ENVIRONMENTAL MANAGEMENT PLAN

FOR THE

MEDUPI COAL-FIRED POWER STATION

IN THE LEPHALALE AREA, LIMPOPO

PROVINCE

THE CONSTRUCTION PHASE

EIA Reference Number: 12/12/20/695

Revision 1, January 2008

Revision 2, September 2010

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GLOSSARY OF TERMS AND ABBREVIATIONS

ACTIVITIY

Any action needed for the design, construction and completion of a project such as the Gautrain Rapid Rail Link.

ASH DAM:

The ash that is created from the burning of coals is transported via water (+/-80% water: 20% ash) and through a hydraulic decant system disposed of in ash dams. The decanted water is then recycled back to the power station for re-use at the power station as a low quality water use.

ASH DUMP:

The ash that is created from the burning of coals is transported after conditioning via a conveyor transfer system and disposed of in an ash dump. Low quality water is used for dust suppression and any decant is recycled for re-use.

AUDIT

a systematic, documented, regular and objective evaluation to see how well a Contractor or facility is operating in terms of its compliance to National Legislation, the RoD and EMP specifications.

BAG FILTERS:

A collection device that uses fabric bags to filter particulates/ash particles out of a gas stream.

BOILER:

Where pulverised coal is burnt/combusted at extremely high temperatures, generating steam with high pressure and temperature in the tubing in the boiler walls.

COMPETENT

A person whom by reason of qualifications and experience has the skills necessary to perform the duties under the regulations in respect to which the expression is used and who has been appointed by the employer to perform those duties.

CONTAMINATED WATER

Means water contaminated by the Contractors activities such as with hazardous substances, hydrocarbons, paints, solvents and runoff from plant, workshops, wash bays or personnel wash areas.

CONTRACTOR:

A person or company appointed by Eskom to carry out stipulated activities.

ELECTROSTATIC PRECIPITATOR:

A device that removes ash particles from a gas stream after combustion occurs. The ESP imparts an electrical charge to the particles, causing them to adhere to metal plates (collector plates) inside the precipitator. Rapping on the plates causes the particles to fall into a hopper for disposal.

EMERGENCY

An undesired event that results in a significant environmental impact, and requires the notification of the relevant statutory body such as a local authority.

EMISSIONS:

The release or discharge of a substance into the environment which generally refers to the release of gases or particulates into the air.

EMP:

Environmental Management Plan. A detailed plan of action prepared to ensure that recommendations for preventing the negative environmental impacts and where possible improving the environment are implemented during the life-cycle of a project. This EMP focuses on the construction phase.

ENVIRONMENT:

In terms of the National Environmental Management Act (NEMA) (No 107 of 1998), "environment" means the surroundings within which humans exist and that are made up of:

(i) The land, water and atmosphere of the earth;

(ii) micro-organisms, plant and animal life;

(iii) Any part or combination of (i) of (ii) and the interrelationships among and between them; and

(iv) The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

ENVIRONMENTAL CONTROL OFFICER:

A suitably qualified individual who would, on behalf of the Environmental Monitoring Committee (EMC) and on a daily basis, monitor the project compliance with conditions of the Record of Decision, environmental legislation and recommendations of this Environmental Management Program.

ENVIRONMENTAL ASPECT

An element of an organisation's activities, products or services that can interact with the environment.

ENVIRONMENTAL IMPACT

A change to the environment, whether adverse or beneficial, and is wholly or partially resulting from an organisation's activities, products or services.

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

Means the independent investigation conducted and EIR compiled by Bohlweki Environmental in compliance with the environmental legal requirements of Govern Notice R.1183 in Government Gazette No 18261 of 5 September 1997, promulgated under Section 21(1) of the Environment Conservation Act, No 73 of 1989.

ENVIRONMENTAL IMPACT REPORT (EIR)

The report completed to contain the findings conclusions and recommendations of the EIA.

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

This document is recognised as the tool that can provide the assurance that the project proponent (or in this case the concessionaire) has made suitable provision for mitigation. The EMP is the document that provides a description of the methods and procedures for mitigating and monitoring impacts. It also contains environmental objectives and targets which the proponent needs to achieve in order to reduce or eliminate negative impacts.

