines the specific location, and extent of future exploration activities, the locality, layout and sensitivity maps will require updating and the EMPr amended accordingly.</p> <p>For the purposes of the fixed non-invasive exploration activities defined in the current EWP, the generic EMPr's are adequate.</p>



Requirement		Evaluation EMPr's	Recommendations
		sensitivities. Of specific note is the changes to the relevant Marine Protected Areas, Critical Biodiversity Areas, and ecologically important and sensitive areas within the Blocks which would require specific description and impact assessment once future exploration activities are defined.	
Appendix 4(1)(1)(d):	A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including – <ul style="list-style-type: none"> i. Planning and design; ii. Pre-construction activities; iii. Construction activities; iv. Rehabilitation of the environment after construction and where applicable post closure; and v. Where relevant, operation activities; 	Section 5 of the EMPr identifies and describes the impacts associated with the seismic and seafloor geochemical surveys. Section 7 of the EMPr lists the impact management rational and objectives. The objectives and actions are listed for each project activity and include activities associated with the planning, operations, and closure.	None.
Appendix 4(1)(1)(f):	A description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraphs (d) will be achieved, and must, where applicable, include actions to – <ul style="list-style-type: none"> i. Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; 	Section 7 of the EMPr lists the impact management rational and objectives. The impact management hierarchy has been applied in the identification of relevant impact management actions.	None.



Requirement		Evaluation EMPr's	Recommendations
	<ul style="list-style-type: none"> ii. Comply with any prescribed environmental management standards or practices; iii. Comply with any applicable provisions of the act regarding closure, where applicable; and iv. Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable. 		
Appendix 4(1)(1)(g):	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	For each activity identified in Section 7 associated audit guidelines are provided which include requirements for documentation and monitoring.	None.
Appendix 4(1)(1)(h):	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Activity 7.9.1 – 7.9.3 of Section 7 of the EMPr provides a breakdown of required monitoring, reporting and compliance auditing requirements including the frequency thereof.	None.
Appendix 4(1)(1)(i):	An indication of the persons who will be responsible for the implementation of the impact management actions.	For each impact management action listed in Section 7 a specific party is assigned responsibility.	None.
Appendix 4(1)(1)(j):	The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	For each impact management action listed in Section 7 the relevant timing is provided.	None.
Appendix 4(1)(1)(k):	The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Activity 7.9.3 of Section 7 of the EMPr provides a breakdown of required compliance auditing requirements.	None.
Appendix 4(1)(1)(l):	A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Activity 7.9.2 of Section 7 of the EMPr provides a breakdown of required compliance reporting requirements.	None.



Requirement		Evaluation EMPr's	Recommendations
Appendix 4(1)(1)(m):	An environmental awareness plan describing the manner in which – i. The applicant intends to inform his or her employees of any environmental risk which may result from their work; and ii. Risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Activity 7.3.1 of Section 7 of the EMPr provides the requirements for training and awareness.	None.
Appendix 4(1)(1)(n):	Any specific information that may be required by the competent authority.	N/A- no record was provided of specific requirements from the competent authority.	N/A



7.3.1.2 **AUDIT FINDINGS AND RECOMMENDATIONS**

The audit findings are presented in Section 7.2. It is recommended that the documentation and 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. The EMPr will need to be amended accordingly.

7.3.1.3 **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 3.



Table 3: Recommended additions and amendments 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	<p>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:</p> <ul style="list-style-type: none"> • 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



Relevant EMPr Section	Comments	Nature of change	Recommendations
			<p>Sea Trawling Association, Inshore Pelagic, Rock Lobster and Tuna Associations, fishing companies and fishing agents</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.
	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	<ul style="list-style-type: none"> • 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).



Relevant EMPr Section	Comments	Nature of change	Recommendations
7.4.5	Ship to ship bunkering regulations have recently been published for comment, followed by revised draft regulations also having been published for comment. It is likely that these regulations will be published for implementation soon and will therefore have to be complied with. The provisions recommended here will have to align with such legislative requirements. This comment also applies to other instances where offshore bunkering is referred to.	Additional	<p>The Regulations for the environmental management of offshore ship-to-ship transfer in terms of section 83(1) of the National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008), must be complied with, including but not limited to the requirement to:</p> <ul style="list-style-type: none"> • Prepare, and comply with an authorised Ship-to-ship (STS) environmental management plan that has been— <ul style="list-style-type: none"> ○ developed by an independent specialist in accordance with the content requirements of regulation 8(2); and ○ approved by the Minister.
7.5.	<p>Whilst the general impacts on marine ecology from seismic sources are identified, no acoustic sound transmission loss 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.</p> <p>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.</p> <p>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</p>	Additional	<p>Once specific target areas for future seismic surveys are defined the following must be undertaken prior commencement:</p> <ul style="list-style-type: none"> • 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).



