ENVIRONMENTAL MANAGEMENT PLAN (EMP)

FOR THE EXPLORATION ACTIVITIES ON EXCLUSIVE PROSPECTING LICENSE (EPL) NO. 7405, 7406 AND 7407 AT OTJOZONDU VILLAGE,

OTJOZONDJUPA REGION

ECC APPLICATION NO: 002343

Environmental consultant	**Nam Geo-Enviro Solution** P.O. Box 3343 Windhoek Tel: +264(61) 402246 Email: info@geoenvirosol.co.za
Proponent	**Wepex Mining Resources (Pty) Ltd** P.O Box 9851 Eros Windhoek Tel: +27 104 436 452 Email:nikolas@wepext.co.za
Authors	**Martha Dumeni (EAP), Soini Akomena**
Reviewed by	**Zeeuw Mukuve (Director, NGS)**
External reviewed by	**Dr. Ezekiel Kwembeya (NGS-Associate)**

FINAL – February 2021

Table of Contents

ACRONYMS

DEA	Department of Environmental Affairs
EAP	Environmental Assessment Practitioner
EAR	Environmental Assessment Regulations
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exclusive Prospecting License
ECC	Environmental Clearance Certificate
ESA	Environmental Scoping assessment
I&AP	Interested and affected parties
MME	Ministry of Mines and Energy
NGS	Nam Geo-Enviro Solution

1. INTRODUCTION

Wepex Mining Resources (Pty) Ltd was granted the Exclusive Prospecting Licenses (EPLs) 7405, 7406 and 7407 by the Ministry of Mines and Energy (MME). The licenses were granted for the exploration of base and rare metals, Dimension stones, industrial minerals, and precious metals, however, the proponent is mostly going to focus on all forms of Manganese (Mn) and Iron (Fe) as their priority.

Wepex Mining Resources (Pty) would like to acquire an Environmental Clearance Certificate (ECC) as a requirement to undertake the exploration activities. It is on this basis that Nam Geo-Enviro Solutions was appointed by Minrom Consulting (Pty) Ltd (appointed project consultant) on behalf of Wepex Mining Resources (Pty) to conduct the Environmental Scoping Assessment (ESA) for the proposed exploration activities and to compile an Environmental Management Plan (EMP) as required to meet the requisites of Namibia's EMA (No. 7 of 2007) and Regulations (2012).

The EMP is a working document that consists of a set of mitigation measures that will be implemented to minimise negative impacts and enhance positive impacts associated with the proposed exploration activities. This EMP has been developed specifically to guide managing the proposed exploration activities on EPL 7405, 7406 and 7404.

2. OBJECTIVES OF THE ENVIRONMENTAL MANAGEMENT PLAN

The environmental management plan (EMP) aims to take a pro-active route by addressing potential problems before they occur. The objectives of the EMP are, therefore:

- To outline mitigation measures to manage environmental and socio-economic impacts associated with the project
- Provide a framework for implementing the management actions recommended in the ESA.
- To ensure that the project will comply with relevant environmental legislations of Namibia and other requirements throughout its operation.

3. LEGAL FRAMEWORK: LEGISLATION, POLICIES AND GUIDELINES

This section outlined the regulatory framework applicable to the proposed project.

All identified crucial pieces of legislation will have to be adhered to by the proponent using different provisions compliance as indicated in their respective pieces of legislation. Where there is a need to engage private consultants to facilitate compliance, the proponent is encouraged to consult qualified and certified personnel. Legal compliance auditing is to be done as part of all bi-annual reports to be conducted by the Environmental consultant.

Table 1. Regulatory framework applicable to the project

Aspect	Relevant Provisions	Relevance to the Project
The constitution of Namibia (1990) **First Amendment Act 34 of 1998**	Article 16(1) guarantees all persons the right to property, to acquire, own and dispose of property, alone or in association with others and to bequeath such property. "The State shall actively promote and maintain the welfare of the people by adopting policies that are aimed at maintaining ecosystems, essential ecological processes and the biological diversity of Namibia. It further promotes the sustainable utilisation of living natural resources basis for the benefit of all Namibians, both present and future." (Article 95(l)).	The project will enable the full execution of right to practice any profession, or carry on any occupation, trade or business by availing necessary provisions such as practising any profession, or carry on any occupation, trade or business in the country. Through implementation of the environmental management plan, the proposed exploration activities will ensure conformity to the constitution in terms of environmental management and sustainability.
Environmental Management Act 7 of 2007	Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27).	This Act and its regulations should inform and guide this EIA process. The project proponent will ensure that all provisions of the mining EMP are

	Requires adequate public participation during the environmental assessment process for interested and affected parties to voice their opinions about a project (Section 2(b-c)). According to Section 5(4) a person may not discard waste as defined in Section 5(1)(b) in any way other than at a disposal site declared by the Minister of Environment and Tourism or in a manner prescribed by the Minister. Details principles which are to guide all EIAs	implemented and regular environmental compliance auditing is conducted by independent consultants.
EIA Regulations GN 2007 (no.30 of 2012)	Details requirements for public consultation within a given environmental assessment process (GN No 30 S21). Details the requirements for what should be included in a Scoping Report (GN No 30 S8) an EIA report (GN No 30 S15).	This Act and its regulations should inform and guide this EIA process.
Minerals (Prospecting and Mining) Act, 1992	The Minerals Act governs minerals prospecting and mining. The Act provides for the reconnaissance, prospecting and mining for, and disposal of, and the exercise of control over minerals in Namibia; and to provide for matters incidental thereto. The Act also ensures that mining entities undertake environmental responsibility which includes rehabilitation and waste management.	This document has been conducted in compliance with the requirements of the Act. The proponent has obtained the Prospecting Licenses from EMMA.

