



**PROPOSED NEW WAREHOUSE FOR BULK HANDLING OF  
COPPER CONCENTRATE ON THE SITE OF WALVIS BAY CARGO  
TERMINAL IN THE PORT OF WALVIS BAY**

**ENVIRONMENTAL MANAGEMENT PLAN**

**Prepared for: Walvis Bay Cargo Terminal (Pty) Ltd**

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## DOCUMENT CONTROL

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## ACRONYMS AND ABBREVIATIONS

Below a list of acronyms and abbreviations used in this report.

<b>Acronyms / Abbreviations</b>	<b>Definition</b>
DEA	Department of Environmental Affairs
EAP	Environmental Assessment Practitioner
EAPAN	Environmental Assessment Professionals Association of Namibia
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
MEFT	Ministry of Environment, Forestry and Tourism
MMP	Management and Mitigation Plan
WBCT	Walvis Bay Caro Terminal (Pty) Ltd

## ENVIRONMENTAL MANAGEMENT PLAN FOR THE PROPOSED NEW WAREHOUSE FOR BULK HANDLING OF COPPER CONCENTRATE ON THE SITE OF WALVIS BAY CARGO TERMINAL IN THE PORT OF WALVIS BAY

### 1 INTRODUCTION

#### 1.1 BACKGROUND AND PROJECT OVERVIEW

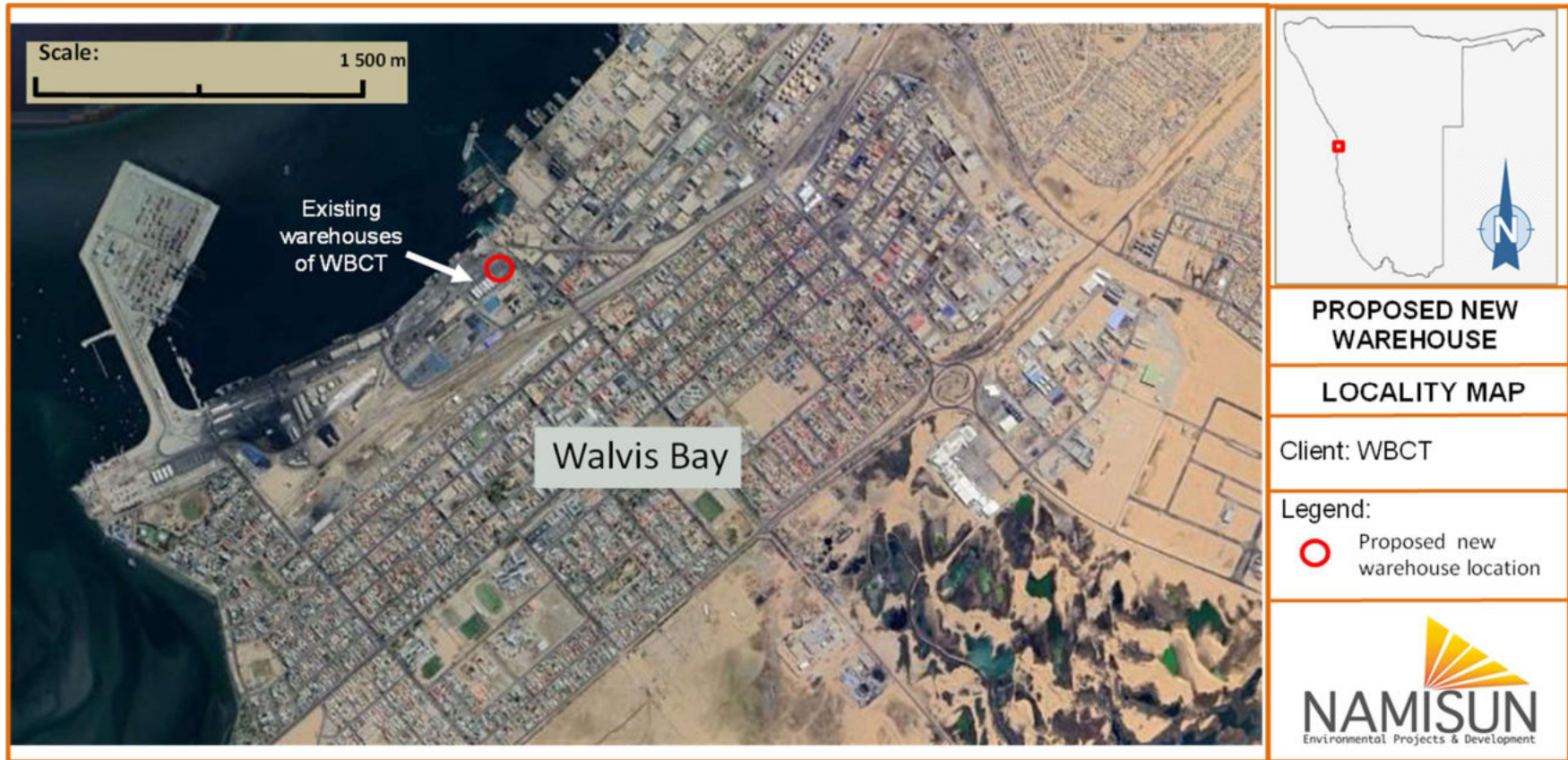
Walvis Bay Cargo Terminal (Pty) Ltd (WBCT) is a company that specializes in logistics and warehousing and currently has 25,000 m<sup>2</sup> of warehousing space within the port of Walvis Bay. The port is managed by the Namibian Ports Authority (Namport). The site of WBCT is close to the northern entrance of the port and opposite Etosha Fishing (see Figure 1). WBCT receives cargo, which is offloaded and stored in one of seven rubbhall facilities. No debagging or repacking takes place. On despatch the cargo is packed into containers in the same form as it was received into the warehouse, for export through the port of Walvis Bay when vessels are available. The commodities handled are copper and cobalt hydroxide.

WBCT proposes to construct a new warehouse, adjacent to their existing warehouses (see Figure 2). The new warehouse will be used for bulk handling and storage of copper concentrate. The new proposed warehouse is planned as a new business venture of WBCT, to accommodate the bulk handling and storage of copper concentrate from Zambia for export through the port of Walvis Bay.

The proposed new warehouse will cover a surface area of <4,000 m<sup>2</sup> with a maximum height of <10 m. The pavers that cover the area where the warehouse is planned will be replaced with a 150 mm thick concrete-sealed surface to make the floor more stable for the use of heavy vehicles and equipment and to eliminate the possibility of seepage.

The anticipated period of construction is five months, which will only commence when all required compliances are in place and when the final approval is given by Namport in the form of a construction permit.

The expected construction activities include trenching of the foundations, reinforcing, concrete mixing and pouring, bricklaying, welding and metal works, use of cranes and scaffolding, placement of the roof structure and roof and painting. Construction vehicles and equipment will be used during the construction of the warehouse. All components for the construction of the warehouse will be delivered and offloaded onsite and all construction activities are planned to take place onsite. Only one contractor will be appointed to do the proposed construction.



**FIGURE 1: LOCATION OF THE PROPOSED NEW WAREHOUSE ON THE WBCT SITE IN THE PORT OF WALVIS BAY**



**FIGURE 2: PROPOSED POSITIONING OF THE NEW WAREHOUSE ON THE SITE OF WBCT**



The proposed new warehouse will be used for the bulk handling and storage of copper concentrate only. No blending of product will take place. Bagged copper concentrate will be received on flat-bed trucks from Zambia. Less than 70 truckloads per week is expected. Inside the warehouse the trucks will be offloaded, the bags will be opened, and the content stockpiled in bulk by a payloader. No stacking of bags will take place.

Once a vessel arrives in the port, the stockpiled concentrate will be reloaded by the payloader into skips mounted on trucks (inside the warehouse), which will be transported to the quayside where the skips will be hoisted by crane and decanted into the ship's cargo hold.

Water and electricity use during construction and afterwards will be provided from the existing facilities of WBCT.

