

APP-001768

**EXPLORATION ACTIVITIES ON EXCLUSIVE PROSPECTING
LICENCE (EPL) AREA 7340, OTJOZONDJUPA REGION**

UPDATED ENVIRONMENTAL MANAGEMENT PLAN




Prepared by:



Prepared for:




August 2023

Project:	EXPLORATION ACTIVITIES ON EXCLUSIVE PROSPECTING LICENCE (EPL) AREA 7340, OTJOZONDJUPA REGION: UPDATED ENVIRONMENTAL MANAGEMENT PLAN	
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I Y. N. Hass, acting as a representative of Votorantim Metals Namibia (Pty) Ltd, hereby confirm that 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 plan is fairly represented in this report and the report is hereby approved.

Signed at WINDHOEK on the 23rd day of AUGUST 2023.


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2023/0251
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1 INTRODUCTION

Votorantim Metals Namibia (Pty) Ltd (the Proponent) is the licence holder for exclusive prospecting licence (EPL) area 7340 in the Otjozondjupa Region (Figure 1-1). The EPL is for exploration for base and rare metals, industrial minerals, precious metals and semi-precious stones. Exploration activities may comprise any combination of remote sensing, geological mapping, geochemical sampling, geophysical ground surveys, and diamond drilling. An environmental impact assessment (EIA) was conducted for their exploration activities on EPL 7340 in 2020 (Environmental Compliance Consultancy, 2020). The EIA together with an environmental management plan (EMP) (Environmental Compliance Consultancy, 2020) were submitted to the Ministry of Environment, Forestry and Tourism (MEFT) as part of an application for an environmental clearance certificate (ECC). An ECC was subsequently granted to the Proponent on 04 November 2020 (Appendix A).

Geo Pollution Technologies (Pty) Ltd was now appointed by the Proponent to update the EMP and to apply for renewal of the ECC. An EMP is a tool used to take pro-active action in terms of environmental management by addressing potential problems before they occur. It is a stand-alone, living document, which can be used during the various phases (planning, construction, operational and decommissioning) of any proposed activity or development. The updated EMP will continue to provide management options to ensure negative impacts of exploration are prevented or minimised, while simultaneously enhancing resultant benefits and positive spinoffs. This should ultimately limit the need for corrective measures during the various stages of the project.

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

The objectives of the EMP are:

- ◆ to include all potential significant impacts of the various activities of exploration;
- ◆ to prescribe the best practicable control methods to prevent or minimize the environmental impacts associated with exploration;
- ◆ to monitor and audit the performance of relevant contractors and employees in applying such controls; and
- ◆ to ensure that appropriate environmental training is provided to relevant contractors and employees.