ENVIRONMENTAL METHOD STATEMENT

A written submission by the Contractor to the Site Director / Engineer and ECO in response to Environmental Specification or a request by the Client, setting out the construction equipment, materials, labour and method the Contractor proposes using to carry out an activity, identified by the relevant specification or the Site Director when requesting the Environmental Method Statement, in such detail that the Site Director / ECO is enabled to assess whether the Contractors' proposal is in accordance with the Specifications and/or will produce results in accordance with the Specifications.

ESKOM'S PROJECT MANAGER:

The Eskom Enterprises appointed person, appointed to act as the manager of the project on behalf of Eskom. Also known as the Project Manager: Medupi Power Station

GASEOUS EMISSIONS:

The elements / compounds that make up the emissions from the power station stacks are in their vapour phase e.g. carbon dioxide (CO_2), nitrous oxide (NO_2), sulphur dioxide (SO_2) and oxygen (O_2).

GENERATOR

Attached to the steam turbine which spins at 3000-rpm generating electricity through the generator rotor which spins inside large coils of copper.

BEST PRACTICE

In relation to the performance of any activity to which this standard is applied, the exercise of that degree of skill, diligence, prudence and foresight as would reasonably and ordinarily be expected from a skilled and experienced Contractor (engaged in the same type of undertaking and under the same or similar circumstances and conditions as that in which the relevant matter arises) seeking in good faith to comply with its contractual obligations and to discharge any liability arising under any duty of care that might reside with the Contractor. Furthermore, best practice is a technique, method,

process, activity, incentive, or reward which conventional wisdom regards as more effective at delivering a particular outcome than any other technique, method, process, etc. when applied to a particular condition or circumstance. The idea is that with proper processes, checks, and testing, a desired outcome can be delivered with fewer problems and unforeseen complications

HERITAGE

The sum total of sites of geological, zoological, botanical and historical importance, national monuments, historic buildings and structures, works of art, literature and music, oral traditions and museum collections and their documentation which provides the basis for a shared culture and creativity in the arts.

HERITAGE RESOURCES

The various natural and cultural assets that collectively form the heritage. These assets are also known as cultural and natural resources. They include the following: Any place or object of cultural significance, including:

a. places, buildings, structures and equipment of cultural significance;
b. places to which oral traditions are attached or which are associated with living heritage;
c. historical settlements and townscapes;
d. landscapes and natural features of cultural significance;
e. geological sites of scientific or cultural importance;
f. archaeological and paleontological sites;
g. graves and burial grounds, including –
    (i.) ancestral graves;
    (ii.) royal graves and graves of traditional leaders;
    (iii.) graves of victims of conflict;
    (iv.) graves of individuals designated by the Minister by notice in the Gazette;
    (v.) historical graves and cemeteries; and
    (vi.) other human remains, which are not covered in terms of the Human Tissue Act, 1983 (Act No.65 of 1983)
h. sites of significance relating to the history of slavery in South Africa;
i. movable objects, including –
    (i.) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens;
    (ii.) objects to which oral traditions are attached or which are associated with living heritage;
    (iii.) ethnographic art and objects;
    (iv.) military objects;
    (v.) objects of decorative or fine art;
    (vi.) objects of scientific or technological interest; and

(vii.) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 (xiv) of the National Archives of South Africa Act, 1996 (Act No.43 of 1996).

INCIDENT

An undesired event which may result in a significant environmental impact but can be managed through internal response.

INSPECTION

A review or check on the safety requirements being implemented.

INTEGRATED ENVIRONMENTAL MANAGEMENT (IEM)

A code of practice ensuring that environmental considerations are fully integrated into the management of all activities in order to achieve a desirable balance between conservation and development.

TM – Team Medupi

TM is a combination of personnel that act on behalf of the Project Engineer administer the various Contracts fairly between the Employer and Contractor as well as personnel that act on behalf of the Project Manager to ensure Project Specifications are met.