Minerals Policy 2004	The Minerals Policy is developed to ensure long-term sustainable growth in the mining sector of Namibia. One of the objectives of the Policy, relevant to EIAs is to ensure compliance with national environmental policy and other relevant policies to develop a sustainable mining industry.	The fact that exploration involved extraction of the natural resources, environmental responsibility will be ensured by the proponent as part of compliance with the Minerals policy.
National Development Plans	Namibia's overall development ambitions are articulated in the National Vision 2030. At the operational level, five-yearly national development plans (NDP's) are prepared in extensive consultations led by the National Planning Commission in the Office of the President. The Government has so far launched a 4th NDP focusing on high and sustained economic growth, increased income equality Employment creation.	The proposed project will propel NDP4 targets in mining and development, adding on this will come with increased employment opportunities in the local communities.
National Heritage Act 27 of 2004	Section 48(1) states that "A person may apply to the Namibian Heritage Council (NHC) for a permit to carry out works or activities concerning a protected place or protected object"	Potential heritage sites might be impacted, therefore the stipulations in the Act have been taken into consideration and are incorporated into the EMP. Section 55 compels exploration companies to report any archaeological findings to the National Heritage Council after which a permit needs to be issued before the find can be disturbed
National Monuments Act	"No person shall destroy, damage, excavate, alter, remove	The proposed site of development is not within any

of Namibia (No. 28 of 1969) as amended until 1979	from its original site or export from Namibia: Meteorites, fossils, petroglyphs, ornamental infrastructure graves, caves, rock shelters, middens, shells that came into existence before the year 1900 AD; or Any other archaeological or paleontological finds.	known monument sites, both movable and immovable as specified in the Act, however in finding any materials specified in the Act, contractors on site will take the required route and notify the relevant commission.
Pollution and Waste Management Bill (draft)	This bill defines pollution and the different types of pollution. It also points out how the Government intends to regulate the different types of pollution to maintain a clean and safe environment. The bill also describes how waste should be managed to reduce environmental pollution. Failure to comply with the requirements is considered an offence and is punishable.	The project should be executed in harmony with the requirements of the act to reduce negative impacts on the surrounding environs from waste during exploration activities. A waste management strategy that follows recycling, reuse and reducing will be commissioned throughout the activities.
Soil Conservation Act 76 of 1969	This act makes provision for combating and prevention of soil erosion, it promotes the conservation, protection and improvement of the soil, vegetation, sources and resources of the Republic of Namibia.	The Project impact on soil will rather be localised, however, this document aims at guiding the proponent during their exploration activities to prevent soil erosion and contamination during operation.
National Biodiversity Strategy and Action Plan (NBSAP2)	The action plan was operationalised in a bid to make aware the critical importance of biodiversity conservation in Namibia, putting together management of matters to do with ecosystems protection, biosafety, and biosystematics protection on both terrestrial and aquatic systems.	Forming part of the EIA and EMP for this project, the proponent will consider all associated impacts, both acute and long term, and will propose methods and ways to sustain the local biodiversity.

Hazardous Substance Ordinance 14 of 1974	Provisions for hazardous waste are amended in this act as it provides "for the control of substances which may cause injury or ill-health to or death of human beings because of their toxic, corrosive, irritant, strongly sensitizing or flammable nature of the generation of pressure thereby in certain circumstances; to provide for the prohibition and control of the importation, sale, use, operation, application, modification, disposal or dumping of such substance; and to provide for matters connected therewith"	The proponent Wepex Mining Resources (Pty)Ltd will ensure that all possible "hazardous" categorised substances and waste will be handled by a certified hazardous waste handler.
Atmospheric Pollution Prevention Ordinance 11 of 1976;	This regulation sets out principles for the prevention of the pollution of the atmosphere and for matters incidental thereto. Part III of the Act sets out regulations pertaining to atmospheric pollution by smoke. While preventative measures for dust atmospheric pollution are outlined in Part IV and Part V outlines provisions for Atmospheric pollution by gases emitted by vehicles.	The proposed exploration activities will involve the use of combustible engines for vehicles and machinery, and thus appropriate vehicle servicing should be ensured to minimise pollution. Dust generation and release of other particulate matter should be minimised by following the dust suppression procedures in the EMP.
Nature Conservation Ordinance 4 of 1975 with amendments and special regulations	This ordinance prohibits "picking of indigenous plants in private nature reserves 24. (1) No person shall without the written approval of the Minister pick any indigenous plant, or any portion of an indigenous plant, in a private nature reserve: Provided that the owner of the land concerned may at any time pick	The project should protect various species that have conservations status and if removal is required a permit should be acquires

