FINAL ENVIRONMENTAL MANAGEMENT PLAN (EMP)

APP: 240923004706

FOR THE PROPOSED OFFSHORE REFINED OIL BUNKERING OPERATIONS IN THE NAMIBIAN EXCLUSIVE ECONOMIC ZONE

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PROJECT DETAILS

TITLE: FINAL ENVIRONMENTAL MANAGEMENT PLAN FOR THE PROPOSED OFFSHORE REFINED OIL BUNKERING OPERATIONS IN THE NAMIBIAN EXCLUSIVE ECONOMIC ZONE

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DECLARATION

I as a result of this declare that:

a. I have the knowledge of and experience in conducting assessments, including knowledge of the Acts, regulations, and guidelines that are relevant to the proposed exploration project.

b. I have performed the work relating to the application objectively, even if this results in views and findings that are not favorable to the applicant.

Ms. Albertina Simon
Position: Director/Environmental Assessment Practitioner (EAP)

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ABBREVIATIONS AND ACRONYMS

CBNRM	Community-Based Natural Resource Management
COLREG	Convention on the International Regulations for Preventing Collisions at Sea
DEAF	Department of Environmental Affairs and Forestry
DWAF	Department of Water Affairs
DWSSC	Directorate of Water Supply and Sanitation Coordination
EA	Environmental Assessment
EIA	Environmental Impact Assessment
ENC	Environmental Coordinator
EMP	Environmental Management Plan
EMS	Environmental Management System
MARPOL	International Convention for the Prevention of Pollution from Ships
MEFT	Ministry of Environment, Forestry and Tourism
MAWLR	Ministry of Agriculture, Water, and Land Reform
NACSO	Namibian Association of CBNRM Support Organisation
EEZ	Exclusive Economic Zone

NIMPA	Namibian Islands' Marine Protected Area
NGO	Non-Governmental Organisation
NNF	Namibia Nature Foundation
NRM	Natural Resource Management
PPE	Personal Protection Equipment
SANS	South African National Standards

1. ENVIRONMENTAL MANAGEMENT PLAN

1.1. BACKGROUND

Central Oil Pty LTD intends to operate a refined oil bunkering service in Namibia's Exclusive Economic Zone. In this respect the proponent has appointed Advanced Environmental Agency Cc to undertake an Environmental Assessment, formulate an Environmental Management Plan (EMP) and apply for an Environmental Clearance Certificate (ECC) to the Ministry of Environment, Forestry and Tourism (MEFT): Directorate of Environmental Affairs and Forestry (DEAF) for the intended development.

1.2. WHAT IS AN EMP

An Environmental Management Plan (EMP) can be defined as "an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation, and decommissioning of a project are prevented; and that the positive benefits of the projects are enhanced". EMPs are therefore important tools for ensuring that the management actions arising from Environmental Impact Assessment (EIA) processes are clearly defined and implemented through all phases of the project life-cycle (construction, operation, and decommissioning).

1.3. TERMS OF REFERENCE

The Environmental Scoping Assessment conducted by Advanced Environmental Agency Cc producing both Scoping and EMP reports documenting the following:

- A complete description of the existing site proposed for development;
- Significant environmental issues of concern that were based on the baseline data compiled by the environmental assessment team, which took into consideration social, cultural, and heritage information;
- An assessment of the public perception of the proposed development.
- Identification of Policies, Legislation, and Regulations relevant to the project;
- Prediction of the likely short, medium, and long-term impact of the development on the environment, including direct, indirect, and cumulative impacts, and their relative importance to the design of the development's facilities;
- Identification of any mitigation actions to be taken to minimize predicted adverse impacts and provide associated costs where applicable and practical;
- Development of an environmental monitoring plan which will ensure that the mitigation measures are adhered to during the implementation phase;

1.4. OBJECTIVES OF THIS EMP

The Environmental Management Plan (EMP) provides a detailed plan of action required in implementation of the mitigation measures for minimizing and maximizing the identified negative and positive impacts respectively. This EMP gives commitments including financial and human resources provisions for effective management of the likely environmental liabilities during and after the exploration. The specific objectives of this EMP are:

- Ensuring compliance with regulatory authority stipulations and guidelines;
- To formulate measures that will mitigate the adverse impacts of the proposed project on various environmental components, which have been identified during the environmental impact assessment.
- To formulate measures to protect environmental resources where possible.
- To formulate measures to enhance the value of environmental components where possible.
- Responding to changes in project implementation not considered in the EIA;
- Responding to unforeseen events; and
- Providing feedback for continual improvement in environmental performance.

