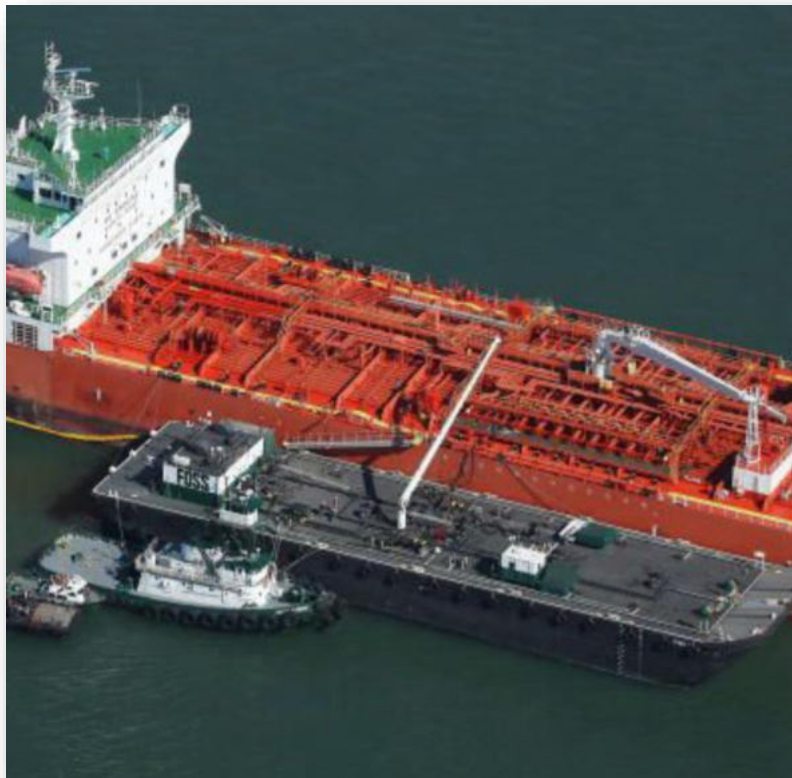


APP-001476

**FUEL BUNKERING OPERATIONS IN THE NAMIBIAN
EXCLUSIVE ECONOMIC ZONE (EEZ)**

UPDATED ENVIRONMENTAL MANAGEMENT PLAN




Assessed by:

Assessed for:

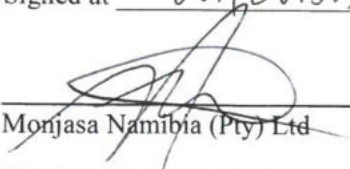


May 2023

Project:	FUEL BUNKERING OPERATIONS IN THE NAMIBIAN EXCLUSIVE ECONOMIC ZONE: UPDATED ENVIRONMENTAL MANAGEMENT PLAN	
Report: Version/Date:	Final May 2023	
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Cite this document as:	Botha P, Faul A. 2023 May; Fuel Bunkering Operations in the Namibian Exclusive Economic Zone: Updated Environmental Management Plan	
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Report Approval	 André Faul Conservation Ecology	

I NAZEM STUART acting as the Proponent's representative (Monjasa Namibia (Pty) Ltd), hereby confirm that we approve the Environmental Management Plan as presented in this document. All material information in the possession of the proponent that reasonably has or may have the potential of influencing the Environmental Management Plan was provided to the consultant.

Signed at WALVISBAY on the 1 day of June 2023.


Monjasa Namibia (Pty) Ltd

Company Registration Number

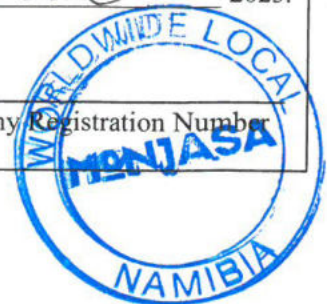


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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
COLREG	Convention on the International Regulations for Preventing Collisions at Sea
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
HIV	Human Immunodeficiency Virus
HSE	Health Safety and Environment
MARPOL	International Convention for the Prevention of Pollution from Ships
MEFT	Ministry of Environment, Forestry and Tourism
MSDS	Material Safety Data Sheet
NIMPA	Namibian Islands' Marine Protected Area
PPE	Personal Protective Equipment
SANS	South African National Standards
SOLAS	Safety of Life at Sea