Refuelling of construction vehicles and equipment onsite from a mobile diesel bowser is possible during the construction phase. For the refilling of equipment onsite a total volume of <4,000L of diesel is kept onsite in an aboveground tank with bunding.

Some construction and non-hazardous waste (e.g., building rubble) and domestic waste (such as plastic bags, tins, bottles, paper, and packaging waste) will be generated during construction. Waste generated during the operational phase will not be different than the types of waste that are generated currently. Generation of hazardous waste is not foreseen, neither during construction nor during the operational phase.

It is expected that not more than ten people will be employed by the contractor during construction and that not more than six employees will be newly appointed by WBCT.

Namisun Environmental Projects and Development (Namisun) has been appointed by WBCT as the independent Environmental Assessment Practitioner to undertake and manage the Environmental Impact Assessment (EIA) process for the proposed new warehouse and the associated activities.

This Environmental Management Plan (EMP) documents a series of individual management plans which are designed to meet legal requirements, aligned to the existing EMP for the port of Walvis Bay, and avoid or minimise the impacts associated with the construction and operation of WBCT's proposed new warehouse.

The management plans have been compiled based on a review of the findings and recommendations of the EIA report for the proposed new warehouse.

## 1.2 AIM OF THIS DOCUMENT

The aim of the EMP is to detail the actions required to effectively implement management and mitigation measures. These actions are required to minimise negative impacts and enhance positive impacts associated with the proposed new warehouse of WBCT and the associated handling of copper concentrate.

The EMP also gives the environmental commitments, which will be implemented by WBCT.

## 1.3 KEEPING THE EMP UP TO DATE

It is the intention that this EMP should be seen as a “living document” which will be amended during the operation (where relevant) as new information (e.g.: environmental data), policies, authority guidelines, technologies and as the activities might change, or new ones be introduced.

WBCT will conduct periodic reviews of the EMP, should circumstances change.

Should further listed activity(s) as defined in the EIA-regulations associated with the Environmental Management Act, No. 7 of 2007 be triggered because of future modifications / changes, this EMP will be required to be updated through another EIA process as stipulated in the Act and its regulations.

## 1.4 DETAILS OF THE PERSONS WHO PREPARED THIS EMP

Namisun (a Namibia-based, independent environmental consultancy firm) was appointed by WBCT to undertake and manage the EIA process and environmental clearance applications. Namisun also compiled this EMP.

Dr Pierré Smit, the project manager, holds a PhD in Landscape Ecology and has more than twenty-seven years of experience in environmental management, managing environmental assessment, the implementation of EMPs and Environmental Management Systems (EMSs) in Namibia.

Werner Petrick, the project reviewer, has more than twenty-three years of relevant experience in conducting / managing EIAs, compiling EMPs and implementing EMPs and Environmental Management Systems (EMSs). Werner has a B. Eng (Civil) degree and a master's degree in environmental management and is certified as lead environmental assessment practitioner (EAP) and reviewer under the Environmental Assessment Professionals Association of Namibia (EAPAN).

## 2 SCOPE OF THE EMP

The components of the EMP, in accordance with the requirements stipulated in the EIA-regulations, are presented in Table 1.

**TABLE 1: CONTENT OF THE EMP**

EIA REGULATION REQUIREMENT	REFERENCE IN THE EMP
Details of the persons who prepared the EMP and the expertise of those persons to prepare an environmental management plan.	Section 1.4
Project overview	Section 1.1
Overall environmental objectives	Chapter 5
Information on any proposed management or mitigation measures to address the environmental impacts that have been identified in a report contemplated by these regulations, including environmental impacts or objectives in respect of – i. Planning and design. ii. Construction activities. iii. Operation or undertaking of the activity. iv. Rehabilitation of the environment. v. Closure, where relevant.	Chapters 6 and 7
A description of the aspects of the activity that are covered by the EMP.	Section 4.1
An identification of the persons to be responsible for the implementation of the mitigation measures.	Section 6.1
Where appropriate, time frames within which the measures contemplated in the EMP must be implemented.	Chapter 7
Proposed mechanisms for monitoring compliance with the EMP and reporting on it.	Section 6.2 – 6.4

### 3 LEGAL REQUIREMENTS

A summary of the applicable legislation can be found in Section 3 in the main EIA Scoping (including an impact assessment) Report.

A summary of the relevant certificates and permits required by WBCT is provided in this chapter.

#### 3.1 ENVIRONMENTAL CLEARANCE CERTIFICATE

As stipulated in the EIA-regulations associated with the Environmental Management Act, No.7 of 2007, an Environmental Clearance Certificate (ECC) needs to be obtained from the Department of Environmental Affairs (DEA) within the Ministry of Environment, Forestry and Tourism (MEFT) prior to the commencement of the project. An EIA Scoping (including an impact assessment) Report and EMP are required as part of the application for clearance, and to support the decision-making process.

If approved, an ECC will be issued for the proposed project and the proponent will be held responsible for the implementation and management of the EMP. An ECC is valid for three years and may be renewed. Application for renewal must be lodged prior to the expiry date of the ECC.

#### 3.2 OTHER PERMITS

Namport will issue an authorisation in the form of a construction permit – on condition that WBCT complies with all legal requirements. This implies that an ECC must be in place.

No other specific environmental permits are foreseen for the proposed new warehouse.

## 4 ENVIRONMENTAL ASPECT AND IMPACT IDENTIFICATION

Understanding the biophysical and human environment in which the proposed project is located, is the first step to understanding the relevant impacts. The next and possibly more important step is to identify the environmental aspects that give rise to the impacts. For example, a single construction activity has more than one environmental aspect associated with it: namely, noise, dust generation and waste generation. All these aspects have the potential to cause impacts on the environment (or third parties) in a different way. Successful management will be gauged by how well WBCT avoids, minimises, or mitigates all the impacts associated with each environmental aspect.

### 4.1 ENVIRONMENTAL ASPECTS AND IMPACTS

As part of the EIA processes for the proposed new warehouse, environmental aspects and potential environmental impacts associated with the activities and facilities were identified – see Table 9 and 10 in Chapter 7 of the EIA Scoping (including an impact assessment) Report.

Table 2 in this document, the EMP, provides a summary of the environmental aspects that are associated with the proposed new warehouse and how they impact the biophysical and human environments, respectively.

**TABLE 2: DESCRIPTION OF ENVIRONMENTAL ASPECTS AND POTENTIAL IMPACTS**

Aspect	Potential Impact	Relevant MMP
<b>Site preparation and construction phase</b>		
Soil	<ul style="list-style-type: none"> <li>Potential contamination from waste and accidental spills and leaks of hazardous substances and hydrocarbons</li> </ul>	Soil MMP (see Section 7.1) and Hazardous Substance MMP (see Section 7.3)
Surface water and groundwater	<ul style="list-style-type: none"> <li>Potential contamination of groundwater and surface water from waste and accidental spills and leaks of hazardous substances and hydrocarbons</li> <li>Disturbances and interference with flow patterns can enhance damming, diverting or water erosion</li> </ul>	Surface and Groundwater MMP (see Section 7.2) and Hazardous Substance MMP (see Section 7.3)
Noise	<ul style="list-style-type: none"> <li>Increase of noise levels from construction activities causing disturbance to third parties (nearby receptors).</li> </ul>	Noise MMP (see Section 7.4)
Air quality	<ul style="list-style-type: none"> <li>Dust and airborne emissions from construction activities causing impacts to air quality and causing disturbance / contamination of</li> </ul>	Dust MMP (see Section 7.5)

