APP-005755

OPERATION OF A CHARCOAL PROCESSING AND HANDLING FACILITY IN WALVIS BAY

UPDATED ENVIRONMENTAL MANAGEMENT PLAN

Assessed by:

Assessed for:

KING CHARCOAL

April 2025

Project:	**OPERATION OF A CHARCOAL PROCESSING AND HANDLING FACILITY IN WALVIS BAY: UPDATED ENVIRONMENTAL MANAGEMENT PLAN**	
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Report Approval	20250425 King Charcoal ECC Renewal **Quzette Bosman** **Environmental & Social Practitioner**	

I _____ acting as the Proponent's representative (King Charcoal Namibia (Pty) Ltd), hereby confirm that the project description contained in this report is a true reflection of the information which the Proponent has provided to Geo Pollution Technologies. All material information in the possession of the Proponent that reasonably has or may have the potential of influencing any decision or the objectivity of this assessment is fairly represented in this report.

Signed at Walvis Bay on the 25 day of April 2025.

King Charcoal Namibia (Pty) Ltd

2013/0606/07
Registration Number

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1 INTRODUCTION

King Charcoal Namibia (Pty) Ltd (the Proponent) requested Geo Pollution Technologies (Pty) Ltd to renew the existing Environmental Clearance Certificate (ECC-02142) of their charcoal processing and handling facility, on a portion of Farm 38, Walvis Bay. Daily operations include the receipt of charcoal, its processing and sorting into various sizes. Dust generated from the sieving process is utilised in the production of briquettes. Processed products are then packaged and stored.Once sorted, products are binned and packaged for shipment to international markets. The facility expanded its boundaries on a portion of Farm 38 adjacent to the original property boundary to support increased storage capacity.