1 INTRODUCTION

Monjasa Namibia (Pty) Ltd (the Proponent) has an existing environmental clearance certificate (ECC) for their marine fuel bunkering services in the exclusive economic zone (EEZ) of Namibia (Figure 1-1). Fuel bunkering involves the ship-to-ship transfer of fuel for refuelling purposes of seafaring vessels like petroleum, mining and fishing vessels, that do not make regular calls to a port. The bunkering service includes blending of fuels to the specifications of the client and can include heavy fuel oil, marine diesel oil and marine gasoil. The Proponent has one dedicated bunkering vessel, the Monjasa Runner. Fuel for bunkering is typically taken on from an afloat tanker vessel of Monjasa International. This tanker vessel is anchored offshore from Lomé, the capital of Togo, in west Africa. From there, the bunker vessel navigates to various clients operating off the west coast of Africa. The Monjasa Runner can however also take on fuel in other countries, and in Namibia's EEZ, fuel can be obtained from onshore storage facilities in the Port of Walvis Bay. The Monjasa Runner has the capacity to accommodate 14,542.40 m³ of product.

In short, during the bunkering process, the bunker barge is manoeuvred alongside the receiving vessel where it is secured. The transfer hose is connected to the inlet manifold of the receiving vessel and the fuel is pumped into its fuel holding tanks. The process requires experienced operational personnel and constant monitoring of the entire process is important to ensure that no product spillage can occur. As part of the bunkering service, fuel can also be blended in order to provide a specific mixture and quality of fuel required by the receiving vessel. Once, bunkering is complete, the hoses are detached and the bunkering vessel safely manoeuvres away from the receiving vessel. At all times during this process, both the bunkering and receiving vessels must ensure that all safety protocols are followed which include fire prevention and spill control.