Aspect	Potential Impact	Relevant MMP
	product to nearby receptors (third parties).	
Waste	<ul style="list-style-type: none"> <li>• Pollution of soil and water</li> <li>• General degradation and nuisance impacts</li> </ul>	Waste MMP (see Section 7.6 and Hazardous Substance MMP (see Section 7.3)
Socio-economic conditions	<ul style="list-style-type: none"> <li>• Job creation and skills development</li> <li>• Investment and expenditure benefits to the local economy (spendable income, local procurement, and taxes)</li> </ul>	Socio-economic MMP (see Section 7.7)
<b>Operational phase</b>		
Traffic	<ul style="list-style-type: none"> <li>• Potential congestion in the port area from receiving and transporting (between the warehouse and the quayside and back).</li> </ul>	Traffic MMP (see Section 7.8)
Noise	<ul style="list-style-type: none"> <li>• Increase of noise levels from receiving, debagging, stockpiling and reloading, transporting (between the warehouse and the quayside and back) and decanting causing disturbance to third parties (nearby receptors).</li> </ul>	Noise MMP (see Section 7.4)
Air quality	<ul style="list-style-type: none"> <li>• Dust and airborne emissions from debagging, stockpiling and reloading, transporting (between the warehouse and the quayside and back) and decanting causing impacts to air quality and causing disturbance to nearby receptors (third parties).</li> </ul>	Dust MMP (see Section 7.5)
Waste	<ul style="list-style-type: none"> <li>• Pollution of soil and water</li> <li>• General degradation and nuisance impacts</li> </ul>	Waste MMP (see Section 7.6) and Hazardous Substance MMP (see Section 7.3)
Soil	<ul style="list-style-type: none"> <li>• Potential contamination because of pollution from accidental spills and leaks of hazardous substances (copper concentrate) and hydrocarbons from receiving and transporting (between the warehouse and the quayside and back)</li> </ul>	Soil MMP (see Section 7.1) and Hazardous Substance MMP (see Section 7.3)
Surface water and groundwater	<ul style="list-style-type: none"> <li>• Potential contamination of groundwater and surface water resulting from accidental spills and leaks of hazardous substances (copper concentrate) and hydrocarbons from receiving and transporting (between the</li> </ul>	Surface and Groundwater MMP (see Section 7.2) and Hazardous Substance MMP (see Section 7.3)

Aspect	Potential Impact	Relevant MMP
	warehouse and the quayside and back)	
Seawater	<ul style="list-style-type: none"> <li>• Potential contamination from spillages of hazardous substance (copper concentrate) from decanting and impacts to the marine environment.</li> </ul>	Hazardous Substance MMP (see Section 7.3)
Socio-economic conditions	<ul style="list-style-type: none"> <li>• Job creation and skills development</li> <li>• Investment and expenditure benefits to the local economy (spendable income, local procurement, and taxes)</li> <li>• Economic growth – increased export volumes through the port of Walvis Bay</li> <li>• Economic growth – potential pollution of other products in the port area</li> </ul>	Socio-economic MMP (see Section 7.7) and Dust MMP (see Section 7.5).
<b>Decommissioning phase</b>		
Waste	<ul style="list-style-type: none"> <li>• Pollution of soil and water</li> <li>• General degradation and nuisance impacts</li> </ul>	Waste MMP (see Section 7.6) and Hazardous Substance MMP (see Section 7.3)

#### 4.2 COMPLIANCE AND ALIGNMENT REQUIREMENTS

For the proposed new warehouse WBCT will comply with the existing EMP for the port of Walvis Bay, which is managed by Namport. Accordingly, this EMP is aligned to the existing EMS of Namport. In this way a robust mechanism is provided for the implementation of the EMS and, most importantly, it will ensure that the environmental management function is always reviewed in a spirit of continual improvement.

Even though this EMP was prepared specifically for the proposed new warehouse for the handling and storage of copper concentrate, it will form the basis of the 'general' environmental management of WBCT's site and all the associated procedures, work instructions, etc. will be developed taking cognizance of the relevant commitments in this EMP.

As part of environmental management, WBCT will roll out the Management and Mitigation Plans (MMPs) in this EMP and develop work instructions / procedures to ensure the objectives provided in this EMP are achieved and commitments are implemented. Further responsibilities and target dates for implementing relevant commitments will therefore be included in the work instructions / procedures and other relevant documents.

## 5 OVERALL ENVIRONMENTAL OBJECTIVES

The following overall environmental objectives have been set for the proposed activities associated with the proposed new warehouse, to be implemented by WBCT:

- Ensure compliance to this EMP, the existing EMP for the port of Walvis Bay and other relevant conditions or approvals (ECC and other relevant permits) and all national legislation and standards for the protection of the environment.
- Keep key stakeholders informed about the project's activities, where relevant.
- Promote ongoing environmental awareness.
- Apply the precautionary principle throughout by enforcing responsibility – by supporting and training of all employees and service providers to ensure that all the employees and contractors adhere to the relevant management commitments.
- Incorporate the relevant requirements stipulated in this EMP into the designs and contracts as well as work instructions, procedures and other relevant documents.
- No unauthorized access is allowed. During construction:
  - Any person entering the construction site will only be allowed after formal induction.
  - Warning signs will be erected to warn third parties of dangers.
- Without infringing on the rights of workers, manage their movements and set rules for behaviour, with special emphasis placed on preventing transgression and punishment of transgressors.
- Pollution will be prevented through basic infrastructure design and through maintenance of equipment.
- Clean up in case of incidents, through appropriate measures.
- Ensure the legal and appropriate management and disposal of general and hazardous waste, through the implementation of a strategy for the minimisation, recycling (where possible), management, temporary storage and removal of waste.
- Develop, implement and manage monitoring systems as required to ensure good environmental performance and reporting.
- In the case of incidents, the General Manager should be informed, and the necessary action taken (including the reporting of incidents to Namport and the implied authorities).



## **6 GENERAL MANAGEMENT REQUIREMENTS**

The following sections list the general management requirements that are relevant to the activities of the proposed new warehouse.

### **6.1 PARTIES RESPONSIBLE FOR THE IMPLEMENTATION OF THE EMP**

This section describes the roles and responsibilities for implementing the various management plans.

#### **6.1.1 GENERAL MANAGER**

The General Manager of WBCT shall ensure compliance to this EMP. The EMP will be part of the contract with all contractors working on the project.

It is also the duty of the General Manager to ensure that appropriate environmental risk assessments are conducted and that an environmental risk management plan is developed and implemented, that an adequate protection and indemnity insurance cover for incidents exists, and that an Emergency Response Plan (including emergency response plans for firefighting) is developed and implemented in conjunction with Namport's Emergency Response Plan. The General Manager is also responsible for the development and implementation of procedures and protocols required for emergencies, inclusive of firefighting and oil spill contingency plans, in conjunction with Namport.

#### **6.1.2 CONSTRUCTION SUPERVISOR**

The Construction Supervisor has overall responsibility for environmental management during the construction phase for ensuring this EMP is implemented. To assist the Construction Supervisor, it is recommended to appoint a dedicated person responsible for environmental management activities onsite who will be dedicated to managing and monitoring the environmental issues associated with the construction activities.

The Construction Supervisor must ensure that contractors adhere to the conditions of the EMP, the ECC and other relevant permits.

Contract documents should consider the inclusion of penalties for non-conformance to the EMP, or to link the sign-off of the contract to a retainer clause.

The Construction Supervisor shall be responsible for responding to any actual environmental emergencies / incidences that occur, as specified in procedures and protocols.

The Construction Supervisor shall also ensure that sufficient financial and human resources are available to implement emergency procedures, and to take corrective action pro-actively when environmental risks are evident in advance.

The Construction Supervisor will be responsible for the following aspects related to compliance of this EMP:

- Regular inspections and auditing compliance to this EMP and any other relevant legal requirements e.g., permits and authorisations.
- Ensure that environmental awareness training is conducted during induction training and on an ad hoc basis thereafter.
- Ensure compliance to this EMP and permits and authorisations issued to WBCT by relevant authorities.
- Submit required information to relevant authorities such as reporting on compliance with the EMP, permit and relevant authorisations.
- Liaise with the General Manager on environmental management (where required).

### **6.1.3 ENVIRONMENTAL OFFICER**

The Environmental Officer will be responsible for assisting the General Manager in all environmental issues, and specifically to ensure that the commitments as set out in this EMP are implemented.

