

**ENVIRONMENTAL MANAGEMENT PLAN (EMP):
FOR
KOOKFONTEIN SUBSTATION**

1. Introduction

Parts of the Transmission Central grid are experiencing network constraints and underrating equipment problems. Eskom embarked on a project called Vaal Strengthening. This project entails upgrading all identified underrated equipments. Kookfontein substation form part of the Vaal Triangle Customer load network (CLN) in the Central Grid.

1.1 Project Description

The substation consists of 2 x 315 MVA 275/88kV line banked transformers which supply industrial loads. Kookfontein substation in N-1 non compliant as the maximum substation loading for 2007 was 343MVA and the N-1 limit is 315MVA. The short term preference solution is to add a total capacitance of 2 x 48 MVARs at Kookfontein S/S. Due to the bad power factor at Kookfontein, the addition of the capacitor solves the N-1 non compliance at the substation.

Scope of work:

Extend 88kV busbar

Establish 88kV Transformer Bays

Establish 88kV bus-coupler and Bus-Section

Establish 275kV line banked transformer bay

Establish 2 x 88kV Feeder Bays

1.2 Environmental Aspects Addressed

This Environmental Management Plan (EMP) has been compiled in order to address the potential impacts the upgrades at Kookfontein Substation and replacement of underrated equipments could have on the surrounding environment. This document serves as a binding environmental specification to Eskom staff and outside contractors with regards to addressing environmental issues identified prior to construction and during operation phases. It is the responsibility of the Project Manager and Contractor to ensure compliance with all the environmental specifications in the document as well as the relevant legislation.

Thus the aim of this EMP is to:

- ensure that the staff involved in the construction of capacitor banks and other installations are familiar with the environmental procedures to be followed and comply with all the recommendations made within it;
- ensure that a list of environmental persons involved in the project are given to the construction team;
- ensure that a monitoring schedule is maintained in which any potential negative environmental impacts are identified;
- ensure that the mitigatory measures are implemented to avoid and/or minimise the identified negative environmental impacts and to enhance the positive impact of the project on the environment; and
- ensure that a monitoring programme is in place that tracks the mitigatory measures that have been implemented.
- ensure that pro-active measures are undertaken during the planning and construction phases whereby potential environmental impacts emanating during the operational phase will be minimised

1.3 Locality and activity

The proposed activity will take place at the 275kV yard of the existing Kookfontein Substation. Kookfontein Substation is located along R59 Road to Vereeniging in the small town of Rothdene, Gauteng. (See **Appendix 1** for locality map and site layout)

2. ENVIRONMENTAL LEGISLATION

2.1. Introduction

A growing awareness of the environment and an increase in the number of environmental laws and regulations, present company management have a daunting task of monitoring, interpreting and implementing systems to produce a workable plan to comply with legal requirements.

The list below was compiled to ensure that the person responsible for construction and maintenance of the substation is aware of their legal responsibilities and liabilities. Complying with these laws and regulations will minimise the risks in terms of legal, financial (claims) and rehabilitation costs.

Non compliance to environmental law is a criminal offence and if prosecuted Eskom will be liable for any environmental damage incurred.

Table 2.1.1: Initial review of relevant policies, legislation, guidelines and standards applicable to the Kookfontein Project

Legislation	Applicable Sections
Constitution of the Republic of South Africa (Act No 108 of 1996)	<ul style="list-style-type: none"> » Bill of Rights (S2) » Environmental Rights (S24) – i.e. the right to an environment which is not harmful to health and well-being » Rights to freedom of movement and residence (S22) » Property rights (S25) » Access to information (S32) » Right to just administrative action (S33)
National Environmental Management Act (Act No 107 of 1998)	<ul style="list-style-type: none"> » Strategic environmental management goals and objectives of the government applicable throughout the Republic to the actions of all organs of state that may significantly affect the environment (S2) » Duty of Care (S28) requiring that reasonable measures are taken to prevent pollution or degradation from occurring, continuing or recurring, or, where this is not possible, to minimise & rectify pollution or degradation of the environment » Procedures to be followed in the event of an emergency incident which may impact on the environment (S30)