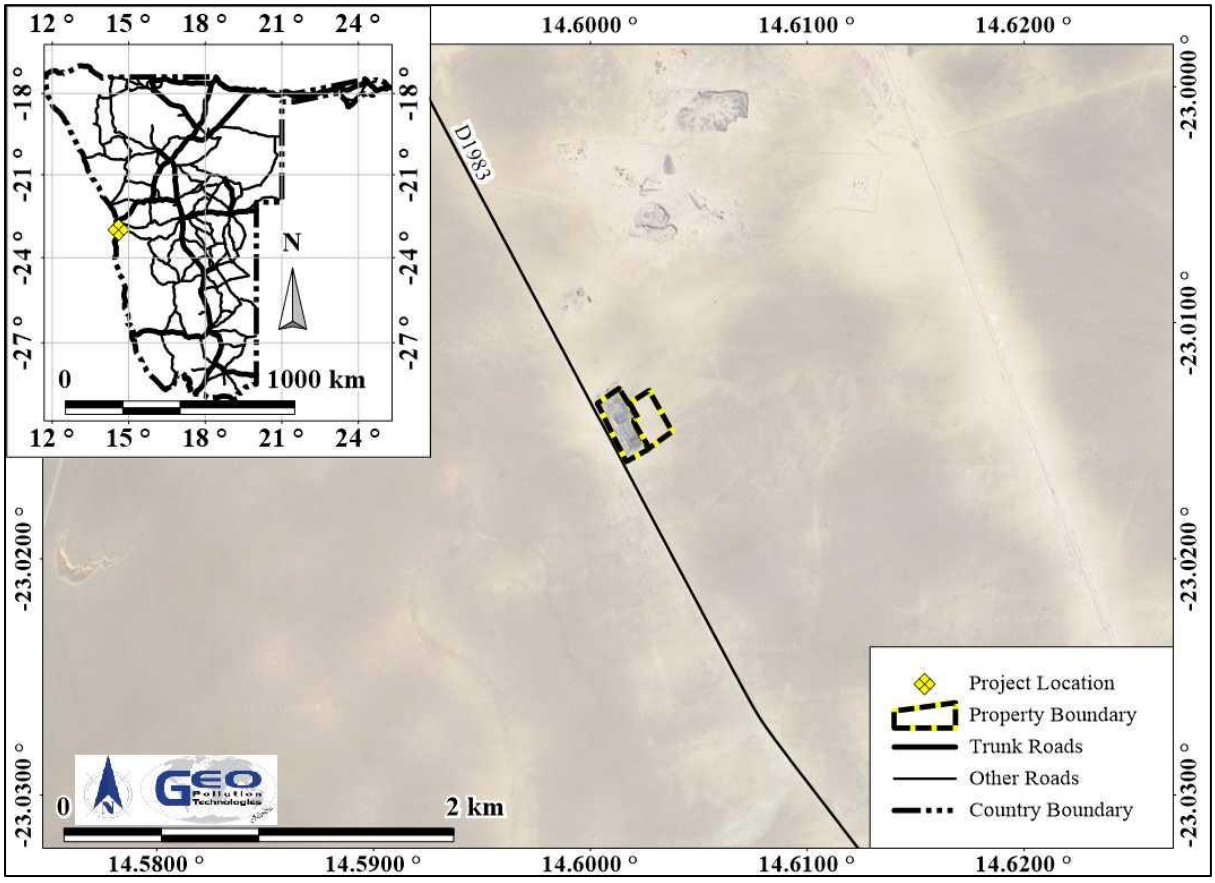

Figure 1-1 Location map

A risk assessment was undertaken in 2019 (Bosman et al. 2019) to determine the potential impact of the operations, maintenance / construction, and possible decommissioning phases of the project on the environment. The environment being defined in the Environmental Assessment Policy and Environmental Management Act as "land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, paleontological or social values".

The updated environmental management plan was prepared in support of an environmental clearance certificate in compliance with Namibia's Environmental Management Act (Act No 7 of 2007) (EMA).

2 PROJECT DESCRIPTION

The Proponent is continuing with operations as originally proposed, with no changes or additional activities introduced. However, an adjacent area to the north-east of the current site has been identified for expansion and will be used to increase available storage space (Figure 2-1). The existing facility covers an area of 30,000 m², and the new erf adds a further 33,000 m². This brings the total area under the Proponent's operations to approximately 63,000 m^2.

2.1 OPERATIONAL ACTIVITIES

Approximately 3,000 ton of charcoal is packed and exported per month. Continued operations are reliant on continual maintenance and servicing of all equipment.

2.1.1 Receipt of Unprocessed Charcoal

Charcoal is received daily at the facility. Each incoming truckload is weighed on arrival using the on-site weighbridge. The charcoal is then offloaded onto a conveyor system that transfers the material into an enclosed facility for sieving. Once offloading is complete, trucks exit the site and re-enter empty to be weighed again before final departure. All received charcoal is sifted and binned as part of the standard intake process.

2.1.2 Charcoal Sieving and Binning

Charcoal is loaded onto vibrating screens that sieve it into various sizes with different classifications. Thereafter the charcoal is weighed and measured individually. The scale for measuring the weight is continuous along a conveyor system (continuous scale). The charcoal is conveyed to holding bins for each classified size.

2.1.3 Bagging Pant

From the holding bins, all charcoal products, categorised by size, are transferred to the bagging plant for packaging. The barbecue and restaurant-grade charcoal are conveyed separately from their respective holding bins, through a wall, to two dedicated mechanised bagging machines via belt conveyors. Once bagged, the bags are manually stitched closed and moved by conveyor to a palletising station located in an adjacent room. Charcoal fines, classified as a separate product, are also bagged independently. Dust collected from the dust extraction system is added to the charcoal fines during this process.

2.1.4 Palleting (Stacking)

Packed charcoal product is placed onto pallets for easy internal movement and storage. Charcoal packages are stacked 2.7 m high on a pallet and then the pallet and stack is industrially wrapped with plastic. Once wrapped the palleted charcoal is either transported to the warehouse for storage, or directly into containers for shipment to the harbour for export.