PARTICULATE MATTER:

The collective name for fine solid or liquid particles added to the atmosphere by processes at the earth's surface and includes dust, smoke, soot, pollen and soil particles. Particulate matter is classified as a criteria pollutant, thus national air quality standards have been developed in order to protect the public from exposure to the inhalable fractions. PM can be principally characterised as discrete particles spanning several orders of magnitude in size, with inhalable particles falling into the following general size fractions:

- PM10 (generally defined as all particles equal to and less than 10 microns in aerodynamic diameter; particles larger than this are not generally deposited in the lung);
- PM10-2.5, also known as coarse fraction particles (generally defined as those particles with an aerodynamic diameter greater than 2.5 microns, but equal to or less than a nominal 10 microns); and
- Ultra fine particles generally defined as those less than 0.1 microns.

POTENTIALLY HAZARDOUS SUBSTANCE

Is a substance which, in the reasonable opinion of the Engineer or ECO, can have a deleterious effect on the environment. Hazardous Chemical Substances are defined in the Regulations for Hazardous Chemical Substances published in terms of the Occupational Health and Safety Act as well as relevant SANS Standards.

REASONABLE

Means unless the context indicates otherwise, reasonable in the opinion of the Engineer, after he has consulted with the ECO and TM Environmental Manager.

RECORD OF DECISION (RoD)

The formal, written environmental authorisation for the Project issued by the Department of Forestry, Fisheries and the Environment (DFFE), as amended.

SILT LADEN WATER

Means water containing sand and silt arising from the Contractors activities and/or as a result of natural run-off.

SITE

This is the area in the possession of the Contractor for the construction works. Where the area is not demarcated, it will include all adjacent areas which are reasonably required for the activities of the Contractor, and approved for such use by the Engineer.

SITE DIRECTOR:

The Eskom Group Capital Division appointed person, appointed to act as Site Director by Eskom, and is responsible for managing the construction process on site. Also known as the Site Director: Medupi Power Station.

1. INTRODUCTION

Electricity cannot be stored and must be used as it is generated. Therefore, electricity must be generated in accordance with supply-demand requirements. Eskom Holdings Limited (Eskom) provides energy and related services, including the generation, transmission, distribution and supply of electricity. Eskom currently generates approximately 95% of the electricity used in South Africa. The reliable provision of electricity by Eskom is thus critical for industrial development, related employment and sustainable development in South Africa.

In order to be able to adequately provide for the growing electricity demand, Eskom have identified various technologies in different locations. As part of its capacity expansion programme, Eskom Holdings Limited will construct a 4800 MW coal-fired power station, named Medupi, in the Lephalale area in the vicinity of the existing Matimba Power Station. A positive Record of Decision was received on the 21st of September 2006. This Environmental Management Programme (EMP) pertains to the construction phase of the Medupi Power Station, to be constructed on the farm Naauwontkomen 509 LQ (station centre line co-ordinates: X: +2 622 675 and Y: -57 470) with the ash dump potentially on the farm Eenzaamheid 687 LQ (see figure 1.1).

1.1. Overview of the Proposed Project

Medupi Power Station will have a maximum installed capacity of up to 4800 MW. The power plant and associated plant (terrace area) would require an area of 700 ha, and an additional 1000 ha would be required for ancillary services, including the possibility of on-surface ashing facilities. Eskom and Exxaro (previous Kumba Resources) are currently investigating the feasibility of in-pit ashing, where the ash from Medupi Power Station would be taken directly to the pit at Exxaro's Grootgeluk Mine, for disposal. If this ash disposal is found to be feasible, no on-surface ash disposal would take place at Medupi Power Station.

Medupi Power Station will be a super-critical, pulverised fuel power station, utilising direct dry-cooled technology. The power station will utilise electrostatic bagfilters as its primary pollution abatement technology (for particulate emissions, anticipated to be less than 50mg/Sm_3), and will have low NOx burners inherently built into the boiler for efficient combustion and thus lower NOx emissions. In terms of sulphur oxide emissions, the power station will be constructed to be FGD (flue gas desulphurisation) ready, i.e. physical space will be allowed for the FGD plant and the smokestacks lined with FGD compatible materials, should the power station be retrofitted with it at a later stage. When fully operational, the power station would strive towards a zero liquid effluent discharge philosophy.

Coal for Medupi Power Station will come from the Exxaro's adjacent Grootegeluk Colliery, to be delivered to the power station via conveyor belts. The Grootegeluk Colliery, which also services the existing power station, is located to the immediate west of Matimba Power Station. An estimated 7.3 million tonnes per year of coal (measured on a dry basis) is required for the first three units at the Medupi Power Station.

