



ENVIRONMENTAL MANAGEMENT PLAN FOR THE OPERATION OF RUBY SUBSTATION, ERONGO REGION



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1. INTRODUCTION

Ruby Substation is an indoor substation which was constructed and commissioned around 2007. The Substation is located approximately 25 km outside of Walvis Bay and about 7.59 kilometres from the Walvis Bay Airport and on the boundary of Namib Naukluft National Park and Walvis Bay District. The substation can be accessed via the C14 gravel road.

The purpose of this document is, to provide an indication of the anticipated impacts of the operation of the Substation on the receiving environment. This EMP document will ensure sound environmental performance by all contractors and NamPower employees during the operation of the Ruby Substation.

Location (coordinates)	Latitude : -23.040582 Longitude : 14.675026
Footprint area	1074 (Square meters)
Region	Erongo Region
Lines connected to the Ruby Substation:	- Kuiseb Substation- Ruby Substation 66kV Powerline line.

2. OBJECTIVES OF THE OPERATIONAL EMP

The aim of this operational EMP is to detail the management actions required to implement the mitigation measures identified thereby ensuring that any operational phase activity is carried out in a manner that takes cognisance of environmental protection and is in line with National legislation. This EMP has the following objectives:

- To ensure that the operational activities associated with the operation of the substation do not result in undue or reasonably avoidable adverse environmental impacts.
- Minimise negative impacts and enhance positive impacts associated with the operations.
- Stipulate specific actions to assist in mitigating the environmental impact of the project

- To identify key personnel who will be responsible for the implementation of the measures and outline functions and responsibilities
- Create management structures that address the concerns and complaints of Interested and Affected Parties (I&APs) with regards to the operation of the substation.
- To propose mechanisms for monitoring compliance, and preventing long term or permanent environmental degradation.

3. APPROACH TO IMPACT MANAGEMENT

Avoidance	Avoiding activities that could result in adverse impacts and/or resources or areas considered sensitive.
Prevention	Preventing the occurrence of negative environmental impacts and/or preventing such an occurrence having negative impacts.
Preservation	The process of working to protect something valuable so that it is not damaged or destroyed (i.e. environmental resources)
Minimization	Limiting or reducing the degree, extent, magnitude or duration of adverse impacts through scaling down, relocating, redesigning and/or realigning elements of the project.
Mitigation	Measures taken to minimise adverse impacts on the environmental and social aspects.
Enhancement	Magnifying and/or improving the positive effects or benefits of a project.
Rehabilitation	Repairing affected resources to their original state.
Restoration	Restoring affected resources to an earlier (possibly more stable and productive) state, typically 'background' condition, where identified to be appropriate and reasonable. These resources may include soils and biodiversity.

Energy Act-1990		
Labour Act no 11 of 2007	Section 3 Section 4 Section 9 Section 39 - 42	<ul style="list-style-type: none"> - Children under the age of 16 may not be employed Forced labour may not be used during any construction activities. - Basic conditions of employment as stipulated by the law must be met. - The employer shall ensure the health and safety of all employees and non-employees on site. Employees must fulfil their duties in order to ensure their own health and safety and that of other employees and persons. Employees may leave the work site if reasonable measures to protect their health are not taken.
Electricity Act no 4 of 2007	Section 33	<ul style="list-style-type: none"> - Installations used for the provision of electricity should be operated with due compliance with the requirements of laws relating to health, safety and environmental standards. Therefore – any company involved within the Electricity Supply Industry must adhere to the laws covering the previously stated aspects or stand to lose their licenses to operate.
Water Act no 54 of 1956	Section 21 and 22 Section 23	<ul style="list-style-type: none"> - Conditions in terms of the disposal and management of effluent are to be adhered to. - Any person causing pollution to a water source shall be guilty of an Offence.
Public Health Act no 36 of 1919	Section 122	<ul style="list-style-type: none"> - It is an offence to cause any form of a nuisance which includes water pollution.
Water Resources Management Act no 24 of 2004	Section 56	<ul style="list-style-type: none"> - No discharge of effluent may take place without a permit. - Effluent is defined under this Act as any liquid discharge that occurs as a result of domestic, commercial, industrial or agricultural activities.
Hazardous Substances Ordinance 14 of 1974	Section 27	<ul style="list-style-type: none"> - To provide for the control of substances which may cause injury or ill-health to or death of human beings, by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances;

