

UPDATED ENVIRONMENTAL MANAGEMENT PLAN (EMP) FOR ACTIVITIES ASSOCIATED WITH EPANGELO MINING COMPANY'S PROPOSED EXPLORATION ACTIVITIES ON EPLs 4817 & 4833, LOCATED IN ERONGO REGION, NAMIBIA

MAY 2021

Prepared for:

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EXPERTISE AND DECLARATION OF INDEPENDENCE

CONSULTANT'S EXPERTISE

I.N.K Enviro Consultants cc is the independent firm of consultants that has been appointed by Epangelo Mining Company (Pty) Ltd (Epangelo) to undertake the environmental clearance certificate renewal process.

Immanuel N. Katali, the EIA Lead Practitioner holds a B.Arts (Honors) in Geography, Environmental Studies and Sociology and has over six years of relevant experience in conducting/managing Environmental Impact Assessments (EIAs), Socio-Economic Impact Assessments (SIA) and compiling Environmental Management Plans (EMPs) in Namibia. Immanuel is certified as an environmental practitioner under the Environmental Assessment Professionals Association of Namibia (EAPAN).

DECLARATION OF INDEPENDENCE AND DISCLAIMER

The consultant herewith declare that this report represents an independent, objective assessment of the environmental impacts associated with the exploration activities on EPL 4817.

I.N.K has prepared this report based on an agreed scope of work and acts in all professional matters as an independent environmental consultant to Epangelo and exercises all reasonable skill and care in the provision of its professional services in a manner consistent with the level of care and expertise exercised by members of the environmental profession.

I.N.K does not express an opinion as to the accuracy or completeness of the information provided, the assumptions made by the parties that provided the information or any conclusions reached. I.N.K has based this Report on information received or obtained, on the basis that such information is accurate and, where it is represented to I.N.K as such, complete.

I.N.K is not responsible and will not be liable to any other person or organisation for or in relation to any matter dealt within this report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in this report (including without limitation matters arising from any negligent act or omission of I.N.K or for any loss or damage suffered by any other party relying upon the matters dealt with or conclusions expressed in this report). This report must not be altered or added to without the prior written consent of I.N.K.



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LIST OF ACRONYMS, ABBREVIATIONS AND UNITS

DEA	Department of Environmental Affairs
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exclusive Prospecting License
I.N.K	I.N.K Enviro Consultants cc

MEFT Ministry of Environment, Forestry and Tourism



1 INTRODUCTION

1.1 Introduction to the Proposed Project

Epangelo Mining Company (Pty) Ltd (hereinafter referred to as Epangelo), intends on obtaining an extension to their Environmental Clearance Certificate (ECC) for their proposed exploration activities on EPL 4817, located in Erongo Region. As part of the requirements by the Ministry of Environment, Forestry and Tourism, Epangelo is expected to submit an updated EMP to reflect the extension.

Epangelo was issued the Environmental Clearance Certificate (ECC) for the above-mentioned EPL on 04 April 2018, for a validity period until 04 April 2020. The company has been seeking to acquire a partner (JG Investment Sixteen) in order to secure funding for their proposed exploration activities. The contracts and agreements with JG Investment Sixteen have therefore been finalized for EPL 4817; hence, the request for the ECC renewal, in order to immediately commence with their exploration programme. However, a different partner has been acquired for the other two EPLs (4833 and 4818), therefore, a separate ECC Renewal Process has been undertaken for them.

In addition, there has not been any exploration activities conducted on EPL 4817, during the validity period of the ECC.

The above-mentioned activities are covered in an Environmental Scoping Study & Associated Environmental Management Plan conducted by SLR Environmental Consulting (Namibia) (Pty) Ltd in 2014.

Prior to commencement of the operation activities, an Environmental Clearance Certificate (ECC) is required on the basis of an approved Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP). It is with this background that, I.N.K Enviro Consultants cc (I.N.K) an independent firm of consultants, was appointed to compile an updated EMP for this project.

1.2 Details of the persons who compiled this EMP

I.N.K Enviro Consultants cc is the independent firm of consultants that has been appointed by Epangelo to compile an updated EMP.

Immanuel N. Katali, the EIA project manager and lead practitioner holds a B.Arts (Honours) Degree in Geography, Environmental Studies and Sociology and has over six years of relevant experience in conducting/managing EIAs, compiling EMPs and Socio-Economic Studies. Immanuel is certified as an environmental practitioner under the Environmental Assessment Professionals Association of Namibia (EAPAN).



