ENVIRONMENTAL
COMPLIANCE CONSULTANCY

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ENVIRONMENTAL SCOPING REPORT PLUS ASSESSMENT

Exploration Activities on EPL 6987 For Nuclear Fuel Minerals

Erongo Region

PREPARED FOR

MARENICA ENERGY LIMITED

APRIL 2019

PO BOX 91193 Windhoek Namibia
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EXECUTIVE SUMMARY

Marenica Energy Ltd is an Australian Securities Exchange Listed Company that has various exploration projects in Namibia. Marenica is the holding company of Manmar Investments One Eight Two (Pty) Ltd and is seeking to further explore uranium mining opportunities and propose to undertake exploration activities on EPL 6987 for Nuclear Fuel Minerals in the Erongo Region. The EPL is located in the Namib-Naukluft National Park approximately 80km south-east of Walvis Bay off the C14.

The proposed project triggers listed activities in terms of the Environmental Management Act 7 of 2007, therefore, an environmental clearance certificate is required. As part of the environmental clearance certificate application, an environmental impact assessment has been undertaken to satisfy the requirements of the Environmental Management Act, 2007. This Environmental Scoping Report plus assessment and Environmental Management Plan shall be submitted as part of the application for the Environmental Clearance.

The proposed project will entail exploration methods on EPL 6987 site which may include drilling, aerial or remote sensing, ground penetrating radar, and mineral sampling. Non-invasive ground penetrating radar is planned to be undertaken in the first three months on both sites, potentially followed by a drilling program. If mineralisation is identified, further exploration methods shall be applied; if not identified, the EPL shall be rehabilitated and returned to government.

The EPL is located in the Namib-Naukluft National Park. The area where the EPL is located is classified as Zone 2, *Areas of Medium Sensitivity,* which is a zone permitted for prospecting and mining activities. The site is in an area that received less than 100mm of rainfall annually and has a unique vegetation and wildlife species including reptiles and avifauna, many of which are endemic to the Namib Desert. The EPL fall within the Namib Desert Biome and Central Desert vegetation type, which tends to have grassland occupying the gravel plains. The cover of grass is very sparse but nevertheless dominates the little vegetation that grows on the gravel plains. Majority of grasses are annuals and coverage is sparse. The plant diversity of the areas is low (less than 50 species).

EPL 6987 has a great diversity of grasses and shrubs, however still sparse, with no visible outcrops for lichen. Along the natural drainage channels, camel thorn trees (*Acacia erioloba*) can be found. On EPL 6987 the presence of animal activity was observed during the site visit. Various animal droppings and burrows were recorded, as well as various sightings of zebras, gemsbok, and springbok. The EPL is covered with soil with limited geological features and mainly composed of plains with various surface water features across the site that are likely to have runoff during rainy periods.

The environmental and social impact assessment (ESIA) was undertaken using a methodology developed by Environmental Compliance Consultancy, which is based on the International Finance Corporation (IFC) standard for environment and social impact assessments. Through the scoping process, a review of the site and surrounding environment was completed by undertaking a desktop review and site visit.

The assessment is considered to be comprehensive and sufficient to identify impacts, and it is concluded that the likely effects were not deemed significant and therefore no further assessment is required. On this basis, it is of the opinion of ECC that an environmental clearance certificate could be issued, on conditions that the management and mitigation measures specified in the EMP are implemented and adhered to.

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DEFINITIONS AND ABBREVIATIONS

DEA	Directorate of Environmental Affairs
ECC	Environmental Compliance Consultancy =
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPL	Exclusive Prospecting Licence
IFC	International Finance Cooperation
I&AP	Interested and affected parties
MET	Ministry of Environment and Tourism
MME	Ministry of Mines and Energy
MPMRC	Minerals (Prospecting and Mining Rights) Committee

1 INTRODUCTION

1.1 BACKGROUND TO THE PROPOSED PROJECT

Environmental Compliance Consultancy (ECC) has been engaged by the proponent (Marenica Energy Ltd) to undertake an Environmental Impact Assessment (EIA) and an Environmental Management Plan (EMP) in terms of the Environmental Management Act, 2007 and its Regulations. An environmental clearance application will be submitted to the relevant competent authorities; the Ministry of Mines and Energy (MME) and the Ministry of Environment and Tourism (MET).

Marenica Energy Ltd is an Australian Securities Exchange Listed Company, it is the holding company of Manmar Investments One Eight Two (Pty) Ltd which is seeking to explore for Nuclear Fuels Minerals in Namibia. Marenica has also developed a uranium concentration process that is unique and ground-breaking, lowering the extraction cost of uranium and significantly reducing potential environmental effects associated with reducing the mass of ore to be leached. This ***U-pgrade***^{TM} process technology can be applied to surficial uranium deposits and is capable of concentrating uranium by a factor of up to 50 times, thereby reducing the feed to a leaching circuit dramatically.

Manmar Investments One Eight Two (Pty) Ltd proposes to undertake exploration activities on EPL 6987 for Nuclear Fuel Minerals in the Erongo Region.

The EPL is located in the Namib-Naukluft National Park approximately 80km south-east of Walvis Bay off the C14 as illustrated in Figure 1.

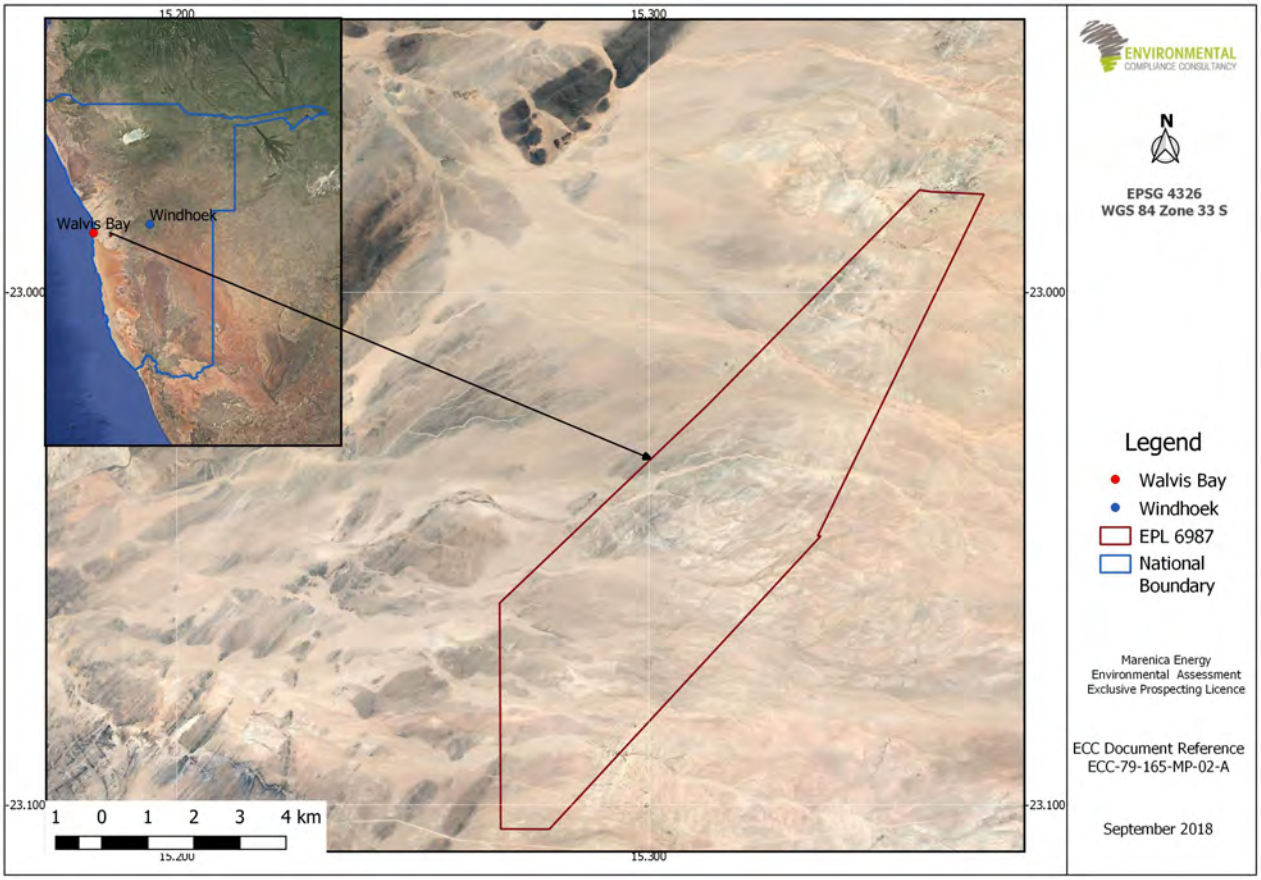

FIGURE 1 – LOCATION OF EPL 6987

1.2 Environmental Requirements

The Environmental Management Act,2007 stipulates that an Environmental Clearance Certificate is required to undertake listed activities in terms of the Act and its regulations. Listed activities triggered by the proposed project in accordance with the Environmental Management Act, 2007 and supporting regulations are as follows.

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

- ✓ The proposed project requires a licence for extraction of nuclear fuels minerals

3.2 Other forms of mining or extraction of any natural resources whether regulated by law or not

- ✓ Minerals (soil and sand), metals will be sourced out within the project's footprint/ locally as far as possible

3.3 Resource extraction, manipulation, conservation and related activities

- ✓ The proposed project will extract nuclear fuel minerals

In terms of the Environmental Management Act, 2007, an environmental impact assessment (EIA) of the proposed project is required, and subsequent report (this document) submitted as part of the Environmental Clearance Certificate.

1.3 Purpose of this Report

The purpose of this report is to present the findings of the EIA for the proposed project. The EIA has been undertaken in accordance with the requirements of the Environmental Management Act 7 of 2007 and the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011) gazetted under the Environmental Management Act, 2007 (referred to herein as the EIA Regulations). This Scoping Report and appendices will be submitted to the Ministry of Mines and Energy (MME) and the Directorate of Environmental Affairs (DEA) at the Ministry of Environment and Tourism (MET) for review as part of the application for an environmental clearance certificate.

This report has been prepared by Environmental Compliance Consultancy (ECC). ECC's terms of reference for the assessment is strictly to address potential effects, whether positive or negative, and their relative significance, and explore alternatives for technical recommendations and identify appropriate mitigation measures for the proposed project.

This report provides information to authorities, the public and stakeholders to aid in the decision-making process for the proposed project. The objectives of this environmental scoping report are to:

- Provide a description of the proposed activity and the site on which the activity is to be undertaken, and the location of the activity on the site
- Provide a description of the environment that may be affected by the activity
- Identify the laws and guidelines that have been considered in the assessment and preparation of this report
- Provide details of the public consultation process
- Describe the need and desirability of the activity
- Provide a high-level environmental and social impact assessment on feasible alternatives that were considered, and
- Report the assessment findings, identifying the significance of effects, including cumulative effects.

In addition to the environmental assessment, an Environmental Management Plan (EMP) (Appendix A) is also required. An EMP has been developed to provide a management framework for the planning and implementation of exploration activities thereby providing operational standards and operating arrangements to ensure that the potential environmental and social impacts of operating the exploration sites are mitigated, prevented and minimised as far as reasonably practicable and that statutory requirements and other legal obligations are fulfilled.

1.4 The Proponent of the Proposed Project

The proponent of the proposed project is Manmar Investments One Eight Two (Pty) Ltd. Marenica Energy own 95 % of Manmar Investments One Eight Two (Pty) Ltd and 5 % is Namibian owned.

TABLE 1 - PROPONENT DETAILS

CONTACT	POSTAL ADDRESS	EMAIL ADDRESS	TELEPHONE
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1.5 Environmental Consultancy

Environmental Compliance Consultancy, a Namibian consultancy registration number 2013/11401, has prepared this document on behalf of the proponent. ECC operates exclusively in the environmental, social, health and safety fields for clients across Southern Africa in the public and private sector. The CVs of the authors of this report are contained in Appendix B.

ECC is independent of the proponent and has no vested or financial interest in the proposed project, except for fair remuneration of professional services rendered. All compliance and regulatory requirements regarding this assessment document should be forwarded by email or post to the following address:

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1.6 Report Structure

This environmental scoping study and impact assessment report is structured as per the contents set out in the table 2 below.

Table 2 - ENVIRONMENTAL SCOPING REPORT SECTIONS

SECTION	TITLE	CONTENT
-	Executive Summary	Executive summary of the EIA
-	Acronyms	A list of acronyms used during the report
1	Introduction	This section introduces the EIA and provides background information on the proposed project, proponent and purpose of the report
2	Regulatory Framework	This chapter describes the Namibian environmental regulatory framework applicable to the project and how it has been considered in the assessment and the scoping report and EMP.
3	Project Description	Presents the need of the project, the alternatives considered and a description of the proposed project and how the proposed project will be operated.
4	Receiving Environment	Presents information on the receiving environment that may be affected by the project.
5	Impact Assessment and Mitigation	This chapter presents the predicted potential environmental and social effects arising from the proposed project, and the mitigation and management strategies to be applied to avoid or reduce the effects.
6	Conclusions	Concludes the findings of the EIA
7	References	A list of reference used for this report
Appendix	Appendices A-E	– Appendix A: Environmental Management Plan – Appendix B: ECC CV's – Appendix C: Evidence of Public Consultation – Non-Technical Summary, site notice, Newspaper adverts – Appendix D: Assessment Methodology – Appendix E:

2 REGULATORY FRAMEWORK

This chapter outlines the regulatory and policy framework applicable to the proposed project. Table 3 provides a list of applicable legislation and the relevance to the project.

2.1 NATIONAL REGULATORY REGIME

TABLE 3 - LEGAL COMPLIANCE

NATIONAL REGULATORY REGIME	SUMMARY	APPLICABILITY TO THE PROJECT
Minerals (Prospecting and Mining) Act No 33 of 1992	Provides for the reconnaissance, prospecting and mining for, and disposal of, and the exercise of control, minerals in Namibia. Section 50 (i) requires *"an environmental impact assessment indicating the extent of any pollution of the environment before any prospecting operations or mining operations are being carried out and an estimate of any pollution, if any, likely to be caused by such prospecting operations or mining operations"*	The proposed activity is prospecting for minerals; hence it requires an EIA to be carried out as it triggers listed activities in terms of the Environmental Management Act and its regulations. This report presents the findings of the EIA. Works shall not commence until all conditions in the Act are met, which includes agreement with the land owners and conditions of compensation have been agreed. The project shall be compliant with section 76 of the Minerals Act. With regards to records, maps, plans and financial statements, and information, reports and returns submitted.
Environmental Management Act, 2007 (Act No. 7 of 2007) and its regulations, including the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011)	The Act aims to promote sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment. It sets the principles of environmental management as well as the functions and powers of the Minister. The Act requires certain activities to obtain an environmental clearance certificate prior to project development. The Act states an EIA may be undertaken and submitted as part of the environmental clearance certificate application. The MET is responsible for the protection and management of Namibia's natural environment. The Department of Environmental Affairs under the MET is responsible for the administration of the environmental clearance certificate process.	This Environmental Scoping Report and assessment plus the EMP documents the findings of the environmental assessment undertaken for the proposed project, which will form part of the environmental clearance application. The assessment and report have been undertaken in line with the requirements in terms of the Act and its regulations.

