

APP-001487

**STORAGE AND HANDLING OF METAL ORES IN THE
INDUSTRIAL AREA OF WALVIS BAY, ERONGO REGION**

ENVIRONMENTAL MANAGEMENT PLAN



Assessed by:



Assessed for:



May 2023

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| Project: | STORAGE AND HANDLING OF METAL ORES IN THE INDUSTRIAL AREA OF WALVIS BAY, ERONGO REGION: ENVIRONMENTAL MANAGEMENT PLAN | |
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1 OBJECTIVES OF THE EMP

Geo Pollution Technologies (Pty) Ltd prepared an environmental management plan (EMP) for Namops Logistics CC (the Proponent) proposed operations on erf 4605, Johannes Nampala Avenue, in the industrial area of Walvis Bay. The Proponent has existing logistics operations on the erf which includes importing and exporting of various goods and foodstuffs. The Proponent now plans to construct an additional enclosed storage facility on the erf, for the storage and handling of metal ores to ultimately be exported via the Port of Walvis Bay. The facility will be used to receive and temporarily stockpile manganese ore, iron ore, copper ore and potentially copper concentrate and cathodes. For purposes of this assessment, reference will be made to these products as “metal ores”, which can thus include any one or combination of the products. This assessment focus only on the construction of the warehouse, the storage and handling of the metal ores, and the operations of a consumer fuel installation on site..

The EMP is based on the environmental impact assessment conducted for the proposed facility in 2023 (Faul et al., 2023). The EMP provides management options to ensure impacts of the proposed project activities are minimised. 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 EMP acts as a stand-alone document, which can be used during the various phases (planning, construction, operational and decommissioning) of any proposed activity or development.

All contractors and sub-contractors taking part in construction and operational activities related to the project, should be made aware of the relevant sections of the EMP, so as to plan the relevant activities accordingly in an environmentally sound manner.

The objectives of the EMP are:

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

2 IMPLEMENTATION OF THE EMP

The sections below outline the management of the environmental elements that may be affected by the activities associated with the various phases of the facility. These phases are as follows:

- ◆ Planning Phase
- ◆ Construction 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 where appropriate. 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 environmental clearance certificate (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.

Various potential and definite impacts will emanate from the construction, 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.

2.1 PLANNING

During the phases of planning for construction, operations and decommissioning of the facility, it is the responsibility of 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 risks are minimised. The following actions are recommended for the planning phase and should continue during various other phases of the project:

- ◆ Ensure that all necessary permits from the various ministries, local authorities and any other bodies that governs the construction (maintenance) and operations of the facilities are in place and valid, this includes municipal consent where applicable.
- ◆ 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 Coordinator to implement the EMP and oversee occupational health and safety as well as general environmental related compliance at the site.
- ◆ Make provisions to have a community liaison officer on site who will handle complaints and community input, and through whom, where reasonable, monitoring data can be requested. Communicate the contact details of the community liaison officer to interested and affected parties when the project is initiated.
- ◆ 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 construction activities, operations and decommissioning as outlined in the EMP.
- ◆ Submit bi-annual reports to the MEFT to allow for environmental clearance certificate renewal after three years. This is a requirement by MEFT.
- ◆ Appoint a specialist environmental consultant to update the EIA and EMP and apply for renewal of the environmental clearance certificate prior to expiry.

2.1.1 Skills, Technology and Development

During various phases of construction and operations, training will be provided to a portion of the workforce. Skills are transferred to an unskilled workforce for general tasks. The technology required for the development of the facility is often new to the local industry, aiding in operational efficiency. Development of people and technology are key to economic development.

Desired Outcome: To see an increase in skills of local Namibians, as well as development and technology advancements in associated industries.

Actions

Mitigation:

- ◆ If the skills exist locally, contractors must first be sourced from the town, then the region and then nationally. Deviations from this practise must be justified.
- ◆ Skills development and improvement programs to be made available as identified during performance assessments.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Record should be kept of training provided.
- ◆ Ensure that all training is certified or managerial reference provided (proof provided to the employees) inclusive of training attendance, completion and implementation.
- ◆ Bi-annual summary report based on records kept.