1.5. SCOPE OF THIS EMP

To achieve the above objectives, the scope of this EMP will include the following:

- Definition of the environmental management objectives to be realized during the life of a project (i.e. Planning, Operation and/or decommissioning phases) to enhance benefits and minimize adverse environmental impacts.
- Description of the detailed actions needed to achieve these objectives, including how they will be achieved, by whom, by when, with what resources, with what monitoring/verification measures, and to what target or performance level.
- Clarification of institutional structures, roles, communication, and reporting processes required as part of the implementation of the EMP.
- Description of requirements for record-keeping, reporting, review, auditing, and updating of the EMP.

1.6. HIERARCHY OF MITIGATION MEASURES IMPLEMENTATION

This EMP has adopted a hierarchy of methods for mitigating significant adverse effects identified in order of preference and as follows:

i. Enhancement, e.g. provision of new habitats; ii. Avoidance, e.g. sensitive design to avoid effects on ecological receptors; iii. Reduction, e.g. limitation of effects on receptors through design changes, and; iv. Compensation, e.g. community benefits

1.7. MITIGATION MEASURES IMPLEMENTATION

The EMP provides a detailed plan of action required to implement the mitigation measures for minimizing and maximizing the identified negative and positive impacts. The EMP also provides the management actions with roles and responsibilities requirements for the implementation of environmental management strategies by the proponent through the contractors and subcontractors who will be part and parcel of the proposed project.

1.8. WHAT ARE THE LEGAL IMPLICATIONS AND OBLIGATIONS UNDER THIS PLAN?

The EMP will be sent to the Directorate of Environmental Affairs and Forestry (DEAF) of the Ministry of Environment, Forestry and Tourism (MEFT) for approval. Once the DEAF is satisfied with the contents of the EMP, they will issue an Environmental Clearance Certificate (ECC) to the Proponent to go ahead with the proposed project (Operation of the refined oil bunkering activities in Namibia's Exclusive Economic Zone). The ECC is linked with the recommendations of the Environmental Management Plan.

Once the ECC is issued, the EMP becomes a legally binding document and each role-player including contractors and sub-contractors is made responsible for implementing the relevant sections of the EMP and is required to abide by the conditions stipulated in this document.

2. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

An important part of the Environmental Assessment is identifying and reviewing the administrative, policy, and legislative situation concerning the proposed activity, to inform the proponent about the requirements to be fulfilled in undertaking the proposed activities. This section looks at the legislative framework within which the proposed development will operate under.

The focus is on compliance with the legislation during the planning, construction, and operational phases. All relevant legislation, policies, and international statutes applicable to the project are highlighted in Table 2: Relevant legislation, policies and international statutes applicable to the project below as specified in the Environmental Management Act, 2007 (Act No.7 of 2007) and the regulations for Environmental Impact Assessment as set out in the Schedule of Government Notice No. 30 (2012). Table 1 shows an explanation is additionally provided regarding how these provisions apply to this project

Table 1. Lists of Legal instruments relevant to this project:

Regulatory Framework	Summary	Applicability
The Namibian Constitution	The State shall actively promote and maintain the welfare of the people by adopting policies aimed at … The maintenance of ecosystems, essential ecological processes, and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future	Protection of the environment and biodiversity
Namibian Ports Authority Act 2 of 1994	To provide for the establishment of the Namibian Ports Authority to undertake the management and control of ports and lighthouses in Namibia and the provision of facilities and services related thereto; and to provide for matters incidental thereto.	Port Bunkering
Marine Traffic Act, No. 2 of 1981 as amended by the Marine Traffic Amendment Act 15 of 1991	To amend the Marine Traffic Act, 1981, to adjust its provisions given the independence of Namibia; and to provide for incidental matters.	Monitoring of maritime traffic
Prevention and Combating of Pollution of the Sea by Oil Act No 6 of 1981 (as amended by Act 24 of 1991)	To provide for the prevention and combating of pollution of the sea by oil; to determine liability in certain respects for loss or damage caused by the discharge of oil from ships, tankers, or offshore installations; and to provide for matters connected therewith.	To prevent pollution at sea
Environmental Management Act No. 7 of 2007	This act aims to promote the sustainable management of the environment and the use of natural resources and to provide for a process of assessment and control of activities that may have significant effects on the environment; and to provide for incidental matters	The acts provide a list of activities that may not be undertaken without an environmental clearance certificate to avoid environmental damages

Water Act No., 54 of 1956	This act states that all water resources belong to the State. It prevents pollution and promotes the sustainable utilization of the resource. To protect these resources, this act requires that permits are obtained when activities involve the following;	Prevent discharge of pollutant in water

	• Discharge of contaminated into water sources such as pipes, sewers, canal, sea outfalls and • Disposal of water in a manner that may cause detrimental impact on the • water resources	
Petroleum Product and Energy Act No, 13 of 1990	Petroleum Product and Energy Act No, 13 of 1990 This Act provides a framework for handling and distribution of petroleum products which may include purchase, sale, supply, acquisition, possession, disposal, storage, or transportation thereof.	Bunkering involves handling fuel
Draft Pollution Control and Waste Management Bill	This Bill serves to regulate and prevent the discharge of pollutants to air and water as well as provide for general waste management	To protect the Environment from possible pollution
Environmental Policy Framework (1995)	This policy subjects all developments and projects to environmental assessment and provides guideline for the Environmental Assessment.	Consideration of all possible impacts and incorporate them in the development stages
Hazardous Substances Ordinance 14 of 1974;	To provide for the control of substances that may cause injury or ill-health to or death of human beings because of their toxic, corrosive, irritant, strongly sensitizing, or flammable nature or the generation of pressure thereby in certain circumstances	Risk to people during handling fuel
Namibia's 1st National Oil Spill Contingency Plan (NOSCP)	The NOSCP was approved by the Cabinet, giving effect to Namibia's obligations under the United Nations Convention on the Law of the Sea, 1982, and the International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990.	The NOCSP provided a coordinated and integrated national system for dealing with oil spills in Namibian waters.

Regulations Related to the Health and Safety of Employees at Work. Reg No. 156	Promotes the Safety and Health of employees at the workplace	Employees working at the facility are prone to waterborne disease, especially during cleaning and maintenance.

Public Health Act No. 1 of 2015	To Protect the public from nuisance and states that no person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health	Application of proper mitigation measures to prevent water pollution
Labour Act No. 11 of 2007	This Act outlines the labour laws which encompass the protection and safety of employees at work	Ensure that employees at the workplace are protected
Water Resource Management Act No.11 of 2011	Provide for the management, protection, development, use, and conservation of water resources; to provide for the regulation and monitoring of water services and to provide for incidental matters.	Possibility of surface and groundwater contamination

INTERNATIONAL CONVENTIONS	
The International Convention for the Protection of Submarine Cables (1884)	Provide for the protection of submarine cable by establishing that the breaking or injury of a submarine cable, done wilfully or through culpable negligence, and resulting in the total or partial interruption or embarrassment of telegraphic communications, shall be a punishable offense, but the punishment inflicted shall be no bar to a civil action for damages
Geneva Convention on the High Seas (1958)	This convention give provision that the High Seas as being open to all nations; no State may validly purport to subject any part of them to its sovereignty. Freedom of the High Seas is exercised by other rules of international law, where coastal and non-coastal States shall have freedom of navigation, fishing, laying submarine cables and pipelines and flyover.
United Nations Convention on the Law of the Sea (UNCLOS) (1982)	Namibian is a signatory to UNCLOS which gives provision to claims rights within a 12 nautical mile territorial water and a 200 nautical mile Exclusive Economic Zone (EEZ). Namibia reserves the right to establish conditions for bunkering in its territory or territorial sea or its jurisdiction