Relevant EMPr Section	Comments	Nature of change	Recommendations
	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		
	Although the use of Passive Acoustic Monitoring (PAM) is identified in the EMPr, additional measures related to the monitoring are suggested.	Amend	<ul style="list-style-type: none"> • 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. • 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: <ul style="list-style-type: none"> ○ Provide effective regular briefings to crew members, and establish clear lines of communication and procedures for onboard operations;



Relevant EMPr Section	Comments	Nature of change	Recommendations
			<ul style="list-style-type: none"> ○ 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 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	<ul style="list-style-type: none"> • 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.



Relevant EMPr Section	Comments	Nature of change	Recommendations
			<ul style="list-style-type: none"> 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 contribute to the knowledge base of deep-water environments.	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.



7.3.1.4 ADEQUACY OF COMPLIANCE MECHANISMS

It is necessary to evaluate the ability of the EMPr to ensure compliance with the provisions of EMPr. The EMPr provides clear mechanisms for reporting and auditing, which are aligned with current practice. The EMPr does not 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 requirement 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.

7.3.2 EMPr SHORTCOMINGS AND RECOMMENDATIONS

It is the auditor's opinion that the 2013 EMPr offers generic, sometimes outdated impact management actions and fail 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 Section 7.3.1.2 above.

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.

8 CONCLUSION

EIMS was appointed to undertake the Environmental Audit to assess compliance during the initial exploration period, with the conditions of the 2013 EMPr. **None of the conditions in the EMPr were considered applicable to the initial exploration period as none of the exploration activities have been conducted, therefore no compliance score is provided.** Based on the audit, the approved EMPr (CCA Environmental, 2013), is not considered adequate and effective to manage and mitigate the exploration activities approved for the initial exploration period or the planned exploration activities in the work programme submitted (not yet approved), for the first renewal period. Various recommendations have been provided to ensure that the EMPr is updated and will be effective once operation commences.

It is the auditors opinion that the approved EMPr offer generic, sometimes outdated impact management actions and fail to address specific activity and site impacts adequately. The EMPr should be updated with the recommended measures described in this report. In addition, further impact assessment is needed when specific location details and technical specifications for exploration activities are available, likely necessitating further amendments and supplements before exploration activities can commence.

PetroSA is reminded of the requirements of Regulations 34 of the EIA Regulations, 2014 with regards to findings of the adequacy of the EMPr and access to the audit report. Regulation 34 states:

- 4) *“Where the findings of the environmental audit report contemplated in sub-regulation (1) indicate-*
 - a) *insufficient mitigation of environmental impacts associated with the undertaking of the activity; or*
 - b) *insufficient levels of compliance with the environmental authorisation or EMPr and, where applicable the closure plan;*

the holder must, when submitting the environmental audit report to the competent authority in terms of sub-regulation (1), submit recommendations to amend the EMPr or closure plan in order to rectify the shortcomings identified in the environmental audit report.
- 5) *When submitting recommendations in terms of sub-regulation (4), such recommendations must have been subjected to a public participation process, which process has been agreed to by the competent authority and was appropriate to bring the proposed amendment of the EMPr and, where applicable the closure plan, to the attention of potential and registered interested and affected parties, including organs of state which have jurisdiction in respect of any aspect of the relevant activity and the competent authority, for approval by the competent authority.*
- 6) *Within 7 days of the date of submission of an environmental audit report to the competent authority, the holder of an environmental authorisation must notify all potential and registered interested and affected parties of the submission of that report, and make such report immediately available-*
 - a) *to anyone on request; and*
 - b) *on a publicly accessible website, where the holder has such a website.”*

9 ASSUMPTIONS, LIMITATIONS AND GAPS IN KNOWLEDGE

The following assumptions, limitations and gaps in knowledge apply to the audit:

- The information contained in this report was sourced from information and data supplied by third parties that is assumed to be complete, valid and true.



- This report is based on information available at the time of the assessment. The information, data, observations and evidence on what this report is based is beyond the control of EIMS and may change without notice. EIMS will not be liable for any loss or damage which may arise directly or indirectly because of such changes.
- Where reference is made to legislation or other statutory provisions in this report the original legislation or other statutory provisions will always take precedence, and the reader is directed to revert to the original legislation or statutes.
- The audit was limited to the 2013 EMPr for seismic and seafloor geochemical surveys activities (CCA Environmental, 2013). This audit does not consider any other exploration activities undertaken in past renewal periods.
- A comprehensive legal compliance audit is beyond the scope of this audit.