2.1.2 Revenue Generation and Employment

The project will change the way revenue is generated and paid to the national treasury. An increase of skilled and professional labour will result from the operations of the project. Employment at the industrial yard will be sourced locally as far as practically possible while ore transport companies / drivers may be contracted from other regions.

Desired Outcome: Contribution to national treasury and provision of employment to local Namibians.

Actions

Mitigation:

- ◆ 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 practise must be justified.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

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

2.1.3 Demographic Profile and Community Health

The project is reliant on labour during the construction and operational phases. Local construction teams in Walvis Bay will be used for all general construction activities. Where possible, existing labour, already employed by the Proponent will be used. The scale of the construction portion of the project is limited and it is not expected to create a change in the demographic profile of the local community, especially since the Proponent already employ most of their labourers from the Kuisebmond community. Community health may be exposed to factors such as communicable disease like HIV/AIDS and alcoholism/drug abuse, associated with the trucking industry (transport of goods to and from Walvis Bay). Trucks delivering product to the warehouse will not stay for extended periods of time at the site, however, may reside over-night in Walvis Bay. Foreign persons in the area may increase the cumulative risk of communicable (such as HIV/ AIDS) in Walvis Bay.

Desired Outcome: To prevent the in-migration and growth in informal settlements, prevent the spread of communicable disease and prevent / discourage socially deviant behaviour.

Actions:

Prevention:

- ◆ Employ local people from the area where possible, deviations from this practise should be justified appropriately.
- ◆ Adhere to all municipal by-laws relating to environmental health which includes but is not limited to sand and grease traps for the various facilities and sanitation requirements.

Mitigation:

- ◆ Educational programmes for employees (especially truck drivers) on HIV/AIDS and general upliftment of employees' social status.
- ◆ Appointment of reputable contractors.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Facility inspection sheet for all areas which may present environmental health risks, kept on file.
- ◆ Bi-annual summary report based on educational programmes and training conducted.
- ◆ Bi-annual report and review of employee demographics.

2.1.4 Health, Safety and Security

Every activity associated with the construction and operational phases is reliant on human labour and therefore exposes them to health and safety risks. Activities such as the operation of machinery, unsafe stacking, falling from heights and handling of hazardous chemicals (inhalation of dust and potential health effects of fuels and chemicals), poses the main risks to employees. If not contained, windblown ore dust may further pose health risk to nearby receptors. Security risks are related to unauthorized entry, theft and sabotage. Security risks are increased as a result of high value commodities, specifically copper concentrates and cathodes, stored and handled at the site.

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

Actions

Prevention:

- ◆ All Health and Safety standards specified in the Labour Act should be followed.
- ◆ Limits must be set for exposure to metal ore dust and dust in general in the work place. Namibia only prescribes a time-weighted average for manganese and copper dust, but the value for manganese is considered too high. Refer to Table 2-1 below and implement best practice by adopting the most stringent limits. Where limits are exceeded, the correct respirators should be worn at all times.
- ◆ Clearly label dangerous and restricted areas as well as dangerous equipment and products.
- ◆ Provide all employees with required and adequate personal protective equipment (PPE) including dust masks and protective clothing for workers in close proximity to, or working with, the metal ore. Accidental inhalation, ingestion, dermal or eye contact with ore dust must be prevented at all times.
- ◆ Ensure that all personnel receive adequate training on operations of equipment / handling of hazardous substances.
- ◆ Implementation of maintenance register for all equipment and fuel/hazardous substance storage areas.
- ◆ Equipment on site must be stored in a way that does not encourage criminal activities (e.g. locked away to prevent theft).
- ◆ Appoint reputable contractors for transporting of ore who prioritise the safety and well-being of the truck drivers and the community.
- ◆ Security procedures and proper security measures must be in place to protect workers and clients.
- ◆ Strict security that prevents unauthorised entry.