	any indigenous plant, other than a protected plant, on such land".	
Water Act 54 of 1956	The Water Resources Management Act 24 of 2004 is presently without regulations; therefore, the Water Act No 54 of 1956 is still in force: A permit application in terms of Sections 21(1) and 21(2) of the Water Act is required for the disposal of industrial or domestic wastewater and effluent. Prohibits the pollution of underground and surface water bodies (S23 (1). Liability of clean-up costs after closure/ abandonment of an activity (S23 (2)). Protection from the surface and underground water pollution	All relevant permits for boreholes will be applied for with the relevant department (if applicable).
Labour Act (No 11 of 2007) in conjunction with Regulation 156, 'Regulations Relating to the Health and Safety of Employees at work'.	135 (f): "the steps to be taken by the owners of premises used or intended for use as factories or places where machinery is used, or by occupiers of such premises or by users of machinery about the structure of such buildings of otherwise to prevent or extinguish fires, and to ensure the safety in the event of a fire, of persons in such building;" (Ministry of Labour and Social Welfare). This act emphasizes and regulates basic terms and conditions of employment, it guarantees prospective health, safety, and welfare of employees and protects employees from unfair labour practices.	The proponent will employ several people and shall ensure securing a safe environment and preserving the health and welfare of employees at work. This will include applying appropriate hazard management plans and enforcing Occupational Health and Safety (OHS) enforcement by contractors.

Public Health and Environmental Act, 2015	Under this act, in section 119: "No person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health."	The project will ensure compliance with the terms of the Act.
Road Ordinance 1972 (Ordinance 17 0f 1972)	Width of proclaimed roads and road reserve boundaries (S3.1) Control of traffic during operational activities on the trunk and main roads (S27.1) Infringements and obstructions on and interference with proclaimed roads. (S37.1) Distance from proclaimed roads at which fences are erected (S38)	The project will ensure compliance with the terms of the Road Ordinance 17 of 1972. There will be a use of existing secondary tracks.
The Regional Councils Act (No. 22 of 1992)	This Act sets out the conditions under which Regional Councils must be elected and administer each delineated region. From a land use and project planning point of view, their duties include, as described in section 28 "to undertake the planning of the development of the region for which it has been established with a view to physical, social and economic characteristics, urbanisation patterns, natural resources, economic development potential, infrastructure, land utilisation pattern and sensitivity of the natural environment. The main objective of this Act is to initiate, supervise, manage and evaluate development.	The relevant Regional Councils are considered to be I&APs and must be consulted during the Environmental Assessment (EA) process. The project site falls under the Omatako constituency; therefore, the constituency councillor was consulted.

INTERNATIONAL CONVENTIONS AND PROTOCOLS RELATED TO THE PROJECT

It is vital to note that there are international conventions and protocols which aim to protect the environment to which Namibia is a signatory . These various international conventions and protocols which relate to the project are listed below:

- Vienna Convention for the protection of the ozone layer, 1985.
- United nations framework convention on climate change 992.
- Convention of Biological Diversity (1992).
- African Convention on the Conservation of Nature and Natural Resources (1968).

SUSTAINABILITY PRINCIPLES RELEVANT TO THE PROJECT

Apart from the above-mentioned regulatory framework, the following sustainability principles need to be taken into consideration, particularly to achieve proper waste management and pollution control.

1. CRADLE TO GRAVE RESPONSIBILITY

This principle states that those who manufacture potentially harmful products should be liable for their safe production, use, and disposal and those who initiate potentially polluting activities should be legally responsible for their commissioning, operation, and decommissioning.

2. PRECAUTIONARY PRINCIPLE

This principle states that if there is any doubt about the effects of a potentially polluting activity, a cautious approach should be adopted.

3. THE POLLUTER PAYS PRINCIPLE

A person who generates waste or causes pollution should, in theory, pay the full costs of its treatment or of the harm, which it causes to the environment.

All identified crucial pieces of legislation will have to be adhered to by the proponent using different provisions compliance as indicated in their respective pieces of legislation. Where there is a need to engage private consultants to facilitate compliance, the proponent is encouraged to consult qualified and certified personnel. Legal compliance auditing is to be done as part of all bi-annual reports to be conducted by the Environmental consultant.

4. PERMITS AND LICENSES NEEDED FOR THIS PROJECT

Permits and licenses that are required, as part of compliance and authorization. They should be obtained by the proponent before the project operation commence. The most crucial license to be acquired are as follows:

Table 2. List of licence required and their relevant authority

Licence/Permit	Authority	Status
Exclusive Prospecting Licence (EPL)	Ministry of Mines and Energy	Acquired
ECC	Ministry of Environmental and Tourism	EIA in progress

NB: A mining licence form MME will be required after exploration should the proponent proceed to the mining stage.

5. ROLES AND RESPONSIBILITY

This section describes the roles and responsibilities of the key stakeholders involved in the development, implementation, and review of the EMP for the proposed exploration activities.

5.1 COMPETENT AUTHORITY

The Ministry of Mines and Energy is the competent authority for this project, however, the Department of Environmental Affairs: Ministry of Environment and Tourism is responsible for the review of the EMP and issue the ECC.

5.2. PROPONENT (WEPEX MINING RESOURCES (PTY) LTD)

- Wepex Mining Resources (Pty) Ltd should delegate suitably qualified person(s) with the responsibility to ensure implementation of the EMP.
- Protect the environment and rehabilitate the environment as prescribed in the EIA.
- Give warnings and impose fines and penalties on the Contractor if the Contractor neglects to implement the EMP satisfactorily.
- Make sure that a copy of the EMP is readily available on-site and that all site staff are aware of its content.
- Appoint the project manager and an environmental Officer for the project

5.3 APPOINTED CONTACTOR

- The contractor is responsible for the implementation of the EMP.
- Should be aware of any environmental matters as deemed necessary by the contractor.