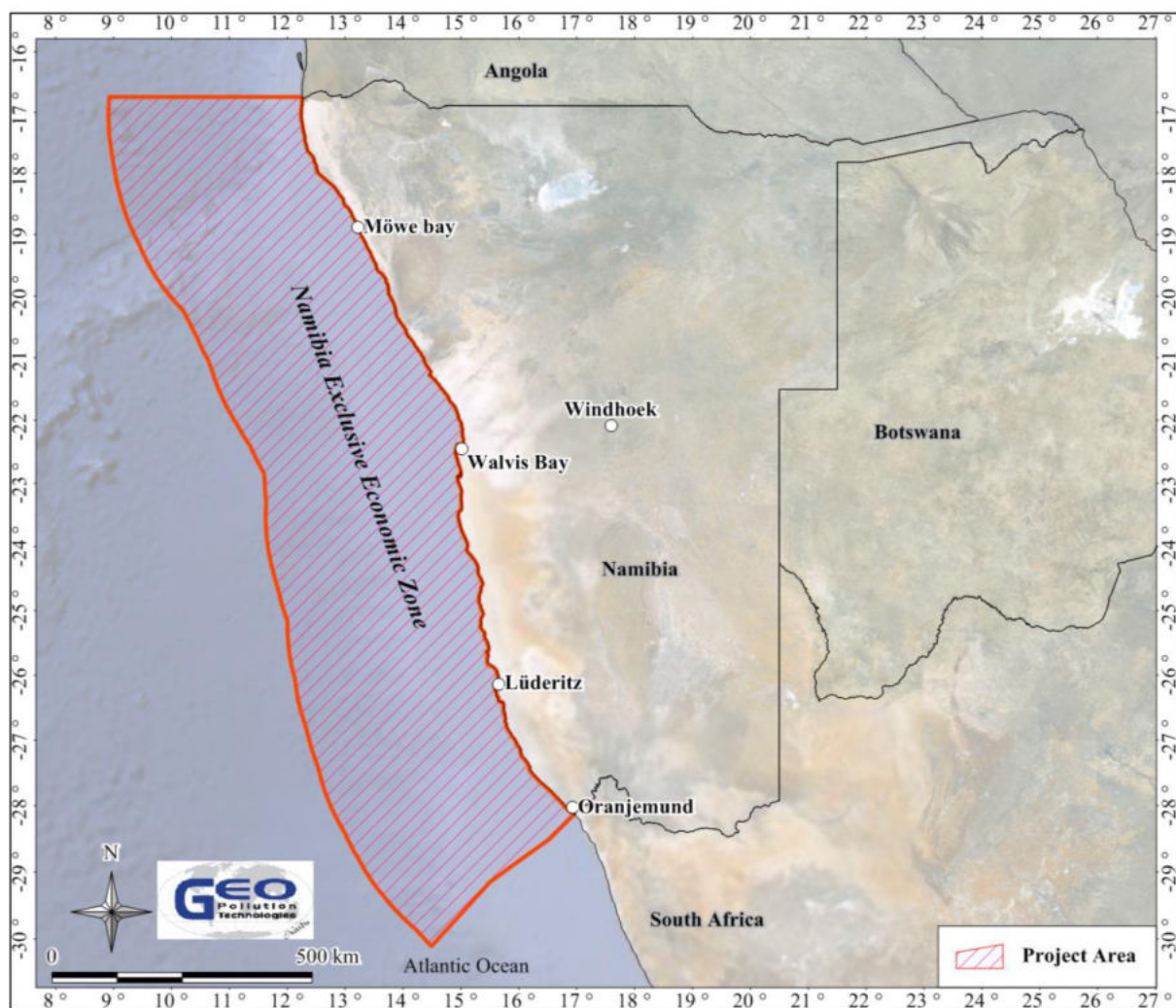


Figure 1-1 Namibia Exclusive Economic Zone – the area for fuel bunkering operations

2 OBJECTIVES OF THE EMP

An EMP is a tool used to take pro-active action by addressing potential problems before they occur. This should limit the corrective measures needed, although additional mitigation measures might be included if necessary. The management measures provided in the EMP should be adhered to during the various operational phases of the project. The EMP acts as a stand-alone document. All personnel taking part in operations should be made aware of the contents of the EMP, so as to plan the operations accordingly and in an environmentally sound manner.

The objectives of the EMP are:

- ◆ to include all components of operations of the project;
- ◆ to prescribe the best practical control methods to lessen the environmental impacts associated with the project;
- ◆ to monitor and audit the performance of operational personnel in applying such controls; and
- ◆ to ensure that appropriate environmental training is provided to responsible operational personnel.

3 THE IMPLEMENTATION OF THE EMP

Various potential and definite impacts will emanate from operations and decommissioning phases. The majority of these impacts can be mitigated or prevented. The impacts as well as prevention and mitigation measures are listed below. The general guidance and impact descriptions provided below is based on the findings of the initial EIA and risk assessment carried out by Geo Pollution Technologies (Botha et al., 2012). These phases included in the EMP are as follows:

- ◆ Planning Phase
- ◆ Operational Phase
- ◆ Decommissioning Phase

The EMP is a living document that must be prepared in detail, and regularly updated by the Proponent as the project progress and evolve. Impacts addressed and mitigation measures proposed are seen as minimum requirements which have to be elaborated on. Delegation of mitigation measures and reporting activities should be determined by the Proponent and included in the EMP.

All monitoring results must be reported on as indicated. Reporting is important for any future renewals of the ECC and must be submitted to the Ministry of Environment, Forestry and Tourism. Renewal of ECC will require bi-annual reports based on the monitoring prescribed in this EMP.

3.1 PLANNING

During the phases of planning for continued operations and decommissioning of the project, it is the responsibility of the Proponent to ensure they are and remain compliant with all legal requirements. The Proponent must also ensure that all required management measures are in place prior to and during all phases, to ensure potential impacts and risk are minimised. The following actions are recommended for the planning phase and should continue during various other phases of the project:

- ◆ Maintain a legal register for the project which includes relevant industry standards (e.g. petroleum and maritime standards of operation).
- ◆ Ensure that all necessary permits from the various ministries, local authorities and any other bodies that governs the project remain valid.
- ◆ Ensure all appointed contractors and employees enter into an agreement which includes the EMP. Ensure that the contents of the EMP are understood by the contractors, sub-contractors, employees and all personnel present or who will be present on site.
- ◆ Make provisions to have a Health, Safety and Environmental (HSE) Coordinator to implement the EMP and oversee occupational health and safety as well as general environmental related compliance at the site.
- ◆ Have the following emergency plans, equipment and personnel on site where reasonable to deal with all potential emergencies:
 - Risk management / mitigation / EMP/ Emergency Response Plan and HSE Manuals,
 - Adequate protection and indemnity insurance cover for incidents;
 - Comply with the provisions of all relevant safety standards;
 - Procedures, equipment and materials required for emergencies.
- ◆ If one has not already been established, establish and maintain a fund for future ecological restoration of the project site, should project activities cease and the site is decommissioned and environmental restoration or pollution remediation is required.
- ◆ Establish and / or maintain a reporting system to report on aspects of operations and decommissioning as outlined in the EMP.
- ◆ Submit bi-annual reports to the MEFT to allow for ECC renewal after three years. This is a requirement by MEFT.
- ◆ Appoint a specialist environmental consultant to update the EMP and apply for renewal of the ECC prior to expiry.