Table 2. Relevant Multilateral Environmental Agreements for Namibia and the Development:

International Convention for the Prevention of Pollution from Ships (MARPOL) London, 1973	This is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes

Table 3. Standards or Codes of Practice

Standard or Code	Key Aspects
South African National Standards (SANS)	✞ The Petroleum Products and Energy Act prescribes ✞ SANS standards for the construction, operations and ✞ demolition of petroleum facilities ✞ SANS 10089-3:2010 is specifically aimed at storage ✞ and distribution of petroleum products at fuel retail ✞ facilities and consumer installations ✞ Provide requirements for spill control ✞ infrastructure.
Namport Specifications and Legislation	✞ Enforced Standards and Codes which governs construction and operations relating to the port.
International Dangerous Goods Code (IMDG Version 10 of 2010)	✞ Prescribed by Namport for handling and storage of dangerous cargo

3. EXPECTED ENVIRONMENT IMPACTS, AND MITIGATION MEASURES – DURING PROJECT OPERATIONS

3.1.1. OIL SPILLS (water pollution and impacts on marine ecosystem)

Depending on the spill magnitude, long-term impacts may include habitat damage changes in marine ecosystems, and surface water pollution. Fuel bunkering activities have serious consequences of oil spills during operations when transferring oil. oil can spill through oil leakage contaminating surface water and destroying marine organisms. Both marine and land habitats and animal populations are greatly affected by birds' fish and other sea life leading to unhealthy seafood and thus affecting the marine economy within the Atlantic Ocean EEZ of Namibia.

Table 4. Prevention/Mitigation actions on water pollution and impacts on the marine ecosystem:

Impacts	Mitigation Measures/ Prevention	Person Responsible
Oil spill and seawater contamination and accidental spillage	Regular inspection of any vessel facilities or transfer operations. • Detail specific rules and regulations for oil storage, transfer, and containment. • Provide technical outreach, design standards, and rules for storage transfer and containment facilities. • Evaluate spill prevention plans, oil transfer operations, and oil-handler training programs. • The party responsible for the oil spill must be fine which will include. • Clean up • Litigation • Containment • Natural resources • Human element: complacency during bunkering operations, high workload, fatigue, unfamiliarity are all playing a key role. • Several safe bunkering measures are required for each operation to ensure safety operations and they are : • Pre-arrival-a crew designed to perform bunkering duties should not be distracted from their tasks. Key members of staff should be appraised of their forthcoming duties in good time and should be properly rested rotated as required for the duration of the operation • The bunker contingency plan should be completed not as a culture but rationally concerning existing documents. • Prior to bunkering- so pep equipment should be deployed before starting operations • First response equipment should be available adjacent to the manifold this should include a suitable portable pump and emergency containment	Contractor and proponent

	• Check save all around the bunker manifolds and fuel oil tank vents are empty and fitted with drain plugs	

	• Desk scupper and freeing ports should be plugged with suitable dedicated devices consideration should be made for controlled drainage in the event of rainfall	

	• During bunkering-on commencement, the manifold pressure should be kept to a minimum until it is clear that the intended tanks are filing and there is no delivery to unintended tank overflow of leakages. When satisfied the pump rate should be increased until the agreed pressure/flow rate is reached • On the manifold valve should be closed following disconnection, the hose bank and the bunker manifold blank should be securely fitted without delay. The hose should not be lifted away from the manifold as all until this has been done. The vessel's fuel system valves should be re-aligned for normal operation consideration should be made to leave scupper plugs in place until departure from the part but all so pep equipment should otherwise be secured and restored appropriately.	
Occupational health and safety	• Increase organizational resilience through proactive risk prevention, innovation, and continual improvement • Provision of PPE to all employees and providing training before contract commencement.	
Solid waste management	• Properly dispose of used hoses filters, rags, and containers adhering to local regulations. Avoid discharging oil and water sludge into the sea. • Use appropriate facilities for treatment or storage and contact regular tank and engine inspections to prevent leaks or malfunctioning	
Fire exposure	• Maintenance of cleaner fuels by adding closed-up loop scrubbers or other exhaust gas cleaning devices to ships for ***SOX SCR*** system for **NOX** slow steaming and wider use of alternative sources of energy including wind propulsion battery electronic propulsion alternative fuels like ammonia and hydrogen and port-side electricity.	
	• Install alarms and a mass notification system in the event of fire an alarm system is going to alert employees to the situation. • Keep emergency response equipment on site in the event of fire or other emergencies the local fire department and EMS may be called to respond.	