- The Contractor shall take adequate steps to educate all members of his workforce as well as his supervisory staff on the relevant environmental laws and protection requirements as described in the EMP.
- Acquire a basic understanding of the key environmental features on the site and its immediate environs.
- Make sure that a copy of the EMP is readily available on-site and that all site staff are aware of its content

5.4 PROJECT MANAGER

- Liaising directly with the relevant authorities concerning the preparation and implementation of the EMP and meeting the conditions documented in the environmental clearance certificate.
- Bear the overall responsibility for managing the project contractors and ensuring that the environmental management requirements are met.
- Inform the contractors of the EMP and Environmental clearance certificate obligations.
- Approve all decisions regarding environmental procedures and protocols that must be followed.
- Have the authority to stop any activities in contravention with the EMP.
- In consultation with the Environmental Control Officer (ECO) has the authority to issue fines for transgressions of basic conduct rules and/or contravention of the EMP.
- Maintain open and direct lines of communication between the proponent and Interested and Affected Parties (I&APs) with regard to environmental matters.
- Attend regular site meetings and inspections where required.

5.5. ENVIRONMENTAL CONTROL OFFICER

A suitably qualified and experienced Environmental Control Officer (ECO) shall be appointed by the Contractor before the commencement of the project to ensure that the mitigation and rehabilitation measures are implemented and to ensure compliance with the provisions of the EMP. The ECO includes the following:

- Assist the Project Manager and Contractor in finding environmentally responsible solutions to challenges that may arise.
- Conduct environmental monitoring as per EMP requirements.
- Monitor the performance of the contractors and ensure compliance with the EMP.
- Maintenance, update, and review of the EMP.
- Liaison between the contractor, authorities, and other key stakeholders on all environmental concerns.

- Compiling monthly and quarterly site inspection reports
- Conducting environmental incidents investigation as well as coming up with corrective and preventative actions.
- Issuing site instructions to sub-contractors and employees.
- Communicate all amendments of the EMP to the relevant stakeholders.
- Waste Management
- Conduct monthly audits to ensure that the system for implementing the EMP is effective.

5.6. SAFETY OFFICER

The following responsibilities are to be done by the safety officer:

- Ensure that safety is practiced for all activities on site.
- Prepare and implement safety procedures
- Communicate all safety-related issues.
- Carry out any incident/accident investigations at the site
- Conduct Training
- Recording accidents and incidents at the site
- Issuing PPE to employees
- Carry out Safety Health and Environmental awareness inductions, the following topics, at least but not limited to, should be covered, (the importance of complying with the relevant Namibian and International legislation, roles, and responsibilities including emergency preparedness, basic rules of conduct the Do's and Don'ts).

6. MANAGEMENT OF ENVIRONMENTAL IMPACTS

Before commencement of any work, all staff should be informed of the content of the EMP. The proponent, contractor and project manager have the responsibility for implementing the EMP and ensuring their staff complies with the guidelines. Daily audits must be carried out and corrective action should be implemented when needed. WEPEX Mining Resources (Pty) Ltd and its management should promote the implementation of this EMP.

An EMP is a dynamic document that is regularly updated as required and is valid for all contractors and subcontractors. It is a project-specific plan developed to ensure appropriate environmental management for the project.

6.1 NEGATIVE IMPACTS

1. IMPACT ON BIODIVERSITY

Biodiversity loss is likely to be experienced during exploration activities. The existence of animal habits (vertebrates and invertebrates) might be impacted. The natural movement of animals within the project area can be disturbed and the noise generated from drilling may scare the animals. The plants will be affected by the clearing and the movement of vehicles and prospectors. ***(See Biodiversity study for details)***

Mitigations measures

- capping or plugging of drill holes to prevent small mammals from becoming trapped; Limit the operation to the specific site.
- The exploration team needs to be trained and provided orientation on how to best access sites for exploration with the least impact on the observable and hidden signs of fauna and flora and their habitats.
- Cleared vegetation should be compensated by planting more than is cleared, with special consideration taken for the protected plants in the area.
- The protected and endemic species should be re-introduced in the area.
- Avoid the killing of species viewed as dangerous such as various snakes – when on site.
- Off-road driving should not be allowed and only existing tracks should be used to avoid trampling of organisms of conservation concern.
- The base camp should be set up in a less ecological sensitive area.
- Stick to speed limits
- No capturing of animals and littering.
- Avoid introducing dogs and cats as pets to campsites as these can cause significant mortality to local fauna.
- Remove and relocate slow-moving vertebrate fauna (e.g., tortoise, chameleon, etc) to suitable habitat elsewhere on the property.
- Avoid introducing ornamental plants, especially potential alien species as part of the landscape of the campsite, but rather the use of localized indigenous species for landscaping is encouraged, which would also require less maintenance.
- Working hours should be limited to during the day, thus enabling the wildlife to roam freely at night.
- Massive clearing of vegetation shall not be allowed.