In addition, the Environmental Officer is responsible for ensuring that all persons involved during the construction as well as the operational phase comply with this EMP.

The Environmental Officer will be responsible for the following aspects related to compliance of this EMP:

- Regular inspections and auditing compliance to this EMP and any other relevant legal requirements e.g.: permits and authorisations.
- Develop and implement an environmental awareness and training program and conduct environmental awareness training during induction training and on an ad hoc basis thereafter.
- Conduct scheduled monitoring as outlined in various sections in the EMP (see Section 6.3 and Chapter 7) as well as any compliance monitoring required by permit and authorisations issued by the relevant authorities, or in collaboration with Namport as implied.
- Ensure compliance to this EMP and permits and authorisations issued to WBCT by relevant authorities. Ensure responsibilities and target dates are developed for each one of the commitments in this EMP.

- Ensure compliance with legislation by all employees and contractors through awareness training, and engagement with authorities, where relevant.
- Submit required information to relevant authorities such as reporting related to monitoring and about compliance with the EMP, permit and relevant authorisations.
- Liaise with the Construction Supervisor and General Manager on environmental management (where required).
- Develop and implement an Emergency Response Plan. This plan needs to be developed in conjunction with Namport's Emergency Response Plan.
- Develop and implement a Waste Management Strategy to ensure that waste is minimized, segregated, recycled, collected, handled and stored, removed and disposed of correctly.
- The existing waste management and housekeeping practice of WBCT must be applied site-wide, including the new proposed warehouse.

#### **6.1.4 CONTRACTORS**

All contractors, sub-contractors and their employees will be contractually required to comply with the relevant commitments in this EMP.

### **6.2 AUDITING COMPLIANCE WITH THE EMP**

The commitments contained in this EMP will, once an ECC has been obtained, be WBCT's contractual agreement with the Namibian authorities for sound environmental management. All employees, contractors and sub-contractors and any visitors to site will be expected to comply with the commitments contained herein.

The EMP is a legally binding document and non-compliance with it could result in disciplinary action, such as fines and penalties; legal action; monetary penalties; withdrawal of licences and permits; and or the suspension of work.

#### **6.2.1 INTERNAL AUDITS AND INSPECTIONS**

The Environmental Officer will conduct internal management audits against the commitments in the EMP. These audits will be conducted every month. The audit findings will be documented for both record keeping purposes and for informing continual improvement.

The Environmental Officer will conduct weekly site-wide inspections and daily inspections during construction.

#### **6.2.2 EXTERNAL ENVIRONMENTAL PERFORMANCE ASSESSMENT**

It is suggested that external performance assessments be conducted bi-annually and at the end of the construction phase by an independent qualified Environmental Practitioner.

### 6.3 MONITORING

An inspection program shall be established to check that standards and procedures as described in the EMP are implemented and complied with.

Incidents and non-conformances shall be recorded and addressed with appropriate corrective action.

A reporting system shall be maintained to ensure that all applicable statutory requirements are met.

Reporting of incidents and non-conformances shall include details such as the reason for incidents and non-conformance, responsible persons, consequences, the corrective action taken and the necessary follow-up activities. Incidents and non-conformances shall be reported to the General Manager. The cause of incidents and non-conformances shall be investigated, and recommendations formulated to prevent recurrence.

Monitoring requirements include, but are not limited to:

General monitoring:

- Conduct audits and inspections as per Section 6.2. All non-compliances should be recorded and discussed at weekly site meetings and timeous remedial actions taken.
- Check for non-compliances (lack of good housekeeping, spills and leaks, incorrect storage of substances, etc.) during a general site-wide inspection weekly.
- Monitor the construction site daily. Record all non-compliances and initiate corrective measures.
- Constant monitoring and record keeping of clean-ups until the tasks are completed, approved and signed off by the General Manager.

Waste Management:

- Monitor whether the provisions set out in this EMP concerning waste management is being applied as per instructions.
- Keep safe disposal certificates.

Dust and baseline noise monitoring:

- When complaints are received from affected third parties regarding noise and dust nuisance, abatement measures should be implemented. Communication with those that complained should be continued to determine whether the problem has been resolved.

Training and awareness:

- General Manager to request attendance registers be completed by all personnel attending induction training sessions.

#### 6.4 REPORTING AND SUBMISSION OF INFORMATION

As a minimum, the following documents will be submitted to the relevant authorities on an ongoing basis:

- The bi-annual environmental report required by the DEA at the MEFT will be submitted every six months (specifically during the construction phase).

#### 6.5 DEALING WITH ENVIRONMENTAL EMERGENCIES AND INCIDENTS

Potential environmental emergencies, during the construction of the warehouse are identified by the Construction Supervisor based on legal and other requirements, aspects identified and risk rating and knowledge of the proposed project and associated activities.

Overall, WBCT must ensure that an Emergency Response Plan, which includes an emergency response plan for firefighting, in conjunction with Namport's Emergency Response Plan is developed and implemented. In addition, WBCT must conduct appropriate environmental risk assessments; develop and implement an environmental risk management plan; and ensure that an adequate protection and indemnity insurance cover for incidents exists. Procedures and protocols for emergencies, inclusive of firefighting and oil spill contingency plans, in conjunction with Namport must be developed and implemented (Namport, 2019).

Should an environmental emergency occur, the following procedure will be followed:

- The General Manager must immediately be notified of the incident.
- Steps must immediately be taken to minimize the spread of pollution or other risks through remedial actions and clean-up according to an Emergency Response Plan, in conjunction with Namport's Emergency Response Plan.
- The General Manager must report the incident to the respective authorities (depending on the nature of the incident).

## 7 MANAGEMENT AND MITIGATION PLANS

The MMPs described in this chapter are applicable to all the relevant activities and facilities of WBCT.

Activities during the site preparation and the construction phase include, but are not restricted to the following:

- Use of the existing routing and access points by vehicles and equipment.
- Laydown of equipment and construction materials.
- Trenching of foundations.
- Piling of excavated material for removal.
- Steel enforcement.
- Concrete mixing and pouring for foundations.
- General construction activities (welding, metal works, brick laying, painting, etc.).

Activities during the operational phase include, but are not restricted to the following:

- Use of the existing routing and access points by vehicles and equipment.
- Receiving.
- Debagging and stockpiling.
- Reloading.
- Transporting to the quayside.
- Decanting.

## 7.1 SOIL MMP

The entire site is compacted and sealed with a subsurface layer of reinforced concrete and interlock pavers on top. Although unlikely, the contamination of soil can occur as the result of pollution during all phases of the project.

The overall objective of the Soil MMP is:

- To prevent or limit the unacceptable disturbance / damage, loss or pollution of soil.

Overarching management measures include:

- Restrict the laydown of construction materials and construction activities to a pre-approved area. The area used should be constrained as far as possible.
- In all areas where there is storage of hazardous substances, there will be containment of spillages on impermeable floors and bunded trays that can contain 110% of the volume of the hazardous substances.
- The use of chemicals should be controlled. Used oils, fuel, paints, grease and solvents should be stored in drums or other suitable containers, which must be labelled, sealed and removed from the site to an appropriate disposal site or recycling facility.
- Implement containment and clean-up measures for hazardous substance spills and leaks.
- A register shall be kept on all hazardous substances and be always available for inspection.
- All refuelling and any maintenance of vehicles will take place on impermeable surfaces, preferably not onsite.
- Spill trays must be provided if refuelling or maintenance of construction vehicles are done onsite. Areas shall be monitored for spills and leaks and must be contained, cleaned and rehabilitated immediately.
- Spill kits will be readily available onsite. Employees and or contractors will be shown to use the spill kits to enable containment and remediation of pollution incidents.
- All vehicles and machines must be maintained properly to ensure that oil spillages are kept at a minimum.