The Power Station is proposed to be constructed and commissioned in phases in order to meet the growing demand of electricity. Appropriate technology alternatives have been investigated by Eskom from a technical and economic feasibility perspective through pre-feasibility studies. All Eskom's existing operational coal-fired power stations utilise pulverised fuel technology (PF). The first phase of this proposed power station will consist of 3 units, each with a nominal installed capacity of 750 MW,

pulverised fuel combustion. The second phase, once formally approved via the Eskom approval processes, will also comprise 3 x 750 MW units, pulverised fuel combustion.

The power station structure will be approximately 130 m high and approximately 700 m wide, subject to final designs. The required stacks, 2 in total, would be approximately 250m in height, subject to final designs. Direct-cooling technology will be applied, with only a small open evaporative system for critical auxiliaries that cannot be accommodated by the main cooling system. No cooling towers will be constructed for the main cooling system. Other related infrastructure would include an HV yard, coal stockpile (with a terrace footprint of approximately 61 hectares and a storage capacity of approximately 2 million tonnes) and associated conveyor belts, and a potential ash dump, with infrastructure such as transmission lines being planned to integrate the station into the national electricity grid. The EIA for the Transmission lines is a separate process and has been initiated.

It would take approximately 48 months to construct the first generating unit, after which subsequent units would be completed at nine month intervals. During the construction period, there will be approximately 38 main contractors (boiler, turbine, civil, smokestacks, etc) on-site, with between 100-300 different subcontractors on-site at any given point during the construction period. The construction period is said to last up to 6 years (six units). At the peak of the construction period, there will be approximately 7400 people on-site. Appendix A is an indication of the phasing of manpower over the 6-year construction period.

Construction activities would include *inter alia* the following enabling works:

- Terracing
- Terrace and Contractors' Yards roads and lay-down areas
- Stormwater drainage
- Sewerage
- Construction electricity ring main
- Construction potable and raw water supplies
- Construction telecommunications
- Construction ablutions, canteen and site offices
- Security fencing
- Access control buildings
- Road diversion

The section below describes specifically the scope of work for "terracing" and "terracing with regards to contractors' yard":

Terracing: Processes to take place

- Clear and grub 1 million m^2 site areas and remove for preservation all designated trees.
- Remove and stockpile top soil
- Remove and stockpile approximately 800 000 m^3 amandelklip gravel for later use.
- Prepare subgrade for terrace work.
- Cut to fill of approximately 500 000 m^3 hard rock and processing for fill material through a single stage mobile crusher.
- Import and process approximately 1 million m^3 fill material of the required quantity and quality for the terrace layers.
- Construction of terrace subgrade, selected layers and subbase in accordance with the requirements of the specifications.
- Construction of the terrace gravel base to the requirements of the specifications including shaping and levels in accordance with the storm water management design.

Terrace and Contractor's Yards Roads and Lay-down Areas

- Clear and grub approximately 1.5 million m^2 of contractor's yards and remove for preservation all designated trees.
- Prepare lay down areas by the specified application of vibrating rollers for collapsible sand.
- Construct gravel wearing course and specified surfacing for selected contractor's yards.
- Construct approximately 14 km of terrace roads including subgrade, selected layers, subbase, base and surfacing according to design and specifications.
- Clear and grub contractor's yards roads areas and remove for preservation all designated trees.
- Remove and stockpile top soil
- Construct approximately 5 km of contractor's yards roads including subgrade, selected layers, subbase, base and surfacing according to design and specifications.

Mitigation measures recommended in this EMP pertain to the construction phase of the above power station.

The following engineering documents have been used for tendering purposes, in conjunction with Eskom specifications:

- SANS 1200: Standardised specification for civil engineering construction
- SANS 10120 - Code of practice for use with standardised specification for civil engineering construction and contract documents

- Health, Safety and Environmental Specification for Medupi Power Station (Medupi Power Station).