NATIONAL REGULATORY REGIME	SUMMARY	APPLICABILITY TO THE PROJECT
Water Act, 1956	This Act provides for "the control, conservation and use of water for domestic, agricultural, urban and industrial purposes; to make provision for the control, in certain respects… and for the control of certain activities on or in water in certain areas". The Ministry of Agriculture Water and Forestry Department of Water Affairs is responsible for the administration of the Water Act. The Minister may issue a Permit in terms of the regulations 5 and 9 of the government notice R1278 of 23 July 1971 as promulgated under section 30 (2) of the Water Act no. 54 of 1956, as amended. To abstract water from a controlled water source, a WA 002 should be filled and submitted to the MAWF	The Act stipulates obligations to prevent pollution of water. The EMP sets out measures to avoid polluting the water environment. Regulation 5: "Upon receipt of an application in terms of regulation 4(1) the Minister may issue a permit authorising the applicant to sink, enlarge, deepen, alter, open up or clean any borehole, well or spring mentioned in the application or to abstract therefrom and use a specific quantity of water for the purposes and subject to the conditions specified in the permit: Provided that, if the Director is of opinion that artesian water is or will be found in a borehole or well, the Minister shall not consider an application unless it is recommended by the Board. " Regulation 9: The Minister may, when issuing a permit under regulation 5, impose such conditions, whether generally or in respect of different periods in any year, as he may deem necessary for an equitable distribution of water in the public interest or for the conservation of water supplies or for the protection of water sources, including conditions in respect of - Measures to minimise potential groundwater and surface water pollution are contained in the EMP.
The Nature Conservation Ordinance No. 4 of 1975	One of the major biodiversity related laws in Namibia is the legislation governing the conservation of wildlife, and protected areas.	The following sections are applicable to the proposed project and measures to ensure compliance are included in this environmental scoping report plus the EMP. – Section 18 of the Nature Conservation Ordinance, restricts of the rights to enter game parks and nature reserves and prohibition of certain acts therein, and – Section 72 of the Nature Conservation Ordinance, restricts Picking and transport of protected species.
National Heritage Act, No. 27 of 2004.	The Act provides provision of the protection and conservation of places and objects with heritage significance.	There is potential for heritage objects to be found on the site, therefore the stipulations in the Act have been taken into

NATIONAL REGULATORY REGIME	SUMMARY	APPLICABILITY TO THE PROJECT
	Section 55 compels exploration companies to report any archaeological findings to the National Heritage Council after which a heritage permit needs to be issued	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.
Soil Conservation Act No.76 of 1969	Makes provision for the prevention and control of soil erosion and the protection, improvement and the conservation, improvement and manner of use of the soil and vegetation.	Taken into consideration during the design of the works to be undertaken on the EPL site. Measures in the EMP set out methods to avoid soil erosion.

2.2 National Policies

2.2.1 Minerals policy

The Minerals Policy was adopted in 2002 and sets guiding principles and direction for the development of the Namibian mining sector while communicating the values of the Namibian people. It sets out to achieve several objectives in line with the sustainable development of Namibia's natural resources. The policy strives to create an enabling environment for local and foreign investments in the mining sector and seeks to maximise the benefits for the Namibian people from the mining sector while encouraging local participation, amongst others.

The objectives of the Minerals Policy are in line with the objectives of the Fifth National Development Plan (NDP5) that include reduction of poverty, employment creation and economic empowerment in Namibia. The proposed project conforms with the policy and has been considered through the EIA process and the production of this report.

2.2.2 National policy on the prospecting and mining in protected areas

National Policy on the Prospecting and Mining in Protected Areas (Ministry of Environment and Tourism, Ministry of Mines and Energy, 2018) was passed in July 2018 and provides direction in terms of where mining and exploration related impacts are legally prohibited and where biodiversity priority areas may present high risks for mining projects.

The policy provides a framework for integrating relevant biodiversity information into decision making about exploration and mining options and how best to avoid, minimise or remedy biodiversity impacts caused by mining, and in so doing support sustainable development.

EPL 6987 (assessed in this report) fall within the Namib-Naukluft National Park. It is therefore imperative that the potential impacts within the national parks be thoroughly assessed and in particular are reviewed and compared with the 'no mining and prospecting zones' in the aforementioned policy. the EPL does not fall within any exclusions zones set by the policy.

2.3 Licences

2.3.1 Exclusive prospecting licence

EPL 6987 was lodged on the 10th of January 2018. Upon being granted, the EPL shall be valid for three years. In terms of the Minerals (Prospecting and Mining) Act, 1992, an EPL may be renewed, however may only be extended twice for two-year periods if demonstrable progress is shown. Renewals beyond seven years requires special approvals from the minister (Ministry of Mines and Energy, 2018).

Such renewals are subject to a reduction in size of the EPL. When a company applies for renewal of an EPL, this application must be lodged 90 days prior to the expiry date of the EPL or, with good reason, no later than the expiry date (Ministry of Environment and Tourism, Ministry of Mines and Energy, 2018).

Renewal application for EPL 6987 may be required if mineralisation is present and exploration activities last longer than three years. If renewal is applied for, the MET shall review the renewal application and make any comments and/or recommendations for consideration by the Minerals (Prospecting and Mining Rights) Committee (MPMRC). Amendments and revisions may be required for the EIA and EMP. Due consideration must be given when renewing the licence to ascertain whether there is justification to renew the licence. Once an EPL expires and a new EPL is issued, even if it is to the previous holder, the full screening process must be followed with a full EIA process before operations may commence (Ministry of Environment and Tourism, Ministry of Mines and Energy, 2018).

3 PROJECT DESCRIPTION

3.1 NEED FOR THE PROPOSED PROJECT

The mining sector in Namibia significantly contributes to the country's Gross Domestic Product (GDP), government tax receipts and export revenues. For this reason, exploration activities are encouraged in Namibia and the vision of the Minerals Policy being to *"further attract investment and enable the private sector to take the lead in exploration, mining, mineral beneficiation and marketing"* supports the development. The proposed project is in line with this vision and has the potential to create employment in the local communities, namely Walvis Bay. In the event that exploration activities are successful, and a resource can be defined in commercially viable concentrations, exploration operations can potentially transcend into mining operations, which can result in socio-economic development.

Uranium is used in the nuclear industry to produce electricity. Nuclear is the world's second largest source of low-carbon power (>30% of the total in 2015). Approximately, 11% of the world's electricity is generated by approximately 450 nuclear power reactors in 50 countries and around 60 more reactors are under construction. This is equivalent to 16% of existing capacity, while an additional 150-160 are planned, equivalent to nearly half of existing capacity (World Nuclear Association , 2018). Furthermore, uranium is required to supply these reactors and ensure low-carbon power is generated. Namibia is one of the few countries which has uranium deposits and has three significant uranium mines capable of providing 10% of world uranium output. Uranium was discovered in the Namib Desert in 1928 and intensive exploration commenced in the late 1950s.

3.2 ALTERNATIVES CONSIDERED

Several uranium deposits occur in Namibia and are grouped into three basic rock types: a) occurrences in and associated with plutonic rocks, b) pedogenic occurrences and c) sedimentary occurrences. An overlap exists between the pedogenic and the other main deposit types. Uranium occurrences in and associated with plutonic rocks comprise both potentially economic deposits and source rocks for uranium deposits in pedogenic and sedimentary sequences. These deposits are confined mainly to the western portion of the Damara Orogen (Schreuder, 1985). Therefore, there is limited areas to explore in Namibia.

An exploration program in the 1970s undertaken by general mining indicated high prospectively for uranium mineralisation in the EPL. Consequently, alternative sites were considered during this early exploration program, however, the potential for mineralisation was not as high as that of EPL 6987. The Environmental assessment has therefore taken a worst-case scenario (as per best practice guidance – see Appendix D), which includes a review of all likely exploration activities, thus no other technological alternatives are available for consideration at this stage.

Once the exploration programme is further defined, the best available option for methods shall be identified to ensure the impacts on the environment and society are minimised.

3.2.1 NO-GO ALTERNATIVE

Should exploration activities on EPL 6987 not proceed, the anticipated environmental impacts from exploration activities would not occur, however, the social and economic benefits associated with project would also not be realised.

There would not be an opportunity to refine Namibian resources in the project area, a missed opportunity for geological mapping and data collection that benefits the Namibian economy.

3.3 THE PROJECT SITE AND LOCATION

EPL 6987 is located between the D1982 and 6 km south of the C28. The site is approximately 5000ha and is approximately 17km long (north-south) and 6km wide (east-west).

3.3.1 PROPOSED EXPLORATION ACTIVITIES

Exploration activities on EPL 6987 will include soil and rock sampling, geological mapping, electromagnetic and geophysical surveys, drilling and core sampling. Some vegetation may be cleared to allow access tracks and working areas to be created and for the installation and development of exploration drill holes. The duration of exploration activities is anticipated to be conducted over the course of a 3 year period (or for the duration of the mineral licence) and the periods of each exploration programme will vary and will be refined as geological information becomes available.

Existing tracks will be used as far as reasonably practical; in the event that new tracks are required they will be developed by hand or using a bulldozer if the area is heavily bush encroached or hilly. Vegetation clearance shall be required for drill access tracks, drill pads and for a drillers camp if required. This will also be carried out by hand or bulldozer depending on the bush thickness and the required clearance distances.

The exploration methods on each EPL site may involve the following methods: drilling; aerial or remote sensing; ground penetrating radar; and mineral sampling. Further detail of these methods are as follows.

Remote sensing and geophysical surveys

During mineral exploration enables explorers to find and assess deposits without having to undertake massive exploration operations. Remote sensing may be used to map the geology and existing faults and fractures that localize the ore deposits or may be used to recognize rocks which have been hydrothermally altered. Remote sensing includes a number of tools and techniques including geographical information systems, radar, geographical information systems and sonar.

Ground penetrating radar

Ground penetrating radar is likely to be the preferred method for exploration activities on the EPL. This will most likely be undertaken by foot.

Rotary air blast (RAB) drilling and diamond drilling

Drilling to be undertaken in order to obtain drill core samples. The collected samples will be temporarily stored in plastic bags on site and transported to a sample preparation laboratory in Swakopmund.

All exploration activities will be undertaken in programmed segments. The number of drill holes will be determined on results obtained through the data collection during ground penetrating radar. Equipment used during drilling shall include an RC on trailer-mounted rig towed by a light vehicle.

Pitting and trenching are unlikely as this is not the preferred method of exploration and therefore have not been included in this scoping report.

The area to be cleared shall not be more than 15ha, therefore would not trigger the Forest Act, 2001 (Section 23). In addition, any established or larges trees shall not be removed, and effects are likely to be low (see Section 4.4 and the EMP).

3.3.2 EXPLORATION SCHEDULE

Exploration is intended once the environmental clearance has been granted. The presence of mineralisation shall be determined during the first period of tenor. Non-invasive ground penetrating radar is planned to be undertaken in the first three months on both sites, potentially followed by a drilling program. If mineralisation is identified, further exploration methods shall be applied; if not identified, the EPL shall rehabilitated and returned to government.

3.3.3 Workers and accommodation

During the initial exploration stage approximately seven (7) employees will be required, and workers will mainly be from Swakopmund. The roles of the employees include two (2) radar specialists / geologists and five (5) drill crew members. Additional roles may be required which shall be determined by the programme and exploration methods.

The workers will be accommodated in designated camp areas during the exploration programme, however, may be required to stay closer to the site during on ground exploration works and therefore will likely stay in an onsite camp.

3.3.4 Resource use and waste management

Water will be required for various uses including human consumption and exploration activities. Potable water will be brought to site by light vehicle and shall be used for human consumption and if required for operation of the drill rig.

During drilling operations, water shall be used, recirculated and stored in lined collections ponds. If deemed clean and suitable will be discharged to the environment for evaporation or if not suitable for discharge will be transported to Walvis Bay for disposal at a suitable waste facility.

Waste will be produced on site, including sewerage and solid waste such as packaging. All solid waste, shall be collected, taken off site and disposed of at the nearest waste management Facility. Mobile toilets (of a 'long drop" or pit latrine type) may be brought to site. Any sewerage generated will be managed by the supplier of the toilet or the contactor.

3.4 Rehabilitation

The National Policy on the Prospecting and Mining in Protected Areas stipulates that companies involved in prospecting and mining in protected areas take responsibility for carrying out appropriate rehabilitation and restoration, during and upon closure of their activities. Therefore, the proponent shall ensure funds are available to restore/ rehabilitate the EPL once exploration activities are completed. A rehabilitation plan is contained in the EMP, found in Appendix A. The proponent has also committed to restoring any historic exploration disturbance on the site if identified.

4 BASELINE ENVIRONMENT

4.1 NAMIB-NAUKLUFT NATIONAL PARK

EPL 6987 is located in the Namib-Naukluft National Park. The National Park is approximately 50 955km^2 and extends from the Hardap to Erongo regional boundary in the north (and bordering onto the Dorob National Park). The National Park was officially established in 1979 through the various amalgamations of several areas. National parks cover 17% of the country's surface area and provides a sanctuary for large mammals. This includes black rhino (reintroduced to their former range in 2007 to mark the centenary of the park), Hartmann's mountain zebra, leopard, cheetah, spotted and brown hyaena, jackal, caracal, and various species of game. Over 200 bird species have been recorded in the Namib-Naukluft Park and is considered as a globally important bird area (Ministry of Environment and Tourism, 2013).

Natural features of the park include sand dunes, Sesriem Canyon, gravel plains, Naukluft Mountains and inselbergs in the north and ephemeral rivers. The national park is split into zones based upon environmental sensitivity and land uses. Both EPL are sited in Zone 2, *Areas of Medium Sensitivity,* which is a zone permitted for prospecting and mining activities. The National Park Management Plan states that "*all prospecting and mining activities in other areas should be planned, managed and decommissioned using best available practice, taking into account long-term national benefits vis-à-vis benefits from other current and potential land uses, and applying precautionary and polluter pays principles and due caution so as to minimize negative environmental impacts"* (Ministry of Environment and Tourism, 2013).

4.2 CLIMATE

The Namib-Naukluft National Park falls below the 100mm median annual rainfall isohyet and much of it is below the 50mm isohyet. With high evaporation rates and low rainfall, the park experiences an average water deficit of approximately 2m per year. Rain falls mainly from January to March. Temperatures are generally moderate (average minimum and maximum temperatures during the coldest and hottest months respectively reflecting a range of about 7-32oC), fog is frequent (about 125 days per year on the coast dropping to about 40 days per year 80 km inland) and wind is a dominant feature (Ministry of Environment and Tourism, 2013).

4.3 VEGETATION AND WILDLIFE

The area has unique vegetation and wildlife species including reptiles and avifauna, many of which are endemic to the Namib Desert. EPL 6987 lies within the Namib Desert Biome and Central Desert vegetation type, which tends to have grassland occupying the gravel plains. The grass cover is very sparse but nevertheless dominates the little vegetation that grows on the gravel plains. The majority of grasses are annuals and coverage is sparse. The plant diversity of the areas is low (less than 50 species). EPL 6987 has a greater diversity of grasses and shrubs, however still sparse, with no visible outcrops for lichen. Along natural drainage channels, camel thorn trees (*Acacia erioloba*) can be found.

The areas of the EPL has between 141 – 170 bird species, which is of medium diversity in comparison to the rest of Namibia, which has a total of 658 recorded bird species. The diversity of mammals and reptiles in the area is very low and low respectively, compared to the rest of Namibia, with 16 – 30 species of mammals and between 41 and 50 reptiles (Mendelsohn et al., 2003).

The presence of animal activity was observed during the site visit. Various animal scats and burrows were recorded, as well as various sightings of zebras, gemsbok and springbok.

Photos from EPL 6987

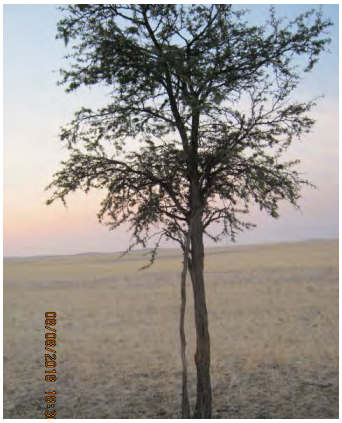

FIGURE 2 – ACACIA ERIOLOBA

FIGURE 33 – ORYX TRACKS

FIGURE 4 – EUPHORBIA DAMARANA L C LEACH

FIGURE 4 – SALSOLA TUBERCULATA

FIGURE 5 – EPL 6987

4.4 Heritage

The Namib Desert has rich archaeological and heritage value and presents valuable information about the occupation of the area dating back 700,000 years. According to the Namibian National Heritage database there are no known national heritage receptors on the EPL, and none were identified during the site visit.

4.5 Soils, Geology, Groundwater and Surface Water

The EPL stretches over an area that is predominately made up of the Damara Granite rock type and Petric Gypsisols soils. The characteristics of this dominant soil type are soils with a solid layer at a shallow depth that remains hard even when wet. Soils have accumulations of calcium sulphate, which are restricted to the very dry areas of the central Namib. The soil generally has very low levels of fertility, so only the hardiest of plants will grow in them (Mendelsohn et al., 2003).