		<ul style="list-style-type: none"> - to provide for the division of such substances into groups in relation to the degree of danger; - to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances; and to provide for matters connected therewith.
Forest Act no 12 of 2001	Section 22 Section 41	<ul style="list-style-type: none"> - Vegetation may not be removed within 100 m of a river, stream or water course - A person shall be liable for damage caused by any fire which arises as a result of activities carried out on site without having taken reasonable measures to prevent a fire.
Nature Conservation Ordinance no 4 of 1975	Section 74	<ul style="list-style-type: none"> - Protected plants may not be removed or damaged without a permit.
Soil Conservation Act no 76 of 1969	Section 4 Section 13 Section 21	<ul style="list-style-type: none"> - Institutions may be ordered by the relevant Minister to construct soil conservation works when and where necessary. - Fire protection schemes may be implemented to regulate the prohibition of veld burning as well as the prevention, control and extinguishing of veld and forest fires. - It is illegal to damage, destroy / fail to maintain any soil conservation works; fire belts; works constructed in terms of a fire protection scheme
National Heritage Act No 27 of 2004	Section: 46, 48, 55	<ul style="list-style-type: none"> - All heritage resources are to be identified and either protected or removed/mitigated with a permit from the National Monuments Council, before any development may take place - A chance find procedure should be followed in case of discovery of a heritage resource.
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5. DESCRIPTION OF ACTIVITIES TO BE UNDERTAKEN

The following activities are associated with the operation of this substation and their associated potential impacts:

Activity	Activity description	Associated environmental aspects and impacts
General functioning	Physical presence and functional characteristics of the substation	<ul style="list-style-type: none"> • Visual impact • Community impacts in a form fatalities or injuries caused by electrocution.
Maintenance of the substation	<p>The maintenance of the substation entails:</p> <ul style="list-style-type: none"> • General equipment repairs • Replacement of batteries • Servicing batteries • Replacing electrical equipment such as transformers, relays and capacitors • Maintenance of electrical equipment such as transformers, relays and capacitors • Construction or repairing of access roads 	<p>Soil and water contamination</p> <p>Waste generation</p> <p>Loss of biodiversity</p> <p>Social issues related to the introduction of new workers in the area, e.g. HIV/AIDS spreading</p>
General site inspection	Site inspection conducted by the technical and SHEW teams	<p>Waste generation</p> <p>Improve compliance</p> <p>Enables identification of non – conformances and stakeholder complaints</p>

<p>Construction</p>	<p>Construction include the following activities:</p> <ul style="list-style-type: none"> • Construction of temporary or permanent buildings (digging and setting of foundations, digging of cable trenches) • Extension of boundary fences • Construction of additional feeder bays • Upgrade of electrical equipment (either in size, capacity or technology) • Connection of new lines to Substations • Refurbishment of buildings • Personnel conduct 	<p>Noise emissions</p> <p>Dust emissions</p> <p>Introduction of new people in the area leading to the spread of diseases such as HIV/AIDS</p> <p>Soil and water contamination</p> <p>Waste generation</p> <p>Employment of casual workers</p> <p>Loss of biodiversity</p> <p>Loss of productive land</p>
<p>Hazardous Substances</p>	<ul style="list-style-type: none"> • Storage of hazardous material; 	<ul style="list-style-type: none"> • Possible oil spills and soil contamination due to transformer blow out.
<p>Vegetation Management</p>	<p>Vegetation management methods include:</p> <ul style="list-style-type: none"> • Manually • Mechanically • Herbicide application • Combination of one or two methods 	<ul style="list-style-type: none"> • Loss of biodiversity • Soil and water contamination • Employment opportunities • ill-health as a result of incorrect handling of herbicides

6. ROLES AND RESPONSIBILITIES

It is the responsibility of NamPower to ensure that all management actions are carried out. The successful implementation of the EMP is, however dependant on clearly defined roles and responsibilities by several stakeholders, each fulfilling a different but vital role to ensure sound environmental management during each phase of the project.