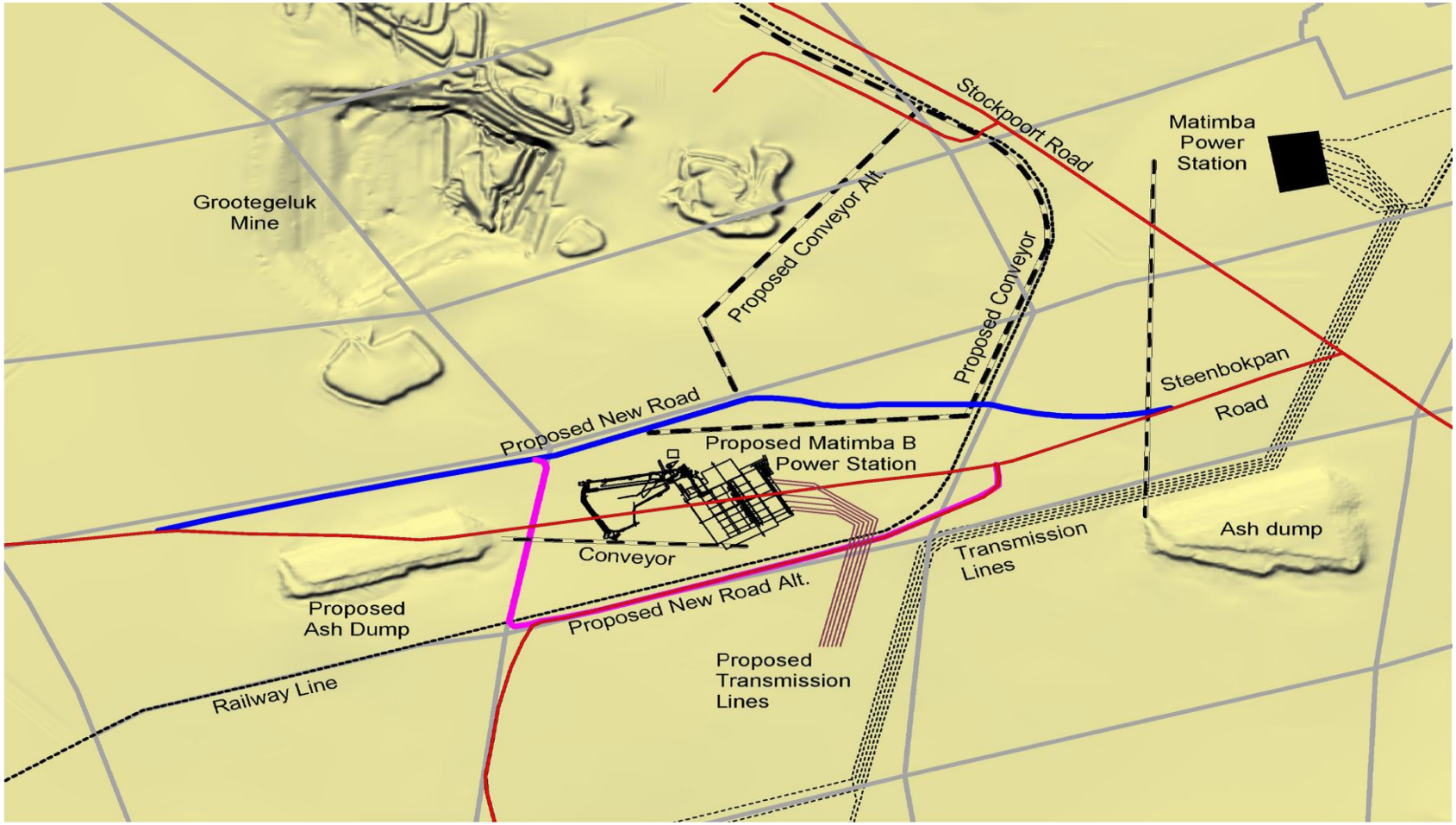


Figure 1.1: Map showing the location of the Medupi Power Station in the Lephalale Area

1.2. Applicable Documentation

The following environmental documentation is applicable for the project, and will be read in conjunction with this EMP:

- Final Environmental Scoping Report for the proposed new Coal-Fired Power Station in the Lephalale Area, Limpopo Province.
- Final Environmental Impact Assessment Report for the proposed new Coal-Fired Power Station in the Lephalale Area, Limpopo Province.
- Record of Decision issued on 21 September 2006 by the National Department of Environmental Affairs and Tourism (See Appendix B).

Cognisance had been taken of the conditions of the Record of Decision (RoD). Where necessary, this EMP has been amended accordingly to comply with the conditions as stipulated in the RoD.