The soils of the Namib Desert are formed by various processes, both mechanical and chemical. Soil formation is a slow and weak process on the plains of the Namib, and usually forms a crust that provides a stabilising effect that is very sensitive to any form of disturbance (Soft Chem, 2011). The northern section of the Namib-Naukluft is a very sensitive area with gypsum crusts covering 80% of the area. This makes the area very sensitive for vehicular traffic, and tracks made never recover even with rehabilitation afterwards (Ministry of Environment and Tourism, Ministry of Mines and Energy, 2018).

EPL 6987 is covered with soil with limited geological features. the EPL site mainly composed of dry open plains with various surface water features across the sites that are likely to be flowing during periods of high rainfall. The area is part of the Kuiseb River Basin.

4.6 Land Use and Infrastructure

The EPL is in the Namib-Naukluft National Park which is used primarily for tourism. The EPL site does not have any tourism facilities, neither is it used for tourism activities. Historical land use activities were not observed during the site visits. Previous exploration or mining activities have taken place on EPL 6987, however they are less obvious because the area has mostly regenerated naturally.

EPL 6987 is approximately 16.5 km from north to south and the powerline is 600 m from the southern boundary routing across the EPL in a west-east direction.

On the D1982 which EPL6987 is accessed from, is a rest camp (no facilities, just benches and shade area).

4.7 Protect Areas Excluded from Prospecting and Mining

As stated previously, the EPL is located in the Namib-Naukluft National Park. To support the protection of Namibia's national parks whilst developing the mining sector in line with the Fifth National Development Plan (NDP5), the Namibian Government has developed an integrated, flexible and comprehensive policy to deal with mining and prospecting in protected areas (refer to section 2.2.2). The policy sets out where mining and exploration related impacts are legally prohibited and where biodiversity areas may present high risks for mining projects. Figure 7 illustrates these areas for the Namib-Naukluft National Park.

The EPL is in the 'Zone 2 Management Area' which is managed for conservation and controlled tourism. Mechanised access is permitted in this zone. This means exploration activities can take place in this area of the national park, however certain conditions shall be enforced which are described in the EMP in Appendix A.

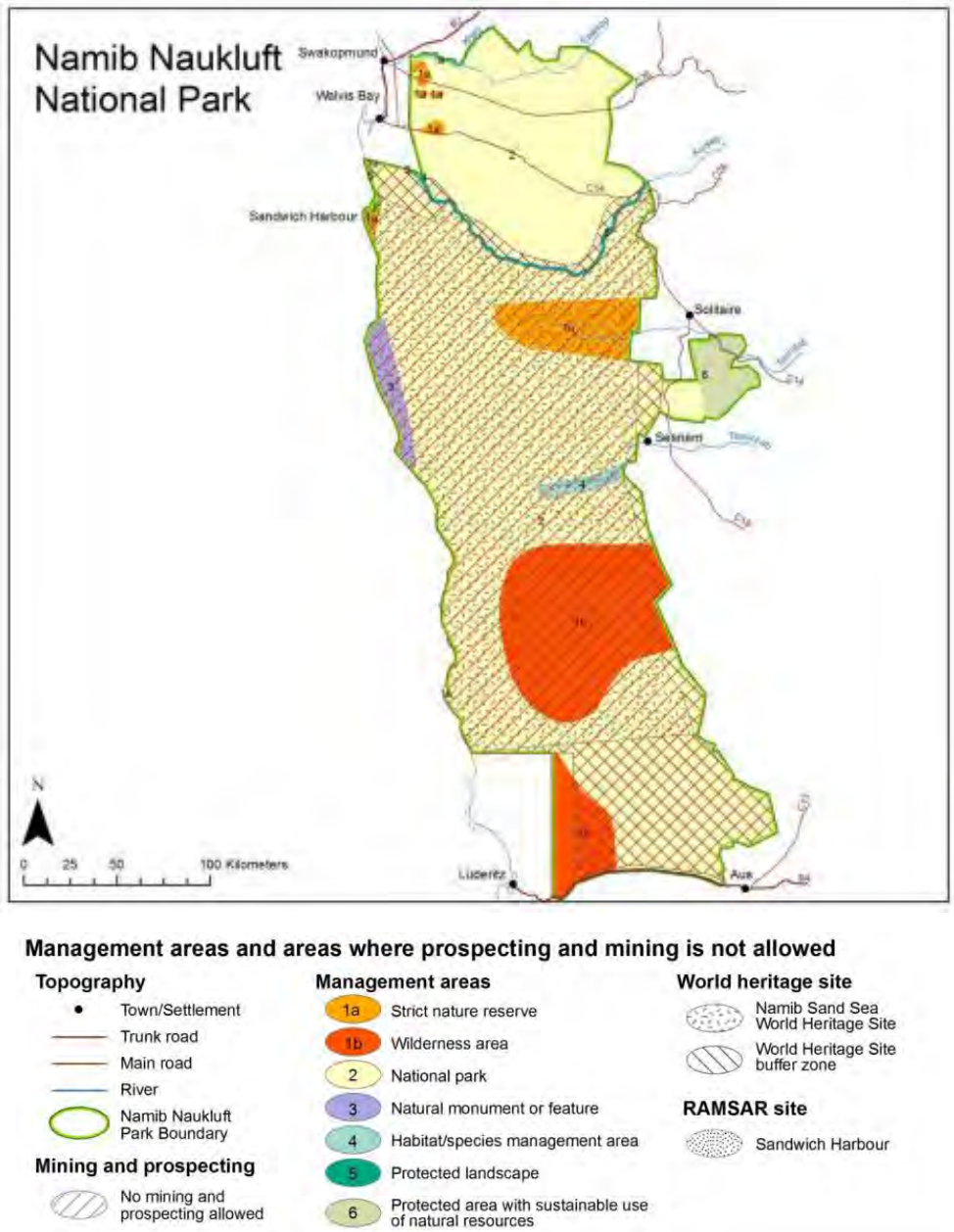

FIGURE 6 – MANAGEMENT AREAS FOR THE NAUKLUFT NATIONAL PARK

5 ENVIRONMENTAL IMPACT ASSESSMENT

5.1 PURPOSE OF THE ENVIRONMENTAL IMPACT ASSESSMENT

The EIA process in Namibia is governed and controlled by the Environmental Management Act, 2007 and the EIA Regulations No. 30 of 2012, which is administered by the Office of the Environmental Commissioner through the DEA of the MET.

An EIA is the process of identifying, predicting, evaluating and mitigating the potential effects of a proposed project on the natural and human environment. The aims of the EIA process and subsequent report are to apply the principles of environmental management to proposed activities; reduce the negative and increase the positive effects arising from a proposed project; provide an opportunity for the public to consider the environmental impacts of a proposed project through meaningful consultation; and to provide a vehicle to present the findings of the assessment process to competent authorities for decision making.

5.2 THE ASSESSMENT PROCESS

The EIA methodology applied to this EIA has been developed using the International Finance Cooperation (IFC) standards and models, in particular Performance Standard 1, 'Assessment and management of environmental and social risks and impacts' (International Finance Corporation, 2017) (International Finance Corporation, 2012); Namibian draft procedures and guidance for EIA and EMP (Republic of Namibia, 2008); international and national best practice; and over 25 years of combined EIA experience. The process followed through the basic assessment is illustrated in Figure 8 and detailed further is the following sections.

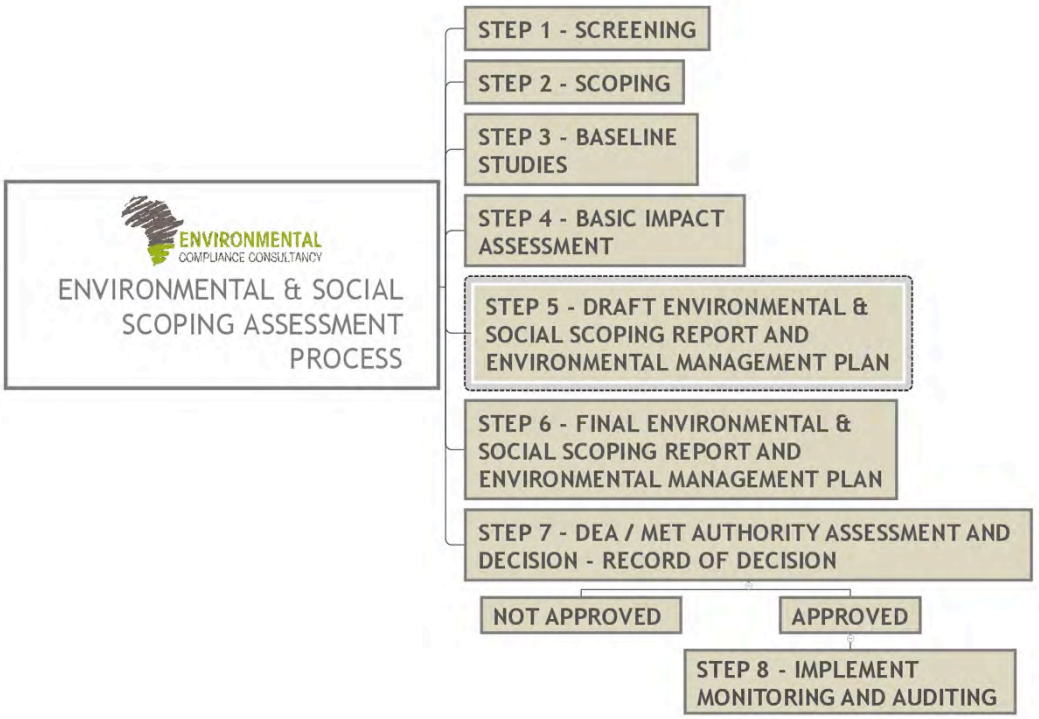

FIGURE 7 – EIA PROCESS

5.2.1 Screening of the proposed project

The first stages in the EIA process is to register the project with the DEA/MET and undertake a screening exercise to determine whether it is considered as a listed activity under the Environmental Management Act, 2007 and associated Regulations and if significant impacts may arise from the project. During this process, the location, scale and duration of project activities are considered against the receiving environment to determine the approach to the EIA.

The proposed project is considered as a listed activity; however, significant effects will unlikely arise as a result of project activities. Therefore, it was concluded that a Scoping Report was required and deemed sufficient, and no further work (detailed assessment) is required, however this would be confirmed during the scoping stage.

5.2.2 Scoping of the environmental assessment

The purpose of the scoping stage in the EIA process is to identify the scope of assessment; undertake a high-level assessment to identify potential impacts; and confirm if further investigation is required to assign the severity of potential significant effects and appropriate mitigation.

This report presents the findings of the scoping phase and high-level assessment and confirms that no further investigation is required. This conclusion is presented in section 5.4.

BASELINE STUDIES

Baseline studies are undertaken as part of the scoping stage which involves collecting all pertinent information from the current status of the receiving environment. This provides a baseline where changes that occur as a result of the proposed project can be measured.

For the proposed project, baseline information was obtained through a desk-based study as well as a site visit which was undertaken 8th – 10th August 2018. The baseline is presented in section 4.

IMPACT PREDICTION AND EVALUATION

Impact prediction and evaluation involves predicting the possible changes to the environment as a result of the development/project. The methodology presented in Appendix D was applied to determine the magnitude of impact and whether or not the impact was considered significant or if further investigation was required. The findings of the high-level assessment are presented in section 5.4.

5.3 Consultation

Public participation and consultation is a requirement stipulated in section 21 of the Environmental Management Act, 2007 and its regulations for a project that requires an environmental clearance certificate. Consultation is a compulsory and critical component in the EIA process in achieving transparent decision-making and can provide many benefits.

A key aim of consultation is to inform stakeholders and interested and affected parties (I&AP) about the proposed project. The methods undertaken for the proposed project are detailed in the sections that follow, this was conducted in accordance with the requirements of the EIA Regulations.

5.3.1 Newspaper advertisements

Notices regarding the proposed project and its activities were circulated in two newspapers namely the 'Informante' on the 28th of March 2019 and 4th of April 2019 and the 'Namibian' on the 25th March 2019 and the 1st of April 2019, as illustrated in Appendix C. The purpose of this was to commence the consultation process and enable I&APs to register interest with the project.

5.3.2 Non-technical summary

The Non-Technical Summary (NTS) presents a high-level description of the proposed project; sets out the EIA process and when and how consultation is undertaken; and contact details for further enquiries and is made available to all registered I&APs. The NTS can be found in Appendix C.

5.3.3 Site notices

A site notice ensures neighbouring properties and stakeholders are made aware of the proposed project. The notice is illustrated in Appendix C.

5.3.4 Consultation feedback

No issues or concerns were raised by the I&APs during consultation period.

5.4 Environmental assessment Findings

5.4.1 Scoping assessment findings

When undertaking the scoping exercise, the design of the proposed project and best practice measures were considered to ensure the likely significant effects and any required additional mitigation were identified. The following topics were considered during the scoping phase:

- Surface water and ground water (including geomorphology)
- Soils and geology
- Landscape (visual impacts, change in landscape, sense of place)
- Socio-economics (employment, local businesses, community, demographics & tourism, land use)
- Noise
- Ecology (aquatic, fauna & flora)
- Human environment (infrastructural services, traffic and transport)
- Air quality (including dust), and
- Cultural heritage and palaeontology resources.

The source-pathway-receptor model was used to evaluate the potential impacts of the proposed project and determine if further assessment is required. Table 4 sets out the findings of the scoping assessment phase. Activities that could be the source of an impact have been listed, followed by receptors that could be affected. The pathway between the source and receptor has be identified where both a source and receptor are present. Where an activity and/or receptor has not been identified, an impact is unlikely, thus no further assessment or justification provided. Where the activity, receptor and pathway have been identified, a justification has been provided documenting if further assessment is required or not required.

Due to the nature and localised scale of the exploration activities, and the environmental context of both sites, the potential environmental and social effects are limited and unlikely to be significant. Where effects occur, they will be managed (avoided or reduced) through implementation of best practice mitigation, as detailed in the EMP (contained in Appendix A). All topics were considered during the scoping assessments, which did not identify areas of uncertainty and thus no further investigation was deemed required.

TABLE 4 – SCOPING ASSESSMENT FINDINGS

TOPICS	ACTIVITY	RECEPTOR	PATHWAY	EFFECT	FURTHER ASSESSMENT JUSTIFICATION
Surface and ground water	– Exploration drilling and creation of exploration boreholes	– Groundwater	– Drill deep and into the water table, and – Groundwater extraction.	– Drilling could penetrate the groundwater table and the drill fluid could enter the groundwater causing pollution – Pollution from loss of hydrocarbons, oil spills and drill fluids into the groundwater, and – A decrease in groundwater /changes to groundwater table due to ground water extraction.	– No effects on the recharge or flow of groundwater, and – With the mitigation and management measures listed in the EMP, these effects would be minimised and no likely significant affect anticipated. – **No further assessment required as there is a low probability of significant impacts to the surface and groundwater.**
Soils and geology	– Minor earthworks – Creation of access tracks – Drilling, and – Use of equipment (vehicles)	– Soil (e.g. quality)	– Drill fluids entering the environment, and spilling on to the ground, and – Use of vehicles leading to soil erosion.	– Reduction in soil quality, and – Gypsum crusts affected	– Gypsum crusts may be affected, however with the mitigation and management measures listed in the EMP, these effects would be minimised and no likely significant affect anticipated. – **No further investigation required.**
Landscape	– Presence of equipment	– NA	A	A	– **No receptors identified, no further investigation required.**
Land use	– Exploration activities	– NA	A	A	– **No receptors identified, no further investigation required.**
Socio-economics	– Exploration activities	– NA	A	A	– **Limited to small scale exploration, and** – **No receptors identified, no further investigation required.**
Noise	– Drilling operations – Vehicle movements, and – Use of remote	– Wildlife	oise carrying to receptors within 200m	hort term increase in noise levels disrupting wildlife	– Low impact exploration. Sensitive animals, birds and insects etc. can move away from the area. – **No further investigation required.**

TOPICS	ACTIVITY	RECEPTOR	PATHWAY	EFFECT	FURTHER ASSESSMENT JUSTIFICATION
	sensing aerial equipment				
Ecology	– Drilling operations – Vegetation clearing, and – Vehicle movements	– Flora and fauna	irect and indirect disturbance	njury or mortality of individual species	– Sensitive animals such as reptiles, birds and insects etc. can move away from the area, and – With the mitigation and management measures listed in the EMP, these effects would be minimised and no likely significant affect anticipated. – **No further investigation required**
Air Quality – Dust	– Drilling, and – Vehicles and machinery activity	– NA	A	A	– **No receptors identified, no further investigation required.**
Cultural Heritage and Palaeontology resources	– Drilling	– No known artefacts or heritage remains.	A	A	– With the mitigation and management measures listed in the EMP, in particular the Chance Finds Procedure, potential effects would be avoided and minimised and no likely significant affect anticipated. – **No further investigation required**
Cumulative Effects	The combined environmental effects as a result of the activities of the proposed project are considered low and would not result in a significant adverse effect on any receptor identified above. The effects of the proposed project in combination with other projects on the EPL sites or projects outside of the EPL boundaries are considered to be low. This is due to the limited number of other projects in the area and likely effects on the same sensitive receptors.				