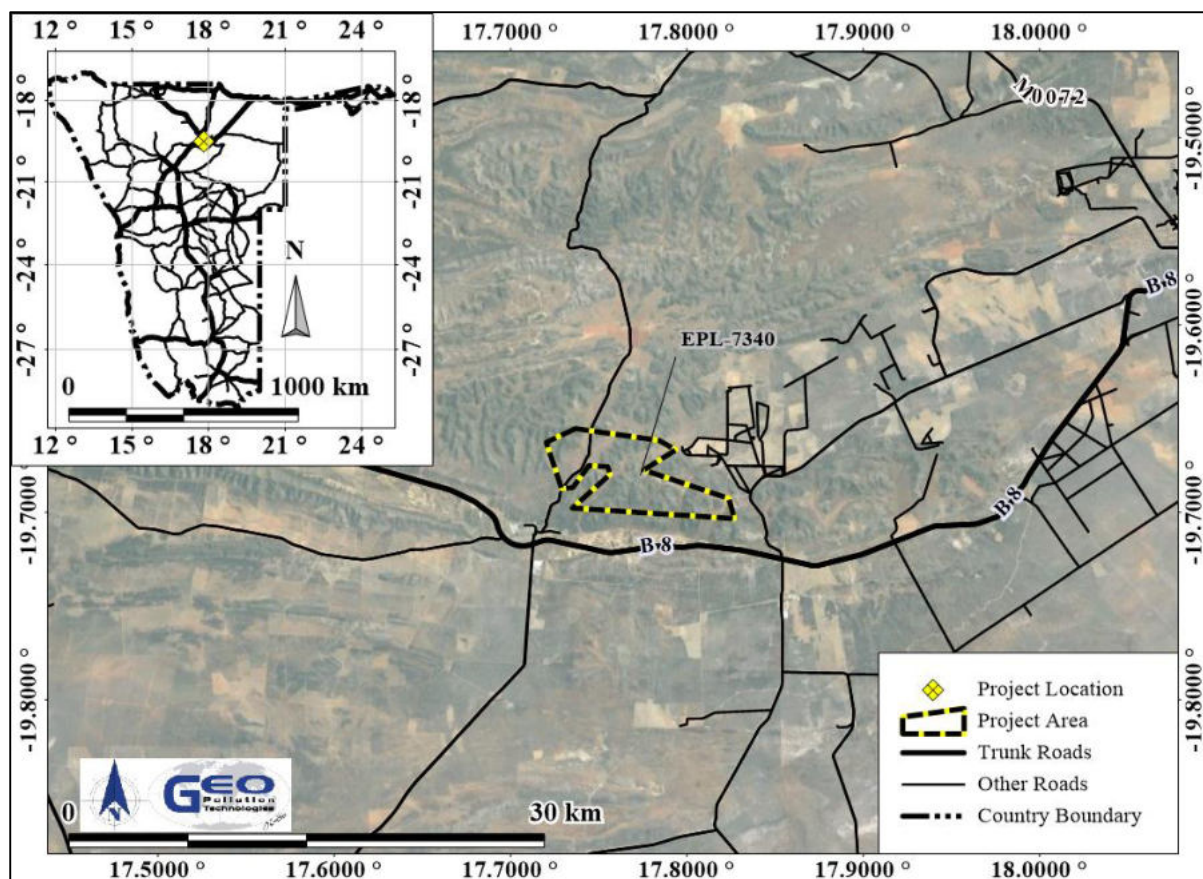


Figure 1-1 Project location

2 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 ECC, as per the Namibian legislation. The legislation and standards provided in Table 2-1 to Table 2-3 govern the environmental assessment process in Namibia and/or are relevant to the project.

Table 2-1 Namibian legislation applicable to the project

Law (as may be amended)	Key Aspects
The Namibian Constitution	<ul style="list-style-type: none"> ◆ Promotes 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	<ul style="list-style-type: none"> ◆ Defines the environment. ◆ Promotes sustainable management of the environment and the use of natural resources. ◆ Provides 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	<ul style="list-style-type: none"> ◆ Commencement of the Environmental Management Act. ◆ Lists activities that requires an environmental clearance certificate. ◆ Provides environmental impact assessment regulations.

Law (as may be amended)	Key Aspects
Minerals (Prospecting and Mining) Act Act 33 of 1992, Government Notice No. 199 of 1992	<ul style="list-style-type: none"> ◆ 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.
Soil Conservation Act Act No. 76 of 1969	<ul style="list-style-type: none"> ◆ Law relating to the combating and prevention of soil erosion, the conservation, improvement and manner of use of the soil and vegetation and the protection of the water sources in Namibia.
Petroleum Products and Energy Act Act No. 13 of 1990, Government Notice No. 45 of 1990	<ul style="list-style-type: none"> ◆ Regulates petroleum industry. ◆ Makes provision for licencing and safe storage and handling of fuels. ◆ Petroleum Products Regulations (Government Notice No. 155 of 2000).
The Water Act Act No. 54 of 1956	<ul style="list-style-type: none"> ◆ Remains in force until the new Water Resources Management Act comes into force. ◆ Defines the interests of the state in protecting water resources. ◆ Controls the disposal of effluent. ◆ Numerous amendments.
Water Resources Management Act Act No. 11 of 2013	<ul style="list-style-type: none"> ◆ Provides for management, protection, development, use and conservation of water resources. ◆ Prevention of water pollution and assignment of liability. ◆ Not in force yet.
Forest Act (Act 12 of 2001, Government Notice No. 248 of 2001)	<ul style="list-style-type: none"> ◆ Makes provision for the protection of the environment and the control and management of forest fires. ◆ Provides the licencing and permit conditions for the removal of woody and other vegetation as well as the disturbance and removal of soil from forested areas. ◆ Forest Regulations: Forest Act, 2001 (Government Notice No. 170 of 2015) ◆ Declares protected trees or plants. ◆ Issuing of permits to remove protected tree and plant species.
Local Authorities Act Act No. 23 of 1992, Government Notice No. 116 of 1992	<ul style="list-style-type: none"> ◆ Defines 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	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ Provides for Labour Law and the protection and safety of employees, including in the mining industry. ◆ Labour Act, 1992: Regulations relating to the health and safety of employees at work (Government Notice No. 156 of 1997).
National Heritage Act (Act No. 27 of 2004, Government Notice No. 287 of 2004)	<ul style="list-style-type: none"> ◆ Provides for protection and conservation of places and objects of heritage significance and the registration of such places and objects.

Law (as may be amended)	Key Aspects
Nature Conservation Ordinance Ordinance No. 4 of 1975	<ul style="list-style-type: none"> ◆ Consolidates and amends the laws relating to the conservation of nature and the establishment of game parks and nature reserves. ◆ Assigns certain conservation categories to specific organisms within Namibia.
Atmospheric Pollution Prevention Ordinance Ordinance No. 11 of 1976	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ 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)	<ul style="list-style-type: none"> ◆ Not in force yet. ◆ Provides for prevention and control of pollution and waste. ◆ Provides for procedures to be followed for licence applications.

Table 2-2 Standards or codes of practise

Standard or Code	Key Aspects
South African National Standards (SANS)	<ul style="list-style-type: none"> ◆ The Petroleum Products and Energy Act prescribes SANS standards for the construction, operations and demolition of petroleum facilities. ◆ SANS 10131 is specifically aimed at storage and distribution of petroleum products in aboveground storage tanks. <ul style="list-style-type: none"> ○ Provides requirements for spill control infrastructure.