2.1.5 Briquetting Plant

All dust extracted from the industrial sieve and bagging plant is either added to the charcoal fines, as previously described, or used in the production of briquettes. For briquette production, charcoal fines are first pulverised in an enclosed crusher. The resulting material is mixed with dust collected from the extraction system and combined with a binding agent. This mixture is then pressed through rollers that cut it into uniformly shaped briquettes. The briquettes are dried as they pass through a continuous oven built around the conveyor system. Once cooled, they are packed in a dedicated bagging plant for shipment.

2.1.6 Storage and Shipping

The packaged products are stored in enclosed warehouses or containers until being transported to the harbour for shipment.

2.1.7 Dust Extraction

The majority of dust is generated during sieving, binning and packaging. Industrial dust extraction is conducted during these processes. The dust extractor is connected to duct piping around the facility, to extract and convey the dust. These duct pipes are located above the three screening machines (sieving stations), the holding bins and above the bagging stations.

2.1.8 Maintenance and Waste Handling

Regular maintenance and cleaning of the infrastructure is performed. The water pipeline between the NamWater main line and yard is maintained by the Proponent while the metered connection remains the responsibility of the Municipality of Walvis Bay. The municipality is

not able to remove solid waste from the site. The Proponent therefore made an agreement with a contractor for solid waste disposal. Sewage waste is removed from the onsite storage tanks on a weekly basis by the Municipality of Walvis Bay, for disposal through their sewage treatment facility in Walvis Bay.

2.1.9 Labour

All employees are provided with appropriately rated and relevant personal protective equipment (PPE). Such equipment include overalls, dust masks, gloves, boots, safety hats, protective glasses, as needed. All employees are remunerated as per industry standard while additional benefits such as medical aid are provided. All employees are transported to site.

2.1.10 Property Access

Both the property entrance and exit roads are maintained by the Proponent during the lifetime of operations. The access points are maintained according to the requirements of the Roads Authority. Maintenance of the municipal service road remains the responsibility of the Municipality of Walvis Bay, unless otherwise agreed by both parties. The D1983 is maintained by the Roads Authority.

2.1.11 Transporting / Logistics

Transportation of charcoal from the suppliers to the site is managed and arranged by the Proponent. Similarly, all transportation from the site to the harbour, as well as the movement of empty containers to the site, is arranged and managed by the Proponent.

Figure 2-1 Additional erf added to the operations

3 ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS

To protect the environment and achieve sustainable development, all projects, plans, programmes and policies deemed to have adverse impacts on the environment, require an environmental assessment, as per the Namibian legislation. In addition, the environmental commissioner has the right to request any project, plan or programme, which the environmental commissioner sees fit, to conduct an environmental assessment. Pertinent legislation and standards which may have bearing on the project, are included in Table 3-1 to Table 3-3.

Table 3-1 Pertinent Namibian Regulations Relevant to the Project

Law	Key Aspects
The Namibian Constitution	♦ Promote the welfare of people. ♦ Incorporates a high level of environmental protection. ♦ Incorporates international agreements as part of Namibian law.
Environmental Management Act Act No. 7 of 2007, Government Notice No. 232 of 2007	♦ Defines the environment. ♦ Promote sustainable management of the environment and the use of natural resources. ♦ Provide a process of assessment and control of activities with possible significant effects on the environment.
Environmental Management Act Regulations Government Notice No. 28-30 of 2012	♦ Commencement of the Environmental Management Act. ♦ List activities that requires an environmental clearance certificate. ♦ Provide Environmental Impact Assessment Regulations.
Water Resources Management Act Act No. 11 of 2013, Government Notice No. 269 of 2023	♦ Provide for management, protection, development, use and conservation of water resources. ♦ Prevention of water pollution and assignment of liability.
Local Authorities Act Act No. 23 of 1992, Government Notice No. 116 of 1992	♦ Define the powers, duties and functions of local authority councils. ♦ Regulates discharges into sewers.
Public and Environmental Health Act Act No. 1 of 2015, Government Notice No. 86 of 2015	♦ Provides a framework for a structured more uniform public and environmental health system, and for incidental matters. ♦ Deals with Integrated Waste Management including waste collection disposal and recycling; waste generation and storage; and sanitation.
Labour Act Act No 11 of 2007, Government Notice No. 236 of 2007	♦ Provides for Labour Law and the protection and safety of employees. ♦ Labour Act, 1992: Regulations relating to the health and safety of employees at work (Government Notice No. 156 of 1997).