Mitigation:

- ◆ Selected personnel should be trained in first aid and a first aid kit must be available on site. The contact details of all emergency services must be readily available.
- ◆ Implement and maintain an integrated health and safety management system, to act as a monitoring and mitigating tool, which includes operational, safe work and medical procedures, permits to work, emergency response plans, housekeeping rules, MSDS's and signage requirements (PPE, flammable etc.).
- ◆ Dust suppression when required.
- ◆ Emergency wash stations in case of accidental exposure to chemicals or metal ore dust.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Air quality monitoring must be conducted on site and within the port to especially monitor ore dust fallout. The dust must regularly be analysed for the occurrence of asbestos. Should asbestos be detected, all operations must cease and only be continued under very strict and approved health and safety procedures related to the handling of

asbestos containing material. Monitoring to be conducted by an independent specialist who must advise on the monitoring protocol to be followed.

- ◆ Analyse one sample of ore for radioactivity and submit these results to the National Radiation Protection Authority prior to commencement of the transport of ore into Namibia.
- ◆ 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.

Table 2-1 Time-weighted average (8-hour period) occupational exposure limits for elemental manganese, iron oxide and total respirable dust

| | Namibian | OSHA* | NIOSH** | RSA |
|--------------------------------|----------|-------|---------|-----|
| Manganese (elemental) | 5 | 5 | 1 | 0.2 |
| Iron Oxide (Respirable) | None | 10 | 5 | 10 |
| Copper (elemental) | 1 | 1 | 1 | 1 |
| Total Respirable Dust | None | 5 | None | 5 |

* Permissible Exposure Limit

** Recommended Exposure Limit

2.1.5 Traffic

The warehouse is within an area zoned for industrial use and will result in an increase in traffic along Johannes Nampala Street. The proposed handling of metal ores and products will add to the amount of trucks accessing and leaving the site, as well as on the national road networks. Heavy vehicle turning in Johannes Nampala Street to access and leave the site may result in an increased, cumulative impact on the road surface of the area. The Proponent has already endeavoured to pave the side-walk and provide a dedicated pedestrian walk-way for labourers. In addition they have requested additional road signage – specifically prohibiting the execution of U-turns in front of their facility by trucks servicing surrounding businesses. Additional trucks in Walvis Bay, delivering and collecting products to business around the Port, will contribute to the cumulative challenge faced by the Municipality in terms of HMV management and road degradation.

Desired Outcome: Minimum impact on traffic and no transport or traffic related incidents.

Actions

Mitigation:

- ◆ Trucks delivering or collecting goods should not be allowed to obstruct any traffic in surrounding areas and the town.
- ◆ Trucks associated with the facility should not be allowed to park or overnight in Johannes Nampala Street, and may only overnight at areas designated for this purpose.
- ◆ Adhere to Namport and Town Council regulations e.g. preferred routes through town and mitigation measures provided in Namport's EMP.
- ◆ Adhere to The Road Traffic and Transport Regulations, 2001 and all other applicable legislation related to road transport and maximum axle loads.
- ◆ If any traffic impacts are expected, traffic management should be performed to prevent these.
- ◆ The placement of signs to warn and direct traffic will mitigate traffic impacts.
- ◆ Identify vehicles on which hazardous substances are to be transported and handle all dangerous or hazardous goods according to MSDS instructions and under supervision of trained staff. Ensure the correct documentation (e.g. dangerous goods declaration, TREMCARD, etc.) is provided in the vehicle. Verify that the driver of the vehicle has undergone appropriate training.
- ◆ Get approval for an alternative exit to relieve traffic.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ The Road Traffic and Transport Regulations, 2001
- ◆ Any complaints received regarding traffic issues should be recorded together with action taken to prevent impacts from repeating itself.
- ◆ A bi-annual report should be compiled of all incidents reported, complaints received, and action taken.

2.1.6 Air Quality Related Impacts

Reduced air quality as a result of exhaust gases (greenhouse gases) of trucks visiting the property and the port during construction and operations. This may have localised health impacts, but are expected to disperse relatively quickly due to the prevailing south-westerly winds in Walvis Bay. It will however still contribute to greenhouse gas emissions that in turn contribute to climate change. In terms of greenhouse gas emissions from trucks, it is the project in its entirety that should be considered. It is thus the responsibility of all stakeholders to implement strategies and measures to curb the release of greenhouse gases. The Proponent's contribution to greenhouse gas emissions will be minimal.