Table 2-3 Relevant multilateral environmental agreements for Namibia and the development

Agreement	Key Aspects
SADC Protocol on Mining, 1997	<ul style="list-style-type: none"> ◆ Member states agree to share information on exploitable mineral resources in the region, enhance the technological capacity of the sector as well as promote policies that will encourage and assist small scale mining. ◆ Environmental and occupational health and safety issues are highlighted.
Stockholm Declaration on the Human Environment, Stockholm 1972.	<ul style="list-style-type: none"> ◆ Recognises 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.
United Nations Framework Convention on Climate Change (UNFCCC)	<ul style="list-style-type: none"> ◆ 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	<ul style="list-style-type: none"> ◆ Under article 14 of The Convention, EIAs must be conducted for projects that may negatively affect biological diversity.
1985 Vienna Convention for the Protection of the Ozone Layer	<ul style="list-style-type: none"> ◆ 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.

Listed activities which require an ECC application (Government Regulation No 29 of 2012) which may be triggered by the exploration activities include the following:

Section 3 of Government Notice No. 29 of 2012: Mining and Quarrying Activities

3.1 The construction of facilities for any process or activities which requires a licence, right or other form of authorisation, and the renewal of a licence, right or other form of authorisation, in terms of the Minerals (Prospecting and Mining Act), 1992.

Relevance: The Proponent has an exclusive prospecting licence and is actively involved with exploration activities.

Section 4 of Government Notice No. 29 of 2012: Forestry Activities

4. The clearance of forest areas, deforestation, afforestation, timber harvesting or any other related activity that requires authorisation in term of the Forest Act, 2001 (Act No. 12 of 2001) or any other law.

Relevance: Although no large scale clearance of vegetation will be required, some trees protected under the Forestry Act may require removal. This requires a permit from the MEFT.

Section 9 of Government Notice No. 29 of 2012: Hazardous Substance Treatment, Handling and Storage

9.1 The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974.

9.2 Any process or activity which requires a permit, licence or other form of authorisation, or the modification of or changes to existing facilities for any process or activity which requires an amendment of an existing permit, licence or authorisation or which requires a new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste.

Relevance: Fuel will be required on site when exploratory drilling is performed.

3 ENVIRONMENTAL MANAGEMENT PLAN

Section 3 outline the management of the environmental elements that may be affected by the different exploration activities. Impacts addressed and mitigation measures proposed are seen as minimum requirements which have to be elaborated on by the Proponent, where relevant. Delegation of prevention and mitigation measures as well as reporting activities, should be determined by the Proponent and included in the EMP. The EMP is a living document that must be prepared in detail, and regularly updated, by the Proponent as the project progress and evolve.

The EMP and ECC must be communicated to exploration managers. A copy of the ECC and EMP should be kept on site. All monitoring results must be reported on as per the conditions of the ECC. Reporting is important for any future renewals of the ECC and must be submitted to the MEFT.

Various potential and definite impacts will emanate from the exploration activities. The majority of these impacts can be prevented or mitigated to within acceptable limits. The following sections provide different management measures to be considered and implemented by the Proponent.

3.1 PLANNING

Planning is an ongoing process that will also continue throughout exploration and during site decommissioning and rehabilitation. As part of the planning process, it is the responsibility of the Proponent to ensure they are and remain compliant with all legal requirements pertaining to the various exploration and related activities. The Proponent must also ensure that all required management measures are in place prior to and during all project phases, to ensure potential impacts and risks are prevented or minimised. The following actions are recommended for the planning phase and should continue during all phases of the project:

3.1.1 Delegation of Responsibilities

- ◆ Make provisions to have a health, safety and environmental coordinator or similar to implement the EMP and oversee occupational health and safety as well as general environmental related compliance.
- ◆ Delegate EMP responsibilities to relevant personnel and contractors.

3.1.2 Risk Management and Emergency Response Preparedness

- ◆ Have relevant standard operating procedures and emergency response plans, equipment and personnel on site to prevent and deal with potential emergencies and incidents:
 - Examples include health, safety and environment (HSE) manuals, site induction protocols, material safety data sheets, firefighting and evacuation plans and equipment, spill response plans, first aid training and first aid kits, etc.

3.1.3 Legal Compliance

It is suggested that the Proponent compile and internal legal and commitments register to ensure all aspects related permits and commitments are continually adhered to.

- ◆ Ensure that all necessary permits and authorisations from the various ministries, local authorities and any other bodies that govern the project are in place and remains valid. These include the ECC, the EPL, drilling permits, permits for removal of protected trees, waste disposal and exemption permits for storage of fuel, etc.
- ◆ Comply with the various applicable acts and their respective regulations as for example pertaining to labour, income and other taxes and levies, work permits, etc.
- ◆ Appoint a specialist environmental consultant to update the EMP and apply for renewal of the environmental clearance certificate prior to expiry.

3.1.4 Land Owner Agreements

- ◆ Enter into agreements with the various land owners affected by the EPL and exploration activities. Such agreements should clearly stipulate the responsibilities of all parties involved, restrictions pertaining to entry, movement and activities on the land,

expectations of the land owner regarding rehabilitation once exploration activities cease, etc.

3.1.5 Employment and Contractor Appointments

- ◆ Ensure all appointed employees and contractors enter into an agreement with the Proponent, which among others include the EMP. Ensure that the contents of the EMP are understood by the employees contractors, sub-contractors and all personnel present or who will be present on explorations sites. This may require environmental training pertaining to the “value of nature” (why we need to protect the environment), explanation of various terminology, monitoring requirements, consequences of non-compliance, etc.

3.1.6 Rehabilitation and Pollution Clean-up

- ◆ If not already established, establish and maintain a fund/insurance for rehabilitation of the exploration sites, or for unforeseen events where environmental pollution occur which requires clean-up and/or remediation.