**TABLE 3: SOIL MMP**

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
<b>CONSTRUCTION, OPERATIONAL AND DECOMMISSIONING PHASE</b>			
1	Soil	<ul style="list-style-type: none"> <li>Potential contamination from waste and accidental spills and leaks of hazardous substances and hydrocarbons</li> </ul>	<ul style="list-style-type: none"> <li>Limit the disturbance of the compacted areas (currently covered by a subsurface layer of reinforced concrete with interlock pavers on top) to only the area earmarked for the proposed new warehouse.</li> <li>In case excavated material (from the foundation trenches and the removal of the interlock pavers) is contaminated from the past, the material must be stockpiled for removal to the hazardous waste site of Walvis Bay.</li> <li>Maintain and apply the existing waste management and housekeeping practice of WBCT site-wide (including the proposed new warehouse).</li> <li>Broken and damaged bags must be correctly handled and repaired to avoid spills of copper concentrate.</li> <li>In the unlikely event of a spillage of copper concentrate outside of the warehouse, the spilled material must be scooped up and relocated to the stockpile inside the warehouse.</li> <li>Appropriate measures to prevent leaks and spills of hydrocarbons must be implemented. In case leaks and spills occur, it must be contained and clean-up promptly.</li> <li>Educate workers on the use of containment and clean-up measures to contain and remediate pollution incidents because of leaks and spills of hydrocarbons, effluent or other forms of hazardous waste.</li> <li>During decommissioning, stockpile contaminated demolished material for removal to the hazardous waste site.</li> </ul>



## 7.2 SURFACE AND GROUNDWATER MMP

No drainage line is present onsite. In addition, the entire site is compacted and sealed with a subsurface layer of reinforced concrete and interlock pavers on top. Although unlikely, the contamination of surface or groundwater can occur as the result of pollution.

The overall objective of the Surface and Groundwater MMP is:

- To prevent or limit the unacceptable contamination of surface and groundwater through activities that may cause pollution.

Overarching management measures include:

- Restrict the laydown of construction materials and construction activities to a pre-approved area. The area used should be constrained as far as possible.
- In all areas where there is storage of hazardous substances, there will be containment of spillages on impermeable floors and bunded trays that can contain 110% of the volume of the hazardous substances.
- The use of chemicals should be controlled. Used oils, fuel, paints, grease and solvents should be stored in drums or other suitable containers, which must be labelled, sealed and removed from the site to an appropriate disposal site or recycling facility.
- Implement containment and clean-up measures for hazardous substance spills and leaks.
- A register shall be kept on all hazardous substances and be always available for inspection.
- All refuelling and any maintenance of vehicles will take place on impermeable surfaces, preferably not onsite.
- Spill trays must be provided if refuelling or maintenance of construction vehicles are done onsite. Areas shall be monitored for spills and any spills shall be contained, cleaned and rehabilitated immediately.
- Spill kits will be readily available onsite. Employees and or contractors will be shown to use the spill kits to enable containment and remediation of pollution incidents.
- All vehicles and machines must be maintained properly to ensure that oil spillages are kept at a minimum.

**TABLE 4: SURFACE AND GROUNDWATER MMP**

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
<b>CONSTRUCTION, OPERATIONAL AND DECOMMISSIONING PHASE</b>			
1	Surface and groundwater	<ul style="list-style-type: none"> <li>• Potential contamination of groundwater and surface water from waste and accidental spills and leaks of hazardous substances and hydrocarbons</li> <li>• Disturbances and interference with flow patterns can enhance damming, diverting or water erosion</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain and apply the existing waste management and housekeeping practice of WBCT site-wide (including the proposed new warehouse).</li> <li>• Educate workers on the use of containment and clean-up measures to contain and remediate pollution incidents because of leaks and spills of hydrocarbons, effluent or other forms of hazardous waste</li> <li>• Appropriate measures to prevent leaks and spills of hydrocarbons must be implemented. In case leaks and spills occur, it must be contained and clean-up promptly.</li> <li>• Broken and damaged bags must be correctly handled and repaired to avoid spills of copper concentrate.</li> <li>• In the unlikely event of a spillage of copper concentrate outside of the warehouse, the spilled material must be scooped up and relocated to the stockpile inside the warehouse.</li> <li>• Provide appropriate toilet and ablution facilities during the construction phase to prevent any illegal discharge of effluent or sewage.</li> </ul>

### 7.3 HAZARDOUS SUBSTANCE MMP

The entire site is compacted and sealed with a subsurface layer of reinforced concrete and interlock pavers on top. Currently diesel is stored in an aboveground diesel tank of <4,000L in a bunded area, for the refilling of onsite equipment (eight forklifts and a payload). No other hydrocarbons are stored onsite, and it is not planned to expand the current facility. Except for domestic and housekeeping products (e.g., cleaning materials) no chemicals are stored onsite. The current risk of accidental spills and leaks of hydrocarbons and chemical products causing contamination is thus very low.

The new proposed warehouse will be used for the bulk handling of copper concentrate only. As cargo in transit, copper concentrate is not classified as hazardous or dangerous goods. No special arrangement in terms of Namport's operating procedures for the handling and storage of dangerous goods have to be made, neither is any arrangement with the Walvis Bay Municipality or the Ministry of Safety and Security in terms of the planning of routes necessary. Releases into the environment is unlikely because the copper concentrate will be contained during the entire process. However, in the unlikely event of releases out of containment copper concentrate is regarded as very toxic to aquatic life and releases into the environment must be avoided.

As a precautionary measure thus, this management plan makes provision for the management of unlikely releases of hazardous substances onsite, including chemicals, hydrocarbons and copper concentrate.

The overall objective of the Hazardous Substance MMP is:

- To prevent or limit the unacceptable contamination of soil and surface and groundwater through activities related to hazardous substances that may cause pollution.

Overarching management measures include:

- Restrict the laydown of construction materials and construction activities to a pre-approved area. The area used should be constrained as far as possible.
- In all areas where there is storage of hazardous substances, there will be containment of spillages on impermeable floors and bunded trays that can contain 110% of the volume of the hazardous substances.
- The use of chemicals should be controlled. Used oils, fuel, paints, grease and solvents should be stored in drums or other suitable containers, which must be labelled, sealed and removed from the site to an appropriate disposal site or recycling facility.
- Implement containment and clean-up measures for hazardous substance spills and leaks.

- A register shall be kept on all hazardous substances and be always available for inspection.
- All refuelling and any maintenance of vehicles will take place on impermeable surfaces, preferably not onsite.
- Spill trays must be provided if refuelling or maintenance of construction vehicles are done onsite. Areas shall be monitored for spills and leaks and must be contained, cleaned and rehabilitated immediately.
- Spill kits will be readily available onsite. Employees and or contractors will be shown to use the spill kits to enable containment and remediation of pollution incidents.
- All vehicles and machines must be maintained properly to ensure that oil spillages are kept at a minimum.

In addition, the EMP for the port area (Namport, 2019) stipulates that:

- Hazardous waste and contaminated water and soil must be disposed of at an appropriately classified facility or by approved contractors.
- Hazardous waste disposal certificates must be kept on file.
- Any fuel spillage of more than 200 litre must be reported to the Ministry of Mines and Energy.
- Emergency Response Plans and spill contingency plans must be in place and include all fuels, chemicals or hazardous substances being handled. Tenants must submit copies of these documents to Namport.
- Training in the use of spill containment equipment is paramount.
- Any mineral ore, hydrocarbon spills or any other hazardous substance spill on the quay area must be cleaned and disposed of to prevent it from entering the ocean either by wind or water runoff.