Air quality as a result of windblown ore dust can cause health effects, especially through chronic inhalation of such dust, in the nearby communities. The risk is not only related to the manganese, iron and copper per se, but also to the potentially harmful gangue materials that comprise the bulk of the ore, as well as respirable fractions (PM10) and thoracic fraction (PM2.5) of the dust. Since the gangue materials present are not necessarily known, but could potentially include for example asbestos, it is crucial that the inhalation / ingestion of dust is prevented at all times. Sources of such dust can be from trucks not suitably covered, dust originating from the warehouse when the doors are opened and dust carried onto paved surfaces outside the warehouse by truck wheels.

Prevailing winds will carry dust, if not contained, to the north-east of the industrial yard where residential areas are situated (500 m away). Specifically iron ore dust can over time cause discoloration of paint, especially in moist environments.

Desired Outcome: To prevent health impacts and to maintain the integrity of the built environment, especially historically significant buildings. To reduce greenhouse gas emissions.

Actions

Prevention:

- ◆ All truck or rail car loads must be suitably covered to prevent the escape of dust from the load bin. This include empty trucks / rail cars that may still contain some dust.
- ◆ All bulk bags must be checked prior to filling to ensure they are not damaged. Forklift operators to be suitably trained.
- ◆ Appoint reputable contractors for transporting of ore who prioritise a “zero dust policy”.

Mitigation:

- ◆ Dust suppression in the warehouse when required.
- ◆ Cease any operations with immediate effect once dust plumes that cannot be contained becomes visible. Operations can commence once sufficient mitigation measures have been implemented or when the cause of dust disseminates. This includes operational processes such as handling and loading / offloading of ore at the bulk storage yard, transport through town, offloading in the port, etc.
- ◆ All trucks transporting ore must be service regularly and make use of technology to reduce emissions. This include selective catalytic reduction, diesel particulate filters and diesel oxidation catalysts.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Air quality monitoring must be conducted on site to monitor ore dust fallout. If asbestos is detected, all operations must cease immediately and only be continued under very strict and approved health and safety procedures related to the handling of asbestos containing material. Monitoring to be conducted by an independent specialist who must advise on the monitoring protocol to be followed.
- ◆ Ore must be sampled irregularly once every three months for asbestos in the ore.

- ◆ Any complaints received regarding ore dust along the transport routes and sites of handling of ore must be recorded, investigated and the problem rectified.
- ◆ Any incidents must be recorded with action taken to prevent future occurrences.
- ◆ A bi-annual report should be compiled of all incidents reported and monitoring performed. The report should contain dates when safety equipment and structures were inspected and maintained.

2.1.8 Fire

Construction and operational activities may increase the risk of the occurrence of fires if proper maintenance and housekeeping are not conducted. Ore dust (fines) suspended in the air can become flammable in excessive quantities.

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

Actions:

Prevention:

- ◆ Ensure all materials are stored strictly according to MSDS instructions. This include segregation of incompatible products, if any.
- ◆ Maintain regular site, mechanical and electrical inspections and maintenance.
- ◆ Clean all spills / leaks.
- ◆ Ensure sufficient firefighting and fire prevention measure are in place for the specific products being stored and handled in the warehouse. This includes specific fire suppressants compatible with the materials stored.
- ◆ Regularly update the firefighting and prevention plan and equipment according to the materials stored on site, keeping in mind the activities on neighbouring properties.
- ◆ Proper dust suppression to be conducted in the warehouse to prevent airborne dust (fines) that can become flammable if present in excessive quantities.

Mitigation:

- ◆ A holistic fire protection and prevention plan is needed for flammable products. This plan must include an emergency response plan, firefighting plan and spill recovery plan, and should include specific substances handled at the site. The plan should consider risks posed to and by neighbouring properties.
- ◆ Maintain dust suppression systems, firefighting equipment, good housekeeping and personnel training (firefighting, fire prevention and responsible housekeeping practises).

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ A register of all incidents must be maintained on a daily basis. 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.

2.1.9 Noise

Noise pollution will exist due to heavy and light motor vehicles accessing the site to load and offload cargo as well as from the stacking and moving of containers and other large equipment. As the site is situated in an industrial area and all cargo handling activities will take place within the warehouse, noise impacts on surrounding properties will be minimal. Operational hours will be limited to between 07h00 and 19h00, and night-time activities will be minimal. Construction (maintenance and upgrade) may generate excessive noise.