Law	Key Aspects
Atmospheric Pollution Prevention Ordinance Ordinance No. 11 of 1976	♦ Governs the control of noxious or offensive gases. ♦ Prohibits scheduled process without a registration certificate in a controlled area. ♦ Requires best practical means for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process.
Hazardous Substances Ordinance Ordinance No. 14 of 1974	♦ Applies to the manufacture, sale, use, disposal and dumping of hazardous substances as well as their import and export. ♦ Aims to prevent hazardous substances from causing injury, ill-health or the death of human beings.
Pollution Control and Waste Management Bill (draft document)	♦ Not in force yet. ♦ Provides for prevention and control of pollution and waste. ♦ Provides for procedures to be followed for licence applications.

Table 3-2 Municipal By-laws, Guidelines and Regulations

Municipal By-laws, Guidelines or Regulations	Key Aspects
Integrated Urban Spatial Development Framework for Walvis Bay	♦ Overall vision to transform Walvis Bay to being the primary industrial city in Namibia. ♦ Aims to ensure that appropriate levels of environmental management is enforced for all developments in Walvis Bay.
Integrated Environmental Policy of Walvis Bay (Agenda 21 Project)	♦ Indicates the directions that the Municipality of Walvis Bay will move towards in the forthcoming years to fulfil its responsibilities to manage the environment of Walvis Bay together with the town's residents and institutions. ♦ Strong focus on conservation and protection of environment.
Municipal By-law 19 and 20 on Effluents Entering Sewers	♦ Regulates the discharge of effluent into sewers and prohibits the introduction of certain wastes or products including steam into the sewers system.
Government Notice No. 269 of 2023	♦ Manages and regulates development related to land use. ♦ Proposes and identifies areas for specific future land use.
Town Planning Scheme No. 35	♦ Manages and regulates development related to land use. ♦ Proposes and identifies areas for specific future land use.

Table 3-3 Relevant Multilateral Environmental Agreements for Namibia and the Project

Agreement	Key Aspects
Stockholm Declaration on the Human Environment, Stockholm 1972.	♦ Recognizes the need for a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment.
1985 Vienna Convention for the Protection of the Ozone Layer	♦ Aims to protect human health and the environment against adverse effects from modification of the Ozone Layer are considered. ♦ Adopted to regulate levels of greenhouse gas concentration in the atmosphere.
United Nations Framework Convention on Climate Change (UNFCCC)	♦ The Convention recognises that developing countries should be accorded appropriate assistance to enable them to fulfil the terms of the Convention.
Convention on Biological Diversity, Rio de Janeiro, 1992	♦ Under article 14 of The Convention, EIAs must be conducted for projects that may negatively affect biological diversity.

Listed activities, which require an ECC application (Government Regulation No 29 of 2012) related to this project, include the following:

- 1 "The construction of facilities for the generation of electricity." support infrastructure to the operations relate to electricity generation which is achieved through PV panels being mounted on the roof of the main facility.
- 2.2 "Any activity entailing a scheduled process referred to in the Atmospheric Pollution Prevention Ordinance, 1976." Should dust emissions be emitted and exceed limitation as set for the Walvis Bay Scheduled Area.
- 9.1 The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974.Dust of any kind, if present at a substantial concentration in air, is considered a hazardous substance according to the Labour Act 11 of 2007. The facility will create dust volumes which will be classified as hazardous.