	• Train employees on fire prevention-employees should know how to prevent and respond to fire. Training fire safety officers. / • Perform regular through fire safety inspections.-	
Marine traffic collision	• **Strengthen security measures and act before the occurrence of such incidents, use advanced navigating technologies and equipment gyrocompass setting appropriate routines and ensuring that they comply with international procedures.** • **Providing training and crew and staff and establishing effective communication as well as providing education** • **Use tools to identify and manage marine accidents called emergency response plans with emergency equipment for survival rescue and recovery such as lifeboats.**	

Monitoring of the EMP performance for the proposed project by the Contractor emphasizes early dictation, reporting, and corrective action. It is divided into three parts, namely:

- Monitoring of project activities and actions to be undertaken by the Environmental Coordinator (ENC) appointed by the Contractor.
- The Environmental Coordinator (ENC) shall report all incidents and situations that have the potential of jeopardizing compliance with statutory provisions as well as provisions of this EMP to the Project Proponent.
- The Environmental Coordinator (ENC) shall take corrective prompt measures, adequate and long-lasting in addressing non-compliance activities or behaviour.

To ensure compliance of the Contractor ENC to the implementation of the EMP, it is highly recommended that an External Environmental Expert is appointed by the proponent to ensure the implementation of the EMP. The points (1-6) provided below are to be used for monitoring purposes by the Contractor's ENC.

4. ENVIRONMENTAL CODE OF CONDUCT

The Code of Conduct outlined in this section of the EMP applies and is not limited to, subcontractors, visitors, permanent and temporal workers. Therefore, anybody who finds him or herself within the boundaries of the proponent must adhere to the Environmental Code of Conduct as outlined in this section of the EMP.

- The Contractor ENC will implement on-site environmental guidelines and has the authority to issue warnings as well as discipline any person who transgresses environmental rules and procedures. Persistent transgression of environmental rules will result in a disciplinary hearing and thereafter continued noncompliance behavior will result in permanent removal from the operation sites.

4. 1. Natural environment management guidelines

a) Never feed, tease or play with, hunt, kill, destroy, or set devices to trap any wild animal (including birds, reptiles, and mammals), livestock, or pets. Do not bring any wild animals or pet to the construction sites;

b) Do not pick any plant or take any animal out of the construction area EVER. You will be prosecuted and asked to leave the project area;

c) Never leave rubbish and food scraps or bones where it will attract animals, birds or insects. Rubbish must be thrown into the correct rubbish bins or bags provided;

d) Protect the surface material by not driving over it unnecessarily;

e) Do not drive over, build upon, or camp on any sensitive habitats for plants and animals;

f) Do not cut down any part of living trees/bushes for firewood;

g) Do not destroy bird nest, dens, burrow pits, termite hills, etc. or any other natural objects in the area.

4.2. Health and safety guidance

a) Drink lots of water every day, but only from the freshwater supplies;

b) Take the necessary precautions to avoid contracting the HIV/AIDS virus;

c) Never enter any area that is out of bounds, or demarcated as dangerous or wander off without informing or permission of team leader;

d) Never climb over any fence or trespass on private property without permission of the landowner or consultation with the Environmental Coordinator, Site Manager.

e) Report to your Contractor if you see a stranger or unauthorized person in the construction area;

f) Do not remove any vehicle, machinery, equipment or any other object from the construction campsite or along with the profile or at a seismic testing station without permission of your Contractor or Site Manager;

g) Wear protective clothing and equipment required and according to instructions from your Contractor or Site Manager;

h) Do not engage in sexual relations with minors and also adhere to zero tolerance to the spread of HIV/AIDS.