3.2 MANAGEMENT OF IMPACTS: OPERATIONS

The following section provide management measures for the operational phase as well as of the project.

3.2.1 Employment

An increase of skilled and professional labour has and will continue to take place due to the bunkering operations. Employment is sourced locally where possible while skilled labour/contractors may be sourced from other regions.

Desired outcome: Provision of employment.

Actions

Enhancement:

- ◆ The Proponent must employ local Namibians where possible.
- ◆ If the skills exist locally, employees must first be sourced from the town, then the region and then nationally.
- ◆ Deviations from this practice must be justified.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Bi-annual summary report based on employee records.

3.2.2 Revenue Generation and Economic Diversification

By ensuring continued and secure supply of fuel to marine traffic, operating in the EEZ of Namibia, sustainability and profitability of operations in the EEZ, is increased. Increased and sustainable economic activities in the EEZ contributes to GDP through various channels. The availability and ease of access of the fuel contributes to the marketability of shipping in Namibia. Operations also support and contribute to the sustainability of Namibian vessels operating in the EEZ, in the fishing, mining or shipping industries. The provision of services which are classified as taxable supplies, contributes directly to Namibia.

Desired outcome: Contribution to national treasury and general economic development.

Actions

Enhancement:

- ◆ Adhere to various legislative requirements pertaining to payment wages, taxes, levies, etc. Fair and consistent business practices will ensure an overall positive boost to the economy.
- ◆ Quick and effective response to all and any form of oil spillage will ensure the ocean is not polluted to levels that negatively affect the marine ecosystem, which is depended upon by various commercial industries.
- ◆ Refer to section 3.2.8.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Namibian legislation

3.2.3 Bunkering Services

The operations of the Proponent will aid in securing fuel supply to marine traffic operating within the EEZ of Namibia. Continued and secure fuel supply supports petroleum, mining, fishing and similar vessels that do not make regular calls to a port.

Desired Outcome: Ensure a secure and reliable supply of fuel remains available for seafaring traffic.

Actions

Mitigation:

- ◆ Ensure compliance to the petroleum regulations of Namibia as well as all marine related standards of operation related to petroleum.
- ◆ Proper fuel management to ensure constant supply.
- ◆ Record supply problems and take corrective actions.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Record supply problems and corrective actions taken.

3.2.4 Health, Safety and Security

Various activities associated with the operational phase is reliant on human labour and therefore exposes workers to health and safety risks. Activities such as the operation of machinery and handling of hazardous chemicals (inhalation and carcinogenic effect of some petroleum products), poses the main risks to employees. Working at sea increases potential risks to employees which may be realised during rough sea conditions, etc. Security risks are related to unauthorized access, theft and sabotage.

Desired Outcome: To prevent injury, health impacts and theft.

Actions

Prevention:

- ◆ All Health and Safety standards specified in the Labour Act and various maritime procedures and protocols should be complied with.
- ◆ Clearly label dangerous and restricted areas as well as dangerous equipment and products.
- ◆ Ensure material safety data sheets for all related materials are kept on board.
- ◆ Provide all employees with required and adequate personal protective equipment (PPE).
- ◆ Ensure that all personnel receive adequate training on operation of equipment / handling of hazardous substances.
- ◆ Implementation of maintenance register for all equipment.
- ◆ Strict corporate housekeeping as well as active monitoring and screening of the vessels.