4 ENVIRONMENTAL MANGEMENT PLAN

The EMP provides management options to ensure impacts of the facility 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 environmental management measures are provided in the tables and descriptions below. These management measures should be adhered to during the various phases of the operation of the facility. This section of the report can act as a stand-alone document. All personnel taking part in the operations of the facility should be made aware of the contents in this section, so as to plan the operations accordingly and in an environmentally sound manner.

The objectives of the EMP are:

- to include all components of construction activities (upgrades, maintenance, etc.) and operations of the facility;
- to prescribe the best practicable control methods to lessen the environmental impacts associated with the project;
- to monitor and audit the performance of construction and operational personnel in applying such controls; and
- to ensure that appropriate environmental training is provided to responsible construction and operational personnel.

4.1.1 Planning

During the phases of planning for future operations, construction and decommissioning of the facility, it is the responsibility of the Proponent to ensure they are and remain compliant with all legal requirements. The Proponent must also ensure that all required management measures are in place prior to and during all phases, to ensure potential impacts and 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) activities and operations of the project remains valid.
- Ensure all appointed contractors and employees enter into an agreement which includes the EMP. Ensure that the contents of the EMP are understood by the contractors, sub-contractors, employees and all personnel present or who will be present on site.
- Make provisions to have a Health, Safety and Environmental Coordinator to implement the EMP and oversee occupational health and safety as well as general environmental related compliance at the site.
- Have the following emergency plans, equipment and personnel on site where reasonable to deal with all potential emergencies:
    - Risk management / mitigation / EMP/ Emergency Response Plan and HSE Manuals
    - Adequate protection and indemnity insurance cover for incidents;
    - Comply with the provisions of all relevant safety standards;
    - Procedures, equipment and materials required for emergencies.
- If one has not already been established, establish and maintain a fund for future ecological restoration of the project site should project activities cease and the site is decommissioned and environmental restoration or pollution remediation is required.
- Establish and / or maintain a reporting system to report on aspects of construction activities, operations and decommissioning as outlined in the EMP.
- Submit biannual reports to Ministry of Environment, Forestry, and Tourism (MEFT) as their requirements and to ensure future renewal of the ECC.
- Appoint a specialist environmental consultant to update the EA and EMP and apply for renewal of the environmental clearance certificate prior to expiry.

4.1.2 Skills, Technology and Development

During various phases of the facility, training has been and will be provided to a portion of the workforce to be able to maintain and operate various components of the facility. Skills are also transferred to the unskilled workforce for general tasks. The technology required for the development of the facility remains unique to the local industry, aiding in operational efficiency. Development of people and technology are key to economic development.

The employees have emergency and evacuation plan training while the supervisors and identified employees have fire-fighting training.

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

Actions

Enhancement:

- If the skills exist locally, contractors must first be sourced from the town, then the region and then nationally. Deviations from this practice must be justified.
- Skills development and improvement programs to be made available as identified during performance assessments.
- Employees to be informed about parameters and requirements for references upon employment.
- The Proponent must employ Namibians where possible. Deviations from this practise should be justified appropriately.

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.

4.1.3 Revenue Generation and Employment

The project has led to an increase and change in the way revenue is generated and paid to the local municipality. Employment is sourced locally while skilled labour/contractors may be sourced from other regions. In addition, an expansion of operations has led to an increase in export of locally manufactured goods to international markets. Increased exported product will increase contributions to the national economy and contribute to a positive trade balance. The facility further contributes to the transport sector as well as the charcoal industry at large.

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

Actions

Enhancement:

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

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Bi-annual summary report based on employee records.
- Financial auditing.