**TABLE 5: HAZARDOUS SUBSTANCE MMP**

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
<b>CONSTRUCTION, OPERATIONAL AND DECOMMISSIONING PHASE</b>			
1	Soil, surface and groundwater	<ul style="list-style-type: none"> <li>Potential contamination from accidental spills and leaks of hazardous substances and hydrocarbons.</li> </ul>	<ul style="list-style-type: none"> <li>Removal and disposal of hazardous waste must be done according to existing protocols which are aligned to Namport's practice. This includes record keeping of disposal certificates, which must contain information about the type of waste, volume as well as disposal method/facility.</li> <li>Hazardous waste (including hydrocarbon contaminated material or soil) will be contained and disposed of at a licenced hazardous waste disposal facility (Walvis Bay) by an approved contractor.</li> <li>For the disposal of empty containers and contaminated products the MSDS of the respective items must be consulted and handled accordingly.</li> <li>In case excavated material (from the foundation trenches and the removal of the interlock pavers) is contaminated from the past, the material must be stockpiled for removal to the hazardous waste site of Walvis Bay.</li> <li>Maintain and apply the existing waste management and housekeeping practice of WBCT site-wide (including the proposed new warehouse).</li> <li>Broken and damaged bags must be correctly handled and repaired to avoid spills of copper concentrate.</li> <li>Develop and implement an Emergency Response Plan. This plan needs to be developed in conjunction with Namport's Emergency Response Plan.</li> <li>In the unlikely event of a spillage of copper concentrate outside of the warehouse (including the quay area), the spilled material must be scooped up and relocated to the stockpile inside the warehouse.</li> <li>In the unlikely event of a spillage of copper concentrate in seawater (during decanting), the necessary emergency procedures and protocols, in conjunction with Namport's Emergency Response Plan must be followed.</li> <li>Incidents of spills must be reported to Namport (and in the case of a hydrocarbon spill larger than 200 litre to the Ministry of Mines and</li> </ul>

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
			<p>Energy). Details such as date and duration of spill, the product spilled, volume of spill, and remedial actions taken and a copy of documentation in which the spill was reported to the authorities must be provided.</p> <ul style="list-style-type: none"> <li>• Appropriate measures to prevent leaks and spills of hydrocarbons must be implemented. In case leaks and spills occur, it must be contained and clean-up promptly.</li> <li>• Educate workers on the use of containment and clean-up measures to contain and remediate pollution incidents because of leaks and spills of hydrocarbons, effluent or other forms of hazardous waste.</li> <li>• During decommissioning, stockpile contaminated demolished material for removal to the hazardous waste site.</li> </ul>

## 7.4 NOISE MMP

Although temporary, of a short duration and localized, construction activities may generate noise and lead to the disturbance of nearby receptors (third parties).

As part of the industrial area of Walvis Bay, the port area functions 24/7 and noise is generated continuously – by a wide range of sources (see Section 6.1.5 in the Scoping (including an impact assessment) Report). As expected, the ambient noise levels emanating from the port area are indicative of an industrial environment and are in excess of the typical rating levels for an industrial district – as proven in previous studies (SLR, 2013; SLR, 2015). The continuous increase of activities in the port area will thus contribute to the cumulative impacts of noise (Namport, 2019) and the proposed new warehouse of WBCT as an additional activity of the port area and will contribute to the cumulative impacts of noise of the port area.

The overall objective(s) of the Noise MMP is:

- To limit excessive noise pollution.

The EMP for the port area (Namport, 2019) states the following arrangements to prevent excessive noise:

- Follow the Labour Act Regulations, specifically the Noise Regulations (Regulation 197), and / or WHO guidelines on maximum noise levels (Guidelines for Community Noise, 1999), to prevent hearing impairment for workers onsite and a nuisance to third parties (e.g. nearby residential areas / neighbours, receptors, etc.).
- Minimize or prevent noise producing activities and plan to restrict these to daytime as far as practically possible. In short, limit construction work to daylight hours.
- All machinery must be regularly serviced to ensure minimal noise production.
- The use of low frequency white noise or flashing lights should be considered instead of audible high frequency warning signals for moving forklifts or trucks.

To mitigate noise, the EMP for the port area (Namport, 2019) recommends the following interventions:

- Erect temporary or permanent noise barriers / sound baffles should the need arise.
- Place noise producing equipment, e.g. compressors, in such a way that noise is directed away from receptors and / or are attenuated.
- Where possible, use infrastructure to act as noise barriers to sensitive environments.
- Hearing protectors as standard PPE for workers in situations with elevated noise levels.

In addition to the above-mentioned recommendations, WBCT will ensure that all drivers adhere to the speed limit of Namport, while travelling inside the port area.

WBCT will also introduce monitoring and control measures if excessive noise is generated. It will be wise to conduct a once-off noise monitoring campaign in close proximity to the sources of noise under the management of WBCT and to liaise with Namport to obtain their site-wide noise monitoring results for comparison. In the event that the actual measurements of WBCT exceed the predictions of the Namport results and model, engagement with Namport is necessary to develop and implement additional noise mitigation measures for the WBCT sources.

The EMP for the port area (Namport, 2019) also recommends that:

- A complaints register regarding noise must be maintained.
- All information about noise-related complaints and actions taken to address complaints and to prevent future occurrences must be documented and included in the bi-annual report of Namport.



**TABLE 6: NOISE MMP**

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
<b>CONSTRUCTION OPERATIONAL AND DECOMMISSIONING PHASE</b>			
1	Noise	<ul style="list-style-type: none"> <li>• Disturbance to nearby receptors (third parties).</li> </ul>	<ul style="list-style-type: none"> <li>• During construction, limit work to daylight hours.</li> <li>• Construction equipment must be operated in such a way that noise is minimized, for example no unnecessary engine revving.</li> <li>• As far as possible, minimize or prevent noise producing activities and plan to restrict these to daytime.</li> <li>• Place noise producing equipment, e.g., compressors, in such a way that noise is directed away from receptors and / or are attenuated.</li> <li>• The use of low frequency white noise or flashing lights should be considered instead of audible high frequency warning signals for moving forklifts or trucks</li> <li>• A complaints register should be kept for any noise-related issues and mitigation steps taken to address complaints where necessary.</li> <li>• Document and investigate all registered complaints and address the concerns about noise promptly. Document the actions taken.</li> <li>• Create communication channels to ensure prior notice to the nearby receptor(s) if work is to take place close to them. Information shared must include the following:                         <ul style="list-style-type: none"> <li>○ Proposed working times.</li> <li>○ How long the planned activity will take place.</li> <li>○ What is being done.</li> <li>○ Contact details of the Constructions Supervisor and Environmental Officer</li> </ul> </li> <li>• Ensure that vehicles and equipment are well-maintained and fitted with the correct noise abatement measures. Exhaust silencers must be considered where relevant.</li> <li>• Equipment and machinery in intermittent use must be shut down when not in use.</li> </ul>

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
			<ul style="list-style-type: none"> <li>• All routes should be kept clean and maintained in a good state of repair to avoid unwanted rattle and body-slap from vehicles.</li> <li>• All drivers must adhere to the speed limit of Namport, while travelling inside the port area.</li> <li>• Erect temporary or permanent noise barriers / sound baffles should the need arise. Where possible, use infrastructure to act as noise barriers to sensitive environments.</li> <li>• Provide hearing protectors as standard PPE for workers in situations with elevated noise levels.</li> </ul>

## 7.5 DUST MMP

Dispersal of dust is closely coupled by wind and conditions can be aggravated during periods of strong wind along the coast, like eastwind. Furthermore, it has been stated in previous studies that ambient air quality at the coast is likely to exceed the PM<sub>10</sub> daily limit more than 3 days in a year, although the annual average is likely to be within the acceptable limit (MME, 2019; Airshed, 2022 referenced in Namisun, 2022). Hereof loading and unloading activities, ship maintenance activities and release of marine aerosols are the most obvious (see Section 6.1.4 in the Scoping (including an impact assessment) Report for more details).

Dust can pose health risks to workers and third parties, may cause a nuisance impact on nearby receptors and deteriorate seawater quality, which in turn can have consequences on the marine ecology and the mariculture industry (Namport, 2019). The continuous increase of activities in the port area will contribute to the cumulative impacts of dust.

Construction activities will create dust and emissions, but it is restricted to the construction phase, is of a small scale and short duration, and limited to daylight hours, which means that the potential impacts are not expected to be significant or contribute to the cumulative impacts significantly.