3.1.7 Community Liaison

- ◆ Appoint a community liaison officer and devise a community liaison strategy. Communicate his/her contact details and the procedures for filing of complaints or providing feedback/input to the affected land owners and other relevant stakeholders.
- ◆ Maintain a complaints register which detail, among others, the date the complaint is received, the name and contact details of the person filing the complaint, the nature of the complaint, action taken to address and prevent future incidents of a similar nature, a copy of the feedback provided to the person filing the complaint.

3.1.8 Monitoring and Reporting

- ◆ Maintain an incidents register which detail, among others, the date the incident occurred, the names and contact details of persons involved in the incident, the nature of the incident, and action taken to address and prevent future incidents of a similar nature.
- ◆ Establish and / or maintain an environmental reporting system to report on environmental management procedures and incidents as outlined in the EMP.
- ◆ Submit environmental monitoring reports to the MEFT in compliance with the conditions linked to the ECC.

3.2 SKILLS, TECHNOLOGY AND DEVELOPMENT

Development of people and technology are key to economic development. Exploration for mineral resources requires a workforce that ranges from highly specialised to general workers. Advanced exploration technologies are often used and training is provided to a portion of the workforce to be able to use these technologies and to perform certain tasks according to the required standards. Skills are periodically transferred to an unskilled workforce for general tasks. During normal exploration and related activities, employees will increase their work experience while some individuals may be identified for promotion and additional skills development and training.

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

Actions

Enhancement:

- ◆ If the skills and technology exist locally, contractors must be sourced firstly from Namibia and also first from the region and then nationally. Deviations from this practice is justified where local or Namibian options are not available.
- ◆ The Proponent must employ local Namibians where possible. Deviations from this practice is justified where local or Namibian options are not available.
- ◆ Skills development and improvement programs to be made available to Namibians as identified during employee performance assessments.
- ◆ Employees to be informed about parameters and requirements for references upon employment.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

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

3.3 ECONOMIC DEVELOPMENT AND REVENUE GENERATION

Mining and mining related activities attract foreign investment. The exploration activities have and will continue to generate revenue which is paid to the national treasury. Various consultants, contractors and employees are remunerated and various taxes, levies and fees are paid. This stimulates Namibia's economic development and promotes additional investments and business development.

Desired Outcome: Contribution to national treasury and local economy.

Actions

Enhancement:

- ◆ The Proponent must employ local Namibians and source Namibian contractors, goods and services as far as is practically possible. Deviations from this practise must be justified.

Responsible Body:

- ◆ Proponent

Data Sources and Monitoring:

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

3.4 EMPLOYMENT

An increase of skilled and professional labour will result from the operations of the project. Employment will be sourced locally as far as practically possible while specialised contractors may be from other regions.

Desired Outcome: Continued remuneration of permanent employees as per the Labour Act. Continued contributions to social security and payments of income tax.

Actions

Enhancement:

- ◆ The Proponent must employ local Namibians where possible.
- ◆ If the skills exist locally, employees must first be sourced from 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 and financial contributions to the various institutions such as social security, receiver of revenue, etc.

3.5 DEMOGRAPHIC PROFILE AND COMMUNITY HEALTH

The scale of the exploration project is limited and it is not expected to create a change in the demographic profile of the nearby local communities. Where possible, existing labour, already employed by the Proponent will be used or new labourers will be sourced from a nearby town. Community health may be exposed to factors such as communicable disease like HIV/AIDS and tuberculosis (TB) and social ills like alcoholism/drug abuse, associated with increased spending power of the labour force. Similarly, workers from the exploration team may visit farm labourer compounds, and vice versa, and this may further expose both groups to the same social ills and diseases.

Positive impacts will related to employees and contractors' increased economic resilience and improved livelihoods.

Desired Outcome: To prevent the occurrence of social ills and prevent the spread of diseases such as HIV/AIDS and TB.

Actions:

Prevention:

- ◆ Employ only local people from the area where possible, deviations from this practice should be justified appropriately.
- ◆ Appoint reputable contractors.
- ◆ Supply adequate sanitation and ablution facilities at temporary exploration camps/sites (e.g. drill sites).
- ◆ Provide educational programmes / information sessions for employees on various topics of social behaviour, HIV/AIDs, TB, financial management and general upliftment of employees' social status.
- ◆ Strict control over the unauthorised movement of employees on the farms, outside of designated exploration areas.
- ◆ No unauthorised visitors to be allowed at exploration sites and camps.
- ◆ All authorised persons and vehicles to be clearly identified by means of a company name tag and/or distinguishing uniform.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ For temporary camps, regularly completed inspection sheets, for all areas which may present environmental health risks, must be kept on file.
- ◆ Bi-annual summary report based on educational programmes and training conducted.

3.6 HEALTH, SAFETY AND SECURITY

Various activities associated with exploration is reliant on physical human labour in the outdoors and the operation of machinery. Therefore health and safety risks exist. Such risks include exposure to extreme heat or cold, sunstroke, dehydration, trips and falls, vehicle accidents, getting caught in moving parts of machinery, cuts, exposure to hazardous chemicals (e.g. hydrocarbons) and encounters with wild animals. Security risks will be related to unauthorized entry into temporary exploration camps, theft and sabotage. Similarly, the presence of foreign workers on the farms may expose the land owner to security issues such as theft (e.g. poaching, stock theft).