4.3. Preventing pollution and dangerous working conditions guidance

i. Never throw any hazardous substance such as fuel, oil, solvents, etc. into streams or onto the ground;

ii. Never allow any hazardous substance to soak into the soil; iii. Immediately tell your Contractor or Environmental Coordinator when you spill or notice any spillage of hazardous substance anywhere in the field or camp;

iv. Report to your Contractor or Environmental Coordinator when you notice any container, which may hold a hazardous substance, overflow, leak, or drip;

v. Immediately report to your Contractor or Environmental Coordinator when you notice overflowing problems or unhygienic conditions at the ablution facilities, vehicles, equipment and machinery, containers, and other surfaces.

4.4. Disposal of solid and liquid waste guidance

a) Learn to know the difference between the two main types of waste, namely: General Waste; and Hazardous Waste.

b) Learn how to identify the containers, bins, drums or bags for the different types of waste. Never dispose of hazardous waste in the bins or skips intended for general waste or construction rubble;

c) Never burn or bury any waste on the camp or in the field;

d) Never overfill any waste container, drum, bin or bag. Inform your Contractor or the Environmental Coordinator/ Site Manager if the containers, drums, bins or skips are nearly full;

e) Never litter or throw away any waste on the site, in the field or along any road. f) No illegal dumping;

g) Littering is prohibited.

4.5. Dealing with environmental complaints guidance

a) If you have any complaint about dangerous working conditions or potential pollution to the environment, immediately report this to the Environmental Coordinator

b) If any person complains to you about noise, lights, littering, pollution, or any other harmful or dangerous condition, immediately report this to your Contractor.

5. CONCLUSION AND RECOMMENDATIONS

5.1. CONCLUSION

The fundamental principle behind environmental assessments (EAs) is to ensure a balance in social, economic, and environmental needs, particularly when proposed projects are of such a nature that they negatively affect some needs at the expense of the other. Ultimately, EAs should enhance proposed projects' propensity towards being more beneficial and important by suggesting measures and designing and implementing programs and plans to that effect. Against this background, it is anticipated that this project will be beneficial and important to the proponent, the national economy, the local social conditions, and the local economy if the guidelines and mitigation measures suggested in this EMP are implemented. However, it should be acknowledged that disturbance to the environment will be incurred, but that will be minimal and within legally acceptable levels.

This EMP should be viewed as a framework for integrating mitigation measures and applicable legal tools to ensure both compliance and sustainability. It is therefore very important that the proponent provides adequate resources (human, financial, tangible and intangible assets) for the implementation of the plan.

5.2. RECOMMENDATION

The proposed refined oil bunkering may go ahead provided that all the provisions of the EMP, as well as all issued permits, are followed. Recommended actions to be implemented by the proponent as part of the management of the likely impacts through implementations of the EMP are:

- Contract an Environmental Coordinator / Consultant / suitable in-house resources person to lead and further develop, implement, and promote environmental culture through awareness-raising of the workforce, contractors, and sub-contractors in the field during the whole duration of the proposed mining program period;
- Provide other support, human and financial resources, for the implementation of the proposed mitigations and effective environmental management during the planned mining activities;
- Develop a simplified environmental induction and awareness program for all the workforce, contractors, and sub-contractors;
- Where contracted service providers are likely to cause environmental Impacts, these will need to be identified and contract agreements need to be developed with costing provisions for environmental liabilities;
- Implement internal and external monitoring of the actions and management strategies developed during the bunkering duration and a final Environmental Monitoring report be prepared by the Environmental Coordinator / Consultant / Suitable in-house

resource person and to be submitted to the regulators and to end the proposed oil bunkering project;

- Develop and implement a monitoring program that will fit into the overall company's Environmental Management Systems (EMS) as well as for any future EIA for possible Oil Bunkering projects.

It is hereby recommended that proponent take all the necessary steps to implement all the recommendations of the EMP for the successful implementation and completion of the proposed operation of the refined oil bunkering project in the EEZ.

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