2 ENVIRONMENTAL ACTION PLANS

The purpose of this Environmental Management Plan (EMP) is to present the recommendations from the Scoping Report in the form of Environmental Specifications that can be practically implemented and enforced on site. These actions are required to minimise negative impacts and enhance positive impacts associated with the operations.

The EMP gives the commitments, which form the environmental contract between Epangelo and the Government of the Republic of Namibia; represented by the Ministry of Environment, Forestry and Tourism (MEFT).

The management measures proposed to mitigate the potential impacts are detailed in the action plans below.

2.1 Action plans to achieve objectives and goals

Action plans to achieve relevant objectives/goals are listed in tabular format together with timeframes for each action. The action plans include the timeframes and frequency for implementing the mitigation measures as well as identifying the responsible party.

The Environmental Specifications also deal with the need for monitoring. This includes monitoring of the Project Proponent's Compliance with these Specifications (by the Environmental Scientist), and the need for monitoring of various environmental impacts (by the Authorities). The Environmental Specifications are set out for convenience under headings according to the project activity.



Table 1: Action Plan – Field Mapping, Geophysical Surveys and Soil Sampling

Activity	Potential Impact	Management and Mitigation Measures	Action Plan		
			Frequency	Responsible Parties	
Air survey	Noise	 Discuss flight plans and schedule with land owners prior to air surveys. Avoid residences, game and livestock enclosures where possible. Where possible, avoid air surveys during hunting season (1 February until 30 November). Where not possible, schedule exploration activities in such a way that disturbances to hunting operations are minimised. 	Prior to air surveys	Project Manager Pilots	
Ground geophysical surveys, geological mapping, geochemical soil sampling and trenching/pitting	Socio-economic	Honour agreements set out in the site-access contracts Schedule exploration activities in such a way that disturbances to hunting operations are minimised. No new access tracks are created during mapping and soil sampling if not otherwise agreed with the landowner during the land access agreement. Consult landowner if dangerous animals are on the farm No firearms are allowed on the farm Consult and provide feedback regarding activities on the individual properties Provide contact details of a designated Epangelo person, who will serve as liaison between landowners and the exploration teams Poaching and plant theft will not be tolerated and staff found in possession will be prosecuted Land owners to be provided with a list of all people working on site along with a photographic key for easy identification. Staff will be provided with visible identification. All staff operating on site will be provided with identification and proof that they are working for the applicant Ensure gates are closed after entry and exit. Notify landowner in advance of planned exploration activities. Include in landowner agreement that no smoking is permitted in the veld.	Duration of mapping and surveying	Project Manager Site supervisor	



Activity	Potential Impact Management and Mitigation Measures	Action Plan			
			Frequen	су	Responsible Parties
		- Scheduling/planning along with residents			
	Biodiversity	- The footprint of the area to be disturbed for surveying/mapping and	Duration	of	Project Manager
		for providing access to survey sites will be minimised as far as is practically	mapping	and	Site supervisor
		possible.	surveying		·
		- Epangelo will implement a zero-tolerance policy with regards to the killing			
		or collecting of any biodiversity. This applies to people directly employed			
		by Epangelo as well as any contractors working on their behalf.			
		- Employees and contractors will be shown the value of biodiversity and the need			
		to conserve the species and systems that occur within the project area.			/
		- Inform Epangelo of botanical sensitive areas, include no-go areas in the			
		landowner agreement			
		- No open fires will be permitted on site.			7
		- Speed limits will be enforced so as to prevent road kills.			
		- Permits will be required for the removal of protected tree species.			7
		- Pits and trenches will either be opened and closed on the same day or will be			
		fenced off until such time as they can be closed.			
		- Ensure that trenches and pits allow for smaller animals to exit the pits/trenches if			
		they fall into them.			
		- No excavations will be left open overnight unless fenced off.			
		- Consult farmers to help ID important sites and species.			
		- A floral survey of all pit/trench sites need to be conducted prior to			
		establishment.			