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

Actions

Prevention:

- ◆ All health and safety regulations made in terms of the Labour Act should be complied with. Specifically those pertaining to the mining industry.
- ◆ Implement and maintain an integrated health and safety management system, to act as a monitoring and mitigating tool.
- ◆ All employees must receive adequate training to enable them to perform their duties in the safest way possible.
- ◆ All employees and visitors to the exploration areas must receive appropriate induction prior entry.
- ◆ Provide all employees with the required and adequate personal protective equipment (PPE).
- ◆ Implement an inspection and maintenance register for all equipment that may potentially cause injury due to malfunction if not properly maintained.
- ◆ Clearly label dangerous and restricted areas as well as dangerous equipment and products. This includes the chemicals and fuels that may be kept on site.
- ◆ Staff should be educated / trained on human wildlife conflict management and be informed not to approach wild animals and to be vigilant for, and not to confront (attempt to kill or catch), snakes or other potentially venomous / dangerous animals.
- ◆ Although the frequency of malaria infection in this area is low, employees should be encouraged to, during times of mosquito activity, take measures to prevent mosquito bites including wearing long sleeved clothing, applying insect repellents and sleeping under mosquito nets.
- ◆ The farm owner and local farming community must be provided with a schedule of when and where the exploration team will be present on site in advance. Any deviations to this schedule must be timeously communicated to the relevant persons.
- ◆ Equipment and goods must be locked away in order not to encourage criminal activities (e.g. theft).

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.
- ◆ Educate staff on the symptoms of malaria and encourage them to report such symptoms.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Any incidents must be recorded with action taken to prevent future occurrences.
- ◆ A bi-annual report should be compiled of all incidents reported. The report should contain dates when training were conducted and when safety equipment and structures were inspected and maintained.

3.7 TRAFFIC

As exploration activities occur on farmland, traffic impacts on public roads will be limited to the occasional movement of equipment such as drill rigs to and from the EPL.

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

Actions

Prevention:

- ◆ If significant traffic impacts are expected on public roads, possibly as a result of delivery of equipment or machinery, traffic management should be performed.
- ◆ All drivers of vehicles must have valid drivers' licences appropriate for the vehicle driven.

Mitigation:

- ◆ If an accident occur, the authorities have to be contacted without delay.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

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

3.8 FIRE

Fires outside of designated areas and discarded cigarettes can cause veld fires which can quickly spread and get out of control. Similarly, machinery can ignite dry vegetation if sufficient heat (e.g. exhaust pipes) or sparks are produced. Fuels stored and used for exploration activities may be flammable. Veld fires originating elsewhere can pose a threat to the exploration teams.

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

Actions:

Prevention:

- ◆ Prepare a holistic fire protection and prevention plan. This plan must include an emergency response plan and a firefighting plan.
- ◆ Personnel training (safe operational procedures, firefighting, fire prevention and responsible housekeeping practices).
- ◆ Ensure all flammable chemicals are stored according to material safety data sheet (MSDS) and SANS instructions and all spills or leaks are cleaned up immediately.
- ◆ Maintain regular site, mechanical and electrical inspections and maintenance.
- ◆ Maintain firefighting equipment.
- ◆ Fire used for purposes such as cooking (by staff and campers) must only be allowed within designated areas.

Mitigation:

- ◆ Implement the fire protection and firefighting plan in the event of a fire.
- ◆ Quick response time by trained staff will limit the spread and impact of fire.
- ◆ Communication methods (e.g. satellite phones where cellular phone reception is limited) must be available at all times for rapid communication with the landowner and surrounding farmers to immediately be able to notify them of a fire. A rapid response to a veld fire is crucial in bringing it under control and extinguishing it.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ A register of all incidents must be maintained on a daily basis. This should include measures taken to ensure that such incidents do not repeat themselves.
- ◆ A bi-annual report should be compiled of all incidents reported. The report should contain dates when fire drills were conducted and when fire equipment was tested and training given.

3.9 NOISE

Exploration activities takes place on rural farmland and noise impacts will be limited to the exploration sites when noisy activities like drilling take place.

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

Actions

Prevention:

- ◆ Follow Health and Safety Regulations of the Labour Act on maximum noise levels to prevent hearing impairment.
- ◆ All machinery and vehicles must be regularly serviced to ensure minimal noise production.
- ◆ Restrict noise producing activities to day time or in accordance with agreements with land owners.

Mitigation:

- ◆ Hearing protectors as standard PPE for workers in situations with elevated noise levels.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Health and Safety Regulations of the Labour Act
- ◆ Maintain a complaints register.
- ◆ Bi-annual reporting on complaints and actions taken to address complaints and prevent future occurrences.

3.10 DUST

Dust may be generated by vehicles travelling on gravel roads and during drilling at the drill site.

Desired Outcome: To prevent any nuisance or health impacts as a result of dust.

Actions

Prevention:

- ◆ Responsible driving speeds on gravel roads will limit dust generation.

Mitigation:

- ◆ Road surfaces that become powdered due to heavy equipment must be rehabilitated to reduce dust.
- ◆ Dust masks as standard PPE for workers in situations with excessive dust.
- ◆ Implement dust suppression measures where possible and especially at drill sites close to public roads.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Health and Safety Regulations of the Labour Act
- ◆ Maintain a complaints register.
- ◆ Bi-annual reporting on complaints and actions taken to address complaints and prevent future occurrences.