Legislation	Applicable Sections
National Heritage Resources Act (Act No 25 of 1999)	<ul style="list-style-type: none"> » Stipulates assessment criteria and categories of heritage resources according to their significance (S7) » Provides for the protection of all archaeological and palaeontological sites, and meteorites (S35) » Provides for the conservation and care of cemeteries and graves by SAHRA where this is not the responsibility of any other authority (S36) » Requires the compilation of a Conservation Management Plan as well as a permit from SAHRA for the presentation of archaeological sites as part of tourism attraction (S44)
Conservation of Agricultural Resources Act (Act No 43 of 1983)	<ul style="list-style-type: none"> » Prohibition of the spreading of weeds (S5) » Classification of categories of weeds & invader plants (Regulation 15 of GN R1048) » Requirement to implement control measures for alien and invasive plant species (Regulation 15E of GN R1048)
National Water Act (Act No 36 of 1998)	<ul style="list-style-type: none"> » Duty of Care to prevent and remedy the effects of pollution to water resources (S19) » Procedures to be followed in the event of an emergency incident which may impact on a water resource (S20)
Hazardous Substance (Act No 15 of 1973)	<p>Control all forms of air pollution.</p> <p><i>Dust control during construction</i></p> <p><i>Fumes emitted by vehicles</i></p> <p><i>Air pollution from waste</i></p>

3. ROLES AND RESPONSIBILITIES

3.1. Project Manager

The primary responsibility of the Project Manager is to ensure that the Contractor complies with the environmental specifications in this document.

In addition the Project Manager shall:

- Assume overall responsibility for the effective implementation and administration of the EMP;
- Ensure that the EMP is included in the Contractors contract;
- Ensure that the EMP is given to the applicable Construction Supervisor and the contractors (if utilised);
- In conjunction with the Construction Supervisor; undertake regular inspections of the Contractor's site as well as the extension works in order to check for compliance with the EMP in terms of the specifications outlined in this document. Inspections shall take place at least once a month and copies of the monitoring checklist contained in the file.
- Keep a register of all incidents (spills, injuries, complaints, legal transgressions, etc) and other documentation related to the EMP;
- Report to the Environmental Advisor any problems (or complaints) which cannot first be resolved in co-operation with the Contractor(s);
- Implement recommendations of possible audits; and
- Ensure construction staffs are trained in accordance with requirements of the EMP.

3.2. Construction Contractor

The Contractor shall:

- Ensure that the environmental specifications of this document (including any revisions, additions or amendments) are effectively implemented. This includes the on-site implementation of steps to mitigate environmental impacts;
- Discuss implementation of and compliance with this document with staff at routine site meetings;
- Preserve the natural environment by limiting any destructive actions on site;
- Monitor environmental performance and conformance with the specifications contained in this document during site inspections;

- Report progress towards implementation of and non-conformances with this document at site meetings with the Project Manager;
- Ensure that suitable records are kept and that the appropriate documentation is available to the Project Manager;
- Advise the Project Manager of any incidents or emergencies on site, together with a record of action taken; and
- Report and record all accidents and incidents resulting in injury or death.
- Take into consideration the legal rights of the individual Landowner, Communities and Eskom Regional staff.
- Ensure quality in all work done, technical and environmental.
- Resolve problems and claims arising from damage immediately to ensure a smooth flow of operations.
- Underwrite Eskom's Environmental Policy at all times.
- Use this Environmental Management Plan for the benefit of all involved.

4. SPECIAL MITIGATORY MEASURES

4.1 Restriction of Working Areas

All area and busbars where no equipments are to be replaced and where no new transformers are to be installed shall be regarded as "no-go" areas. For this reason the working areas and 'no-go' areas must be identified using danger tape. Working areas are defined, as those areas required by the Contractor to undertake the replacement of old equipments and installation of the additional equipment. The Contractor shall ensure that all plant, labour and materials remain within the boundaries of the working area.

The working area for Kookfontein Substation will be defined as follows:

- The area of the substation boundary.
- Only at or near equipments that needs to be replaced.
- At the existing bays that needs to be equipped.

Objective

- Minimise the impact of equipment replacement and installation activities on the surrounding environment.

Aspect

- Replacement of underrated equipments and installation of new equipments.