5.5 Environmental Management Plan

The EMP for the proposed project is presented in Appendix A. It provides management options to ensure the impacts of the proposed project are minimised. An EMP is a tool used to take pro-active action by addressing potential problems before they occur. This should limit the corrective measures needed, although additional mitigation measures might be included if necessary.

The management measures should be adhered to during all stages of the exploration activities. All persons involved and partaking in the proposed activities should be made aware of the measures outlined in the EMP to ensure activities are conducted in an environmentally sound manner.

The objectives of the EMP are:

- To include all components of the development and operations of the project
- To prescribe the best practicable control methods to lessen the environmental impacts associated with the project
- Compliance to the Namib-Naukluft National Park Management Plan
- To monitor and audit the performance of operational personnel in applying such controls, and
- To ensure that appropriate environmental training is provided to responsible operational personnel.

6 CONCLUSION

The environmental assessment that was undertaken for the proposed project followed ECC's EIA methodology to identify if there is potential for significant effects to occur as a result of the proposed project. Through the scoping process, all social and environmental receptors were scoped as requiring further assessment as it was unlikely that there would be significant effects. Various best practice and mitigation measures have been identified to avoid and reduce effects as far as reasonably practicable, as well as ensure the environment is protected and unforeseen effects are avoided.

On this basis, it is of the opinion of ECC that an environmental clearance certificate could be issued, on conditions that the management and mitigation measures specified in the EMP are implemented and adhered to.

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APPENDIX A: ENVIRONMENTAL MANAGEMENT PLAN

ENVIRONMENTAL
COMPLIANCE CONSULTANCY

ECC DOCUMENT CONTROL: ECC-76-165-REP-08-D

ENVIRONMENTAL MANAGEMENT PLAN

Exploration Activities on EPL 6987 for Nuclear Fuel Minerals

Erongo Region

PREPARED FOR

MARENICA ENERGY LIMITED

APRIL 2019

PO BOX 91193 Windhoek Namibia
Environmental Compliance Consultancy CC
CC/2013/11404

TITLE AND APPROVAL PAGE

Project Name:	Exploration Activities on EPL6987 for Nuclear Fuel Minerals, Erongo Region
Project Number	ECC-76-165-REP-08-D
Client Name:	Marenica Energy Ltd - Manmar Investments One Eight Two (Pty)
Ministry Reference:	NA
Status of Report:	Final for Government Records of Decision
Date of issue:	April 2019
Review Period	NA

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DEFINITIONS AND ABBREVIATIONS

DEA	Directorate of Environmental Affairs
ECC	Environmental Compliance Consultancy
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPL	Exclusive Prospecting Licence
IFC	International Finance Cooperation
I&AP	Interested and affected parties
MET	Ministry of Environment and Tourism
MME	Ministry of Mines and Energy
MPMRC	Minerals (Prospecting and Mining Rights) Committee

1 INTRODUCTION

1.1 PROJECT BACKGROUND

Marenica Energy Ltd is an Australian Securities Exchange Listed Company, it is the holding company of Manmar Investments One Eight Two (Pty) Ltd which is seeking to explore for Nuclear Fuels Minerals in Namibia. Marenica has also developed a uranium concentration process that is unique and ground-breaking, lowering the extraction cost of uranium and significantly reducing potential environmental effects associated with reducing the mass of ore to be leached. This **U-pgrade**™ process technology can be applied to surficial uranium deposits and is capable of concentrating uranium by a factor of up to 50 times, thereby reducing the feed to a leaching circuit dramatically.

Manmar Investments One Eight Two (Pty) Ltd is seeking to explore further uranium mining opportunities and propose to undertake exploration activities on EPL 6987 for Nuclear Fuel Minerals in the Erongo Region.

The EPL is located in the Namib-Naukluft National Park approximately 80km south-east of Walvis Bay off the C14 as illustrated in Figure 1.

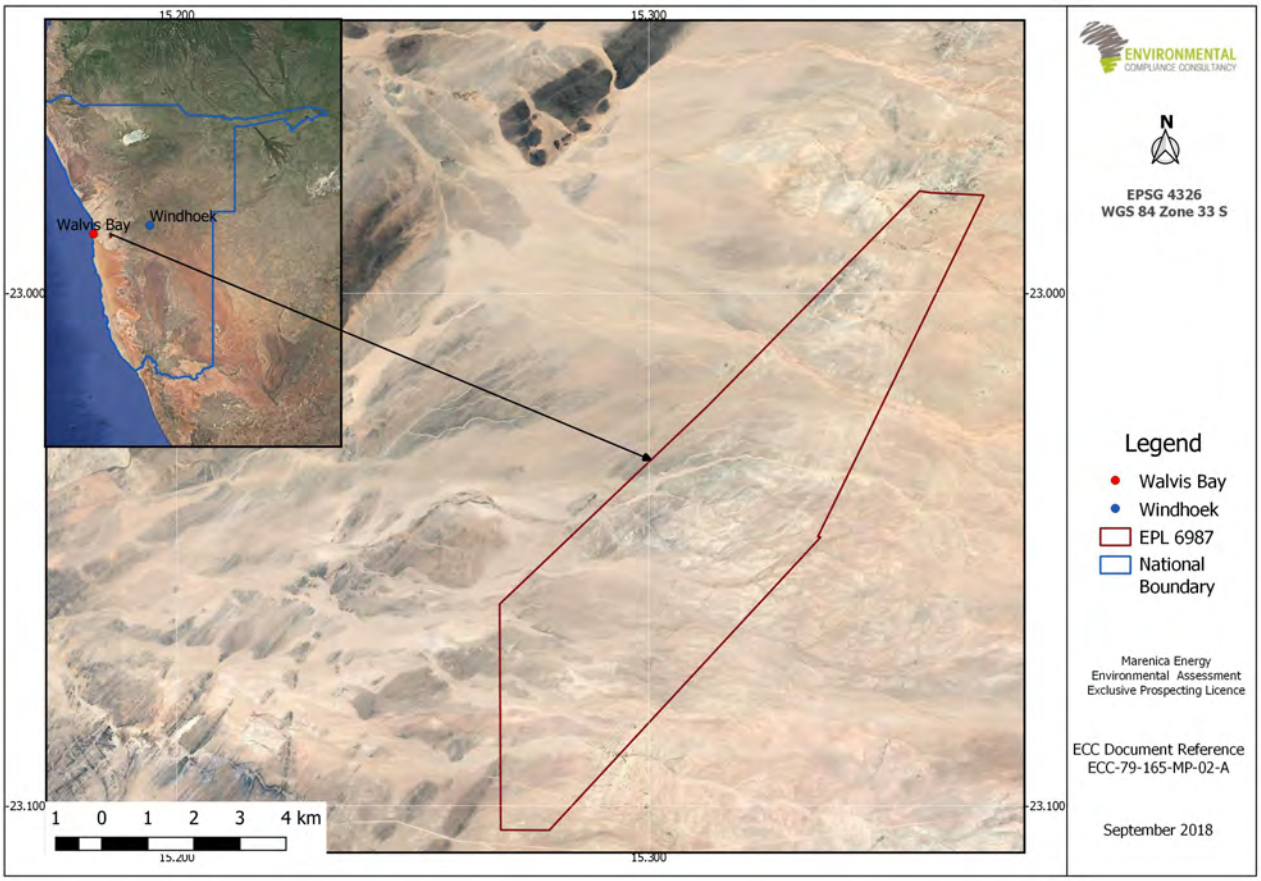

FIGURE 1: LOCALITY OF EPL 6987

1.2 ENVIRONMENTAL REGULATORY REQUIREMENTS

The proposed project is considered as a listed activity as stipulated in the Environmental Management Act7 of 2007 and the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011) gazetted under the Environmental Management Act, (EMA), 2007 (referred to herein as the EIA Regulations). A renewal application for an environmental clearance certificate is to be submitted. An Environmental Management Plan (EMP) is required to be submitted as part of the renewal process, as well as to support the decision-making process. This report presents the

EMP and has been undertaken in accordance with the requirements of the Environmental Management Act, 2007 and its Regulations.

1.3 Purpose and Scope of this Report

This EMP provides a logical framework, mitigation measures and management strategies for the exploration activities associated with the proposed project, in this way ensuring that the potential environmental and social impacts are mitigated and minimised as far as practically possible and that statutory and other legal obligations are adhered to and fulfilled. Outlined in the EMP are the protocols, procedures and roles and responsibilities to ensure the management arrangements are effectively and appropriately implemented.

The EMP forms an appendix to the environmental scoping report and has been based on the findings of the assessment; therefore, the environmental scoping report should be referred to for further information on the proposed project, assessment methodology, applicable legislation, and assessment findings.

This EMP is a live document and shall be reviewed at predetermined intervals, and/or updated when the scope of works alters, or when further data /information can be added. All personnel working on the project will be legally required to comply with the standards set out in this EMP. The scope of this EMP includes all activities carried out during the exploration stage in search of nuclear fuel minerals on EPL 6987.

1.4 Management of this EMP

The proponent, Manmar Investments One Eight Two (Pty) will hold the Environmental Clearance Certificate for the proposed project and shall be responsible for the implementation and management of this EMP. Prior to the exploration activities commencing, this EMP shall be reviewed, amended as required and approved ready for implementation. The implementation and management of this EMP and thus the monitoring of compliance shall be undertaken through daily duties and activities and monthly inspections.

This EMP shall be circulated to all contractors and shall be made available on the Environmental Compliance Consultancy's (ECC) website.

1.5 Limitations, Uncertainties and Assumptions of this EMP

This EMP does not include measures for compliance with statutory occupational health and safety requirements. This will be provided in the safety management plan to be developed by the proponent.

Where there is any conflict between the provisions of this EMP and any contractor's obligations under their respective contracts, including statutory requirements (such as licences, project approval conditions, permits, standards, guidelines and relevant laws), the contract and statutory requirements are to take precedence.

The information contained in this EMP has been based on the project description as provided in the environmental scoping report. Where the design or construction methods alter, this EMP may require updating and potential further assessment undertaken.

1.6 Environmental Consultancy

Environmental Compliance Consultancy, a Namibian consultancy registration number 2013/11401, has prepared this document on behalf of the proponent. ECC operates exclusively in the environmental, social, health and safety fields for clients across Southern Africa in the public and private sector. The CVs of the authors of this report is contained in Appendix A. ECC is independent of the proponent and has no vested or financial interested in the proposed project expect for fair remuneration of professional services rendered.

All compliance and regulatory requirements regarding this document should be forwarded by email or post to the following address:

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PO BOX 91193
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1.7 STRUCTURE OF THIS EMP

Table 1 - ENVIRONMENTAL SCOPING REPORT SECTIONS

SECTION	TITLE	CONTENT
1	Introduction	This section introduces the EMP and provides background information on the proposed project, proponent and purpose of the report
2	Project Management	Sets the roles of the team responsible for implementing this EMP
3	Communication and Training	Methods for communication the EMP, records and complaints
4	Compliance and Enforcement	Sets out how compliance is monitored, reporting and actions to prevent reoccurrence
5	Environmental and Social Management	Register of commitments for the project
6	Implementation of the EMP	How to implement the EMP

2 PROJECT MANAGEMENT PERSONNEL

2.1 MANMAR INVESTMENTS ONE EIGHT TWO (PTY) LTD

The proponent shall provide a project team to oversee and undertake the preparation and exploration activities, which shall be composed of the proponent's personnel and contractors. A nominated role shall be identified to ensure the management and implementation of this EMP is throughout the duration of the project, which shall be supported by the proponent.

2.2 ORGANISATIONAL STRUCTURE, ROLES AND RESPONSIBILITIES

The proponent shall be responsible for:

- Ensuring all members of the Project Team, including contractors, comply with the procedures set out in this EMP
- Ensuring that all persons are provided with sufficient training, supervision and instruction to fulfil this requirement
- Ensuring that any persons allocated specific environmental responsibilities are notified of their appointment and confirm that their responsibilities are clearly understood, and
- Contractors shall be responsible for ensuring and demonstrating that all personnel employed by them are compliant with this EMP, and meet the responsibilities listed above.

The key personnel and environmental responsibilities of each role through the project life are presented in Table 1.

TABLE 2 – ROLES AND RESPONSIBILITIES

ROLE	RESPONSIBILITIES & DUTIES
Proponent	– Responsible for the management and implementation of the EMP – Ensure environmental policies is communicated to all personnel throughout the proposed project and that employees understand the guidelines of the EMP – Responsible for providing the resources required to complete the project tasks – Appoint a Site manager and Project Manager, and – Ensure all workers are inducted on safety measures.
Exploration Management	– Overseeing exploration activities – Monitoring daily operations and ensure adherence by personnel to the EMP – Maintain the community issues and concerns register and keep records of complaints, and – Maintain an up to date register of employees who have completed site induction.
Site Manager	– Ensuring that all contract workers, sub-contractors and visitors to the site are aware of the requirements of this EMP, relevant to their roles and always adhere to this EMP – Reporting any non-compliance or accidents to the PM – Receiving, recording and responding to complaints – Ensure adequate resources are available for the implementation of the EMP – Report non-compliance to the PM – Ensure safe and environmentally sound operations, and – Responsible for the management, maintenance and revisions of this EMP.
Employees	– Adhere to measures set out in the EMP

ROLE	RESPONSIBILITIES & DUTIES
	– Ensure they have undertaken a site induction, and – Report any operations or conditions which deviate from the EMP as well as any non-compliant issues or accidents to the environmental manager

2.3 Contractors

Any contractors hired during the exploration activities and accessory works for the project duration shall be compliant with this EMP, and shall be responsible for the following:

- Undertaking activities in accordance with this EMP as well as relevant policies, procedures, management plans, statutory requirements, and contract requirements
- Implementing appropriate environmental and safety management measures
- Reporting of environmental issues, including actual or potential environmental incidents and hazards, to the Site Manager and/or PM, and
- Ensuring appropriate corrective or remedial action is taken to address all environmental hazards and incidents reported by employees and subcontractors.

2.4 Employment

The proponent and all contractors shall comply with the requirements of the Republic of Namibia Regulations for Labour, Health and Safety, and any amendments to these regulations. The following shall be complied with:

- In liaison with local government and community authorities the proponent shall ensure that local people have access to information about job opportunities and are considered first for construction / maintenance contract employment positions
- The number of job opportunities shall be made known together with the associated skills and qualifications. The maximum length of time the job is likely to last for shall be clearly indicated
- Foreign workers with no proof of permanent legal residence shall not be hired, and
- Every effort shall be made to recruit from the pool of unemployed workers living in the local area.

3 COMMUNICATION AND TRAINING

3.1 COMMUNICATIONS

During exploration, the PM and Site Manager shall communicate site wide environmental issues to the Project Team through the following means (as and when required):

- Site induction
- Audits and site inspections
- Toolbox talks, including instruction on incident response procedures, and
- Key project specific environmental issues briefings.

This EMP shall be distributed to the exploration team including any contractors and personnel working on the exploration site to ensure that the environmental requirements are adequately communicated. Key activities and environmentally sensitive operations shall be briefed to workers and contractors.

During the exploration activities, communications between the management team shall include discussing any complaints received and actions to resolve them; any inspections, audits or non-conformance with this EMP; and any objectives or target achievements.