3.11 WASTE PRODUCTION

Various forms of waste will be produced during exploration activities. Waste may include hazardous waste associated with hydrocarbon products and chemicals, including soil and water contaminated with such products. Domestic waste will be generated by the workers. Sewage will be produced. Waste presents a contamination risk and when not removed regularly may become a health and / or fire hazard and attract wild animals and scavengers. Due to the potential visual difference between drill cuttings and drill cores and the natural soil cover, it may be regarded as a type of waste.

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

Actions

Prevention:

- ◆ Develop a waste management plan and educate workers on the importance of proper waste management.
- ◆ Waste reduction measures should be implemented and all waste that can be re-used / recycled must be kept separate.
- ◆ Ensure adequate waste storage facilities are available that will prevent waste from being blown away by wind or being scavenged (human and non-human) or attract vermin.
- ◆ Hazardous wastes such as used oil and oil/diesel contaminated soil or water must be contained.
- ◆ In the unlikely event of a french drain being erected for employees, it should adhere to the Ministry of Agriculture, Water and Forestry guideline documents for the siting and construction of such facilities.

Mitigation:

- ◆ All waste must be removed from the drill sites and camps once drilling is complete. Waste should be disposed of at appropriately classified disposal facilities, this includes hazardous material (empty chemical containers (e.g. oil containers), contaminated rugs, paper water and soil). Empty chemical containers must be destroyed in a way that would prevent reuse as a container after disposal.
- ◆ All drill cores as well as cuttings with a significantly different colour than the surface soil should be removed from site. Other cuttings can be dispersed around the site and loosely raked to limit the visual impact.
- ◆ Any sewage generated must be disposed of in such a way that it does not pose any health and safety impacts for humans or animals and that it does not contaminate groundwater.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ A register of hazardous waste disposal should be kept. This should include type of waste, volume as well as disposal method/facility.
- ◆ Any complaints received regarding waste should be recorded with notes on action taken.
- ◆ All information and reporting to be included in a bi-annual report.

3.12 ECOSYSTEM AND BIODIVERSITY IMPACT

Exploration activities are intrusive in nature although mostly with relatively low impact. New roads may be required to allow machinery to be moved to exploration targets and drill sites will need clearing. Employees involved with exploration may be involved with poaching and illegal collection of plant and animal materials. Impacts may also be related to pollution of the environment. Human / wildlife interactions further present a risk to both the wildlife and the people involved.

Disturbed sites are prone to the rapid establishment of invasive plants.

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

Actions.

Prevention:

- ◆ Educate all contracted and permanent employees on the value of biodiversity and the importance of protecting the environment from disturbance.
- ◆ Where possible, removal of trees, especially protected species and large trees, must be avoided. The necessary permits from the Directorate of Forestry of the MEFT must be obtained for removal of all protected species.
- ◆ Strict conditions prohibiting harvesting and poaching of fauna and flora should be part of employment contracts. This includes prohibitions or regulations on the collection of firewood.
- ◆ Procedures to deal with human-wildlife conflict should form part of employee training/induction. The unwarranted killing of potentially dangerous animals, or those perceived as dangerous, or animals typically feared due to superstitious reasons, should be strongly discouraged.
- ◆ The drill sites, their associated laydown areas and access routes should be kept to the smallest area possible and movement outside of this area must be prohibited.
- ◆ Where drill sites are levelled to create drill pads, topsoil (overburden) must be stored for rehabilitation purposes after drilling is complete and the site is decommissioned.
- ◆ Exploration equipment transferred from completely different habitats to the EPL area must be thoroughly cleaned to limit the potential transfer of alien species to the area.

Mitigation:

- ◆ Report any extraordinary animal sightings, conflict or incidents to the farm owner and MEFT.
- ◆ Mitigation measures related to waste handling and the prevention of groundwater, surface water and soil contamination should limit ecosystem and biodiversity impacts.
- ◆ Prevent scavenging of waste by fauna.
- ◆ Disciplinary actions to be taken against all employees failing to comply with contractual conditions related to poaching and the environment.
- ◆ Compacted areas can be lightly ripped to encourage vegetation establishment and to get rid of tracks.
- ◆ Topsoil should be returned to such sites in order to re-establish the seed bank.
- ◆ Alien invasive species should be eradicated from drill sites.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

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

3.13 GROUNDWATER, SURFACE WATER AND SOIL IMPACTS

Infiltration of as much uncontaminated precipitated water is greatly desired so as to recharge groundwater resources. Care must thus be taken to avoid contamination of soil and groundwater. Contamination of the groundwater can occur via infiltration through sediments or through fractures, joints and faults that are present in the subsurface.

Soil contamination can occur from chemical and hydrocarbon spills during refuelling, during maintenance of equipment and machinery, or if mobile fuel tanks (bowsers) are involved in accidents on route to drill sites. Hydraulic oil leaks are common on drilling rigs and pipe bursts may release large volumes of oil into the environment. Contamination of groundwater could also occur through infiltration of waste from field toilets. This is specifically applicable to exploration camp sites.