Target

- No disturbance to the areas outside the working areas; and
- Construction activities and materials, vehicles and staff to remain within the working areas.

Procedure

- From the outset of replacement and installation activities, the working area must be well defined with danger tape or any other appropriate method.
- All staff, vehicles and construction material are to be restricted to the working area.
- The working areas are as defined above.
- Vehicles, if parked on site, must have a clearly demarcated area. Accommodation must be made for oil leaks that may occur from the vehicle sumps. This can be achieved by providing a sump tray for each vehicle or sand that is later removed. The contaminated sand will have to be disposed off at a licensed hazardous disposal site. Depending on the size of the spill, the contaminated site can be bio-remedied in-situ using environmentally friendly chemicals such as chemcap and pit.
- If any campsites are to be erected, they should be erected outside the substation site and if possible, campsites must be identified on the farm with the permission from the farmer.

4.2 Vegetation Management

The area where the new establishments/ equipment is to be installed is existing already and clear off vegetation. The underrated equipments to be replaced on areas already cleared off vegetation. It is therefore expected that no damaged on vegetation should occur as the substation already exists and clear from vegetation.

Procedure

Vegetation outside the working area shall not be disturbed at all.

Target

No vegetation clearance should be done as the work is to be done on existing substations footprint.

4.3 Watercourses

A small stream runs pass the existing substation. The installation and/or replacement of underrated equipment shall not take place in close proximity to the water course.

Objective

- Minimize environmental impact on watercourses.

Aspect

- Installation of and replacement of underrated equipments at the substation.

Target

- No pollution and detrimental environmental impact to watercourses.

Procedure

- No structures/material to be placed within a riverbed, the floodplain, wetland or seasonal streams.
- No littering, waste disposal or other pollution of watercourses.
- No fishing or bathing in watercourses.
- No driving in the watercourses.

4.4 Access

Access road currently exists.

Objective

- Maintain the access currently used;
- Prevent establishment of new access tracks;
- Ensure that property owners have unrestricted access to their properties.

Aspect

- Installation and replacement of underrated equipments.
- Vehicles access, especially trucks delivering equipments and material.

Procedure

- Use existing access road
- No driving through watercourses, sensitive vegetation etc.
- Servicing and cleaning of vehicles is strictly prohibited in the access road, working area and in the veld.

4.5 Oil Spill Management

Transformers, voltage, current transformers and isolators contain oil and great care should be taken when replacing and installing them.

Objective

- Prevent potential oil spills during the installations and replacement of underrated equipment.

Aspect

- Installation and replacement of underrated equipments.
- Check the type of oil contained in the new equipments (must not contain Polychlorinatedbiphenyls), usually labelled "PCB Free".

Procedure

- Fuels, oils, hydraulic fluids, cement etc. must be stored in properly contained areas so as to minimize accidental spillage.
- No hazardous or toxic chemicals or substances should be stored where there could be accidental leakage into subterranean water supplies.
- Accommodation must be made for oil leaks that may occur from vehicle sumps. This can be achieved by providing a sump tray for each vehicle or sand that is later removed from site. The contaminated sand will have to be disposed of at a licensed hazardous disposal site.
- All spills must be reported to the environmental advisor for the central grid (Warren Funston at 011 871 3530) within 24 hours of the spill via a flash report.
- The contractor should be in possession of a mobile oil spill kit and/or a wheel bin should be available on site.
- The Oil Spill Clean-up and Rehabilitation Standard (Reference – ESKASABT0) and Management of Polychlorinated Biphenyls (PCB) (Reference-ESKASAAC2) needs to be implemented (refer to **APPENDIX 2&3** for the Standard).

4.6. TRANSPORTATION OF EQUIPMENT (Current, Isolators etc.)

All equipment moved onto site or off site during a project is subject to the legal requirements as well as Eskom specifications for the transport of such equipment. Oil filled equipment such as Current Transformers, Voltage Transformers and transformers have specific safety requirements regarding their handling, transport

and storage. Eskom's document "Procedure for the handling and transportation of power distribution transformer up to 500KVA and 33kV (DISPVAEG6-Under Review) should be used. The Contractor shall meet these safety requirements stipulated under the procedure at all circumstances. All equipment transported shall be clearly labelled as to their potential hazards according to specifications. All the required safety labelling on the containers and trucks used shall be in place.