4.1.4 Demographic Profile and Community Health

It is not foreseen that the expansion of the project will create a change in the demographic profile of the local community. Community health may be exposed to factors such as communicable disease like HIV/AIDS and alcoholism/drug abuse, associated with uneducated financial expenditure. An increase in foreign people in the area may potentially increase the risk of criminal and socially/culturally deviant behaviour. However, such trends have not been observed among the employees since the facility became operational. Community health is therefore considered not to be exposed to significant health risks.

Desired Outcome: To prevent the spread of communicable disease and prevent / discourage socially deviant behaviour.

Actions

Prevention:

- Employ only local people from the area, deviations from this practice should be justified appropriately.
- Adhere to all municipal by-laws relating to environmental health.
- Prohibit substances abuse on the site.
- Educational programmes for employees on HIV/AIDs and general upliftment of employees' social status.
- Appointment of reputable contractors.

Mitigation:

- Educational programmes for employees (especially truck drivers) on HIV/AIDs and general upliftment of employees' social status.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Facility inspection sheets, for kitchen, toilets and showers, or any area 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.

4.1.5 Traffic

An increase in traffic to and from the site may increase congestion and increase the risk of incidents and accidents, especially along the national and district routes to the site and the harbour. In addition, unprocessed charcoal being transported to the site may have fly-off particles which may increase incidents. Access points onto the municipal service road, the site and the D1983 District Road will carry additional traffic loads.

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

Actions

Prevention:

- Erect clear signage regarding access and exit points at the facility. Clear indications of charcoal deliveries areas.
- Upgrade of access points according to the requirements of the Roads Authority when required.
- All contractors or employees driving heavy motor vehicles should have appropriate training and qualifications to operate such vehicles.
- All vehicles to be roadworthy and appropriately licensed.
- All loads to be covered or appropriately secured.

Mitigation:

- If any traffic impacts are expected, traffic management should be performed to prevent these.

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 report should be compiled bi-annually of all incidents reported, complaints received, and action taken.

4.1.6 Health, Safety and Security

Every activity associated with the operational phase is reliant on human labour and therefore exposes them to health and safety risks. Activities such as the operation of machinery and handling of the charcoal, poses risks to employees. Employees are exposed to elevated levels of dust. Security risks are related to unauthorized entry, theft and sabotage.

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

Actions

Prevention:

- Clearly label dangerous and restricted areas as well as dangerous equipment and products.
- Implement a hazardous dust inspection, testing, housekeeping and control program.
- Use proper dust collection systems and filters.
- Minimise the escape of dust from process equipment or ventilation systems.
- Use surfaces that minimize dust accumulation and facilitate cleaning.
- Equipment must be locked away on site and placed in a way that does not encourage criminal activities (e.g. theft).
- Provide all employees with required and adequate personal protective equipment (PPE).
- Ensure that all personnel receive adequate training on operation of equipment / handling of hazardous substances and PPE, especially the importance of dust masks.
- All health and safety standards specified in the Labour Act should be complied with.
- Implementation of a maintenance register for all equipment and hazardous substance storage areas.

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: colour coding of pipes, operational, safe work and medical procedures, permits to work, emergency response plans, housekeeping rules, material safety data sheets (MSDS) and signage requirements (PPE, flammable etc.).
- Security procedures and proper security measures must be in place to protect workers and clients, especially during cash in transit activities.
- Strict security that prevents unauthorised entry during construction phases.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Any incidents must be recorded with action taken to prevent future occurrences.
- All employees to routinely be subject to medical examination.
- Bi-annual reporting.

4.1.7 Fire

Operational activities may increase the risk of the occurrence of fires. Charcoal dust is considered as a potential combustible material which has a fire risk. Charcoal and charcoal dust, to be processed on site, are not likely to spontaneously combust. Dust extractors and related filters pose an additional explosion and fire risk. Charcoal that is received and stored when they have not cooled off, could combust and start a fire.