RECOMMENDED MEASURES FROM BIODIVERSITY IMPACT ASSESSMENT STUDY

- Induction course should be provided to the entire workforce to ensure that all personnel are sensitized about the presence and value of wild animals in the area
- All illegal or suspected poaching should be reported to the nearest Namibian police and the anti-poaching unit within the Ministry of Environment, Forestry and Tourism (MEFT).
- An Environmental Control Officer should be appointed and be part of the exploration team from the inception phase.
- No dogs should be permitted on-site
- The proponent should foster conservation values in the community since nature-based tourism in the area can potentially contribute enormously to the community's quality of life.
- *Python natalensis*, are vulnerable and this species should not be threatened or killed when encountered.
- There should be limited movement of machinery and equipment in the area to avoid interference with the daily activities of the birds.
- The machinery and equipment which emit excessive noise should be limited and restricted to certain hours only.
- No operation of any kind should be allowed after dusk.
- The environmental control officer should be actively on-site to avoid accidental and intentional interruption of the daily activities of birds.
- Regular monitoring of the general area should be implemented to ensure that there is no uncontrolled destruction of the plant species.
- Habitats, where the endemic species occur, should be protected and alternative routes or target areas with less ecological footprint should be identified.
- If there are plants that cannot be avoided during the exploration, a translocation approach should be adopted and should involve biodiversity experts in the translocation and monitoring programs.
- The planted species should be mapped, and their co-ordinates recorded to ensure that there is continuous monitoring of the survivals of such plants.

Implementation responsibility

- Wepex Mining resources
- Project manager
- Appointed contractors
- Environmental Officer

2. IMPACT ON GROUND AND SURFACE WATER

Typically, human waste, dirty water and hazardous waste are the main sources of ground and surface water contamination. There will be no storage of oils and fuel on-site, however, there is a risk of spillage of hydrocarbons from vehicles and drilling machines which may result in groundwater contamination. The impact is likely to have low significance and no chemicals will be used. ***(See Hydrogeology study for details)***

Mitigation measures

- All waste must be disposed of on approved disposal sites.
- No burial of any waste or burning should be done on-site.
- Proper ablution facilities.
- No littering on site.
- Frequent servicing of vehicles
- Usage of drip trays to prevent spillage of oil and lubricants which can affect the soil and water and groundwater pollution.
- Waste oils and fuels from drip trays on stationery vehicles and machinery should be disposed of as hazardous waste at a licensed facility by an authorized hazardous waste handler.

Implementation responsibility

- Wepex Mining resources
- Project manager
- Appointed contractors
- Environmental Officer

3. OCCUPATIONAL HEALTH AND SAFETY

OHS problems such as noise, injury from falling objects, dust, and occupational stress are likely encountered during the exploration phase. Dust emitted during trenching and drilling can cause respiratory problems, while noise can result in hearing-impaired problems and stress can result in diseases like high blood pressure. There are also risks of occupational diseases from exposure to exploration equipment, ergonomics, and other occupational work-related illnesses. However, if mitigation measures are properly implemented zero accidents at work will be achieved.

Mitigation measures

- Comply with all Health and Safety standards specified in the Labour Act.

- Train workers how to use adequately the equipment
- Training on occupational health and safety.
- Safety talks to be done every day before the commencement of work.
- Emergency response plans.
- Safety officer to be stationed at the site.
- Formulation of a safety health and environment workers committee.
- A fully stocked first aid kit should permanently be available at the camp as well as an adequately trained staff member in a position to administer first aid.
- All workers should have access to the appropriate Personal Protective Equipment (helmets, gloves, respirators, work suits, earplugs, safety goggles, and safety shoes where applicable).
- Proper ablution facility should be used and clearly marked for males and females.
- Use of dust suppression measures.
- Reduce noise exposure by isolating noisy equipment and rotate tasks.
- First Aid kits to be available at the site.

Implementation responsibility

- Wepex Mining resources
- Project manager
- Appointed contractors
- Environmental Officer

4. WASTE GENERATION

Exploration activities are usually associated with the generation of waste of all kinds (hazardous and general). Activities such as trenching will produce waste in the form of unearthed rocks and soils. Hazardous Waste in the form of oils and lubricants might be produced from vehicles and other machinery. Moreover, there will be possibilities of waste to be generated in the form of food leftovers, papers, plastics, and human waste. If these are not disposed of responsibly, it will result in the pollution of the site and the surrounding environment.

Mitigation measures

- Waste disposal systems should be implemented on-site for both hazardous wastes such as papers and plastics.
- Strictly, no burning of waste on the site or at the disposal site, as it possesses environmental and public health impacts.
- Use an oil tray to contain the spillage in machinery.
- Spills and leaks must be reported and cleaned without delay.
- Place bins around the site.

- Contaminated wastes in the form of soil, litter, and other material must be disposed of at an appropriate disposal site at the nearest town.
- Regular site inspection housekeeping.
- Dust bins should be provided on-site.
- After completion of exploration, and activities such as trenching, the removed soil layers and rocks shall take replaced and leveling must be done so that the original condition is restored.

Implementation responsibility

- Wepex Mining resources
- Project manager
- Appointed contractors

5. DUST

Exploration activities such as drilling, cutting of cores, and movement of vehicles, are believed to generate dust. The dust might affect the workers and surrounding properties. The dust particles may penetrate the human body and can cause respiratory tract irritation, illness (such as asthma attack, cough, and bronchitis), and eczema if they are exposed to high amounts of dust.