The Contractor shall ensure that all the necessary precautions against damage to the environment and injury to persons are taken in the event of an accident and shall supply a method statement to that effect. The contractor will also make sure that he/she make necessary arrangements with the traffic department in case up normal loads are to be transported to the site.

Objectives

- Safe handling and transport of equipment
- Safe handling and transport of hazardous substances
- Minimise environmental pollution and damage

Targets

- All equipment delivered to site in tact
- No spillage of hazardous substances
- No litigation due to environmental pollution

4.7 Fauna

No animals or livestock was identified during site visit.

Objective

- Should any animals or livestock be encountered during construction, no impact should be made on them.

Aspect

- Installation and replacement of underrated equipments.

Target

- Prevent injury and harm to animals
- Substation fenced off and is free of animals.

Procedure

- There shall be no pilfering of domestic animals.

4.8 Soil Erosion

No soil erosion is anticipated as the substation site is paved and has concrete surface.

Objective

- Prevent soil erosion.
- Minimise disturbance and loss of soil.
- Maintain the integrity of topsoil's for future landscaping and rehabilitation (should the existing transformers bay be extended)

Aspect

- Installation and replacement of underrated equipments.

Procedure

- Vehicles to use the current access route.
- All construction activities to be undertaken within the working area.
- No visible erosion scars once construction is completed.

4.9 Use of cement/concrete

The Contractor is advised that cement and concrete are regarded as highly hazardous to the natural environment on account of the very high pH of the material, and the chemicals contained therein.

Objective

- Prevent pollution to the ground, especially soil surface.
- Aspect
- Mixing of cement for foundations building for the installations.

Procedure

- Concrete shall be mixed on mortar boards, and not directly on the ground.
- The visible remains of the batch plant and concrete, either solid, or from washings, shall be physically removed immediately and disposed of as waste in a recognised landfill site.
- Washing the visible signs into the ground is not acceptable.

- All aggregate shall also be removed.

4.10 Refuse and Waste Management

Refuse and waste refers to all solid waste, including construction debris (wrapping materials, timber, cans etc), waste and surplus food, food-wrappers, etc.

Objective

- Limit the potential for site pollution and the accumulation of waste materials on site.

Aspect

- Construction activities for the installations and replacement of underrated equipments.

Target

- No waste and/or refuse is to be stored on site for longer than 1 month.
- All waste must be removed off site and disposed off at a licensed landfill site.

Procedure

- Eskom employees and contractors are responsible for cleaning-up at the end of construction work.
- The Contractor shall not dispose any waste and/or construction debris by burning or burying.
- The use of waste bins and skips is recommended.
- The bins shall be provided with lids and an external closing mechanism to prevent contents blowing out.
- The Contractor shall ensure that all waste is deposited in the waste bins for removal by the Contractor.
- Bins shall not be used for any purposes other than waste collection and shall be emptied on a regular basis.
- Unused materials must be removed from site at the end of replacement and installation activities.

4.11 Archaeological

No Archaeological studies are necessary as work is to be done on existing equipments and bays.

Objective

- To ensure that any archaeological findings during the installation and replacement is managed accordingly.

Aspects

- Installation and replacement of underrated equipments.

Targets

- No work should proceed if any archaeological materials are encountered or discovered.

Procedure

- If any archaeological material (e.g. fossils, bones, artefacts etc) is found, the contractor shall stop work immediately and inform the Environmental Advisor.
- The Environmental Advisor shall inform South African Heritage Resources Agency (SAHRA) and arrange for a palaeontologist/archaeologist to inspect, and if necessary excavate the material, subject to acquiring the requisite approval from SAHRA.
- The Contractor shall not recommence working in that area until written permission has been received from the Environmental Advisor.

4.12. Noise Pollution

The installation and replacement of underrated equipments won't generate any disturbing noise. Only vehicles movement might cause noise.

Objective

- Avoid disturbing the local community.

Aspects

- Installation and replacement of underrated equipments.