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

Actions

Prevention:

- Ensure all chemicals are stored according to MSDS instructions.
- Maintain regular site, mechanical and electrical inspections and maintenance.
- Fire-fighting training to be provided to staff.
- Use only vacuum cleaners approved for dust collection.
- Use appropriate electrical equipment and wiring methods.
- Control static electricity, including bonding of equipment to ground.
- Control smoking (designated smoking areas), open flames, and sparks.
- Control mechanical sparks and friction and ensure all mechanical parts are maintained and efficiently lubricated.
- Use separator devices to remove foreign materials capable of igniting combustibles from process materials.
- If ignition sources are present, use cleaning methods that do not generate dust clouds.
- Separate heated surfaces from dusts.
- Regularly inspect the dust extractor duct and filter system.
- A holistic fire protection and prevention plan is needed. This plan must include an emergency response plan and firefighting plan.
- Maintain firefighting equipment, good housekeeping and personnel training (firefighting, fire prevention and responsible housekeeping practices).

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- A register of all incidents must be maintained. This should include measures taken to ensure that such incidents do not repeat themselves.
- Inspect for dust residues at regular intervals.
- A report should be compiled every six months of all incidents reported. The report should contain dates when fire drills were conducted and when fire equipment was tested and training given.

4.1.8 Air Quality

Handling of charcoal and especially the processing thereof, creates dust. As part of the operations, a dust extractor unit was installed at the industrial sieving, bagging and conveying operations. Some dust is further generated by the general handling of the charcoal. This dust is carried around the site by strong south-westerly trending winds. The Proponent has erected a solid wall along the western boundary to act as a windbreak.

Air quality as a result of windblown dust can cause health effects, especially through chronic inhalation of such dust, in the nearby communities. The risk is related to the toxic/irritant nature respirable fractions (PM10) and thoracic fraction (PM2.5) of dust when chemicals and dry bulk cargo are not contained.

Desired Outcome: To prevent health impacts and minimise the dust generated and transported from the site.

Actions

Prevention:

- Personnel issued with appropriate masks where excessive dust are present.
- A complaints register should be kept for any dust related issues and mitigation steps taken to address complaints where necessary e.g. dust suppression.
- Employees should be coached on the dangers of charcoal dust.
- Dust extraction duct pipes must be properly placed and maintained.
- Employ dust monitoring systems and implement dust abatement measures where required.
- Establish dust monitoring equipment and systems.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Any complaints received regarding dust should be recorded with notes on action taken.
- On site dust monitoring to be conducted.
- All information and reporting to be included in a six month report.

4.1.9 Noise

Noise pollution exist due to heavy motor vehicles accessing the site to offload and transport charcoal. The handling facility itself produces limited noise. Construction (maintenance and upgrade) may generate excessive noise.

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

Actions

Prevention:

- Follow Health and Safety Regulations of the Labour Act and/or World Health Organization (WHO) guidelines on maximum noise levels (Guidelines for Community Noise, 1999) to prevent hearing impairment.
- All machinery must be regularly serviced to ensure minimal noise production.
- Hearing protectors as standard PPE for workers in situations with elevated noise levels.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- WHO Guidelines.
- Maintain a complaints register.
- Six month report on complaints and actions taken to address complaints and prevent future occurrences.

4.1.10 Waste Production

Various waste streams are produced during the operational phase. Waste presents a contamination risk and when not removed regularly may become a fire and/or health hazard. Construction waste may include building rubble and packaging material.

During operations the waste stream consists of liquid waste, which will include all sewage effluent and solid waste. Sewage effluent is captured on site in a storage tank. The municipality regularly remove the contents of the tank for disposal at their sewage treatment plant. Solid waste is gathered on the facility and removed from site by the Proponent or by an appointed contractor.