Inside the warehouse offloading, debuggng, stockpiling, and reloading will take place. From the warehouse the copper concentrate will be transported to the awaiting vessel in open skips mounted on trucks. Since the distance is so short, the skips will not be covered during transport. At the quayside the skips will be hoisted by crane and decanted into the ship's cargo hold. All these activities are planned as a 24/7 operation, to make provision for the times a vessel is awaiting loading and to make provision for the arrival times of the long-distance trucks after daylight hours. It is thus expected that these activities of WBCT may also contribute to the cumulative impacts of dust in the port area.

The overall objective(s) of the Dust MMP is:

- To prevent unacceptable dust-related impacts.

The EMP for the port area (Namport, 2019) does not specify any dust-specific arrangements for warehouse operations, for the transport between a warehouse and the quayside, and for decanting activities. However, it contains generic recommendations such as:

- Implement adequate dust suppression methods where applicable to limit or prevent the formation of windblown dust.
- Warehouses for mineral ore and chemical storage must remain closed with adequate dust suppression systems to limit or prevent the formation of windblown dust.

- Any loading / offloading activities must cease if dust becomes airborne. Loading / offloading can continue after mitigation measures to reduce dust generation / transport have been implemented, or when wind speeds decrease.
- All staff working in dust producing environments must wear dust masks and related PPE.
- A complaints register should be kept for any air quality related issues and mitigation steps taken to address complaints where necessary.
- Any complaints received regarding dust or other air quality impacts should be recorded with notes on action taken.

Inside the warehouse WBCT will not suppress dust with water, as this will be an ineffective intervention and cause the material on the floor to become slippery and difficult to handle. Instead, monitoring will be introduced if excessive dust is generated and requires control measures. The number of vehicles, equipment and staff members allowed in the warehouse will be restricted at all times:

- Only the truckdriver, one floor operator and the driver of the payloader will be allowed to be in the warehouse during debagging.
- During stockpiling, only the driver of the payloader (and in exceptional cases, one floor operator) will be allowed to be in the warehouse.
- During reloading, only the driver of the payloader and the truck driver will be allowed in the warehouse.

As the cabins of the vehicles that will be used in the warehouse are airconditioned, the exposure of the people allowed in the warehouse during operational activities is expected to be minimal. The floor operator during these operational activities will wear full PPE.

Furthermore, dust will be contained as much as possible inside the warehouse because the warehouse has no windows or other openings and only two doors. Although the two doors will stay open during operations, they face the prevalent southwest winds, which means that the possibility of dispersal because of wind is reduced.

- WBCT will cease transport and decanting activities when dust becomes airborne due to strong wind and will continue when the wind speed decreases.
- WBCT will ensure that all drivers adhere to the speed limit of Namport, while travelling inside the port area.

The EMP for the port area (Namport, 2019) does not specify any dust-specific monitoring of activities per site in the port area. Instead, it generically recommends that:

- Real time wind direction and velocity must be monitored, and air quality monitoring should be initiated.

- Dust (air quality) monitoring must be conducted to determine the extent and source of dust pollution.
- All information and reporting must be included in the bi-annual report of Namport.

Accordingly, WBCT will introduce monitoring and control measures if excessive dust is generated – in collaboration with Namport. Monitoring and reporting (including wind monitoring) will be done according to Namport's monitoring protocols.

**TABLE 7: DUST MMP**

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
<b>CONSTRUCTION AND OPERATIONAL PHASE</b>			
1	Dust	<ul style="list-style-type: none"> <li>• Dust from construction activities and during operations from activities in the warehouse (offloading, debagging, stockpiling and reloading), from transporting and from decanting causing impacts to air quality, resulting in potential health and nuisance impacts to nearby receptors (third parties).</li> </ul>	<ul style="list-style-type: none"> <li>• Implement dust suppression methods as far as possible.                             <ul style="list-style-type: none"> <li>○ Minimize the number of people present in the warehouse during receiving, offloading, debagging, stockpiling and reloading activities.</li> <li>○ No unauthorized access to the warehouse during operational activities will be allowed.</li> <li>○ All staff working in dust producing environments must wear dust masks and related PPE.</li> <li>○ Cease activities if dust becomes airborne. Continue with loading / offloading activities after mitigation measures to reduce dust generation / transport have been implemented, or when wind speeds decrease</li> <li>○ All drivers must adhere to the speed limit of Namport, while travelling inside the port area.</li> </ul> </li> <li>• Apply pragmatic management measures such as the visual monitoring of dust and disallowing employees to work in extreme wind conditions.</li> <li>• A complaints register should be kept for any dust-related issues and mitigation steps taken to address complaints where necessary.</li> <li>• Document and investigate all registered complaints and address the concerns about dust promptly. Document the actions taken.</li> <li>• Create communication channels to ensure prior notice to the nearby receptor(s) if work is to take place close to them. Information shared must include the following:                             <ul style="list-style-type: none"> <li>○ Proposed working times.</li> <li>○ How long the planned activity will take place.</li> <li>○ What is being done.</li> <li>○ Contact details of the Constructions Supervisor and Environmental Officer</li> </ul> </li> </ul>

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
			<ul style="list-style-type: none"> <li>• As a precautionary measure it is wise to install two dust buckets to monitor the dust baseline and then during the construction and operational phase for a limited period.</li> <li>• In case remedial actions are necessary – if excessive dust is generated – a monitoring program with control measures must be introduced, in collaboration with Namport and according to Namport’s monitoring protocols. This entails:               <ul style="list-style-type: none"> <li>○ Monitoring of real time wind direction and velocity.</li> <li>○ Monitoring of dust (air quality) to determine the extent and source of dust pollution.</li> <li>○ Report results monthly to Namport.</li> <li>○ All information and reporting must be included in the bi-annual report of Namport.</li> </ul> </li> </ul>

## 7.6 WASTE MMP

Potential impacts resulting from improper waste management (general as well as hazardous waste) is possible and have the potential to cause an impact on soil and water and create general degradation and nuisance impacts.

Namport follows an in-house operating procedure for waste management, which is outsourced to the Walvis Bay Municipality. General and hazardous waste is removed by the municipality and sorted at the landfill site or hazardous waste site as necessary (Namport, 2019).

The overall objective(s) of the Waste MMP is:

- To ensure proper storage, recycling, reuse, removal, transport, and disposal of waste.

The EMP for the port area (Namport, 2019) states the desired outcome as:

- To reduce the amount of waste produced and to prevent pollution and littering.

Furthermore, the EMP for the port area recommends that:

- Waste reduction measures should be implemented and all waste that can be re-used / recycled must be kept separate.
- Ensure adequate waste storage facilities (bins, drums and / or bags) are available and that these are clearly labelled to allow for segregation of wastes into different classes.
- Education of personnel is paramount to create awareness for the proper handling and disposal of waste.
- Ensure waste cannot be blown away by wind.
- Prevent scavenging (human and non-human) at waste storage sites.
- Waste in the port area, in the harbour water, and on the coastline within port limits must be regularly removed and disposed of.
- No waste streams may be directed into the ocean without a disposal permit and then only under conditions imposed by the permit.
- Liaison with the municipality or private contractors regarding handling of different waste streams.
- Waste should be disposed of regularly and at appropriately classified disposal facilities. This includes hazardous material (empty chemical containers, contaminated rugs, paper, water and soil) that are collected by authorised and licenced waste collection and handling contractors.
- Dispose of contaminated products and empty containers must be according to their specified requirements as stipulated in their respective MSDSs.
- Wastewater and sewage must be disposed of according to their relevant permit requirements.



The EMP for the port area (Namport, 2019) also recommends that:

- A complaints register regarding waste must be maintained.
- All information about waste-related complaints and actions taken to address complaints and to prevent future occurrences must be documented and included in the bi-annual report of Namport.