The following roles and responsibilities have been identified as it pertains to this project:

Responsible person	Responsibilities	Phase/Activity
The Area Superintendent	<p>Is responsible for the enforcement of the EMP</p> <p>To ensure that environmental requirements are adequately covered in any external service providers contracts.</p> <p>To ensure that SHE requirements are included in the tender documents sent to the contractors. A copy of this EMP should also form part of the tender documents.</p> <p>To ensure that corrective actions are implemented for non-compliances</p> <p>To ensure that appropriate records and information regarding compliance with environmental requirements are maintained.</p> <p>To ensure that the substation remains in compliance with the requirements of this EMP, through regular communication and monitoring.</p> <ul style="list-style-type: none"> • To ensure that all incidents, accidents and complaints are reported the project manager. 	Operation of the substation

	The contractor to ensure that incidents and accidents are investigated to prevent re-occurrence.	
Project Manager	<ul style="list-style-type: none"> • Is responsible for the enforcement of the EMP • To ensure that SHE requirements are included in the tender documents sent to the contractors • Must ensure that the contractor remains in compliance with the requirements of this EMP, through regular communication and monitoring. 	During substation upgrades and extensions
NamPower SHEW	<p>To ensure that all requirements with regards to this EMP are fulfilled.</p> <ul style="list-style-type: none"> • To assist the Project Manager in ensuring that the contractor remains in compliance with this EMP. • Provides SHEW inductions to NamPower and contractor employees as well other stakeholders working or visiting the substation. • Organize and implement monitoring and audit functions, in consultation with the Project Manager. • Document and communicate monitoring, audit and inspection findings to project manager and area superintendent. • Communicate the final inspection report to the 	All phases of the project

	<p>Project manager on contractor compliance to the EMP before the project close-off and final payment is made to the contractor.</p>	
<p>Contractor</p>	<ul style="list-style-type: none"> • Is responsible for the implementation of the EMP • To appoint as SHE officer responsible for the implementation of this EMP. • To ensure that all tasks undertaken under the scope of work, are in accordance both with NamPower's SHEW policies and procedures as well as to the requirements of this EMP. • Ensure staff members are regularly trained and awareness built relating to environmental and social management. • To ensure that all incidents, accidents and complaints are reported the project manager. The contractor to ensure that incidents and accidents are investigated to prevent re-occurrence. • Ensuring that all employees receive a SHEW induction before the start of the project. • Ensuring that the work being done does not create a nuisance to any being working, residing or living on adjacent properties or within the immediate surroundings of the site. 	

7. OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN (EMP)

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RESPONSIBLE PERSON
Personnel and Environmental awareness	<ul style="list-style-type: none"> • All employees both internal and external to receive environmental awareness training and refresher environmental awareness training to be available when required. • All contractor employees to receive induction before any work is commenced on the power line. • All employees are to be made aware of their individual roles and responsibilities in achieving compliance with the EMP. • Environmental toolbox talks to be conducted by the contractors and records to kept onsite. • The Contractor shall take all necessary precautions against trespassing on private properties; • Warning signs must be placed on and around the site as per the Occupational, Health and Safety requirements; • Adequate first aid services must be provided by the contractor at the contractor's camp; • The contractor will be responsible for his own security arrangements and shall comply with all site security instructions; • Basic firefighting equipment must be available on site; 	All phases	Area superintendent Project manager Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RESPONSIBLE PERSON
	<ul style="list-style-type: none"> • PPE to be provided and well maintained at contractor's camp; and • All incidents should be reported to ECO, investigated, documented and kept in safety file. • Park permit rules to be adhered . 		
Safety Management	<ul style="list-style-type: none"> • All staff should undergo a general health and safety induction • Enforce general health and safety rules onsite • Develop and implement an occupational health and safety system that comprises key elements such as risk assessment and safe working procedure. • All work activities to be done under the supervision of a competent person. • Personal protective equipment must be worn by all employees and contractors. • Employees must receive proper training before receiving PPE. • Erect physical barriers to ensure there is no unauthorised access to site. • All gates is to be fitted with locks and kept locked . • Identify fire hazards, demarcate and restrict public access to the site. • Warning signage to be posted on the fence in order keep away the general public . 	All phases	Area superintendent Project manager Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RESPONSIBLE PERSON
	<ul style="list-style-type: none"> • Maintain an incident and complaint register. • The Contractor shall recognise that the Site is situated close to inhabited and agricultural areas and shall therefore take all reasonable measures to ensure the safety of people in the surrounding area; • Where the public could be exposed to danger by any of the Works or Site activities, the Contractor shall as appropriate provide suitable flagmen, barriers and/ or warning signs in English and Afrikaans. • All unattended open excavations shall be adequately demarcated (fencing shall consist of a minimum of three strands of wire and made clearly visible). • Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding. • No firearms shall be permitted on Site without the prior approval of the Project Manager. 		
Fire Management	<ul style="list-style-type: none"> • Eliminating the presence of potential sources of ignition and providing appropriate equipment to minimize static electricity hazards. • Fire extinguishers to be readily available onsite, 	All phases	Area superintendent Project manager Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RESPONSIBLE PERSON
	<p>especially when hot works are conducted.</p> <ul style="list-style-type: none"> Regular servicing of fire extinguishers. 		
Dust Management	<ul style="list-style-type: none"> Control dust in the during substation upgrades or maintenance. Excavation, handling and transport of erodible materials shall be avoided under high wind conditions or when a visible dust plume is present. Dust generation from all activities will be minimised wherever possible. A maximum speed limit of 20 km/h will be enforced to control dust emissions, and minimize incidents onsite. Transport of construction material will ensure measures to prevent fugitive dust emissions. Dust suppression measures shall be implemented if necessary. Dust may be controlled by damping of the road with water when necessary to minimise nuisance dust. Construction machinery and equipment will be maintained in good working order in order to minimise exhaust fumes 	All phases	<p>Area superintendent</p> <p>Project manager</p> <p>Contractor</p>
Resources Efficiency	<ul style="list-style-type: none"> Minimise water use Avoid wasteful use of materials 	All phases	<p>Area superintendent</p> <p>Project manager</p>