Desired Outcome: To prevent any nuisance and hearing loss due to noise generated.

Actions

Prevention:

- ◆ The Health and Safety Regulations of the Labour Act and World Health Organization (WHO) guideline on maximum noise levels (Guidelines for Community Noise, 1999) to prevent hearing impairment for workers on site should be followed during the construction and operational phases.
- ◆ Confine noise generating operational activities to daytime hours as far as possible.
- ◆ At night, the nuisance created by audible warning signals on trucks and forklifts can be prevented by switching to a flashing light or 'broadband white noise' system.

Mitigation:

- ◆ Hearing protectors as standard PPE for workers in situations with elevated noise levels.
- ◆ Maintain noise generating activities to within the warehouse as far as possible.
- ◆ All machinery must be regularly serviced to ensure minimal noise production.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ WHO Guidelines.
- ◆ Maintain a complaints register.
- ◆ Bi-annual report on complaints and actions taken to address complaints and prevent future occurrences.

2.1.10 Waste production

Various waste streams will result from the operational phase and development of the facility. Waste may include hazardous waste associated with fuel storage and the handling of hazardous products and contaminated packaging material. Domestic waste will be generated by the facility and related operations. Waste presents a contamination risk and when not removed regularly may become a fire hazard. Construction waste may include building rubble and discarded equipment. Contaminated soil and water is considered as a hazardous waste.

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

Actions

Prevention:

- ◆ 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.
- ◆ Prevent scavenging (human and non-human) of waste.
- ◆ All drains leading directly into sewers must be closed off, and locked where possible, to prevent any unwanted products from entering sewers should an accidental spill occur. Where drains are present to drain wash water, these should only be opened during times of washing.

Mitigation:

- ◆ 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).
- ◆ See the material safety data sheets available from suppliers for disposal of contaminated products and empty containers.
- ◆ Liaise with the municipality regarding waste and handling of hazardous waste.
- ◆ Due to the nature of some hazardous materials they, or the containers they are packed in, should be disposed of in an appropriate way at an appropriately classified waste disposal facility. See the material safety data sheets available from suppliers for disposal methods.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ 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.
- ◆ All information and reporting to be included in a bi-annual report.

2.1.11 Ecosystem and Biodiversity Impact

The nature of the operational activities is such that the probability of creating a habitat for flora and fauna to establish is low. No significant impact on the biodiversity of the area is predicted as this is an existing operation and the site is void of natural fauna and flora. Excessive lighting used at night and especially those that are directed upwards may blind birds like flamingos that fly at night. This may result in disorientation of birds and collisions with structures. Further impacts will mostly be related to pollution of the environment.

Desired Outcome: To avoid pollution of and impacts on the ecological environment.

Actions.

Mitigation:

- ◆ Report any extraordinary ecological sightings to the Ministry of Environment, Forestry and Tourism.
- ◆ Mitigation measures related to waste handling and the prevention of groundwater, surface water and soil contamination should limit ecosystem and biodiversity impacts.
- ◆ Avoid scavenging of waste by fauna.
- ◆ The establishment of habitats and nesting sites at the facility should be prevented where possible.
- ◆ Lights used at night should be kept to a minimum and should be directed downwards to the working surfaces.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ All information of extraordinary ecological sightings to be included in a bi-annual report.

2.1.12 Groundwater, Surface Water and Soil Contamination

Ore dust that are not contained in the warehouse or trucks can contaminate the environment. Operations further entail the storage and handling of hydrocarbons which present a contamination risk. Contamination may either result from failing storage facilities, pumps and pipelines, or spills and leaks associated with overfilling or human error. Such spills may contaminate surface water, soil and groundwater.

Desired Outcome: To prevent the contamination of water and soil.