**TABLE 8: WASTE MMP**

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
<b>CONSTRUCTION, OPERATIONAL AND DECOMMISSIONING PHASE</b>			
1	Waste	<ul style="list-style-type: none"> <li>• Pollution of soil and water</li> <li>• General degradation and nuisance impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain and apply the existing waste management and housekeeping practice of WBCT site-wide (including the proposed new warehouse).</li> <li>• Designated, suitable receptacles (with lids to prevent borne litter and scavenging), clearly marked for different waste types for disposal will be used at appropriate locations onsite.</li> <li>• Broken and damaged bags must be correctly handled and repaired to avoid spills of copper concentrate.</li> <li>• Collect mega-bags with a shoot bottom for return to suppliers so that it can be reused.</li> <li>• Mega-bags with a one-way use will be collected and removed by a contractor for recycling of the material.</li> <li>• All waste items will be separated at source, collected in the correct receptable, and contained for removal.</li> <li>• A complaints register should be kept for any waste-related issues and mitigation steps taken to address complaints where necessary.</li> <li>• Document and investigate all registered complaints and address the concerns about waste promptly. Document the actions taken.</li> <li>• Employees and contractors will be trained on the importance of correct waste separation and collection, regular removal, correct disposal, as well as waste minimisation and recycling (where practical).</li> <li>• Implement a zero-tolerance policy with regards to waste-related transgressions.                         <ul style="list-style-type: none"> <li>○ No person will be allowed to discard waste except in a designated receptable for this purpose.</li> <li>○ Wastewater, effluent or sewage will be discharged according to their relevant permit requirements.</li> </ul> </li> </ul>

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
			<ul style="list-style-type: none"> <li>• Hazardous waste (including hydrocarbon contaminated material or soil) will be contained and disposed of at a licenced hazardous waste disposal facility (Walvis Bay).</li> <li>• For the disposal of empty containers and contaminated products the MSDS of the respective items must be consulted and handled accordingly.</li> <li>• Removal and disposal of hazardous waste must be done according to existing protocols which are aligned to Namport’s practice. This includes record keeping of disposal certificates, which must contain information about the type of waste, volume as well as disposal method/facility.</li> <li>• In case excavated material (from the foundation trenches and the removal of the interlock pavers) is contaminated from the past, the material must be stockpiled for removal to the hazardous waste site of Walvis Bay.</li> <li>• During decommissioning, stockpile contaminated demolished material for removal to the hazardous waste site.</li> <li>• In the unlikely event of a spillage of copper concentrate outside of the warehouse, the spilled material must be scooped up and relocated to the stockpile inside the warehouse.</li> </ul>

## 7.7 SOCIO-ECONOMIC MMP

The proposed new warehouse will introduce facilities and activities with socio-economic consequences. Although the benefits because of job creation (not more than ten people will be employed by the contractor during construction and six employees will be newly appointed by WBCT) are small, the indirect benefits are diverse and meaningful – skills development, spendable income, local procurement, taxes, and more export volumes. A potential negative impact is the possible pollution of other products in the port area.

The overall objective(s) of the Socio-economic MMP is:

- To enhance and optimize positive socio-economic impacts (benefits) and to minimize possible negative socio-economic impacts.

**TABLE 9: SOCIO-ECONOMIC MMP**

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
<b>CONSTRUCTION AND OPERATIONAL PHASE</b>			
1	Employment, local procurement, economic growth	<ul style="list-style-type: none"> <li>• Job creation and skills development</li> <li>• Spendable income, local procurement, and taxes</li> <li>• More export volumes through the port of Walvis Bay</li> <li>• Possible polluting of other products in the port area</li> </ul>	<ul style="list-style-type: none"> <li>• Establish human resources policies for the recruitment of qualified, competent Namibians.</li> <li>• Set a skill development program and strategy for staff to maximize the use of the local labour force.</li> <li>• Promote continuous learning programs.</li> <li>• Ensure skills upgrading and the upkeep of staff records for future employment of the staff.</li> <li>• Establish procurement policies to support local, regional and Namibian supply of services and goods.</li> <li>• Support the local economy with staff residing in Walvis Bay and getting daily supplies from local businesses.</li> <li>• Support community initiatives of which staff are members of.</li> <li>• A complaints register should be kept for any air quality related issues and mitigation steps taken to address complaints where necessary.</li> <li>• Document and investigate all registered dust complaints and address the concerns about dust promptly. Document the actions taken.</li> <li>• Create communication channels to ensure prior notice to the nearby receptor(s) if work is to take place close to them. Information shared must include the following:                         <ul style="list-style-type: none"> <li>○ Proposed working times.</li> <li>○ How long the planned activity will take place.</li> <li>○ What is being done.</li> <li>○ Contact details of the Constructions Supervisor and Environmental Officer</li> </ul> </li> </ul>

## 7.8 TRAFFIC MMP

The port of Walvis Bay functions 24/7 and overland traffic towards and out of the port increases continuously. The operations of the proposed new warehouse of WBCT will cumulatively contribute to this increase of traffic. This EMP focuses only on the potential impacts inside the port area.

Namport is in the process of developing a new traffic flow arrangement for the port of Walvis Bay, with planned new entrance and exit points, flow lines and truck staging lots. It is expected that the proposed new traffic flow arrangement will alleviate and improve the potential situation of traffic congestions in the port area.

The additional deliveries of 10 truckloads per day (one every 2.4 hours) will not increase the amount of traffic through the main gate and within the port area significantly.

During the times when a vessel for export is available, copper concentrate will be transported by trucks from the warehouse to the quayside for decanting into the ship's cargo hold. Loading is possible at Berths 1, 2, 3, 7 or 8. Transport between the warehouse and the quayside and back will be on sealed surfaces (tarmac or interlock) only. Distance is the main determinant in deciding on the routing of the trucks to the quayside but safety, conditions of the roads and ongoing activities in the port area may also play a role. Loading at Berths 1, 2, and 3 does not require any railway crossing, but in the case of loading at Berths 7 and 8, the crossing of a railway is implied.

Even though the transport of copper concentrate from the warehouse to a waiting vessel is restricted to specific loading schedules, the resulting traffic peaks will not cause congestion and create a significant impact on the general traffic flow within the port area.

The overall objective(s) of the Traffic MMP is:

- To minimize traffic congestions in the port area of Walvis Bay.

**TABLE 10: TRAFFIC MMP**

No	ISSUE (ASPECT)	POTENTIAL IMPACTS	MANAGEMENT AND MITIGATION MEASURES, COMMITMENTS
<b>CONSTRUCTION AND OPERATIONAL PHASE</b>			
1	Traffic	<ul style="list-style-type: none"> <li>• Potential congestion in the port area from receiving and transporting (between the warehouse and the quayside and back).</li> </ul>	<ul style="list-style-type: none"> <li>• During construction, limit work to daylight hours.</li> <li>• Restrict all vehicle and equipment movements to approved routes and the WBCT site. Routes should be clearly indicated (and demarcated where necessary), together with designated turning points and construction laydown areas.</li> <li>• Proper care must be taken at railway crossings. The correct signage and procedures must be put in place before operational activities commence.</li> <li>• All drivers must adhere to the speed limit of Namport, while travelling inside the port area.</li> <li>• Ensure implementation of a detailed safety code of conduct for transport contractors and monitor closely, with penalties enforced if necessary.</li> <li>• Develop and implement an Emergency Response Plan. This plan needs to be developed in conjunction with Namport’s Emergency Response Plan.</li> <li>• Document and investigate all registered complaints and address the concerns promptly.</li> <li>• Create communication channels to ensure prior notice to the nearby receptor(s) if work is to take place close to them. Information shared must include the following:                         <ul style="list-style-type: none"> <li>○ Proposed working times.</li> <li>○ How long the planned activity will take place.</li> <li>○ What is being done.</li> <li>○ Contact details of the Constructions Supervisor and Environmental Officer</li> </ul> </li> </ul>

## 8 REFERENCES

**Ministry of Mines and Energy (MME), 2019.** Advanced Air Quality Management for the Strategic Environmental Management Plan for the Uranium and Other Industries in the Erongo Region: Air Quality Management Plan Report. Airshed Planning Professionals (Pty) Ltd. Report No. 5MME01-4

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