Mitigation:

- ◆ Selected personnel should be trained in first aid and first aid kits must be available. The contact details of all emergency services and related protocol must be readily available for sea rescue for in the event of serious injury.
- ◆ Implement and maintain an integrated health and safety management system, to act as a monitoring and mitigating tool.
- ◆ Security procedures and proper security measures must be in place to protect workers.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Labour Act and relevant maritime procedures and protocols.
- ◆ Audit results (Health and Safety ISO certificates)
- ◆ Any incidents must be recorded with action taken to prevent future occurrences.
- ◆ A bi-annual report should be compiled of all incidents reported. The report should contain dates when training were conducted and when safety equipment and structures were inspected and maintained.

3.2.5 Fire

Hydrocarbons are volatile under certain conditions and their vapours in specific concentrations are flammable. The primary causes of such accidents may include human error, technical failures and inadequate maintenance. If precautions are not taken to prevent their ignition, fires and subsequent safety risks may become more probable.

Desired Outcome: To prevent property damage, possible injury and impacts caused by uncontrolled fires.

Actions:

Prevention:

- ◆ A holistic fire protection and prevention plan must be in use and regularly revised. This plan must include an emergency response plan, firefighting plan and spill recovery plan.
- ◆ All personnel has to be educated on responsible fire prevention measures.
- ◆ Fire-fighting training to be provided to staff.
- ◆ Regular inspections must be carried out to inspect and test fire-fighting equipment.
- ◆ Firefighting equipment must be readily accessible in all operational areas.
- ◆ Fire prevention considerations specifically applicable to engine rooms include fire doors, fire pumps, and emergency fuel-flow stopping devices.
- ◆ Various international occupational health and safety performances should be consulted for specific regulations. The latest version of the Emergency Response Guidebook, material safety data sheets (MSDS) for the various products stored or used on board the vessel, and various petroleum and shipping related procedures and protocols should be consulted.

Mitigation:

- ◆ In case of a fire, the firefighting plan must be initiated immediately and all emergency procedures must be performed as practiced during training.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Emergency Response Guidebook, material safety data sheets (MSDS) for the various products stored or used on board the vessel, and various petroleum and shipping related procedures and protocols.
- ◆ A register of all incidents must be maintained. This should include measures taken to ensure that such incidents do not repeat themselves.
- ◆ A bi-annual report should be compiled of all incidents reported. The report should contain dates when fire drills were conducted and when fire equipment was tested and training given.

3.2.6 Air Quality

In terms of air quality, hydrocarbon vapours will normally be released during delivery of bunker fuel to tanks, as liquid displaces the gaseous mixture in the tanks. This will be released through vent pipes on the tanks. The air quality impact will be limited to the bunkering vessel and the receiving vessel. Prolonged exposure of workers to such vapours may have carcinogenic effects.

Desired Outcome: To prevent health impacts related to fuel vapours

Actions

Prevention:

- ◆ Vent pipes must be placed in such a manner as to prevent impact on potential receptors. These include ignitions sources and confined spaces where normally frequented by workers.

Mitigation:

- ◆ Employees should be coached on the dangers of fuel vapours.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Any complaints received from workers regarding dust or fuel vapours should be recorded with notes on action taken.
- ◆ All information and reporting to be included in a bi-annual report.

3.2.7 Waste production

Activities on board the bunker barge will create various types of waste. These include oils and greases from maintenance activities, sewerage, kitchen waste from the galleys and plastics and paper from packaging and administration activities. Waste entering the ocean (accidentally or purposefully discarded) can remain there for long periods of time or come ashore and litter the beaches. Waste may include hazardous waste associated with the handling of hydrocarbon products and used products (such as old oil, chemicals) etc.

Desired Outcome: To reduce the amount of waste produced, and prevent pollution and littering.

Actions

Prevention:

- ◆ Adhere to International Convention for the Prevention of Pollution from Ships (Marpol) requirements related to waste and sewerage handling and or discharge.
- ◆ Waste reduction measures should be implemented and all waste that can be re-used / recycled must be kept separate.
- ◆ Ensure adequate temporary waste storage facilities are available.
- ◆ Ensure waste cannot be blown away by wind.
- ◆ Biodegradable sewerage waste may be dumped in the ocean according to accepted maritime standards. The sewage waste discharge from the ship is regulated under MARPOL Annex IV. The regulation states that: – Every ship of 400 GT and above which is engaged in international voyages, and carrying minimum 15 persons onboard must be equipped with either a sewage holding tank of appropriate capacity or an approved sewage Treatment Plant (STP) or both. The sewage discharge from the ship is allowed if it has an approved sewage treatment plant, which can treat the raw sewage and discharge comminuted and disinfected sewage. With this arrangement, the discharge is allowed at a distance of more than 3 nautical miles from the nearest land when the ship is proceeding with a speed of 4 knots and above.
- ◆ The support vessel that supplies crew changes should be used to remove all other forms of waste which when brought to land can be dumped at the local landfill.