Mitigation measures

- Personnel are required to wear personal protection equipment such respirator if excessive dust is created for prolonged working periods.
- Soil watering when soil works are being executed and where dust is emitted.
- Use of dust suppression method.
- Use of equipment with minimal dust generation Personnel are required to wear personal protection equipment if excessive dust is created for prolonged working periods.
- Driving speeds on-site should be only restricted to below 40km to generate minimal dust.
- Implement blast and drilling control standards.
- As per World Health Organisation (WHO), the dust particulate matter should be in the range of 150-230 µg/m^3 on an annual average and 60-90 µg/m^3on a 24-hour average.

Implementation responsibility

- Wepex Mining resources
- Project manager

- Appointed contractors
- Environmental Officer

6. VISUAL IMPACTS

Exploration activities leave scars on the landscape and change the aesthetic appeal of the overall area, thus resulting in visual impacts. The scars can contrast the surrounding landscape, and this can potentially cause a visual nuisance to local people and tourists, if the area is near any tourists routes.

Mitigation measures

- Minimize excess pathways and roads.
- Existing roads and tracks should be used.
- Minimize the footprint of personnel, vehicles, and machinery.
- Removal of all waste daily and dispose of it properly.
- Removal of machinery from the exploration sites if periods of inactivity are extended.
- Minimize the presence of secondary structure: remove inoperative support structure.
- Remove all the infrastructure and reclaim or rehabilitate the project site after exploitation activities.
- The Proponent should consider the implementation of a continuous rehabilitation programme.

Implementation responsibility

- Wepex Mining resources
- Project manager
- Appointed contractors

7. NOISE

Potential noise during the exploration activities may originate from vehicles, machinery, hammers, excavators, and drill rigs. Excessive noise can be a health risk to onsite workers and surrounding animals. The noise is expected to be within the immediate area of the project site, hence the workers are the immediate receptor of the noise impacts. According to ISO 18001 standards, workers are not allowed to work under noise levels that are equal to or exceed 85 decibels per 8 hours.

Mitigation measures

- Regular maintenance of machinery should maintain the acceptable noise levels for operators working with the machine.
- Machinery and vehicles should be well serviced.
- Employees should be equipped with ear protection equipment such as earmuffs and plugs.
- Employees should be limited to working hours only at most 8 hours per day.
- Noise pollutions should be addressed and mitigated at an early stage.
- Noise from operations vehicles and equipment on-site should be reduced to acceptable levels.
- The exploration operational times should be set such that, no exploration activity is carried out during the night or very early in the mornings.
- Exploration hours should be restricted to between 08h00 and 17h00 to avoid noise generated by exploration equipment and the movement of vehicles before or after hours.
- When operating the drilling machinery onsite, workers should be equipped with personal protective equipment (PPE) such as earplugs to reduce noise exposure.
- Noise levels should be checked regularly.
- Noise levels should not be equal to or exceed 85dBA for workers working an 8-hour shift (according to ISO 18000).
- The employer shall provide audiometry and dosimeters to all employees whose exposures equal or exceeds 85dBA as an 8-hour TWA.

Implementation responsibility

- Wepex Mining resources
- Project manager
- Appointed contractors
- Environmental Officer

8. RISK AND SPREAD OF HIV AND AIDS

There will be a probability of the spread of HIV/AIDS and it can spread beyond the project boundary if mitigation measures are not implemented.

Mitigation measures

- Allocate time for workers to visit their families.
- Sensitization campaign to the staff on HIV/AIDS and other STDs.

- Free distribution of condoms on site.
- Free counselling to those already affected by the virus.

Implementation responsibility

- Wepex Mining resources
- Project manager
- Appointed contractors

9. GEOLOGICAL HAZARDS

Exploration activities normally upset the equilibrium in the geological environment, which may trigger off certain geological hazards such as landslide, subsidence, erosion, and tremors together with their secondary effects**.**

Mitigation measures

- Reinforcement of pit walls should be done to guard against landslides and rock falls.
- In a case where the size of the pits increases measures such as terracing of the pit walls can be employed to guard against landslides and rockfalls.

Implementation responsibility

- Wepex Mining resources
- Project manager
- Appointed contractors
- SHE Officer

10. SAFETY AND SECURITY

Generally, projects attract different people from different locations. Some people can end up stealing, practicing anti-social behaviours like prostitution, alcohol, and drug abuse.

Mitigation measures

- No unauthorized people around the mining area.
- Employees should be sensitized through educational campaigns/workshops on the repercussions of such behaviours.
- Safeguard against the development of illegal settlements around the project area.
- Implement the use of alcohol detectors.

Implementation responsibility

- Wepex Mining resources
- Project manager
- Appointed contractors
- Environmental Officer

11. ARCHAEOLOGICAL IMPACT

During exploration activities, historical resources protected under the National Heritage (27 of 2004) may be impacted through encroachment, disturbance, and possible destruction in the course of mechanical exploration activities such as drilling and trenching. This may include the excavation of subsurface graves or other archaeological objects. Other impacts would be inadvertent disturbance due to inappropriate siting of exploration camps, equipment and supply laydowns and routes of access.

The EPLs are sitiauted within the catchment of Omuramba Omatako, which is almost unknown archaeologically. However the project area may have some potential archaeological significance, that are not discovered yet.