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RESPONSIBLE PERSON
	<ul style="list-style-type: none"> • Source goods and services locally where possible • Minimise the generation of waste by applying the waste hierarchy. 		Contractor
Waste Management	<ul style="list-style-type: none"> • Substation to be kept free of waste. • No burning, burying or dumping of any waste materials, vegetation, litter or refuse shall be permitted onsite. • Labelled waste bins with lids must be provided onsite for all waste streams and ensure that waste is disposed at nearest approved waste disposal site. • Ensure that waste segregation is done at source. • Hazardous waste shall be disposed of at a registered waste disposal site. • Safe disposal certificates for hazardous waste must be kept in the SHE file. • No material shall be left on site that could be of harm to humans and animals. • Broken, damaged and unused nuts, bolts and washers shall be picked up and removed from site. • Surplus concrete may not be dumped indiscriminately on site, but shall be removed from site when nearing 	All phases	Area superintendent Project manager Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RESPONSIBLE PERSON
	<p>completion of the different stages of work.</p> <ul style="list-style-type: none"> • Concrete trucks shall not be washed on site unless adequate washing and concrete collection facilities be introduced to site. • Bins and containers must be made available by the contractor for the storage of construction waste. • No burning of cleared vegetation shall be allowed on site. 		
Wastewater management	<ul style="list-style-type: none"> • Water containing environmental pollutants shall be collected and removed from site. • No waste water runoff or uncontrolled discharges from the site/working areas shall be permitted. • Mobile toilets or septic tanks should be used and be regularly emptied. 	During substation upgrades and extensions	Project manager Contractor
Hazardous Substances	<ul style="list-style-type: none"> • All hazardous substance will be stored in suitable containers as defined in the method statement or Material safety data sheet (MSDS). • Containers will be clearly marked to indicate contents, quantities and safety requirements. • All storage areas will be bunded. The bund ate will be of sufficient capacity to contain a spill/leak from stored containers. • The contractor shall ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in 	All phases	Area superintendent Project manager Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RESPONSIBLE PERSON
	<p>appropriate storage tanks or in bowzers.</p> <ul style="list-style-type: none"> • The tanks /bowzers shall be situated on a smooth impermeable surface(concrete) bund. The impermeable lining shall extend to the crest of the bund and volume inside the bund shall be 110%. • Inspect and maintenance of bunded and fenced area for storage of hazardous materials, with required safety equipment. • Clean up any accidental chemical, fuel and oil spills that occur at the site in an appropriate manner by using a corrective action method. • Keep a record of hazardous substances stored on site. • Storage areas shall display the required safety signs depicting “No smoking”, “No naked lights” and “Danger”. Containers shall be clearly marked to indicate contents as well as safety requirements; and • Hazardous materials – such as paint, cement, fuels, bitumen, fuel, oil, herbicides, battery acid or detergents – must be stored in sealed, lockable containers when not in use • All spills (minor and major) must be cleaned and remediated to the 		