1.3. Structure of the Environmental Management Plan

The EMP provides mitigation and management measures for the following phases of the project:

- Construction Phase

This section of the EMP provides management principles for the construction phase of the project. Environmental actions, procedures and responsibilities as required within the construction phase are specified. These specifications will form part of the contract documentation and, therefore, the Contractor will be required to comply with the specifications to the satisfaction of the Project Manager, Site Director and Environmental Control Officer, in terms of the construction contract.

All relevant environmental legislation pertaining to the project is listed within Appendix C. The Contractor is required to comply with this legislation for the construction phase of the project. This list is intended to serve as a guideline only for the Contractor and is not exhaustive.

According to RoD condition 3.2.3.2, this EMP is seen as a dynamic document which will be updated as required on a continuous basis. Any amendments/changes must and will be submitted to the DFFE for approval before such changes could be affected. In addition, such submission for consideration by the DFFE must be accompanied by recommendations of the EMC.

1.4. Objectives of the EMP

The EMP has the following objectives:

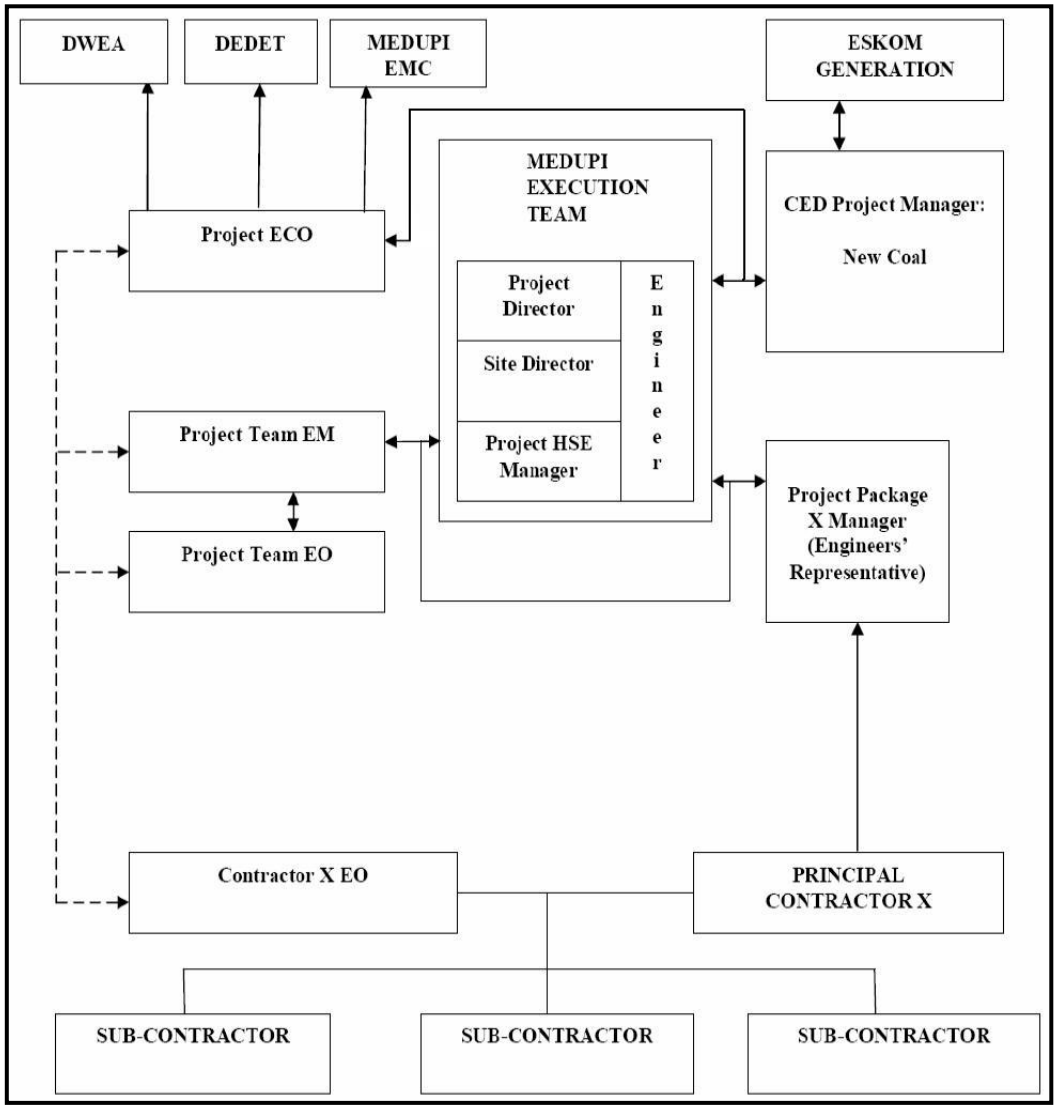
- To outline functions and responsibilities of responsible persons.
- To state standards and guidelines, which are required to be achieved in terms of environmental legislation.
- To outline mitigation measures and environmental specifications which are required to be implemented for the construction phase of the project in order to minimise the extent of environmental impacts, and to manage environmental impacts associated with the Power Station.
- To prevent long-term or permanent environmental degradation.