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

Actions

Prevention:

- Regular sewage storage tank level monitoring to prevent overflow.
- Waste reduction measures should be implemented and all waste that can be re-used / recycled must be kept separate.
- Ensure adequate storage facilities are available.
- Ensure waste cannot be blown away by wind.
- Prevent scavenging (human and non-human) of waste.

Mitigation:

- Sewage storage tank overflow should be contained and spillage removed as solid waste.
- Solid 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.

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 six month report.

4.1.11 Ecosystem and Biodiversity Impact

During the construction phase, the entire site was disturbed. All habitats associated with the site were altered. No species of importance was however identified on site. The nature of the operational activities is such that the probability of creating a habitat for flora and fauna to establish is low.

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

Actions

Prevention:

- 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 avoided where possible.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Any sightings and related reporting to be included in a six month report.

4.1.12 Groundwater, Surface Water and Soil Contamination

Operations entail the storage and handling of charcoal which present a contamination risk. Contamination may either result from failing handling facilities, or uncontained dust. Chemical spillages related to materials used either during the construction phase or as required for cleaning and maintenance during the operational phase, including fuel for the generator. Such spills may also relate to heavy motor vehicle breakdowns on site and related hydrocarbon spillage.

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

Actions

Prevention:

- All charcoal handling should be conducted within contained, surfaced areas which can be easily cleaned.
- 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 employees must be conducted on a regular basis.
- Regular cleaning of surfaces where charcoal dust may settle and accumulate, to reduce build-up.
- Ensure all dust extractors are in proper working conditions.
- The sewage waste tanks must be maintained to industry accepted standards and emptied regularly by an approved contractor.
- All construction machines should be maintained to be in a good working condition during operations.
- Employ drip trays and spill kits during construction when onsite servicing / repairs of equipment are needed.
- Spill control structures and procedures must be in place according to South African National Standards (SANS) or better and connection of all surfaces where fuel is handled, with an oil water separator.
- 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:

- Spill clean-up means must be readily available on site as per the relevant MSDS.
- Any spillage of more than 200 litre of fuel must be reported to the relevant authority Ministry of Mines and Energy (MME).
- Any spill must be cleaned up immediately.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Record keeping of sewage waste tank overflow and chemical spills.
- Any spills and related reporting to be included in a six month report.

4.1.13 Visual Impact

The nature of the facility is contrary to the existing landscape character. In addition, charcoal dust is dark and starkly contrast the existing soil colour. However, the facility is located in an area which has been demarcated by the Municipality of Walvis Bay for industrial development. Therefore, in time, it is expected that the surrounding sites and ultimately the landscape character will be changed to become largely industrial. The fencing and erection of a solid barrier on the western boundary of the site will serve to shield the facility from any road users. Due to the nature of charcoal, the facility may easily appear to be dirty. Therefore the facility should be regularly maintained and cleaned.

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

Actions

Prevention:

- 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.
- Regular cleaning of surfaces to prevent charcoal dust build-up.
- Erect a perimeter fence to minimise the visual effect on the surrounding area.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- A report should be compiled every six months of all complaints received and actions taken.

4.1.14 Cumulative Impact

Possible cumulative impacts associated with the operational phase include increased traffic in the area. This will have a cumulative impact on traffic flow on the national and district streets.

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

Actions

Prevention:

- 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:

- Reviewing six month reports will give an overall assessment of the impact of the operational phase.

4.2 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. 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 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 should the land would not be used for future purposes. The Environmental Management Plan for the facility will have to be reviewed at the time of decommissioning to cater for changes made to the site and to implement guidelines and mitigation measures.

4.3 ENVIRONMENTAL MANAGEMENT SYSTEM

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

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

5 CONCLUSION

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

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

Monitoring reports must be submitted to the MEFT every six months to allow for the future renewal of the ECC.

6 REFERENCES

Bosman Q, Botha P, Brunette C. 2019 March; Construction and operation of a charcoal processing and handling facility in Walvis Bay for King Charcoal: Environmental Assessment Scoping Report