Mitigation:

- ◆ Employ and maintain spill control measures for accidental hydrocarbon pollution according to industry requirements.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ National Marine Pollution Contingency Plan and relevant maritime procedures (e.g. MARPOL).
- ◆ A register of hazardous waste disposal should be kept. This should include type of waste, volume as well as disposal method/facility.
- ◆ Any complaints received regarding waste should be recorded with notes on action taken.
- ◆ Spill control structure should be regularly inspected.
- ◆ All information and reporting to be included in a bi-annual report.

3.2.8 Ship Traffic and Collision

The Proponent operates along the west coast of Africa and mainly within the Namibian EEZ. Collisions between the Proponent's vessel and other vessels in the area may occur.

Desired Outcome: To prevent collisions between vessels operating in the area.

Actions

Prevention:

- ◆ Appoint only suitably qualified and experienced personnel versed in the details of, among others, the Convention on the International Regulations for Preventing Collisions at Sea (COLREGs).
- ◆ Ensure all safety and communications equipment on the vessel, regularly inspected and maintained to be in a working order at all times. And that relevant crew are trained in the use of the equipment, including emergency equipment and procedures when normal systems fail.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ COLREGs and other industry standards and regulations.

3.2.9 Surface Water Contamination and Related Ecological Impacts

Accidental spillages might occur during. Failure of pipes and hoses can result in hydrocarbon spills. Hydrocarbons can affect plants and animals in the marine ecosystem. Especially the heavier fuel oils settles on beaches and can affect birds and other organisms. It also settles on ocean floors and can impact on benthic (bottom dwelling) organisms. Oil impacts algae, disrupts major food chains and decreases the yield of edible crustaceans. It also coats birds impairing their flight or reducing the insulating property of their feathers, thus making the birds more vulnerable to cold. Oil endangers fish hatcheries in coastal waters and contaminates the flesh of commercially valuable fish within the EEZ. Oil spills can harm marine mammals such as seals, whales and dolphins.

Desired Outcome: To prevent the contamination of the marine environment.

Actions

Prevention:

- ◆ Develop an emergency response plan for any accidental spill and ensure contact details of all emergency response teams and the Directorate of Maritime Affairs are readily available.
- ◆ Risk of impact from this can be lowered through proper training of staff.
- ◆ Tanks must be fitted with alarms to warn on the level reaching a predetermined level to prevent overfilling.
- ◆ Agreed quantities and pumping rates for bunker fuel transfer to the vessels must be confirmed and communicated properly, to eliminate spillage. Tanks must be inspected before the transfer of fuel commences.
- ◆ Fuel transfer may only be initiated when environmental conditions (e.g. Wind speed and wave heights) are within parameters that allows the safe transfer of fuel to minimise risks of spills.
- ◆ Pipes, hoses must be thoroughly inspected before starting with bunker fuel supply activities.
- ◆ Since accidental spills are always possible, recovery vessels, oil fences, and treatment chemicals must be prepared with a view to minimizing dispersal and spills on the surface of the sea.
- ◆ Attempts to mitigate the human error factor would include the engineering of specific technologies that will work even in the event of human error.
- ◆ Impact on the coastal areas can be mitigated through operating preferably more than 20 km off land, so as to reduce the risk of oil being washed onto beaches.
- ◆ The Ministry of Work and, Transport, Directorate of Maritime Affairs, has been designated as the national responsible authority with regard to Oil Spill preparedness, response and cooperation for the Republic of Namibia. The National Marine Pollution Contingency Plan provides a framework for national response to an oil spill. The Plan involves a command structure under which the National Response Team would rapidly respond to any incident with appropriate mechanisms of mobilizing resources in the event of a spill, and even international resources in the event of a major oil spill. This plan is guided by international norms and practices. The plan outlines the responsibilities for initiating and coordinating the necessary actions to affect protection and clean-up operations.
- ◆ Fuel transfers may not be conducted near any of Namibia's islands and within the Namibian Islands' Marine Protected Area (NIMPA). Until such time as the NIMPA regulations may outline regulations on where bunkering may occur with respect to the NIMPA, the guidelines as proposed in the 2012 EIA (Botha & Hooks 2012) must be followed. These are: Figure 3-1 below shows a map of the whole coast with details of MPAs and suggested zones for controlled fuelling. See the coordinates for the limits of the buffer around the NIMPA in Table 3-1. The following points give a brief description for the map:
 - A 100 km buffer around the islands, isles and rocks in the NIMPA should not be used for bunkering operations.