- In accordance with condition 3.2.3.2 imposed in the RoD, the CEMP (Revision 2) should be regarded as a "living document" which may be amended from time t time, as and when the need arises.

2. MANAGEMENT PROCEDURES

2.1. Organisational Structure and Responsibility

2.1.1. Functions and Responsibilities for the Construction Phase



Formal responsibilities are necessary to ensure that key procedures are executed. Specific responsibilities of the Project Director: Medupi, Assistant Projects Director: Medupi Power Station and Environmental Control Officer for the construction phases of this project are as detailed below.

The Project Director: Medupi Power Station will:

- Ensure that Eskom and the Contractor are aware of all specifications, legal constraints and Eskom standards and procedures pertaining to the project specifically with regards to the environment.

- Ensure that all stipulations within the EMP are communicated and adhered to by Eskom and its Contractor(s).
- Monitor the implementation of the EMP throughout the project by means of site inspections and meetings. This will be documented as part of the site meeting minutes.
- Be fully conversant with the Environmental Impact Assessment for the project, the conditions of the RoD, and all relevant environmental legislation.

The Site Director: Medupi Power Station will:

- Be fully conversant with the Environmental Impact Assessment.
- Be fully conversant with the conditions of the RoD.
- Be fully conversant with the Environmental Management Plan.
- Be fully conversant with all relevant environmental legislation and Eskom environmental policies and procedures, and ensure compliance with these.
- Have overall responsibility for the implementation of the EMP.
- Ensure that audits are conducted to ensure compliance to the EMP.
- Liaise with the Project Manager or his delegate, the Environmental Control Officer and others on matters concerning the environment.
- Prevent actions that will harm or may cause harm to the environment, and take steps to prevent pollution on the site.
- Confine activities to the demarcated construction site.

The Environmental Control Officer: Medupi Power Station:

- The EMC, in conjunction with Eskom, must appoint a suitably qualified Environmental Control Officer (ECO) who would on behalf of the EMC, on a daily basis monitor the project compliance with conditions of the Record of Decision, environmental legislation and recommendations of the EMP.
- The costs of the ECO shall be borne by Eskom.
- The ECO must be appointed one month before the start of construction, and the authorities must be notified of such an appointment for communication purposes.

The Environmental Control Officer will:

- Be fully conversant with the Environmental Impact Assessment Report (EIR).
- Be fully conversant with the conditions of the Record of Decision (RoD).
- Be fully conversant with the Environmental Management Plan.

- Be fully conversant with all relevant environmental legislation and Eskom environmental policies and procedures, and ensure compliance with them.
- Ensure that periodic environmental performance audits are undertaken on the project implementation.
- Submit an environmental compliance report on a two monthly basis, in writing, to the Director-General of the DFFE, copied to the Limpopo Department of Economic Development, Environment and Tourism.
- Maintain the following on site:
    - A daily site register
    - A non-compliance register
    - A public complaint register
    - A register of audits
- Remain employed until the completion of the construction phase.
- Report to project manager and be accountable to the EMC.