3.2 COMPLAINTS HANDLING AND RECORDING

Any complaints received verbally by any personnel on the project site shall be recorded by the receiver, including the name and contact details of the complainant, date and time of the complaint, and the nature of complaint. The information shall be given to the project manager who is overall responsible for the management of complaints and will provide a written response to the complainant. The project manager shall inform the site manager of issues, concerns or complaints. It is the duty of the project manager to maintain a complaint register that details the name of the complainant, date and time of complaint, action taken to resolve the issues and date of complaint handover.

The workforce shall be informed about the complaints register, its location and the person responsible, in order to refer residents or the general public who wish to lodge a complaint. The complainant shall be informed in writing of the results of the investigation and action to be taken to rectify or address the matter(s). Where no action is taken, the reasons why are to be recorded in the register.

The complaints register shall be kept for the duration of the project and will be available for government or public review upon request.

3.3 TRAINING AND AWARENESS

All personnel working on the project shall be competent to perform tasks that have the potential to cause an environmental impact. Competence is defined in terms of appropriate education, training and experience.

3.3.1 SITE INDUCTION

All personnel involved in the project shall be inducted to the site with specific environment and social awareness training, and health and safety issues. The environment and social awareness training shall ensure that personnel are familiar with the principles of this EMP, the environment and social aspects and impacts associated with their activities, the procedures in place to control these impacts and the consequences of departure from these procedures.

The project manager shall ensure a register of completed training is maintained.

The site induction should include, but not limited to the following:

- A general site-specific induction that outlines:

  - What is meant by “environment” and “social”
  - Why the environment needs to be protected and conserved
  - How exploration activities can impact on the environment
  - What can be done to mitigate against impacts
- The inductee’s role and responsibilities with respect to implementing the EMP
- The sites environmental rules
- Details of how to deal with, and who to contact if environmental problems should they occur
- Basic vegetation clearing principals and species ID sheets
- The potential consequences of non-compliance with this EMP and relevant statutory requirements, and
- The role of responsible people for the project.

4 REPORTING, COMPLIANCE AND ENFORCEMENT

4.1 Environmental Performance measurement

The EMP provides the management team with options to ensure the impacts of the exploration activities are minimized. The EMP will be used as a pro-active tool to take up action by mitigating impacts before they occur. Although additional mitigation measures might be included, the environmental management measures are discussed in the tables and description from this point forward.

4.2 Summary of Environmental Risks and Mitigation Measures

Chapter 5 provides a Register of environmental risks and issues, which identifies mitigation and monitoring measures, as well as roles responsible. This register will be subject to regular review by the project manager and updated when necessary. The project manager and site manager will use this register to undertake monthly inspections (see next section) to ensure the project is compliant with this EMP.

4.3 Compliance Monitoring

4.3.1 Monitoring in the National Park

The EPL is located in the Namib-Naukluft National Park. The National Policy on the Prospecting and Mining in Protected Areas provides direction in terms of where mining and exploration related impacts are legally prohibited and where biodiversity priority areas may present high risks for mining projects. In addition, the Namib-Naukluft National Park Management Plan provides guidance and requirements for these activities in the Park. Requirements under the Policy and Management Plan are as follows:

- The proponent shall provide the National Park staff and the MET with an environmental report every six months during exploration works, showing its progress towards meeting agreed upon safeguard targets.
- The proponent shall communicate with the National Park staff on a regular basis to ensure that mutual expectations are clear and reinforced, including:
    - One month prior to undertaking the activities
    - Once during each scheduled program of works (anticipated to be for three months a year for seven years)
    - Once a month prior to activities completing
    - Within one month of all site rehabilitation works.
- The proponent shall allow Park staff and the MET to regularly visit and talk to the operators during exploration activities. The MET and MME may conduct inspections at any time during the year to monitor compliance with the Environmental Contract, EIA, EMP and/or any other conditions that are stipulated. Where non-compliance is observed, Park staff must immediately report the matter to the Chief Control Warden in order to enable “in house” remediation. If this fails, the matter must be reported to MET headquarters for higher level attention.
- An annual Environmental Audit must be carried out on any EPL within any Protected Area. This audit must be conducted by the MET or MME, or an independent expert may be commissioned, at the licensee’s cost, to conduct the audit, and
- Once prospecting has ceased, any impacts shall be rehabilitated in accordance with the stipulations of the EMP. Conditions as set out in Annex 6 of the Policy are included in Table 2.

TABLE 3 - CONDITIONS TO OPERATE IN PROTECTED AREAS

General Conditions:

1. A list of company personnel, including ID/Passport numbers, nationality and position, authorized to enter or work on the company's tenements within a PA, must be supplied to the MET officer in charge of the area.

2. Employee and personnel lists must be updated on a regular basis (when any changes happen).

3. An annual permit must be obtained from the MET to enter a PA. All permanent staff must be listed on this permit. This permit must be shown each time a staff member enters the park, and all people in a group must correspond with the permit list. A separate permit must be obtained from the MET for non-permanent employees (contractors, service providers etc.) to cover the duration of their visit.

4. A copy of all permits and permissions from the relevant authorities or ministries to carry out any of the proposed activities on the EPL must be supplied to the officer in charge of the area.

5. All employees must be in possession of an ID/name tag with their name, photo and job or function with an authorizing signature.

6. A suitable communication system to enable regular contact with PA officials must be installed.

Environmental Conditions:

1. A six monthly progress report and environmental management report must be submitted to the MET starting from date of commencement of operations.

2. All provisions of the Nature Conservation Ordinance, Ordinance 4 of 1975 and all amendments to this ordinance and Regulations Relating to Nature Conservation, GN 240 of 1976, with all amendments or any legislation that replaces it must be complied with.

3. All provisions of the Environmental Management Act, Act 7 of 2007, must be complied with.

4. Provisions of any other legislation pertaining to any aspect of the environment must be complied with.

5. Strict compliance with all conditions in the Environmental Contract and appendices.

6. No movement outside of the EPL area except when in transit between entrance to the PA and the EPL area will be allowed. Such transit will be on a specified route.

7. A detailed site inspection will be carried out in conjunction with MET staff prior to commencement of any prospecting activities to establish access routes to target areas.

8. No motor bike, 3-wheeler or quad bike of any nature will be allowed to be used in an EPL for any purpose.

9. No hunting, catching or wilfully disturbing any animal is allowed.

10. No boating will be allowed on any river or water body unless it is within the operations detailed on the operational documentation.

11. No gathering of firewood or driftwood for any purpose will be allowed.

12. No pets of any description will be allowed.

13. No firearms, bows, crossbows, catapults or other weapons. Weapons for security purposes must be motivated and registered with the officer in charge of the area.

14. Traveling will be confined to an agreed upon track network. New tracks will be kept to a minimum.

15. All waste must be removed from the license area to a waste disposal unit. No waste to be disposed of within the PA. A suitable scavenger and wind proof storage facility must be constructed to store waste material prior to transportation out of the area. Waste may be burnt on site and the ash and non-burn-able residue must be removed as described above. Attention must be given to wind conditions and all necessary measures must be taken to prevent wind distribution of rubbish. All fuel and lubricant waste products must be disposed of at a suitable facility outside of the PA.

16. Suitable and effective traps or pans must be used at vehicle or machinery refuelling points. Soil contaminated with fuel or oil must be immediately dug up and stored in a safe place for later removal to a suitable disposal facility.

17. Under no circumstances may any waste material of any nature be disposed of in any water body or river.

18. All structures are to be of a temporary nature.

19. Toilets of a 'long drop' or pit latrine type must be put up immediately. The use of chemical toilets will not be acceptable, as there is the problem of disposing of the chemical residue. Any toilet must be constructed away from the any river to prevent contamination.

20. Harvesting of reeds or other natural materials for construction or other purposes will not be allowed.

21. Transgressions of any provisions of the Nature Conservation Ordinance or its amendments will be dealt with severely. Second time offenders will be asked to leave the park.

4.3.2 Daily compliance monitoring

A copy of this EMP shall be on site throughout the exploration works and shall be available upon request. It is the responsibility of the PM and Site Manager to ensure this EMP is complied with through their daily roles. Daily inspections will be undertaken by the Site Manager (or nominated site supervisor). Any environmental problems or risks identified shall be notified to the PM and actioned as soon as is reasonably practicable.

4.3.3 Monthly compliance monitoring

Monthly internal inspections during exploration activities shall be undertaken by the Site Manager to check that the standards and procedures set out in this EMP are being complied with and pollution control measures are in place and working correctly. Any non-conformance shall be recorded, including the following details: brief description of non-conformance; the reason for the non-conformance; the responsible party; the result (consequence); and the corrective action taken and any necessary follow up measures required.

4.4 Reporting

Reports shall be submitted to the Mining Commissioner in terms of the Minerals (Mining and Prospecting) Act, 1992. The reporting requirements for the two sites are illustrated in Table 4. A report shall be submitted 60 days after the currency of the EPL.

TABLE 4 - REPORTING FREQUENCY

TYPE OF LICENCE	MONTHLY	QUARTERLY	ANNUALLY
EPL	NA	Yes	NA

4.5 Non- Compliance

4.5.1 Non-compliance event

Where it has been identified that works are not compliant with this EMP, the project manager shall employ corrective actions so that the works return to being compliant as soon as possible. In instances where the requirements of the EMP are not upheld, a Non-Conformance and Corrective Action Notice shall be produced. The notice shall be generated during the inspections and the project manager shall be responsible for ensuring a corrective action plan is established and implemented to address the identified shortcoming.

A non-compliance event / situation, for example, is considered if:

- There is evidence of contravention of this EMP and associated indicators or objectives
- The Site Manager and/or Contractor have failed to comply with corrective or other instructions issued by the Environmental Manager or qualified authority, or
- The site manager and/or contractor fail to respond to complaints from the public.

Works shall be stopped in the event of a non-compliance, until corrective action(s) has been completed

4.5.2 Disciplinary action

This EMP is a legally binding document and non-compliance with it shall result in disciplinary action being taken against the perpetrator/s. Such action may take the form of (but is not limited to):

- Fines / penalties
- Legal action
- Monetary penalties imposed by the proponent on the contractor

- Withdrawal of license/s, and
- Suspension of work.

The disciplinary action shall be determined according to the nature and extent of the transgression / non-compliance, and penalties are to be weighed against the severity of the incident.

4.6 Environmental Permits

Whilst the Water Resources Management Act, 2013 is not enforced, it is best practice to adhere to the stipulations. A permit to abstract and use water may be required if boreholes are to be created, however this is unlikely.

Some vegetation shall be cleared on the EPL sites to allow exploration activities to commence. It is unlikely that an area greater than 15ha shall be cleared, therefore a permit, in terms of the Forest Act, 2001 is not required.

5 ENVIRONMENTAL AND SOCIAL MANAGEMENT

5.1 Objectives and Targets

This chapter provides a register of environmental risks and issues, which identifies mitigation and monitoring measures, as well as roles responsible. This register will be subject to regular review by the exploration manager and updated when necessary.

The exploration manager and or site manager (if applicable) will use this register to undertake monthly inspections (see next section) to ensure the project is compliant with this EMP.

Environmental objectives for the project are as follows:

- Zero pollution incidents
- Minimal vegetation clearing and earthworks
- Protect local flora and fauna, and
- Use natural resources effectively and efficiently.

5.2 Register of Environmental Risks and Issues

An environmental review of the proposed project has been completed to identify all the commitments and agreements made within the environmental scoping report. From this, a schedule of environmental commitments and risks has been produced, which details deliverables including measures identified for the prevention of pollution or damage to the environment during the exploration phase.

TABLE 5 – ENVIRONMENTAL RISKS AND ISSUES, AND MITIGATION AND MONITORING MEASURES

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
Use of Plant and equipment (on the ground)	Safety	– Plant and equipment shall be brought onto site as and when required and stored in specific areas, and – Amenities (e.g. portable toilets) shall be provided and set up in a suitable location (if required).	Daily observations	– Project manager – Site manager
	Aerial emissions	All plant to be shut down or throttled back between periods of use.	Daily observations	– Project manager – Site manager
	Potential loss of oil and fuel causing ground contamination	– Refueling shall be undertaken in a designated area. – All stationary vehicles and machinery must have drip trays to collect leakages of lubricants and oil	Daily observations	– Project manager – Site manager
	Water contamination	– In the event of pollution, polluted soils must be collected and dumped at an approved site – Water during drilling should be retained in a lined pond to prevent pollution – The water collection pit from drilling must be layered in order to avoid seepage, and – A 'good housekeeping' policy shall be adopted across the construction and maintenance working areas.	Daily observations	– Project manager – Site manager
	Dust generation	– Use existing access roads and tracks, where possible – Apply dust suppression method such as water spraying during drilling operations – Non-toxic human dust exposure levels may not exceed 15mg/m^3 for total dust and 5mg/m^3 for respiratory dust – Restricted speeds (<30km/h) – Provide protective masks and eye glasses to employees in dusty working environments, and – Specific activities that may generate dust shall be avoided during high wind events, e.g. soil preparation activities	Daily observations	– Project manager – Site manager

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
	Noise generation	– Noise shall be minimised as much as possible during construction works – Limit working hours to 7am to 6pm weekdays and 7am to 1pm on Saturday – Inform local communities and residents of scheduling and duration of noisy activities through notices or face-to-face communications. – Regular maintenance and servicing of vehicles, plant and equipment. – All plant to be shut down or throttled back between periods of use. – Provide ear muffs to employees working in close proximity to excessive noise – Workers must not be subjected to working in noise levels above the threshold of 85dB (A) for longer than 8 hours, and – No flying is to be conducted (aerial surveys) between dusk and dawn, on Sundays and on public holidays.	Daily observations	– Project manager – Site manager
Use of airborne equipment (remote sensing – drone, helicopter)	Noise generation	– Only use remote sensing equipment between 7am and 5pm, and – No flying on Sundays and on public holidays.	Daily observations	– Project manager – Site manager
Vegetation Clearance	Alien species	– Ensure the correct removal of alien invasive vegetation from the proposed development area and prevent the establishment and spread of alien invasive plants due to the development activities. – Ensure the potential introduction and spread of alien plants is prevented – All project or earth moving equipment must have an internal weed and seed inspection completed prior to equipment being used on site, and – Invasive plants shall be removed as per the National Park Management Strategy.	– Monitor daily the removal of the alien invasive vegetation, and – Check the tyre of vehicles after use on site.	– Employees – Project manager
	Dust generation	– Apply speed restrictions (<30km/h), and – Avoid off road driving.	Daily observations	– Project manager – Site manager
	Reduced soil quality	– Use existing tracks where possible	Daily observations	– Project

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		– Refueling to occur in designated areas with drip trays, and – Avoid natural drainage lines		manager – Site manager
	Injure or kill animals	– Relocate slow moving reptiles and amphibians away from the construction area – No driving off designated access routes (into the bush) / off-road driving – No snares or catching of animals for pets or food, and – No animals or birds may be collected, caught, consumed or removed from site by the Contractor or personnel on site.	Daily observations	– Project manager – Site manager
	Removal of vegetation may lead to loss of flora and fauna and protected/important species	– Use existing tracks where possible. – Route new tracks around established and protected trees, and clumps of vegetation – Identify rare, endangered, threatened and protected species. Demarcate and avoid cutting down, and clearly highlight to construction workers so that they are avoided, and – Avoid natural drainage lines.	Daily visual inspection during construction of new access tracks/widening	– Project manager – Employees – Site manager
Site and ground Preparation – creation of access tracks and areas for setting up drill rigs	Creation of dust	As above	Daily observations	– Project manager – Site manager
	Heritage remains	Discovery of unearthed archaeological remains to be uncovered, the following measures (chance find procedure) shall be applied: – Works to cease, area to be demarcated with appropriate tape by the site supervisor, and the Site Manger to be informed – Site Manager to visit the site and determine whether work can proceed without damage to findings, mark exclusions boundary and inform the Environment and Social Manager with the GPS position if possible; – If works cannot proceed without damage to findings, Site Manager to inform the Environmental Manager who will get in touch with an archaeologist who will provide advise – Environment Manager (ECC) / Archaeological Specialist to evaluate the significance of the remains and identify appropriate action, for example, record and remove; relocate or leave in situ (depending on the nature and value of the remains)	Daily observations	– Project manager – Site manager