Soil may further become compacted or disturbed (powdered) as a result of heavy motor vehicles and equipment and this affects soil quality and may lead to excessive erosion. Similarly clearing of slopes greater than 12.5° may present a greater erosion risk.

Drilling of exploration holes may penetrate a confining aquifer layer (aquitard). This may cause mixing of aquifer water where the one aquifer may contain water of a poor quality, causing contamination of the aquifer having better quality. An alternative impact may be the leaking of water from one aquifer into another, causing existing boreholes to dry up or springs to dry up. Based on the limited amount of information available it is not expected that such impacts would occur within the project area. It would however be advisable to take care during drilling that proper monitoring is taking place to evaluate for such conditions and that appropriate remedial actions be implemented where needed – the precautionary principal should be applied.

Desired Outcome: To prevent the contamination of water and soil and limit soil disturbances and loss of soil quality.

Actions

Prevention:

- ◆ Training of operators of machinery and vehicles and employees must be conducted on a regular basis (responsible driving, fuel and chemical handling, spill detection, spill control).
- ◆ All drilling within the groundwater control area should be conducted in consultation with a hydrogeologist.
- ◆ All machinery and vehicles should be properly maintained to be in a good working condition with no leaks and reduced possibilities of pipe bursts/breakages.
- ◆ Employ drip trays and spill kits when servicing / repairs of equipment are needed.
- ◆ Any sewage generated must be disposed of in such a way that it does not pose any health and safety impacts for humans or animals and that it does not contaminate groundwater.
- ◆ Limit movement to existing roads as far as is practically possible.
- ◆ Limit interference with drainage lines.
- ◆ Where drill sites are levelled to create drill pads, topsoil must be stored for rehabilitation purposes after drilling is complete and the site is decommissioned.
- ◆ If land clearing is required in areas with a slope greater than 12.5°, mitigation measures should be employed to prevent erosion and formation of gullies. All mitigation measures to be agreed with the land owner.

Mitigation:

- ◆ Any fuel spillage of more than 200 litre must be reported to the Ministry of Mines and Energy.
- ◆ Spill clean-up means must be readily available on site as per the relevant MSDS and any spill must be cleaned up immediately to prevent it from reaching sensitive receptors.
- ◆ Hazardous waste must be contained and disposed of at a suitably classified hazardous waste disposal facility.
- ◆ Rehabilitate areas where soil or drainage lines are disturbed.
- ◆ Compacted areas can be lightly ripped to encourage vegetation establishment and to get rid of tracks.

- ◆ After exploratory drilling is complete, the boreholes must be handled according to the drill permit conditions. Where such conditions are lacking, boreholes should either be backfilled or secured with a steel or uPVC casing equipped with a secure cap. Drill cuttings should not be used for backfilling boreholes as minerals in the cuttings may have oxidised and will then potentially be released into the groundwater, together with salts present in the cuttings. Clean sand or clay should be used where possible.
- ◆ Back filling or closing of the boreholes should be done to avoid organisms from falling into the boreholes and to prevent surface runoff from contaminating the groundwater, where the borehole will form a preferential flow path if not properly sealed.
- ◆ Boreholes should be cemented where boreholes intersect confining layers separating aquifers with different water quality or causing artesian conditions.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ A report should be compiled bi-annually of all spills or leakages reported. The report should contain the following information: date and duration of spill, product spilled, volume of spill, remedial action taken.
- ◆ Maintain a photo log for comparison of all exploration (drill) sites prior to entry by the drill team and after rehabilitation is completed.

3.14 VISUAL IMPACT

This is an impact that affects the aesthetic appearance of the exploration sites.

The nature of the project is contrary to the existing landscape character. Surrounding land use comprise mainly agricultural activities. Newly drilled boreholes are distinctly visible due to the vegetation clearing and waste rock usually associated with such sites. In addition, numerous drill sites will alter the landscape character. It is inevitable that operations will create a visual impact especially on higher elevation profiles. In addition newly drilled sites are often uniquely visible on open source satellite imagery due to the presence of drill cuttings and dust. Such changes may affect visual receptors, existing land users and operations which are reliant on the existing landscape character (such as tourism). The specific operations will only affect the landscape character in a minor extent. The areas between the target sites is densely vegetated and operations will seldom be visible from the national roads.

Desired Outcome: To minimise aesthetic impacts associated with the drill sites.

Actions

Mitigation:

- ◆ Regular waste disposal, good housekeeping will ensure a low visual impact is maintained.
- ◆ Drill sites should be sufficiently rehabilitated. All drill cores as well as cuttings with a significantly different colour than the surface soil should be removed from site. Other cuttings can be dispersed around the site and loosely raked to limit the visual impact.
- ◆ Compacted soil must be ripped along contour and not down slope. This will loosen soil, promote water infiltration, aid re-vegetation and limit soil erosion.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ A report should be compiled of all complaints received and actions taken.
- ◆ Maintain a photo log for comparison of all exploration (drill) sites prior to entry by the drill team and after rehabilitation is completed.

3.15 IMPACTS ON UTILITIES AND INFRASTRUCTURE

Any damage caused to existing infrastructure and services supply like fences, reservoirs, troughs, roads, pipelines and electricity supply where present. This includes damage/erosion of farm roads due to the movement of heavy machinery such as drill rigs to exploration sites.

Desired Outcome: No impact on utilities and infrastructure.