- From Conception Bay to Just North of Cape Cross a controlled bunker fuelling buffer zone of 40 km as per the [previous] National Oil Spill Contingency Plan is advised. The greatest risk is during extreme weather conditions (i.e. northwest winds causing southward moving surface current).
- Whenever the wind direction is towards the land, fuelling should be conducted more than 40 km away from the shoreline.
- Fuelling along the coastline inside the controlled bunkering zone more than 100 km south of the NIMPA should take place only with special permission from the Directorate of Maritime Affairs.
- Extra care should be taken whenever fuelling south of Cape Cross and especially so when fuelling closer to the NIMPA areas, when extreme wind conditions prevail or are predicted.
- Any fuelling within these controlled bunkering zones must have special permission from the Directorate of Maritime Affairs. Onshore wind conditions and rough seas will indicate to the Master of the vessel that no fuelling be carried out even if special permission was granted to fuel closer to the coast. It is important to note that special permission to fuel closer to the coast should not be given for the coastline where the NIMPA exist.

Mitigation:

- ◆ Initiate the emergency response plan without delay.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ National Marine Pollution Contingency Plan, MSDS and related maritime standards.
- ◆ Report all spills, no matter how small, to the Directorate of Maritime Affairs and other relevant authorities.
- ◆ A report should be compiled bi-annually of all spills or leakages reported. The report should contain the following information: date and duration of spill, product spilled, volume of spill, remedial action taken, and a copy of documentation in which spill was reported.