Procedure

- All noise generating activities must be scheduled between 7am – 5pm Mondays to Fridays.
- Any complaints pertaining to noise must be reported to the Environmental Advisor and be addressed.

4.13. Security Camp (if required)

Kookfontein Substation is well secured and fenced off and therefore no security camp will be required. The magnitude of the project doesn't require a construction or security camp.

Objective

- Manage the impact the security camp has on the environment.

Procedure

- The security contractor is to obtain the permission from the landowner (if not on Eskom property) before the security camp is established on site.
- The security contractor shall provide water and/ or washing facilities at the camp for personnel.
- The security camp shall be kept neat and tidy and free of litter.
- The security contractor shall provide the necessary ablution facilities for all his personnel.
- Chemical toilets shall be used. The toilets shall be secured to prevent them from blowing over, and shall be provided with an external closing mechanism to prevent toilet paper from being blown out. Toilet paper shall be provided in all toilets. The security contractor shall ensure that chemicals and/ or waste from toilet-cleaning operations are not spilled on the ground at any time.
- Abluting anywhere other than in the toilets shall not be permitted.
- Closed fires or stoves shall only be permitted at a designated safe site to be determined by the Project Manager.
- Fires shall also not be permitted near any potential sources of combustion, such as near vehicles, fuel storage area, vegetation etc.
- No smoking will be allowed on site.

4.14 Prevention of diseases

The workforce shall also be sensitised to the effects of sexually transmitted diseases, especially AIDS. General health issues shall be brought under the attention of the site staff and condoms shall be supplied on site.

Objectives

- Prevent spreading of sexually transmitted diseases.

Targets

- No complaints from Landowners / Communities.
- No litigation.

4.15. Site Rehabilitation

Objective

- To restore any degradation caused by the installation equipments.

Target

- Site rehabilitation to be completed within two months of upgrading the substation or by an alternative date stipulated by the Environmental Advisor.

Procedure

- All excess aggregate, gravel, stone, concrete, bricks, temporary fencing and the like shall be removed from the site upon completion of the work.
- No discarded materials of any nature shall be buried on the site or on any other land within the site.

4.16 Sanitation

- Proper sanitation facilities available at Kookfontein Substation should be used at all times by the contractors.

Objective

- No ablution anywhere except at a proper facility
- Abluting anywhere other than in the toilet facilities available shall not be permitted (i.e. no abluting in the veld).
- Temporary ablution facilities (i.e. Chemical toilets) must be made available and used

Target

- Additional chemical toilets to be brought on site if the number of contractors is high.

5. Generic Conditions

In order to ensure compliance with Eskom's environmental policy as well as environmental legislation requirements, the following generic conditions are applicable:

5.1 Air Quality

- No burning of waste material, such as vegetation from any clearing operations is allowed;
- Drive at moderate speeds on the access road in order to minimise or avoid dust pollution.

5.2 Water Quality

- Under no circumstances must surface or ground water be polluted. Ground or surface water pollution could occur as a result of spillages or the incorrect usage of oil, petrol, cleaning materials, herbicides, etc.

5.3 Land Management

- All fauna (including domestic livestock) within and around the substation shall be protected. Birds and animals shall not be caught or killed by any means, including poisoning, trapping, shooting or setting of snares.
- No fences or gates of property owners must be damaged. The condition of Eskom gates and locks must be regularly monitored to ensure they are secure (i.e. to prevent animals getting out or access by unauthorised personnel). The access gates to the substations must always be closed and locked when daily construction activities are completed;
- Soil erosion must be prevented at all times along the access road and in the substation site
- Bush clearing in the servitude or around the substation must be in accordance to Eskom's Bush Clearing Standard (Reference – ESKASABG3); and
- No bush clearing to be undertaken without the knowledge thereof by the property owner.