Activity	Potential Impact	Management and Mitigation Measures	Action Plan	
			Frequency	Responsible Parties
	Air quality	 Vehicle speeds will be limited to 40km/h on access routes to limit dust. 		of Project Manager and Site supervisor
	Heritage	 Consult with landowner to identify known archaeological sites on the farm In the event that archaeological resources are discovered, a chance find emergency procedure will be implemented which includes the following: All work at the find will be stopped to prevent damage; An appropriate heritage specialist will be appointed to assess the find and related impacts; and Permitting applications will be made to the necessary authorities, if required. In the event that any graves are discovered during the exploration activities, these will be avoided and preserved as a first priority. If damage is unavoidable, prior to damaging or destroying any identified graves, permission for the exhumation and relocation of graves must be obtained from the relevant descendants (if known) and the relevant local and provincial authorities. 		of Project Manager and Site supervisor



Table 2: Action Plan – Drill Site Establishment

Activities	Potential Impact	Management and Mitigation Measures	Action Plan	
			Frequency	Responsible Parties
 Access the drill site using a new access track where necessary Set-up drilling machine with drip trays and groundsheets Strip vegetation and 	using a new access track where necessary Set-up drilling machine with drip trays and groundsheets	 The movement of drilling related vehicles on the unpaved access track will be on a small scale Vehicle speeds will be limited to 30km/h on site Vehicles and the drilling rig will be maintained in good working order Minimise new accessroute development (routes to be approved by land owners prior to development) 	On-going	Project Manager Site supervisor
topsoil (up to 300mm where available)	Noise	- Vehicles will travel maximum 30km/hour near houses/settlements	Ongoing	Project Manager Site supervisor
 Temporarily store topsoil adjacent to drill site Set-up ablution facilities Set-up fuel and lubricants storage area Waste management 	Biodiversity	 Refer to biodiversity management measures relating to ground surveying, mapping and sampling (Table 1). A floral survey of all drill sites needs to be conducted prior to establishment to ensure that no protected (under the Ministry of Environment and CITES) species are destroyed. Honour agreements set out in the site-access contracts, specifically relating to the areas utilised for game and livestock farming. Special consideration should be given to the sensitive hunting season. Provide appropriate toilet facilities for the exploration workers on the site or agree with landowner to use certain facilities on the farm. 	Ongoing	Project Manager Site supervisor



Land use	 Access agreements to be prepared and approved prior to drill site establishment. The footprint of the area to be disturbed will be minimised as far as is practically possible. The drill site should be fenced in with tape to ensure that all scheduled activities stay within the demarcated area. All tape must be removed from the site upon completion. Agree on relevant compensation with land-owners where land uses are impacted. 	Ongoing	Project Manager Site supervisor
Soil Erosion	To minimise erosion access tracks should be created as follow: • Follow as much as possible contour lines • Erect berms to minimise soil erosion during rain events • Don't create furrows, channels etc, which could lead to soil erosion during rain events. Contour lines or perpendicular to the slopes.		
Socio-economic	 Refer to socio-economic management measures relating to ground surveying, mapping and sampling (Table 1) Discuss water use with landowner in case of diamond drilling 	Ongoing	Project Manager Site supervisor
Heritage	- Refer to heritage management measures relating to ground surveying, mapping and sampling (Table 1).	Ongoing	Project Manager Site supervisor



Table 3: Action Plan - Drilling

Activities	Potential Impact	Management and Mitigation Measures	Action Plan	Action Plan		
			Frequency	Responsible Parties		
- Drill borehole - Contain all drilling water in the sump and allow to settle - Log the drill core and place on core trays - Maintain ablution facilities	Contain all drilling soil/Hydrocarbon spillage er in the sump and allow ettle Log the drill core and e on core trays Maintain ablution	 In all areas where there is storage of hazardous substances (i.e. hydrocarbons), there will be containment of spillages on impermeable floors and bunded trays that can contain 110% of the volume of the hazardous substances. All refuelling and any maintenance of vehicles will take place on impermeable surfaces. Pollution will be prevented through basic infrastructure design and through maintenance of equipment. Spill kits will be readily available on site. Employees and/or contractors will be shown to use the spill kits to enable containment and remediation of pollution incidents. Environmental awareness training of contractor. Epangelo will establish environmental awareness in employees and contractors. 	On-going for all drilling activities	Project Manager Site supervisor		
	Groundwater contamination	 Refer to management measures relating to contamination of soils. Licenses in terms of the Water Resource Management Act (Act No. 11 of 2013) will be obtained for all drilled holes (not just boreholes). Provide appropriate toilet facilities for the exploration workers on the site or agree with landowner to use certain facilities on the farm. If chemical toilets are provided, these need to be serviced by an authorised company. 	On-going for all drilling activities	Project Manager Site supervisor		