Mitigation measures

- If any archaeological features or objects (e.g., Pottery, bones, shells, ancient clothing or weapons, ancient cutlery, graves, etc) that possess cultural values are found, they should be barricaded off and the Namibian Heritage Council (NHC) office should be informed immediately.
- The site location where archaeological features might be found should be marked with flag tape and the GPS coordinates should be recorded.
- The proponent should adopt the Chance Finds Procedure: “a person who discovers any archaeological object must as soon as practicable report the discovery to the Council”. so that if buried archaeological remains which are not visible to surface survey may be handled in accordance with the provisions of Part V Section 46 of the National Heritage Act (27 of 2004).***(See Archaelogical study for details).***

Implementation responsibility

- Wepex Mining resources
- Project manager
- Appointed contractors
- Environmental Officer

12. RISK AND SPREAD OF COVID-19

COVID-19 is an infectious disease caused by a newly discovered **coronavirus**. This novel disease was first reported in Wuhan City, in December 2019 and it has spread worldwide.

The virus that causes COVID-19 is mainly transmitted through respiratory droplets generated when an infected person coughs, sneezes, or exhales. COVID-19 can be conducted by touching the eyes, nose, or mouth after touching a contaminated surface. The symptoms of this virus are mild to moderate respiratory illness such as fever, dry cough, tiredness.

Mitigation measures

- Frequent hand washing or disinfection with alcohol-based hand sanitizer.
- Respiratory hygiene such as covering coughs.
- Physical distancing of at least 1 metre or more according to the national recommendations.
- Wearing of masks.
- Regular environmental cleaning and disinfection and limiting unnecessary travel.
- Seek medical care when experiencing fever, dry cough, and difficulty breathing.
- Personnel who are unwell or develop the symptoms should stay home, self-isolate and contact medical attention.
- Avoid touching your eyes, nose, or mouth if your hands are not clean
- Avoid close contact with people who have symptoms of coronavirus
- There should be a digital thermometer for a temperature check, and it should be recorded.
- All COVID -19 national and safety protocols should be adhered to.

Implementation responsibility

- Wepex Mining resources
- Site manager
- Appointed contractor

13. TRAFFIC IMPACT

The proposed project is expected to have slightly negative impacts on the movement of traffic along with the public in the area. If mitigation measures are put in place the probability of accidents happening will be very low. The damage to the public road due to the movement of heavy-duty vehicles may also occur.

Mitigation measures:

- The proponent should ensure that all drivers have valid driving license of applicable vehicle type and experienced in driving such vehicles.
- Existing secondary roads in the area should be used to prevent damage on the main road.
- The drivers should adhere to all traffic rules and regulations.

Implementation responsibility

- Wepex Mining resources
- Site manager

Appointed contractor

14. CUMULATIVE IMPACTS

These are the impacts on the environment, which result from the accumulation of other impacts, the sum of impacts of an activity together with other past effects in relation to the project. This means that the impact of the particular activity itself may not be significant but may become significant when added to the existing potential impacts resulting in another adverse impact.

- Clearing of vegetation can reduce the species abundance of plants in the study area, resulting in reduced photosynthesis process and consequently, low food production for fauna. It also increases the chances for cleared portions to be invaded by invasive species that may outcompete the native species for space and food.

- Vegetation clearance influences loss of soil quality, and results in reduced soil fertility, increased soil erosion, decreased production and biodiversity.

- Reduced ground and surface water quality due to contamination can result in bioaccumulation and magnification of contamination into the food web resulting in health risks.

Mitigation measures

- Cleared vegetation should be compensation by planting more than cleared, this plant should be mapped, and special consideration should be taken for the protected plants in the area to be maintained.
- The protected and endemic species should be re-introduced in the area.
- Off-road driving should not be allowed and only existing tracks should be used to avoid trampling of organisms of conservation concern.
- The base camp should be set up in a less ecological sensitive area.

- No burial of any waste or burning should be done on-site since all waste must be disposed of on approved disposal sites.
- There should be a proper ablution facility.
- Usage of drip trays to prevent spillage of oil and lubricants which can affect the soil and water and groundwater pollution.
- Waste oils and fuels from drip trays on stationery vehicles and machinery should be disposed of as hazardous waste at a licensed facility by an authorized hazardous waste handler.

Implementation responsibility

- Wepex Mining resources
- Project manager
- Appointed contractor

6.2 POSITIVE IMPACTS

1. EMPLOYMENT CREATION

Employment will be created during the lifespan of the project. The types of jobs will range from skilled, semi-skilled and unskilled. This will improve the wealth and livelihood of people.

Enhancement required

- Employ locals in all casual labour in both phases.
- Gender equality, transparency should be ensured when recruiting.
- In terms of human resources development and capacity building; the contractor is to enforce training programmes that skilled workers should always train workers when necessary, for them to enhance their performances and to gain more knowledge that they might demonstrate at other levels in the future.

Implementation responsibility

- Wepex Mining resources
- Appointed contractor

2. GENERATION OF REVENUE

According to the law of Namibia, operating companies are to pay taxes. It is a requirement that the proponent will pay tax to the government hence this will benefit the nation at large given that money generated from taxes is diverted to the public by the government.

Enhancement Required

- Continuous payment of taxes as regulated in the Namibian laws

Implementation responsibility

- Wepex Mining resources
- Project manager

3. LOCAL DEVELOPMENT AND IMPROVEMENT OF GENERAL WELFARE

Project investors are believed to bring development to communities where they are operating as a form of enhancing social responsibility. The general welfare of locals should also be improved.