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		– Inform the police if the remains are human, and – Obtain appropriate clearance or approval from the competent authority, if required, and recover and remove the remains to the National Museum or National Forensic Laboratory as direct.		
Fuel handling and storage	Loss of containment leading groundwater contamination	**Safe Delivery and handling:** – Training employees and Toolbox Talks – Good housekeeping across site – Fuel is handled with care – Spill kits to be at designated areas across site or available for use during refueling, fuel delivery or use. Absorption material should be available and at hand. Where saw dust is used it should be cleaned up immediately and not left for long periods as this poses a fire hazard – Any major spill is reported to the PM once containment has been achieved. – Plant and equipment to be well maintained and serviced regularly, and – In the field, use of hydrocarbons under 200 liters can be used for mobile refueling or servicing. **Storage:** – All tanks to be stored on a non-porous floor and bunded area – Bund to be capable of storing at least 110% of the volume of the tank – All containers to be suitable for use and not damaged – Tanks are locked at all times, and – Spill kits available at storage locations and around site in suitable locations. **Refueling** – Drip tray to be used during refueling of vehicles and on a permeable flat surface where possible, and – Funnel should be available and used to avoid spillage during decanting.	– Daily observations when fuels are delivered and handled – Supervision during refueling – Weekly observations monitor containment and storage	– Project manager
Generation of waste	– Nuisances (odors and visual) – Land use – Litter (nuisance and ecological risk)	– Training and Toolbox Talks – Good housekeeping across site – All working areas shall apply good house-keeping – Implement the waste management hierarchy across site: Avoid, reuse, recycle, then disposal through burning or dump – Waste shall be collected and shall be removed on a regular basis to avoid pests and bad odours	– Daily observations – Weekly checks	– Project manager – Employees

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		– It is unlikely that hazardous material and wastes will be produced, however in the event that they do, they shall be managed in a safe and responsible manner so as to prevent contamination of soils, pollution of water and/or harm to people or animals as a result of the use of these materials. Hazardous and non-hazardous waste shall be stored separately at all times		
Resource use	Inefficient use of water	Use water effectively and efficiently.	Daily observations	– Project manager – Employees
Job creation	Employment creation and skills development opportunities during the exploration phase.	– Maximise local employment and local business opportunities to promote and improve the local economy. – Enhance the use of local labour and local skills as far as reasonably possible. Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individuals are trained, and – Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible.	– Daily observations – Weekly checks	– Project manager – Employees

6 IMPLEMENTATION OF THE EMP

This EMP:

A. Has been prepared pursuant to a contract with the proponent

B. Has been prepared on the basis of information provided to ECC up to August 2018

C. Is for the sole use of the proponent, for the sole purpose of an EMP

D. Must not be used (1) by any person other than the proponent or (2) for a purpose other than an EMP, and

E. Must not be copied without the prior written permission of ECC.

Environmental Compliance Consultancy has prepared the EMP on the basis of information provided by the proponent, specialist reports and the environmental scoping report.

APPENDIX B: ECC CVS

ENVIRONMENTAL COMPLIANCE CONSULTANCY

Stephan Bezuidenhout

ENVIRONMENTAL ASSESSMENT PRACTITIONER

Hello! :)

ABOUT ME

Name
Jacobus Stephan Bezuidenhout
- But you can call me Stephan -

Born
11 April 1989

Phone
+264 81 262 7872

Email
stephan@eccenvironmental.com

Website
www.eccenvironmental.com

Contact me!

How to reach me!

kid.bezuidenhout

+264812627872

Stephan Bezuidenhout

Education & Qualifications

University of Pretoria
South Africa
2012

Postgraduate Degree in Environmental Management & Analysis

University of Stellenbosch
South Africa
2008

Bachelors in Applied Science

Additional Qualifications:

- Snake Bite and Snake Handling
- Level 1 & 2 First Aid
- Industrial Environmental Compliance

Publications:

N.S., et al., Some ecological side-effects of chemical and physical bush clearing in a southern African rangeland ecosystem, Southern African Journal of Botany (2015), http://dx.doi.org/10.1016/j.sajb.2015.07.012

The FSC National Forest Stewardship Standard of Namibia (Draft V 4). Co-authored by S Bezuidenhout, P Cunningham, A Ashby, F Detering, W Enslin & D Honsbein

Experience & Work History

Current

Managing Director

Since 2012, Stephan has been working as an environmental assessment practitioner. Stephan has a strong ecological background and has gained more than seven years experience in the environmental industry. As a lead practitioner, Stephan has successfully driven environmental impact assessments and compliance assessments within Southern Africa. His hands on and practical experience and knowledge of international standards, such as IFC and World Bank standards allows Stephan to advise his clients and teams constructively and effectively.

ENVIRONMENTAL CONSULTANT & PRACTITIONER

Stephan manages a dynamic team of environmental practitioners and graduates at Environmental Compliance Consultancy. The firms' core objective is to improve the national standard of environmental compliance by developing local capacity. To date Stephan and his team have successfully completed over 30 projects for various industries, including mining, energy, infrastructure, conservation and tourism.

ENVIRONMENTAL COMPLIANCE CONSULTANCY

Jessica Mooney

Environment & Safety Specialist

Hello! :)

ABOUT ME

Name
Jessica Mooney

Born
24 October 1984

Phone
+264 81 653 1214

Email
Jessica@enviroconsultants.co.za

Website
www.enviroconsultants.co.za

Contact me!

How to reach me!

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Jessica Mooney

Education & Qualifications

Federation University Australia 2003-2006

Bachelor of Applied Science -Environmental Management

Additional Qualifications

Management Systems Leadership
ICAM - Incident Cause Analysis Method
Certificate II in Metalliferous Mining core safety and risk management
Certificate III in Mine Emergency Response & Rescue
Level 3 – HLTFA402B Apply Advanced first Aid
Emergency Rope Rescue
Level 2 - 21593VIC First Aid level 2
Bonded Asbestos Removal >10m2
Leading and Managing People – Brisbane North Institute of TAFE

Experience & Work History

Current

Environment and Safety Specialist

Environmental Compliance Consultancy

Providing professional consulting services to clients in Namibia with particular focus on approvals, ECCs, reporting and compliance.

- ECC Approvals
- Mine Closure Plans
- Rehabilitation
- Pipeline projects
- Cultural Change programmes
- IMS (ISO14001 and 18001)

Nov 2013 - Feb 2016

Group HSE Manager

Weatherly Mining Namibia

An exciting role covering the breadth of two operational underground mines (Otjihase and Matchless) and the construction of a new open pit mine (Tschudi) working for Weatherly Mining in Namibia, Africa.

- Managed company's SHEQ portfolio
- Full scale construction of new greenfield mine into operational copper mine
- Reduced LTIFR by 90% from 23.1 to 2.4 in 22 months!
- Implemented integrated management system
- Approvals, ECC renewals and EMPs
- Established the first mining environmental forums in Namibia
- Implemented SAFE COPPER cultural change programme

ENVIRONMENTAL COMPLIANCE CONSULTANCY

Johanna Ithindi

ENVIRONMENTAL GRADUATE

Hello! :)

ABOUT ME

Name
Johanna Ithindi

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08 November 1990

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References

JESSICA MOONEY
Environmental and Safety Consultant

NNENESI KGABI
Professor
Namibia University of Science and Technology

Words I live by:

'You only fail when you stop trying'

Education & Qualifications

Namibia University of Science and Technology, Namibia
2016

Master Degree in Integrated Water Resources Management

Namibian University of Science and Technology, Namibia
2014

Bachelor Degree in Environmental Health Sciences

Experience & Work History

Current

Environmental Graduate

Environmental Compliance Consultancy
- Draft and develop the best practice mining guide for the Namibian mining sector
- Environmental Assessment activities
- Participate in environmental requirements of projects, including licences, monitoring and reporting

Research Intern

Namibia University of Science and Technology
- Collection and management of research data
- Data analysis and report writing
- Organize workshops for stakeholders

Research Assistant

Namibia University of Science and Technology
- Coordinate project activities for the Environmental Engineering Master Programme
- Assisting staff in the department with research activities
- Compiling and documentation of program material.

Laboratory Technologist

Polytechnic of Namibia
- Coordinate student trips and excursions, tutor and

APPENDIX C: EVIDENCE OF PUBLIC CONSULTATION

Champions Cameroon qualify as Burundi make history

JOHANNESBURG – Defending champions Cameroon, Burundi, Guinea-Bissau and Namibia secured 2019 Africa Cup of Nations places on Saturday, raising to 19 the number of qualifiers for the tournament.

Cameroon needed a draw from a Group B clash with the Comoros in Yaounde, but overwhelmed the Indian Ocean islanders 3-0 with captain Eric Maxim Choupo-Moting among the goals.

Burundi were another side needing a point and they sealed a first Cup of Nations appearance by drawing 1-1 at home in Group C against Gabon, whose survival hopes rested on winning.

Namibia celebrated wildly despite a 4-1 Group K hammering in Zambia as they pipped Mozambique on head-to-head records for a place at the expanded 24-nation tournament.

Mozambique were poised to qualify when leading 2-1 in Guinea-Bissau entering stoppage time only to be undone by sloppy defending which allowed the home side to snatch a 2-2 draw.

Egypt, Algeria, Ivory Coast, Ghana, Guinea, Kenya, Madagascar, Mali, Mauritania, Morocco, Nigeria, Senegal, Tunisia and Uganda had qualified ahead of the final match-day this weekend.

Angola joined them Friday when they edged Botswana 1-0 to pip 2017 bronze medallists Burkina Faso for a Group I place.

After Paris Saint-Germain forward Choupo-Moting had given five-time champions Cameroon a half-time lead, Christian Bassogog and Clinton Njie netted in the second half.

Cameroon were the original 2019 hosts, which would have guaranteed them a place, but they fell behind with preparations and Egypt took over.

Cedric Amissi put Burundi ahead on 75 minutes only for Omar Ngandu to concede an own-goal soon after, creating a tense finish as Gabon sought a second goal and qualification.

But the Pierre-Emerick Aubameyang-captained visitors could not unlock the Burundian defence in Bujumbura and bowed out two years after hosting the Cup of Nations.

Mozambique came from behind in Bissau to equalise through Stanley Ratifo and Nelson Divrassone thought his goal with one minute remaining would be the match winner.

But a Mozambican defender clumsily headed a Guinea-Bissau free kick against his post and Frederic Mendy reacted quickest to tap in the rebound.

That left Namibia as possibly the happiest 4-1 losers in African football history as they finished level on points with Mozambique, who they beat home and away last October.

Ivory Coast, Ghana, Mali and Senegal won matches that had no bearing on qualification and Niger fought back to draw 1-1 with record seven-time African champions Egypt.

On Sunday, former champions South Africa must avoid defeat to qualify at the expense of Libya, whose home fixture has been moved to neighbouring Tunisia for security reasons.

BackpagePix

ELEPHANTS CRUISE ... Ivory Coast's Aurier Serge Alain (left) vies for the ball with Rwanda's Jacques Tuyisenge during Rwanda's 3-0 victory in Abidjan on Saturday.

Nampa

INSPIRATIONAL ... Namibia's T46 sprinter Bradley Murere (left) in action at the South African Sports Association for the Physically Disabled (SASAPD) National Championships in Stellenbosch, South Africa.

Team Namibia wins 46 medals in Stellenbosch

STELLENBOSCH – Namibian athletes with disabilities won 46 medals at the recently concluded South African Toyota Disability Sport Championships in Stellenbosch.

The South Africa Sports Association for the Physically Disabled and Visually Impaired (SASAPD) national championships took place from 18 to 21 March.

The SASAPD competition was used by Namibian athletes to qualify for the 2019 International Paralympic Committee Athletics World Championships set for Dubai, United Arab Emirates, between 7 and 15 November.

Team Namibia won 32 gold, 11 silver and three bronze medals.

On the opening day of the championships, Team Namibia won two medals from swimming and on the second day they won 13 medals, comprising 11 gold and two bronze.

On the third day of the competition Namibian athletes continued in their winning ways as they added five gold, six silver and one bronze to their haul. On the last day of the champions the team collected 19 more medals of which 14 were gold and five silver.

The gold medals were won by elite athletes Ananias Shikongo, Johannes Nambala, Mateus Angula, Lahja Ishitile and Reginald Benade.

Upcoming athletes Silvia Shivolo, Bradley Murere, Dian Jensen, Christopher Marungu, Petrus Karuli, and Alfredo 'The Bullet' Bernado, also contributed to the gold medals.

A group of 21 athletes competed in athletics (track and field) and swimming at these championships that where held at the Coetzenburg Athletics Stadium.

Speaking to Nampa after the championship on Thursday, Michael Hamukwaya who is the coach as well as the secretary general of the Namibia Paralympic Committee, said with enough support, this group of athletes can do more.

"We have a group of young athletes who are hungry to perform for their country but this can only happen if we get enough support. Our focus at the moment is the IPC Athletics World Championships later this year, where we want to defend the medals we won in London in 2017," he said.

The coach added that for these athletes to win any medals, they need to be in camp for at least two to three months so they perfect all their techniques.

Hamukwaya added that if the team does not get the needed support from the government, they will end up just participating at events instead of competing.

"Paralympics always do well at competitions but it is time the government as well as the corporate world started investing more in these athletes," he said. – *Nampa-AFP*

ENVIRONMENTAL COMPLIANCE CONSULTANCY

NOTICE OF ENVIRONMENTAL ASSESSMENT & PUBLIC PARTICIPATION PROCESS

EXPLORATION ACTIVITIES ON EPL 6987
ERONGO REGION, NAMIBIA

Environmental Compliance Consultancy cc (ECC) hereby gives notice to the public that an application for an Environmental Clearance Certificate in terms of the Environmental Management Act, 2007 will be made as per the following:

Applicant: Manmar Investments One Eight Two (Pty) Ltd
Environmental Assessment Practitioner (EAP): Environmental Compliance Consultancy
Location: Erongo Region, Namibia

Project: Exploration activities on EPL 6987 for Nuclear Fuel Minerals, Erongo Region, Namibia.

Proposed Activity: The proponent proposes to carry out low impact, non-intrusive exploration activities for Nuclear Fuel Minerals on EPL 6987. The EPL is located in the Namib-Naukluft National Park south of the Erongo Region. Exploration methods may include aerial or remote sensing, electromagnetic surveys, drilling and minerals sampling.

Application for Environmental Clearance Certificate: In terms of the Environmental Management Act, No. 7 of 2007), ECC on behalf of Manmar Investments One Eight Two (Pty) Ltd is required to submit an application for Environmental Clearance to the competent authority and the Ministry of Environment and Tourism for the above-mentioned project.

Purpose of the Review and Comment Period: The purpose of the review and comment period is to present the proposed project and to afford I&APs an opportunity to comment on the project to ensure that all issues and concerns are captured and considered in the assessment.

Review Period: The review and comment period is effective from **22nd March 2019 – 5th April 2019.**

How you can participate: ECC is undertaking the required environmental assessment and public participation process in terms of the Act. Interested and affected parties (I&APs) and stakeholders are required to register for the project at: http://eccenvironmental.com/project/marenica-energy-ltd/

MARENICA ENERGY

Environmental Compliance Consultancy
Members: Mr JS Bezuidenhout or Mrs J Mooney
Registration Number: CC/2013/11404
PO Box 91193, Klein Windhoek, Tel: +264 81 689 7608
E-mail: info@eccenvironmental.com, Website: http://www.eccenvironmental.com
Project ID: ECC-79-165

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NOTICE OF ENVIRONMENTAL ASSESSMENT & PUBLIC PARTICIPATION PROCESS

EXPLORATION ACTIVITIES ON EPL 6987
ERONGO REGION, NAMIBIA

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Location: Erongo Region, Namibia

Project: Exploration activities on EPL 6987 for Nuclear Fuel Minerals, Erongo Region, Namibia.

Proposed Activity: The proponent proposes to carry out low impact, non-intrusive exploration activities for Nuclear Fuel Minerals on EPL 6987. The EPL is located in the Namib-Naukluft National Park south of the Erongo Region. Exploration methods may include aerial or remote sensing, electromagnetic surveys, drilling and minerals sampling.