Actions

Prevention:

- ◆ The Proponent must determine exactly where infrastructure like pipelines are situated. Liaison with owners of the land or suppliers of services (if applicable) is essential.
- ◆ Damaged farm roads and associated erosion ditches must be repaired in accordance with pre-arranged agreements with the land owner. The use of drill cuttings for this purpose should be considered as this will also serve as drill site rehabilitation.

Mitigation:

- ◆ Emergency procedures for corrective action available on file.

Responsible Body:

- ◆ Proponent
- ◆ Contractors
- ◆ Land owner or suppliers of services

Data Sources and Monitoring:

- ◆ A report should be compiled of all incidents that occurred and corrective action taken.

3.16 HERITAGE AND ARCHAEOLOGICAL IMPACTS

Some artefacts of archaeological or heritage significance may be unearthed during exploration.

Desired Outcome: To preserve any artefacts of archaeological, heritage or cultural significance.

Actions

Prevention:

- ◆ Educate employees and contractors on what constitutes a possible heritage or archaeologically significant find and inform them to be vigilant for any extraordinary finds and to prevent any damage.

Mitigation:

- ◆ If such a site or any other archaeologically important artefact is found a “chance finds procedure” must be initiated which includes stopping any further work that can cause damage and reporting to superiors and the relevant specialists / authorities.
- ◆ For any human remains, the Namibian Police must be informed as a first action.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ Compile a bi-annual report of all chance finds, proof of reporting to authorities and actions taken.

3.17 CUMULATIVE IMPACT

Due to the remote locations of exploration, cumulative impacts are expected to be negligible.

Desired Outcome: To minimise cumulative impacts associated with exploration.

Actions

Mitigation:

- ◆ Addressing each of the individual impacts as discussed and recommended in the EMP would reduce any cumulative impacts that may occur.

Responsible Body:

- ◆ Proponent
- ◆ Contractors

Data Sources and Monitoring:

- ◆ 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.

3.18 DECOMMISSIONING AND REHABILITATION

Exploration is typically a systematic process and decommissioning pertains to the removal of all equipment and abandonment of an exploration site, and moving on to the next site, until exploration is complete. Decommissioning and thus an ongoing process throughout exploration. As a pro-active approach, rehabilitation of each abandoned exploration site should occur as soon as possible after all equipment is removed. This will ensure more rapid vegetation re-establishment and limit the chances of erosion. It will also reduce visual impact of exploration and ensure all abandoned sites are safe. Rehabilitation measures and relevant mitigation of impacts as presented in sections 3.1 to 3.17 remain valid for the decommissioning phase.

3.19 ENVIRONMENTAL MANAGEMENT SYSTEM

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

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

4 CONCLUSION

Mining is one of the main contributors to Namibia's gross domestic product and to employment. Mining, and to a lesser degree exploration activities, can often be a destructive process. As such environmental management forms a crucial part of responsible mining/exploration.

By implementing the EMP, negative impacts associated with exploration can successfully be mitigated while simultaneously enhancing the positive spinoffs. Implementing a safety, health, environment and quality (SHEQ) policy will contribute to effective management for prevention and mitigation of impacts. Pertinent legislation for the protection of the environment should be implemented. Groundwater and soil pollution must be prevented at all times. Fire prevention should be key and fire response plans must be in place and regular training provided. All staff must be made aware of the importance of biodiversity and the poaching or illegal harvesting of animal and plant products prohibited. Any waste produced must be removed from site and disposed of at an appropriate facility or re-used or recycled where possible. Hazardous waste must be disposed of at an approved hazardous waste disposal site. Rehabilitation of exploration sites must be performed in line with accepted standards.

The updated EMP should continue to be used as an on-site reference document for exploration activities. Parties responsible for transgressing of the EMP should be held responsible for any rehabilitation that may need to be undertaken. The Proponent could use an in-house EMS in conjunction with the EMP. All operational personnel must be taught the contents of these documents.

5 REFERENCES

Environmental Compliance Consultancy. 2020. Exploration Activities on EPL 7340 for Base and Rare Metals, Industrial Minerals and Precious Metals in the Otjozondjupa Region: Environmental Scoping Report plus Impact Assessment. Report No. ECC-88-270-REP-20-D.

Environmental Compliance Consultancy. 2020. Exploration Activities on EPL 7703, 7340, 7303 & 7172 for Base and Rare Metals, Industrial Minerals and Precious Metals and Semi Precious Stones, Oshikoto and Otjozondjupa Regions: Environmental Management Plan. Report No. ECC 88 270 REP 4 D.

Appendix A: Environmental Clearance Certificate

ECC – 001055

Serial: pfwsh1055



**REPUBLIC OF NAMIBIA
MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM**

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

ENVIRONMENTAL CLEARANCE CERTIFICATE

ISSUED

In accordance with Section 37(2) of the Environmental
Management Act (Act No. 7 of 2007)

TO

**Votorantim Metals Namibia (Pty) Ltd
P. O. Box 97957, Windhoek**

TO UNDERTAKE THE FOLLOWING LISTED ACTIVITY

**Exploration Activities on EPL 7340 Base and Rare Metals, Industrial
Minerals, Precious Metals in the Otjozondjupa Region**

Issued on the date: **2020-11-04**

Expires on this date: **2023-11-04**

(See conditions printed over leaf)



This certificate is printed without erasures or alterations