Enhancement Required

- The proponent should be engaged in community development projects

Implementation responsibility

- Wepex Mining resources
- Project manager

7. SITE CLOSURE AND REHABILITATION

During the decommissioning phase of the project, the proponent shall follow the recommended rehabilitation measures to promote the principle of sustainable development.

RECOMMENDED REHABILITATION MEASURES

- Demolition of camping structures.
- Removing of equipment on site.
- Removal of associated infrastructures such as storage tanks, solar panels and heavy-duty generators.
- No burying and burning of waste.
- Existing secondary roads in the area should be used to prevent damages to the main road.

8. ENVIRONMENTAL MONITORING PLAN FOR THE EMP IMPLEMENTATION

Environmental monitoring provides a delivery mechanism to address the adverse environmental impacts of a project during its lifespan and to introduce standards of

good practice to be adopted. An environmental monitoring plan is important as it provides useful information and helps to assist in detecting the development of any unwanted environmental situation, and thus, provides opportunities for adopting appropriate control measures.

Important parameters that are sensitive include the impact on biodiversity, safety and security, dust, and generation of wastes. The suggested monitoring details are outlined in the following sections.

Table 3. Monitoring of sensitive impacts (Exploration Phase ONLY)

IMPACT	TYPE OF MONITORING	MONITORING FREQUENCY
Waste Generation	• Camp site inspections	Daily
Biodiversity impact	• Tracks inspections • Bush clearing monitoring	Daily
Safety and security	• Inspections of illegal movements on farms • Security checks on farm gates	Daily
Dust generation	• Visual inspection • Speed regulation of vehicle on dust road	Daily
Risk and spread of covid-19	• Temperature testing • Monitor social distancing • Monitor wearing of face masks • Testing and Immunization	Daily , When necessitated

9. CONCLUSION

The above Environmental Management Plan, if properly implemented, will help to minimise adverse impacts on the environment. Where impacts occur, immediate action must be taken to reduce the escalation of effects associated with these impacts. The Environmental Management Plan should be used as an on-site reference document during all phases of the proposed project, and auditing should take place to determine compliance with the EMP for the proposed site. All Contractors and sub-Contractors taking part in the exploration activities should be made aware of the contents of the EMP so that they can plan their activities accordingly in an environmentally sound manner. Parties responsible for the transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken.

10. RECOMMENDATIONS

- It is recommended that future intentions for corporate social responsibility initiatives must be done in conjunction with community representatives to ensure that needs are met equitably.
- Wepex Mining resources (Pty) Ltd should take all the necessary actions to implement the EMP to minimise adverse impacts on the environment.
- We recommend that a environmental officer be appointed to conduct site inductions of the EMP to relevant teams on the ground.
- The exploration activities should be conducted in line with the EMP, thus implementing the necessary mitigation measures, monitoring, and stipulated rehabilitation measures.

11. REFERENCES

I. Asensio V, Vega FA, Andrade ML, Covelo EF (2013a) Technosols made of wastes to improve physico-chemical characteristics of a copper mine soil. Pedosphere 23:1–9.

II. Carla, S. 2014. Socio-Economic Specialist Report: Environmental Impact Assessment for the proposed development of the Okanjande Graphite Mine and exploration activities.

III. Carlson J, Saxena J, Basta N, Hundal L, Busalacchi D, Dick RP (2015) Application of organic amendments to restore degraded soil: effects on soil microbial properties. Environ Monit Assess 187:109.

IV. DEAT (2006) Guideline 4: Public Participation in support of the Environmental Impact Assessment Regulations, 2006. Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

V. DEAT (2006) Guideline 5: Assessment of Alternatives and Impacts in support of the Environmental Impact Assessment Regulations, (2006). Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

VI. Government of Namibia. (2008). Government Gazette of the Republic of Namibia. Government notice No.1: Regulations for Strategic Environmental Assessment (SEA) and Environmental Impact Assessment (EIA)-Windhoek.

VII. Government of Namibia. (2012). Environmental Management Act no. 7 of 2007. Windhoek: Directorate of Environmental Affairs, Ministry of Environment and Tourism.

VIII. Guide to the Environmental Management Act No 7 of 2007(2008). Windhoek, Namibia: Ministry of Environment and Tourism.

IX. Mendelson, J., Jarvis, A., Roberts, C., and Robertson, T. (2002). Atlas of Namibia: A portrait of the land and its people. Windhoek, Namibia: Ministry of Environment and Tourism.

X. Minerals Council of Australia. (1998). Mine Rehabilitation: Handbook. Dickson, Canberra: Minerals Council of Australia.

XI. Namgay T, Singh B, Singh BP (2010) Influence of biochar application to soil on the availability of As, Cd, Cu, Pb, and Zn to maize (Zea mays L.). Austral J Soil Res 48:638–647

XII. Otjozondjupa 2011 Census Regional Profile" (PDF). Statistics Namibia. Retrieved 10 April 2020.

XIII. Otjozondjupa Regional Council, 2020. http://www.otjozondjuparc.gov.na/okahandja SASSCAL Weather Net. Http://www.sasscalweathernet.org/weatherstat_monthly_we.php.

XIV. Runge K. (1998) The Assessment of Cumulative Environmental Impacts in EIA and Land-Use Planning. In: Breuste J., Feldmann H., Uhlmann O. (eds) Urban Ecology. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-88583-9_87.