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/ Activity	RESPONSIBLE PERSON
	satisfaction of the SHEW within 24 hours of occurrence.		
Cultural resource	<ul style="list-style-type: none"> • Any chance finds must be reported to NamPower environmental section. • In an event of discovery of human remains or other artefacts the work shall cease. A professional archaeologist is to be consulted and carry out investigation. 	All phases	Area superintendent Project Manager SHEW Contractor
Protection and handling of fauna on site.	<ul style="list-style-type: none"> • Park Permit to be obtained and park rules to be adhered to as the substation is located on the Namib Naukluft National Park and Walvisbay District. • The contractor must ensure that the site is kept clean and free of rubbish that could potentially attract animal pests, and that rubbish bins are scavenger proof. • The contractor must report problem animals or vermin to the SHEW. • Ensure that domesticated and livestock animals belonging to the local community are kept away from the construction works. • The contractor may under no circumstances make use of pesticide or poison to control unwanted animals. • Workers should be educated so as not to kill any fauna found onsite. 	All phases	Area superintendent Project Manager SHEW Contractor

ASPECT	MANAGEMENT AND MITIGATION MEASURES/COMMITMENTS	Phase/Activity	RESPONSIBLE PERSON
	<ul style="list-style-type: none"> • The footprint of disturbance should be kept to a minimum • No hunting or trapping is permitted along the alignment. • Excavations must be checked on a regular basis for any signs of wildlife which may have fallen in. 		
Site Rehabilitation	<ul style="list-style-type: none"> • A post construction audit within 1 week after the Contractor has moved off site. • SHEW to sign site close off or take over certificate once remedial corrective action is implemented. 	During substation upgrades and extensions	Area superintendent Project Manager SHEW Contractor

8. ENVIRONMENTAL MONITORING AND AUDITING

Environmental monitoring, audits and inspections must be conducted by SHEW personnel and SHE representatives during construction and operational phases. The environmental monitoring and audits conducted at the substation will cover all management procedures and the requirements of this plan.

9. NON-CONFORMANCE PROCEDURES DURING OPERATIONS

In the event of non-compliance the following recommended process shall be followed:

- Non-compliances will be identified during inspections or audits carried out by the SHEW Section and reported to the Area superintendent or project manager for corrective actions.
- Area superintendent or project manager shall notify the both internal and external employees about the non-compliance
- Corrective and preventative actions must be implemented on an agreed timeframes
- Follow – up inspections shall be conducted to assess whether the corrective and preventative actions were implemented effectively.

NamPower has the right to ban any employee from the site, which have not attended a SHEW induction, until the time that they receive induction. NamPower also has the right to stop all construction activities if it is found that a gross violation of the EMP is taking place.

10. SUB-CONTRACTOR MANAGEMENT

The contractor shall in writing inform its sub-contractors and issue them a copy of this EMP and SHE Plan. Sub-contractors shall indicate in writing their commitment to comply with these plans. The Contractor has the overall responsibility of ensuring that all its sub-contractors comply with both plans.

11. DOCUMENTATION, RECORD KEEPING AND REPORTING PROCEDURES

The following documents must be kept on site in an accessible place, and maintained by the Contractor and district personnel:

- Copy of the Environmental Clearance Certificate
- SHE file
- Induction records;
- Environmental monitoring and inspection reports
- Site Locality Plan
- Site instructions
- Substation register

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- Records of the quantities of general and hazardous waste generated on site and disposal certificates or details of volumes of waste recycled
 - Water consumption
 - Incidents and accidents (spills, impacts, complaints, legal transgressions)
 - Corrective and preventive actions taken to rectify incidents and accidents.

12. CONCLUSIONS AND RECOMMENDATIONS

The purpose of this document is to provide guidelines for environmental best practice during the operation of the substation. This document shall be seen as part of the all contracts related to the substation.