Activities	Potential Impact	Management and Mitigation Measures	Action Plan	Action Plan		
			Frequency	Responsible Parties		
	Air quality deterioration	 Vehicle speeds will be limited to 40km/h on access routes to limit dust. The movement of drilling related vehicles on unpaved access track will be on a small scale. Water sprays can be used around the lay-down area when a drill-site is located. 	On-going for all drilling activities	Project Manager Site supervisor		
	Noise generation	 Drilling will only be conducted during the day when drill sites are located close to inhabited homesteads. Drilling plans and schedules will be discussed and agreed upon with land owners prior to initiation. Vehicles will travel maximum 30 km/hour near houses/settlements. 	On-going for all drilling activities	Project Manager Site supervisor		
	Land use	 Refer to land use management measures relating to drill site establishment (Table 2) 	On-going for all drilling activities	Project Manager Site supervisor		
Water abstraction	Groundwater quantity	 An agreement to abstract water from existing boreholes must be included in the land access agreement. Water use licenses in terms of the Water Resource Management Act (Act No. 11 of 2013) will be obtained for all boreholes. Water levels will be measured prior to abstraction, during abstraction (daily) and after completion. Levels will be reported to land owners. 	On-going for all drilling activities	Project Manager Site supervisor		



Table 4: Action Plan - Relevant to all Exploration Activities

Activities	Potential Impact	Management and Mitigation Measures	Action Plan	
			Frequency	Responsible Parties
- All exploration activities	Social – provision of toilet facilities	 Provide appropriate toilet facilities for the exploration workers on the site or agree with landowner to use certain facilities on the farm. 	On-going for all exploration	Project Manager Site supervisor
	Waste Management	 Waste generated will be handled in accordance with the contract signed with the landowner. Suitable receptacles for waste disposal will be provided at appropriate locations on site. These receptacles will be clearly marked for different waste types. Employees and contractors will be shown the importance of correct waste disposal as well as waste minimisation and recycling. Waste will be removed from site and disposed of at a suitable licensed waste disposal facility. Hazardous waste (including hydrocarbon contaminated material/soil) will be disposed of at a licenced hazardous waste disposal facility (Kupferberg). 	activities	Project Manager Site supervisor

Table 5: Action Plan – Closure and Rehabilitation



Activities	Potential Impact	Management and Mitigation Measures	Action Plan	Action Plan		
			Frequency	Responsible Parties		
eneral closure activities:	Groundwater and surfac	ee- In all areas where there is storage of hazardous substances (i.e. hydrocarbons),	Once- Closure	Project Manager		
Close drill holes (unless	water contamination	there will be containment of spillages on impermeable floors and bunded	of drill site	Site supervisor		
otherwise agreed with		trays that can contain 110% of the volume of the hazardous substances.				
farmers)		- All refuelling and any maintenance of vehicles will take place on impermeable				
Remove water from the		surfaces.				
sump and drip trays		- Pollution will be prevented through basic infrastructure design and through				
Remove oils and silt		maintenance of equipment.				
from drip trays and		- Spill kits will be readily available on site. Employees and/or contractors will be		1		
store until disposal to		shown how to use the spill kits to enable containment and remediation of pollution		/		
permitted hazardous		incidents.				
landfill site		- Any spills will be contained and cleaned up immediately				
Backfill the sump once it			1	<u> </u>		
has dried out (dome to	Noise pollution	- Vehicles will travel maximum 30 km/hour near houses/settlements.	On-going	Project Manager		
allow for subsidence)			7	Site supervisor		
and plug borehole	Contamination of soils	Refer to management measures relating to contamination of water	On-going	Project Manager		
(unless an agreement is			and closure	Site supervisor		
in place with	Air quality deterioration	Vehicle speeds will be limited to 40km/h on access routes to limit dust.	On-going	Project Manager		
landowner for		The movement of drilling related vehicles on unpaved access track will be on		Site supervisor		
alternative uses)		a small scale.				
Move drill core trays,	Soil erosion	- Impacted footprints are to be raked and/or ploughed to encourage re-	Starts at closure,	Project Manager		
olution facilities, water		vegetation	continues for	Site supervisor		
bowser, stores and drill		- Access routes and drill pads will be ripped unless the land owners wish for	a pre-determined time (as stated in			
rig from the site		them to remain.	agreements)			
Dispose of any general		- A monitoring program will be implemented to establish re-vegetation progress				
waste to a permitted		- Agree on relevant compensation with land-owners where land used for				
landfill site		hunting purposes is impacted.				