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How you can participate: ECC is undertaking the required environmental assessment and public participation process in terms of the Act. Interested and affected parties (I&APs) and stakeholders are required to register for the project at: http://eccenvironmental.com/project/marenica-energy-ltd/

MARENICA ENERGY

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E-mail: info@eccenvironmental.com, Website: http://www.eccenvironmental.com
Project ID: ECC-79-165

Trump threatens closure of US-Mexico border next week

WASHINGTON – President Donald Trump threatened to close the US border with Mexico next week, potentially disrupting millions of legal border crossings and billions of dollars in trade, if Mexico does not stop immigrants from reaching the United States.

"There's a very good likelihood that I'll be closing the border next week, and that will be just fine with me," Trump told reporters at his Mar-a-Lago resort in Florida.

Trump has repeatedly said he would close the US border with Mexico during his two years in office and has not followed through. However, this time the government says it is struggling to deal with a surge of asylum seekers from countries in Central America who travel through Mexico.

Department of Homeland Security (DHS) officials warned that traffic with Mexico could slow as the agency shifts 750 border personnel from ports of entry to help process asylum seekers who are turning up between official crossing points.

"Make no mistake: Americans may feel effects from this emergency," Homeland security secretary Kirstjen Nielsen said in a statement. Nielsen said the personnel shift would lead to commercial delays and longer waiting times at crossing points.

Some of those delays were already being felt on both sides of the international border.

On Friday afternoon, the wait was longer than usual on the Mexican side of the crossing between Ciudad Juarez and El Paso, Texas, with long lines of freight trucks carrying goods from Mexican factories into the United States, according to a Reuters witness. One driver said she had been stuck in the line for three hours on her way to her job in the United States.

Nielsen and other US officials say border patrol officers have been overwhelmed by a dramatic increase in asylum seekers, many of them children and families who arrive in large groups fleeing violence and economic hardship in El Salvador, Honduras and Guatemala.

March is on track for 100 000 border apprehensions, DHS officials said, which would be the highest monthly number in more than a decade. Most of those people can remain in the United States while their asylum claims are processed, which can take years because of ballooning immigration court backlogs.

Nielsen warned congress on Thursday that the government faces a 'system-wide meltdown' as it tries to care for more than 1 200 unaccompanied children and 6 600 migrant families in its custody.

Mexico played down the possibility of a border shutdown.

"Mexico does not act on the basis of threats. We are a great neighbour," Mexican foreign minister Marcelo Ebrard said on Twitter.

Mexican senator Ricardo Monreal, who leads president Andres Manuel Lopez Obrador's party in the chamber, said in a statement on Friday he would seek to send a diplomatic note to the US congress criticising what he called Trump's "xenophobic attitudes."

It was not clear how shutting down ports of entry would deter asylum seekers because they are legally able to request help as soon as they set foot on US soil.

But a border shutdown would disrupt tourism and commerce between the United States and its third-largest trading partner, with trade totalling US$612 billion last year according to the US Census Bureau.

"We'd be looking at losses worth billions of dollars," said Kurt Honold, head of CCE, a business group in Tijuana, Mexico, in response to Trump's threat. "It's obvious he's not measuring what he says." ***– Nampa-Reuters***

The following was advertised in the Informante on the 28th March and 4th April 2019 (available online)

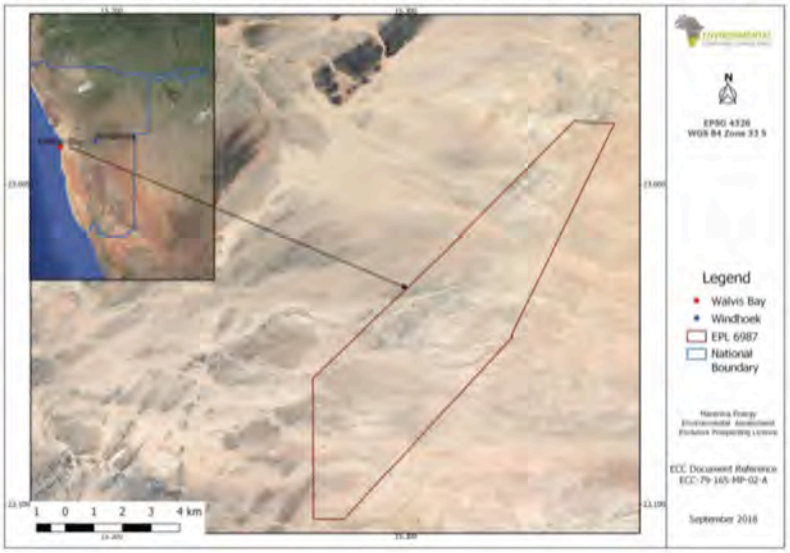
NOTICE OF ENVIRONMENTAL ASSESSMENT & PUBLIC PARTICIPATION PROCESS

EXPLORATION ACTIVITIES ON EPL 6987 ERONGO REGION, NAMIBIA

Environmental Compliance Consultancy cc (ECC) hereby gives notice to the public that an application for an Environmental Clearance Certificate in terms of the Environmental Management Act No. 7 of 2007 will be made as per the following:

Applicant: **Manmar Investments One Eight Two (Pty) Ltd**
Environmental Assessment Practitioner (EAP): **Environmental Compliance Consultancy**
Location: **Erongo Region, Namibia**

Project and Proposed Activity: Exploration activities on EPL 6987 for Nuclear Fuel Minerals, Erongo Region, Namibia.



Application for Environmental Clearance Certificate: In terms of the Environmental Management Act, No. 7 of 2007, ECC on behalf of Manmar Investments One Eight Two (Pty) Ltd is required to submit an application for Environmental Clearance to the Ministry of Mines and Energy and the Ministry of Environment and Tourism.

Review Period: The review and comment period is effective from: 28/03/2019 to 11/04/2019.

How you can participate: ECC is undertaking the required environmental assessment and public participation process in terms of the Environmental Management Act No. 7 of 2007. Interested and affected parties (I&APs) and stakeholders are required to register for the project at: http://eccenvironmental.com/project/marenica-energy-ltd/

Environmental Compliance Consultancy
Members: Mr JS Bezuidenhout or Mrs J Mooney
Registration Number: CC/2013/11404
PO Box 91193, Klein Windhoek
Tel: +264 81 669 7608
E-mail: info@eccenvironmental.com
Website: http://www.eccenvironmental.com
Project ID: ECC-79-165-ADT-22-B

PROPOSED EXPLORATION ACTIVITIES ON EPL6987 FOR NUCLEAR FUEL MINERALS

ENVIRONMENTAL IMPACT ASSESSMENT – MARCH 2019

CLIENT: Manmar Investments One Eight Two (Pty)

NON-TECHNICAL SUMMARY

PURPOSE OF THIS DOCUMENT

The purpose of this Non-Technical Summary (NTS) is to provide interested and affected parties (I&APS) with a background of the proposed exploration works that are to be undertaken by Manmar Investments One Eight Two (Pty) on EPL 6987.

Furthermore, it's aim is to invite I&APs to register in the **Environmental Impact Assessment (EIA) Scoping process**. Through registering, I&APs will be kept informed about the proposed project and will be offered the opportunity to submit comments pertaining to the project, allowing for their input to be considered in the assessment and development processes.

This NTS includes the following:

- What is the proposed project and where is it located
- Why the project is deemed necessary, what benefits or adverse impacts are anticipated
- What alternatives to the project have been considered and assessed
- How the EIA process works
- The public participation process and how to become involved, and
- The next steps and way forward

PROPOSED PROJECT

Marenica Energy Ltd is an Australian Security Exchange Listed Company specialising in Uranium mining. Marenica is the holding company of Manmar Investments One Eight Two (Pty) which exploration interests in Namibia. Manmar Investments One Eight Two (Pty) propose to undertake exploration activities on EPL 6987 for Nuclear Fuel Minerals in the Erongo Region. This proposed activity triggers the Environmental Management Act No. 7 of 2007 due to it meeting the threshold of the following listed activity:

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.

(3.2) Other forms of mining or extraction of any natural resources whether regulated by law or not.

(3.3) Resource extraction, manipulation, conservation and related activities

Environmental Compliance Consultancy (ECC) has been engaged by Manmar Investments One Eight Two (Pty) to undertake an environmental impact assessment (EIA) and an environmental management plan (EMP) in terms of the Environmental Management Act 2007 and its Regulations.

An Environmental Clearance application will be submitted to the relevant competent authorities: Ministry of Mines and Energy (MME) and the Ministry of Environment and Tourism (MET).

SCOPING

A SCOPING PROCESS IS A SHORTER PROCESS THAN A 'FULL' EIA BUT APPLIES THE SAME PRINCIPALS AND ASSESSMENT METHODOLOGY.

INDEPENDENT ASSESSMENT PROCESS

WHY IS AN INDEPENDENT ASSESSMENT PROCESS IMPORTANT?

NAMIBIAN LAW AND INTERNATIONAL BEST PRACTICE CALL FOR THE PROFESSIONALS CARRYING OUT AN ENVIRONMENTAL ASSESSMENT PROCESS TO BE INDEPENDENT (I.E. HAVE NO CONNECTION TO THE PROJECT PROPONENT OR INTEREST IN THE PROJECT'S OUTCOME) TO ENSURE PROCESS INTEGRITY.

APPLICANT: MANMAR INVESTMENTS ONE EIGHT TWO (PTY)

ENVIRONMENTAL ASSESSMENT PRACTITIONER: ENVIRONMENTAL COMPLIANCE CONSULTANCY
COMPETENT AUTHORITY: MINISTRY OF MINES AND ENERGY

MANMAR INVESTMENT ONE EIGHT TWO (PTY) PROPOSED EXPLORATION PROJECT

SITE LOCATION

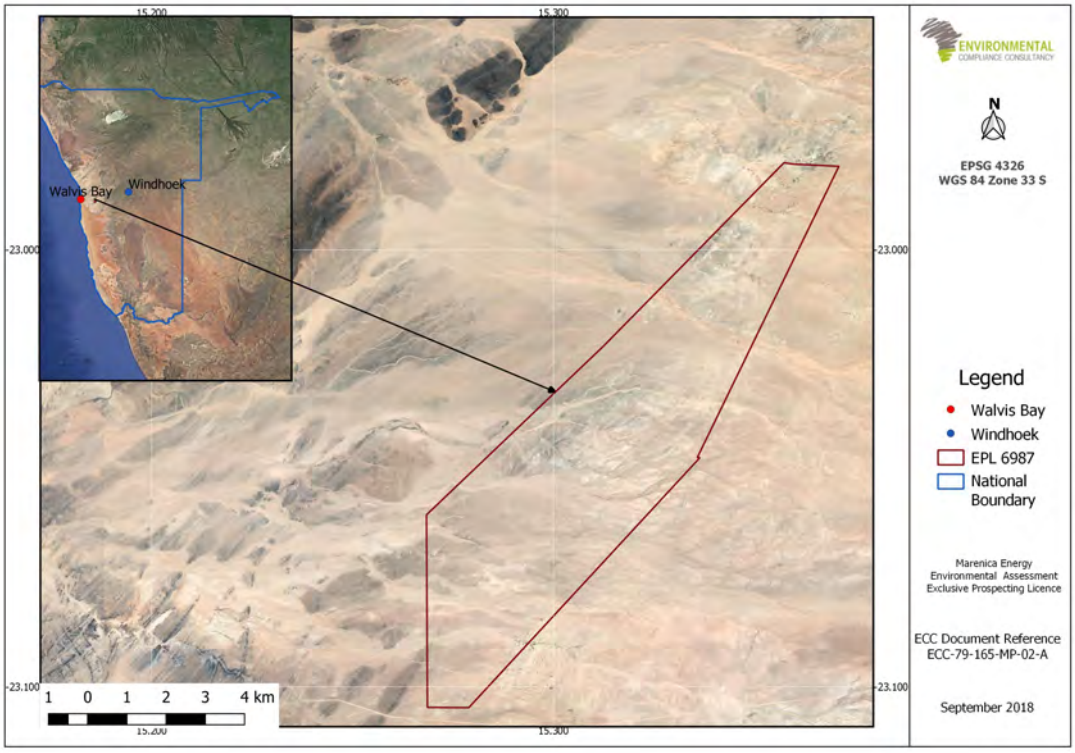


FIGURE 1 - LOCATION OF EPL 6987

SCOPE OF ASSESSMENT

The proposed exploration activities are low-impact and non-intrusive. The following are envisaged during the proposed project:

- Potential creation of access tracks, where existing tracks cannot be utilised
- Limited vegetation clearing for the creation of tracks
- Creation of exploration boreholes
- Exploration methods may include aerial or remote sensing, electromagnetic surveys, drilling, mineral sampling, and
- Storage of exploration mineral samples.

Whilst the potential environmental and social effects are anticipated to be of minor significance from the above activities due to the nature of the site's environment and design of the exploration methods and programme, as well as the implementation of best practice measures as per the Environmental Management Plan, it is acknowledged that this EPL is located in the Namib-Naukluft National Park. It is therefore imperative that the potential impacts within the national park be thoroughly assessed and in particular, shall be reviewed against the 'no mining and prospecting zones' identified in National Policy on the Prospecting and Mining in protected areas recently passed by the Cabinet. During the assessment process and in the event that part or any of the EPL is found to be within any of these zones, further engagement with all relevant stakeholders shall be undertaken.

ECC will prepare a scoping report that presents the assessment findings as well as stakeholder and I&AP concerns. An EMP shall also be developed, setting out auditable management actions for Marenica to ensure judicious and sustainable management of their activities in respect of the surrounding environment on the EPL site.

NEED FOR THE PROPOSED PROJECT

Manmar Investments One Eight Two (Pty) intends to pursue exploration opportunities with the aim of identifying new mining prospects. Namibia is rich in natural resources and the mining industry is the largest income earner in Namibia. Exploration could lead to mining activities which would contribute to the national and local earnings of the country.

WHAT ALTERNATIVES ARE BEING CONSIDERED?

Best practice environmental assessment methodology calls for consideration of different alternatives to a project being developed. In a project such as this one, it is difficult to identify alternatives to satisfy the need of the proposed project; the activities shall be specific to the EPL site. Various other EPLs exist, however this EPL was identified as having the potential for uranium reserves. During the assessment, alternatives will take the form of a consideration of optimisation and efficiency interventions to reduce potential effects e.g. different types of technology or operations.

THE EIA PROCESS

The EIA process that shall be followed in terms of the Environmental Management Act No. 7 of 2007. ECC shall conduct the environmental application process and manage the public participation process. The EIA process is set out in the flowchart in Figure 2 below. This project is currently at the Scoping phase and the public participation process is being conducted.

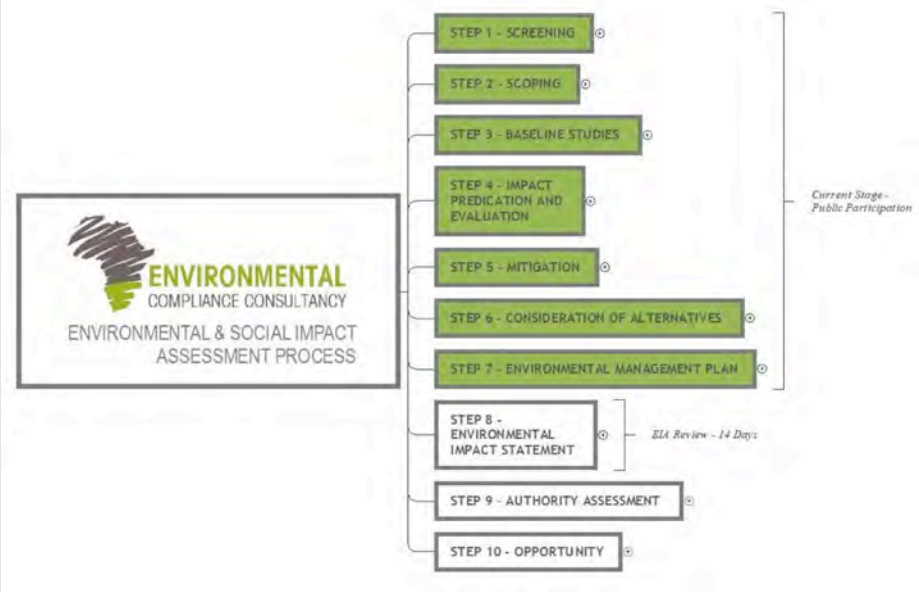


FIGURE 1 – FLOWCHART OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

ECC will perform the following:

- Identify key stakeholders, authorities and municipalities, environmental groups and interested or affected members of the public, hereafter referred to as I&APs
- Compile an NTS for the proposed development (this document)
- Advertise the environmental application in two national newspapers
- Place on-site notices at conspicuous places at/ near the proposed development boundary
- If required host a public meeting to encourage stakeholder participation and engagement, and provide details of issues identified by the environmental practitioner, stakeholders, and I&APs
- Record all comments of I&APs and present such comments, as well as responses provided by ECC, in a full Comments and Responses Report, which will be included in the Scoping Report that is submitted to MME and the Ministry of Environment and Tourism (MET), and
- Circulate all I&AP comments for consideration to the project team.