Actions

Prevention:

- ◆ Dust suppression in the warehouse to prevent dust blown into the surrounding environment when warehouse doors are opened.
- ◆ Action must be taken immediately for all instances where ore dust is not contained. Dust causing actions must be halted and corrective measures implemented.
- ◆ Spill control structures and procedures must be in place according to SANS standards or better and connection of all surfaces where fuel is stored or handled.
- ◆ All fuelling should be conducted on surfaces provided for this purpose. E.g. Concrete slabs with regularly maintained seals between slabs.
- ◆ The procedures followed to prevent environmental damage during service and maintenance, and compliance with these procedures, must be audited and corrections made where necessary.
- ◆ Proper training of operators must be conducted on a regular basis (fuel handling, spill detection, spill control).

Mitigation:

- ◆ Install a rumble grid at the warehouse exit to dislodge and contain any ore nuggets trapped in tyres. Also conduct visual inspection of the tyres.
- ◆ Any fuel spillage of more than 200 litre must be reported to the relevant authorities.
- ◆ Spill clean-up means must be readily available on site as per the relevant MSDS.
- ◆ Any spill must be cleaned up immediately.
- ◆ The spill catchment traps should be cleaned regularly and waste disposed of at a suitably classified hazardous waste disposal facility.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ 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, comparison of pre-exposure baseline data (previous pollution conditions survey results) with post remediation data (e.g. soil/groundwater hydrocarbon concentrations) and a copy of documentation in which spill was reported to Ministry of Mines and Energy (for hydrocarbon spills).

2.1.13 Visual Impact

This is an impact that not only affects the aesthetic appearance, but also the integrity of the facility. The site is within an area zoned for industrial use. The development of the site is in line with the urban character.

Operations will be kept tidy and neat which will promote effectiveness and pollution prevention while being aesthetically pleasing.

Desired Outcome: To minimise aesthetic impacts associated with the facility.

Actions

Mitigation:

- ◆ Regular waste disposal, good housekeeping and routine maintenance on infrastructure will ensure that the longevity of structures are maximised and a low visual impact is maintained.
- ◆ All structures and infrastructures constructed on site should be in line with the visual character of the landscape as far as practically possible.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ A bi-annual report should be compiled of all complaints received and actions taken.

2.1.14 Cumulative Impact

Possible cumulative impacts associated with the operational phase include increase in traffic frequenting the site. This will have a cumulative impact on traffic flow on surrounding streets.

The increase of traffic and other noise generating activities in the area may further increase the noise impacts on nearby receptors, the facility is however situated in an industrial area. The cumulative effect of lighting on birds due to various industrial related developments may also increase the risk of collisions and interference with bird flight paths at night.

Desired Outcome: To minimise all cumulative impacts associated with the facility.

Actions

Mitigation:

- ◆ Addressing each of the individual impacts as discussed and recommended in the EMP would reduce the cumulative impact.
- ◆ Reviewing biannual and annual reports for any new or re-occurring impacts or problems would aid in identifying cumulative impacts and help in planning if the existing mitigations are insufficient.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

- ◆ Review bi-annual summary reports based on all other impacts to gain an overall assessment of the impact of the operational phase.

2.2 DECOMMISSIONING AND REHABILITATION

Decommissioning is not foreseen during the validity of the environmental clearance certificate. Decommissioning was however assessed as construction activities include modification and decommissioning. Should decommissioning occur at any stage, rehabilitation of the area may be required. Decommissioning will entail the complete removal of all infrastructure including buildings and underground infrastructure not forming part of post decommissioning use. Any pollution present on the site must be remediated. The impacts associated with this phase include noise and waste production as structures are dismantled. Noise must be kept within Health and Safety Regulations of the Labour Act and WHO standards and waste should be contained and disposed of at an appropriately classified and approved waste facility and not dumped in the surrounding areas. Future land use after decommissioning should be assessed prior to decommissioning and rehabilitation initiated if the land would not be used for future purposes. The EMP for the facility will have to be reviewed at the time of decommissioning to cater for changes made to the site and implement guidelines and mitigation measures.

3 CONCLUSION

The above 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 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 (bi-annually) to allow for the future renewal of the ECC.

4 REFERENCES

Faul A; Bosman Q; Strauss J; 2023 May; Storage and Handling of Metal Ores in the Industrial Area of Walvis Bay, Erongo Region: Environmental Assessment Scoping Report.