Activities	Potential Impact	Management and Mitigation Measures	Action Plan	
			Frequency	Responsible Parties
 Backfill the sump once it 	Waste management	- Decommission ablution facilities	Once off	Project Manager
has dried out (dome to		- Ensure that all waste generated during activities is removed from the site and		Site supervisor
allow for subsidence)		disposed of appropriately		
and plug borehole				
(unless an agreement is				
in place with				
landowner for				
alternative uses)				,
Move drill core trays,				
ablution facilities, water				
bowser, stores and drill				
rig from the site			/ /	m y
Dispose of any general				y
waste to a permitted		Land aumore will be invited to corn, out site inspections following	5	D : 104
landfill site	Land use	- Land owners will be invited to carry out site inspections following	Post-closure	Project Manager
Remove temporary		rehabilitation in order to ensure that it has been carried out suitably.		Site supervisor
fencing				



3 PARTIES RESPONSIBLE FOR THE IMPLEMENTATION OF THE EMP

This section describes the roles and responsibilities for implementing the different parts of the environmental management plan (EMP).

3.1 Recommendations for Compliance Monitoring by the Environmental Officer.

It is recommended that the Environmental Officer should be appointed by Epangelo to conduct
 Compliance Monitoring at least twice per year during operations and on completion.

3.2 Supervisor/Environmental Officer

The Supervisor has overall responsibility for environmental management and safety during the operation process of the exploration activities and shall oversee the implementation of the EMP.

The Supervisor's responsibilities relating to compliance with this EMP:

- Regular inspections of compliance to this EMP and any other relevant legal requirements.
- Regular correspondence with the DEA on environmental issues and incidents.
- Conduct environmental awareness training during induction training and on an ad hoc basis thereafter to all workers.
- Ensure compliance to all rules
- Ensure that staff is controlled through the implementation of appropriate security measures.
- Carefully manage the handling of hydrocarbons and other hazardous materials.
- Monitor for excessive dust and noise levels and implement control measures if necessary.
- Report incidences to the DEA.
- Implement a waste management strategy.
- Monitoring and maintenance of equipment and machinery.
- Implement an environmental awareness plan.
- Implementation of first-aid procedures.

4 TRAINING AND AWARENESS

The purpose of the job specific environmental awareness training is to ensure that employees/all staff are equipped to implement the actions committed to in the EMP. The staff involved in operations will receive training regarding the requirements of this EMP.

Four main forms of training will be provided on the premises:

Exploration Activities - induction



Environmental management training – general and targeted

The training will generally be prepared by the Supervisor (or the Environmental Representative).

The following will be done to ensure all employees, contractors, suppliers and visitors receive the appropriate training/awareness:

4.1 Environmental Induction

All new members of staff receive a corporate Environmental Induction along with the obligatory Health & Safety induction. The induction gives a general overview of the environmental challenges faced by the project, how we are managing them, and general tips for reducing our impact in the workplace.

The main reason for environmental induction is to encourage new staff to be environmentally aware right from the beginning of their employment. This will ensure that environmental initiatives are successful by eliminating bad habits from the start.

Before working on site, all personnel and sub-contractors will undertake an induction incorporating environmental requirements. The induction will address a range of environmental awareness issues specific to the operation process of the project.

As a minimum, training shall include:

- Explanation on the importance of complying with the EMP and environmental implications should the EMP not be effectively implemented.
- Explanation of the rules.
- Discussion of the potential environmental impacts of activities, recognition of environmental risks and how to control these risks.
- The benefits of improved personal performance, understanding of what to do in case of an environmental event or exposure.
- Employees' roles and responsibilities, including emergency preparedness.
- Explanation of the mitigation measures that must be implemented when carrying out operational
 activities.
- Explanation of the requirements of the EMP and its specification.
- Explanation of the management structure of individuals responsible for matters pertaining to the EMP.

4.2 Environmental Awareness training

Targeted environmental management training will be provided to individuals or groups of workers with a specific authority or responsibility for environmental management or those undertaking an activity with a high risk of environmental impact. This environmental training will aim to achieve a level of awareness



and competence appropriate to their assigned activities. This training will take place at the beginning of operations.