MANMAR INVESTMENT ONE EIGHT TWO (PTY) PROPOSED EXPLORATION PROJECT

MOVING FORWARD...

PUBLIC PARTICIPATION & HOW TO GET INVOLVED

Public participation is an important part of the EIA process; it allows the public and other stakeholders to raise concerns or provide valuable local environmental knowledge that can benefit the assessment, in addition, it can aid the design evolution process.

The commenting period for the project for all I&APs will be 14 days from notification (newspaper adverts). The draft scoping report will be made available to all relevant stakeholders and I&APs for further comment, before the final submission to the Ministry of Mines and Energy and the Ministry of Environment and Tourism.

I&APs are encouraged to register in this Scoping Process using our website.
http://eccenvironmental.com/project/marenica-energy-ltd/

Comments must be submitted in writing and can be emailed to the following address:
info@eccenvironmental.com

Tel: +264 81 669 7608

Please note the EIA review period will be 14 days from the date that I&AP have been notified.

CONTACT US

We welcome any enquiries regarding this document and its content, please contact:

Environmental Compliance Consultancy (ECC)

info@eccenvironmental.com

Tel: +264 816 697 608

www.eccenvironmental.com

At ECC we make sure all information is easily accessible to the public.

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+264 81 669 7608

NOTICE OF ENVIRONMENTAL ASSESSMENT AND PUBLIC PARTICIPATION PROCESS

EXPLORATION ACTIVITIES ON EPL 6987, ERONGO REGION, NAMIBIA

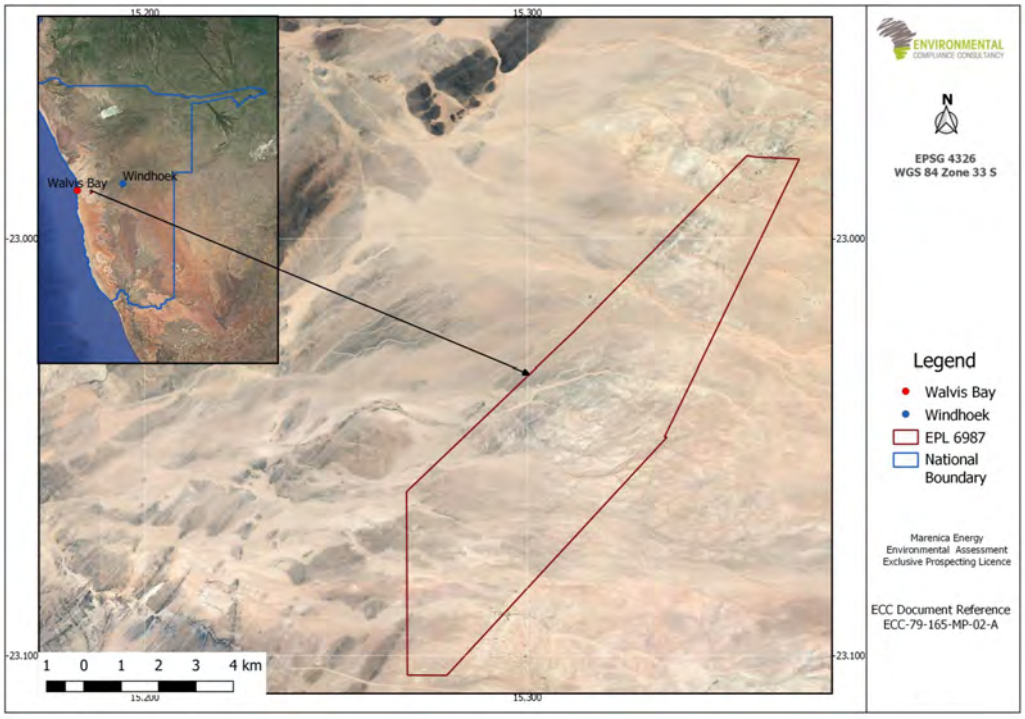
Environmental Compliance Consultancy cc (ECC) hereby gives notice to the public that an application for an Environmental Clearance Certificate in accordance with the Environmental Management Act, 2007 will be made as per the following:

Applicant: **Manmar Investments One Eight Two (Pty)**
Environmental Assessment Practitioner (EAP): **Environmental Compliance Consultancy**

Project: Exploration activities on EPL 6987 for nuclear fuel and industrial minerals, Erongo Region, Namibia.

Proposed Activity: The proponent proposes to carry out low impact, non-intrusive exploration activities for nuclear fuel and industrial minerals on EPL 6987 located in the Erongo Region, Namibia. EPL 6987 is located in the Namib-Naukluft National Park. Exploration methods may include aerial or remote sensing, electromagnetic surveys, drilling and minerals sampling.

Location: Erongo Region, Namibia.



Application for Environmental Clearance Certificate: In terms of the Environmental Management Act, 2007 (No 7 of 2007), ECC on behalf of the proponent/applicant is required to submit an application for Environmental Clearance to the Competent Authority and the Ministry of Environment and Tourism for the above-mentioned project.

Purpose of the Review and Comment Period: As part of the public participation process, the purpose of the review and comment period is to present the proposed project and to afford interested and affected parties (I&AP) an opportunity to comment on the project to ensure that all issues and concerns are captured and considered in the assessment.

ENVIRONMENTAL COMPLIANCE CONSULTANCY

Contact: Mr JS Bezuidenhout or Mrs J Mooney
Environmental Compliance Consultancy
Registration Number CC/2013/11404
PO Box 91193, Klein Windhoek
Tel: +264 816 53 1214 or +264 81 653 1214
E-mail: info@eccenvironmental.com
Website: http://www.eccenvironmental.com
Project ID: ECC-79-165

APPENDIX D: ASSESSMENT METHODOLOGY

The evaluation and prediction of environmental and social impacts require the assessment of the project characteristics against the baseline of environmental and social characteristics and ensuring all potentially significant impacts are identified and assessed.

The significance of an impact was determined by taking into consideration the combination of the sensitivity and importance/value of environmental and social receptors that may be affected by the proposed project, the nature and characteristics of the impact, and the magnitude of potential change. The magnitude of change (the impact) is the identifiable changes to the existing environment which may be direct or indirect; temporary/short term, long term or permanent; and either beneficial or adverse. These are described as follows and thresholds provided in Tables 1 to 3.

- The **sensitivity and value of a receptor** are determined by identifying how sensitive and vulnerable a receptor is to change, and the importance of the receptor (internationally, nationally, regionally and locally).
- The **nature and characteristics of the impact** are determined through consideration of the frequency, duration, reversibility and probability and the impact occurring.
- The **magnitude of change** measures the scale or extent of the change from the baseline condition, irrespective of the value. The magnitude of change may alter over time, therefore temporal variation is considered (short-term, medium-term; long-term, reversible, reversible or permanent)

TABLE 1 - SENSITIVITY AND VALUE OF RECEPTOR

SENSITIVITY AND VALUE	DESCRIPTION
High	Of value, importance or rarity on an international and national scale, and with very limited potential for substitution; and/or very sensitive to change or has little capacity to accommodate a change.
Medium	Of value, importance or rarity on a regional scale, and with limited potential for substitution; and/or moderate sensitivity to change, or moderate capacity to accommodate a change.
Low	Of value, importance or rarity on a local scale; and/or not particularly sensitive to change or has considerable capacity to accommodate a change.

TABLE 2 - NATURE OF IMPACT

NATURE	DESCRIPTION
Positive	An impact that is considered to represent an improvement on the baseline or introduces a positive change.
Negative	An impact that is considered to represent an adverse change from the baseline or introduces a new undesirable factor.
Direct	Impacts causing an impact through direct interaction between a planned project activity and the receiving environment/receptors.
Indirect	Impacts that result from other activities that are encouraged to happen as a result / consequence of the Project. Associated with the project and may occur at a later time or wider area
Extent / Geographic Scale	
On-site	Impacts that are limited to the boundaries of the proposed project site
Local	Impacts that occur in the local area of influence, including around the proposed site and within the wider community
Regional	Impacts that affect a receptor that is regionally important by virtue of scale, designation, quality or rarity.
National	Impacts that affect a receptor that is nationally important by virtue of scale, designation, quality or rarity.
International	Impacts that affect a receptor that is internationally important by virtue of scale, designation, quality or rarity.
Duration	
Short-term	Impacts that are likely to last for the duration of the activity causing the impact and are recoverable
Medium-term	Impacts that are likely to continue after the activity causing the impact and are recoverable
Long-term	Impacts that are likely to last far beyond the end of the activity causing the damage but are recoverable over time
Reversibility	
Permanent /Irreversible	Impacts which are not reversible and are permanent
Temporary / Reversible	Impacts are reversible and recoverable in the future
Likelihood	
Certain	The impact is likely to occur
Likely	The impact is likely to occur under most circumstances
Unlikely	The impact is unlikely to occur

TABLE 3 - MAGNITUDE OF CHANGE

MAGNITUDE OF CHANGE	DESCRIPTION
Major	Loss of resource, and quality and integrity of resource; severe damage to key characteristics, features or elements; or Large-scale or major improvement of resources quality; extensive restoration or enhancement; major improvement of attribute quality.
Moderate	Loss of resource, but not adversely affecting its integrity; partial loss of/damage to key characteristics, features or elements; or Benefit to, or addition of, key characteristics, features or elements; improvements of attribute quality.
Minor	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (or maybe more) key characteristic, feature or element; or Minor benefit to, or addition of, one (or maybe more) key characteristic, feature or element; some beneficial effect on attribute quality or a reduced risk of a negative effect occurring.
Negligible	Very minor loss or detrimental alteration to one (or maybe more) characteristic, feature or element; or Very minor benefit to, or positive addition of, one (or maybe more) characteristic, feature or element.

The level of certainty has also been applied to the assessment to demonstrate how certain the assessment conclusions are and where there is potential for misinterpretation or a requirement to identify further mitigation measures, thereby adopting a precautionary approach. Where there is a low degree of certainty, monitoring and management measures can be implemented to determine if the impacts are worse than predicted and support the identification of additional mitigation measures through the life time of the proposed project. Table 4 provides the levels of certainty applied to the assessment, as well as a description.

TABLE 4 – LEVEL OF CERTAINTY

LEVEL OF CERTAINTY	DESCRIPTION
High	– Likely changes are well understood – Design/information/data used to determine impacts is very comprehensive – Interactions are well understood and documented – Predictions are modelled, and maps based on interpretations are supported by a large volume of data, and – Design/information/data has very comprehensive spatial coverage or resolution.
Medium	– Likely changes are understood – Design/information/data used to determine impacts include a moderate level of detail – Interactions are understood with some documented evidence – Predictions are modelled but not yet validated and/or calibrated, and – Mapped outputs are supported by a moderate spatial coverage or resolution.
Low	– Interactions are currently poorly understood and not documented. – Predictions are not modelled, and the assessment is based on expert interpretation using little or no quantitative data. – Design is not fully developed, or information has poor spatial coverage or resolution.

The significance of impacts has been derived using professional judgment and applying the identified thresholds for receptor sensitivity and magnitude of change (as discussed above) and guided by the matrix presented in Figure 1. The matrix is applicable for impacts that are either positive or negative. The distinction and description of significance and whether the impact is positive or negative is provided in Table 4.

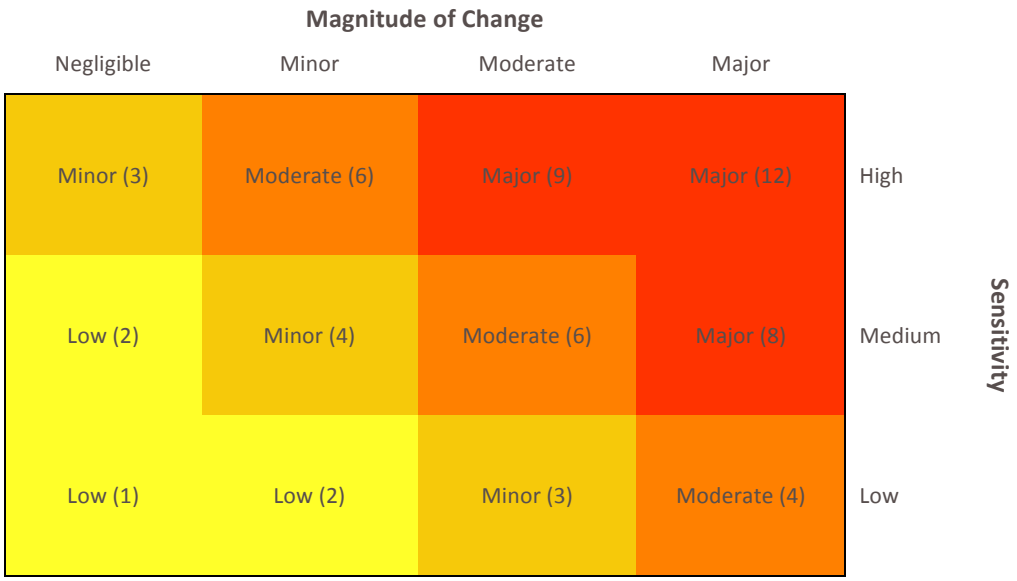


FIGURE 1 – GUIDE TO SIGNIFICANCE RATINGS

Significance is not defined in the Namibian EIA Regulations, however the Draft Procedure and Guidance for EIA and EMP states that the significance of a predicted impact depends upon its context and intensity. Accordingly, definitions for each level of significance has been provided in Table 4. These definitions were used to check the conclusions of the assessment of receptor sensitivity, nature of impact and magnitude of impact was appropriate.

TABLE 4 – SIGNIFICANCE DESCRIPTION

SIGNIFICANCE OF IMPACT	DESCRIPTION
Major (negative)	Impacts are considered to be key factors in the decision-making process that may have an impact of major significance, or large magnitude impacts occur to highly valued/sensitive resource/receptors. Impacts are expected to be permanent and non- reversible on a national scale and/or have international significance or result in a legislative non- compliance.
Moderate (negative)	Impacts are considered within acceptable limits and standards. Impacts are long-term, but reversible and/or have regional significance. These are generally (but not exclusively) associated with sites and features of national importance and resources/features that are unique and which, if lost, cannot be replaced or relocated.
Minor (negative)	Impacts are considered to be important factors but are unlikely to be key decision-making factors. The impact will be experienced, but the impact magnitude is sufficiently small (with and without mitigation) and well within accepted standards, and/or the receptor is of low sensitivity/value. Impacts are considered to be short-term, reversible and/or localized in extent.
Low (negative)	Impacts are considered to be local factors that are unlikely to be critical to decision-making.
Low – Major (Beneficial)	Impacts are considered to be beneficial to the environment and society:

To ensure the beneficial impacts are brought out in the assessment, green has been applied to ensure the different type of impact is clear. The description for each level of significance presented in Table 4 was also followed when determining the level of significance for a beneficial impact.

The significance of impacts has been derived using professional judgment and applying the identified thresholds for receptor sensitivity and magnitude of change, as well as the definition for significance. It most instances, moderate and major adverse impacts are considered as significant, however there may be some instances where impacts are lower than this but are considered to be significant. The following thresholds were therefore used to double check the assessment of significance had been applied appropriately; a significant impact would meet at least one of the following criteria:

- It exceeds widely recognized levels of acceptable change
- It threatens or enhances the viability or integrity of a receptor or receptor group of concern, and

It is likely to be material to the ultimate decision about whether or not the environmental clearance certificate is granted.