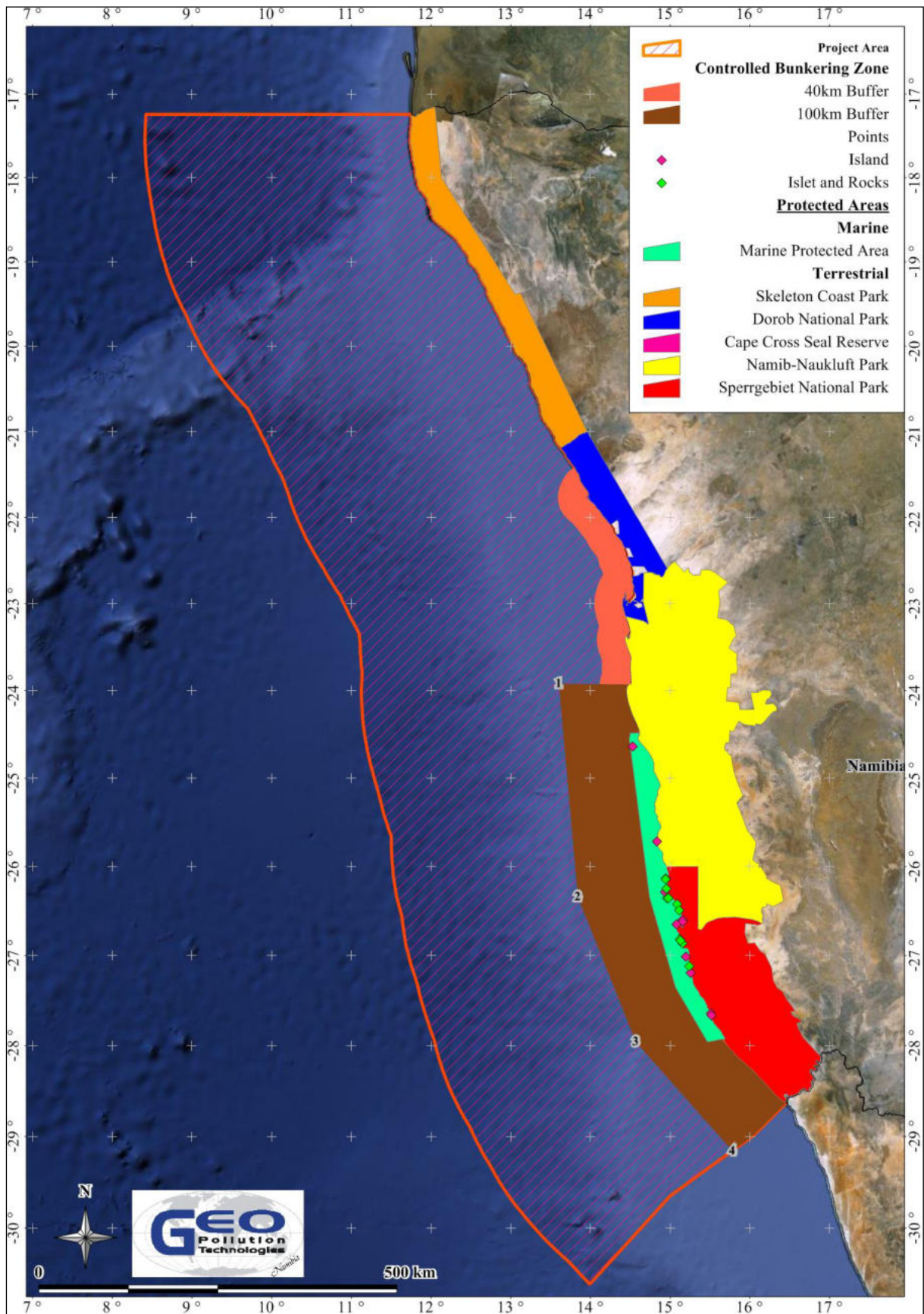


Figure 3-1 Map showing controlled fuel bunkering zones

Table 3-1 The coordinates for the suggested western limits of the controlled fuelling around the Namibian Island Marine Protected Areas (NIMPA)

Map #	Latitude	Longitude
1	23°55'21" S	13°36'13" E
2	26°20'32" S	13°50'31" E
3	27°57'34" S	14°34'11" E
4	29°09'40" S	15°46'55" E

3.3 DECOMMISSIONING

Decommissioning is not foreseen during the validity of the ECC. Decommissioning will entail ceasing operations. The vessel may then be sold or scrapped. The EMP should be updated at such time to provide the appropriate environmental management actions for the proposed decommissioning activity. Throughout operations the Proponent must ensure that appropriate provision is made to ultimately be able to adhere to the Labour Act's Regulations pertaining to employees who may then no longer be employed.

3.4 ENVIRONMENTAL MANAGEMENT SYSTEM

The proponent could implement an Environmental Management System (EMS) for their operations. An EMS is an internationally recognized and certified management system that will ensure ongoing incorporation of environmental constraints. At the heart of an EMS is the concept of continual improvement of environmental performance with resulting increases in operational efficiency, financial savings and reduction in environmental, health and safety risks. An effective EMS would need to include the following elements:

- ◆ A stated environmental policy which sets the desired level of environmental performance;
- ◆ An environmental legal register;
- ◆ An institutional structure which sets out the responsibility, authority, lines of communication and resources needed to implement the EMS;
- ◆ Identification of environmental, safety and health training needs;
- ◆ An environmental program(s) stipulating environmental objectives and targets to be met, and work instructions and controls to be applied in order to achieve compliance with the environmental policy; and
- ◆ Periodic (internal and external) audits and reviews of environmental performance and the effectiveness of the EMS.
- ◆ The EMP

4 CONCLUSION

The above updated EMP, if properly implemented will help to continually minimise adverse impacts on the environment. Where impacts occur, immediate action must be taken to reduce the escalation of effects associated with these impacts. To ensure the relevance of this document to the specific stage of project, it needs to be reviewed throughout all phases.

The EMP should continue to be used as an on-site reference document during all phases of the proposed project, and auditing should take place in order to determine compliance with the EMP for the proposed site. Parties responsible for transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken.

Monitoring reports must be submitted to the Ministry of Environment, Forestry and Tourism every six months to allow for the future renewal of the ECC.

5 REFERENCES

Botha P, Hooks P. 2012. Environmental Impact Assessment for a Proposed Bunker Fuel Mixing, Storage and Dispensing Facility Operation in the Namibian Exclusive Economic Zone