5.4. Socio-Cultural Issues

- A plan of action should be drawn up in the case of an emergency (veld fire, damaged powerline, vegetation problems etc.). Eskom contact names and telephone numbers must be available on site;
- Property owners or occupiers must be treated with respect and courtesy at all times;
- The culture and lifestyles of the communities living in close proximity to the substation must be respected;
- Removal (pilfering) of agricultural products is prohibited. Receipts must be obtained for any merchandise purchased or received from landowners;

- Vehicles must be driven carefully in hazardous road conditions (sharp bends, narrow roads, bad weather, children playing on or near the road, domestic animals on or near the road etc.). Vehicle movement should be kept to a minimum during rain to avoid damage to the access road;
- Environmental clauses (as referred to in this EMP) must be included into contract documents for all contractors;
- Tribal graves, archaeological sites and sites of historical interest in close proximity to the substation are to be treated with respect and protected.
- No firewood is to be collected except with the written consent of the landowner; and
- A register must be maintained of all complaints or queries received as well as action taken.

**6. ENVIRONMENTAL MANAGEMENT
PROGRAMME (EMP) - Monitoring Structure**

The standard Eskom site documentation shall be used to keep records on site. All documents shall be kept on site and be available for monitoring and auditing purposes. Site inspections by an Environmental Audit Team may require access to this documentation for auditing purposes. The documentation shall be signed by all parties to ensure that such documents are legitimate. Regular monitoring of all site works by the Environmental Control Officer is imperative to ensure that all problems encountered are solved punctually and amicably. When the Environmental Control Officer is not available, the Contract Manager/Site Supervisor shall keep abreast of all works to ensure no problems arise. The following checklist shall be used as an environmental performance monitoring tool.

6.1	Person responsible for this substation is:
	Name:
	Designation:
6.2	Reporting of environmental performance, problems and priorities is as follows:
6.3	Environmental monitoring of the substation is according to the following schedule:

7. Activity Environmental Management Plan

An activity Environmental Management Plan is compiled in order to address specific building, civil, structural and electrical works. A risk analysis of the activities is done rated per High/Medium/Low/None. The rating is done based on the impacts of the activity

Activity	Environmental Aspect	Impact (Y/N)	Risk (H/M/L/N)	Regulatory requirements	Actions to be taken
Delivery of materials	Heavy vehicles	Yes	Low	National Roads Act(20 of 2003)	No oil leaks
	Material storage	Yes	Low	Occupational Health and Safety Act(85 of 1993)	Separated materials
	Off loading materials	Yes	Low	Environment Conservation Act(73 of 1989)	Licensed drivers & operators
Mixing concrete	Concrete dust	Yes	Low	Occupational Health and Safety Act (85 of 1993)	No mixing on ground
	Cement bags	Yes	Low	National Water Act(36 of 1998)	Litter management
Cast blinding layer	Concrete spills	Yes	Low	Occupational Health and Safety Act(85 of 1993)	Spills in foundation backfill
Construct Cable	Concrete spills	Yes	Low	Occupational Health and Safety Act(85 of 1993)	
Trenches				Environment Conservation Act(73 of	Spills in foundation backfill
Place copper earthing	Copper offcuts	Yes	Low	Occupational Health and Safety Act(85 of 1993)	Collect off cuts for recycling
Place steelwork on foundations	Steel offcuts	Yes	Low	Occupational Health and Safety Act(85 of 1993)	All off cuts collected for recycling
	Steel cutting & grinding	Yes	Low	HV Regs	Management of old cutting
Connect earthing to steelwork	Welding, brazing	Yes	Low	OCCUPATIONAL HEALTH AND SAFETY Act(85 of 1993)	Management of old welding
				HV Regs	rods
				Environment Conservation Act(73 of 1989)	
De-establish	Heavy vehicles	Yes	Medium	OCCUPATIONAL HEALTH AND SAFETY Act(85 of 1993)	All waste, garbage, surplus
Final inspection	Site inspection	No	None	OCCUPATIONAL HEALTH AND SAFETY Act(85 of 1993)	Site to be clear & rehabilitated as
				HV Regs	per original condition
Take over works	Take Over/ Hand Over	No	None	Transmission EMP	Site accepted from Contractor & Handed over
Circuit Breakers&Current Transformers					
Supply & delivery of new	Circuit Breakers &	Yes	Low	OCCUPATIONAL HEALTH AND SAFETY Act(85 of 1993)	Licensed drivers & operators to obey
Circuit Breakers & CT's	Current Transformers			HV Regs	all road & local bylaws
	(oil or SF6?)			National Road Act(20 of 2003)	Correct loading & securing of equipment

				Eskom Standard for Oil Spill clean-up and rehabilitation (ESKASABTO)	
Establish contractor on site	Site establishment	Yes	Low	National Water Act(36 of 1998)	Site to be kept tidy & hygienic with
				Health Act(63 of 1977)	special reference to sanitation & water
				OCCUPATIONAL HEALTH AND SAFETY Act(85 of 1993)	water management
				Environ Conservation Act(73 of 1989)	
Erect new Circuit Breaker	Heavy vehicles	Yes	Low	Transmission EMP	
				OCCUPATIONAL HEALTH AND SAFETY Act(85 of 1993)	Crane operators to be licensed in
& CT's	Circuit Breakers (SF6?)				accordance with OCCUPATIONAL HEALTH AND SAFETY Act
				HV Regs	No damage to surrounding infrastructure
				ESKAASAAJ9 (SF6	All personnel to be suitably accredited to
				Switch Gear Installation)	
Final inspection	Site inspection	No	None	OCCUPATIONAL HEALTH AND SAFETY Act(85 of 1993)	Site to be clear & rehabilitated as per
				HV Regs	original condition
				Environment Conservation Act(73 of 1989)	
				Transmission EMP	
Take over works	Take Over/ Hand Over	No	None	Transmission EMP	Site accepted from Contractor & Handed over
				Grid Representative	
Isolators					
Supply & delivery of new	Isolators	Yes	Low	OCCUPATIONAL HEALTH AND SAFETY Act(85 of 1993)	Licensed drivers & operators to obey
Isolators & ES's				HV Regs	all road & local bylaws
				National Road Act(20 of 2003)	Correct loading & securing of equipment
Establish contractor on site	Site establishment	Yes	Low	National Water Act(36 of 1998)	Site to be kept tidy & hygienic with
				Health Act(63 of 1977)	special reference to sanitation & water
				OCCUPATIONAL HEALTH AND SAFETY Act(85 of 1993)	water management
				Environment Conservation Act(73 of 1989)	
				Transmission EMP	
Erect new Isolators & ES's	Heavy vehicles	Yes	Low	OCCUPATIONAL HEALTH AND SAFETY Act (85 of 1993)	Crane operators to be licensed in
	Isolators (SF6?)				accordance with OCCUPATIONAL HEALTH AND SAFETY Act
				HV Regs	No damage to surrounding infrastructure
				ESKAASAAJ9 (SF6	All personnel to be suitably accredited to
				Switch Gear Installation)	

Install new cables, clamps	Cables, clamps &	Yes	Low	OCCUPATIONAL HEALTH AND SAFETY Act (85 of 1993)	Crane operators to be licensed in accordance with OCCUPATIONAL HEALTH AND SAFETY Act
& conductors	conductors			HV Regs	No damage to surrounding infrastructure
				Environment Conservation Act(73 of 1989)	All personnel to be suitably accredited to perform the duties
					All cable off cuts collected for recycling
Commissioning of new Isolators	Isolators (SF6?)	Yes	Low	OCCUPATIONAL HEALTH AND SAFETY Act(85 of 1993)	Safe working procedures
				HV Regs	
				ESKAASAAJ9 (SF6 Switch Gear Installation)	
Final inspection	Site inspection	No	None	OCCUPATIONAL HEALTH AND SAFETY Act(85 of 1993)	Site to be clear & rehabilitated as per original condition
				HV Regs	
				Environment Conservation Act(73 of 1989)	
				Transmission EMP	

8. Environmental Contact Persons

1. Mfundo Maphanga (Land and Rights: EIA)
Tel: 011 800 4892
2. David Tunnicliff (Land and Rights: Programme Manager)
Tel: 011 800 5145
3. Warren Funston (Central Grid Environmental Advisor)
Tel: 011 871 3530

9. Emergency Numbers

1. Eskom Control 0800 037566

10. Oil Spill Contact Numbers

1. Drizit
Cell: 082 455 7832
2. Pineland Environmental Technology
Cell: 082 464 1074

11. Conclusion

This EMP should always be available on site whenever there is construction work taking place. Management recommendations should be adhered to.