In addition, the Environmental Control Officer will:

- Convey the contents of this document to the site staff and discuss the contents in detail with the Project Director and Contractor.
- Undertake regular and comprehensive inspection of the site and surrounding areas in order to monitor compliance with the EMP.
- Take appropriate action if the specifications contained in the EMP are not followed.
- Monitor and verify that environmental impacts are kept to a minimum, as far as possible.
- Ensure that activities on site comply with all relevant environmental legislation.
- Compile progress reports on a regular basis, with input from the Site Director, for submission to the Project Director, including a final post-construction audit carried out by an independent auditor/consultant.

The Environmental Manager: Medupi Power Station Project

The Environmental Manager will:

- Be fully conversant with the Environmental Impact Assessment.
- Be fully conversant with the conditions of the RoD.
- Be fully conversant with the Environmental Management Plan.

- Be fully conversant with all relevant environmental legislation and Eskom environmental policies and procedures, and ensure all obligations contained within these are met.
- Assist Eskom in ensuring necessary environmental authorizations and permits have been obtained.
- Ensure that all required and relevant environmental roles are identified and filled with adequately suitable and qualified personnel.
- Provide guidance, assistance and input to the project with regards to environmental management on a strategic level.
- Review and accept construction method statements;
- Ensure all environmental aspects and impacts are identified for all activities taking place and for all major plant and equipment.
- Responsible for ensuring the compilation and implementation of the following:
    - Land Management Plan;
    - Fire Management Plan;
    - Project Monitoring Plan;
    - Waste Management Plan;
    - Water Management Plan; etc.
- Promote a holistic view of the environmental impacts of the activities and ensure that environmental impacts are kept to a minimum as far as practically possible.
- Take appropriate mitigation action should the specifications contained in the EMP not be complied with.
- Advise on the removal of person(s) and/or equipment not complying with the specifications;
- Ensure that activities on site comply with all the relevant environmental legislation.
- Assisting Eskom in finding environmentally responsible solutions to problems;
- Ensure that the Contractors are made aware of all applicable DFFE-approved changes to the EMP.
- Compile progress reports on a regular basis on environmental management for submission to Project Management and the ECO.
- Keep records of all activities/incidents concerning the environment on Site in the Site Incident Register;
- Keep a register of complaints and recording and dealing with any comments or issues;
- Inspect the site and surrounding areas regularly with regard to compliance with the EMP;

- Monitor the undertaking by Eskom and Contractors of environmental awareness training for all new personnel coming onto site;
- Undertake a continual internal review of the EMP and submitting a report to the management of Eskom and the ECO at the end of the project.

Generation Environmental Manager will:

- Provide overall assurance to the Managing Director: Generation Division (and hence ultimately the CEO) that environmental issues are appropriately addressed and managed at the construction site
- Provide overall assurance to the Managing Director: Generation Division that conditions in the Record of Decision (RoD) and EMP are adhered to
- Ensure that appropriate reporting of environmental performance/issues takes place
- Where necessary, liaise on a strategic level with environmental authorities on RoD/EMP-related issues (insofar as construction-related non-compliance is concerned)

Contractors and Service Providers:

- Contractors and service providers will:
    - At a minimum, provide 1 Environmental Officer per 500 personnel on site.
    - Provide method statements to the Site Director with regards to how certain activities on-site will be conducted. The Method Statements will be forwarded to the Environmental team and ECO for acceptance 30 days prior to the activity commencing.

The Contractor's Environmental Officer will:

- Provide the Site Director / ECO with a written monthly report, detailing both compliance with the Environmental Specification as well as environmental performance. The Environmental and Compliance Report will be made available to the Environmental Monitoring Committee (EMC) on request.
- Maintain a record of incidents (spills, impacts, complaints, legal transgressions, etc) as well as corrective and preventive actions taken, for submission to the Site Director at the scheduled meetings.
- Identify and assess previously unforeseen, actual or potential impacts of the project on the environment.
- Assist the contractor in the drafting of Environmental Method Statements where such knowledge/expertise is lacking.
- Conduct regular internal inspections and audits to ensure that the system for implementation of the Environmental Specification is operating effectively. The audit shall verify that a procedure is in place to ensure that:

  - the environmental method statements and the Environmental Specifications (ES) being used are up to date
  - variations to the ES and environmental method statements and non-compliances and corrective actions are documented
  - appropriate environmental training of personnel is undertaken; and
  - Emergency procedures are in place and effectively communicated to personnel.

- Advise the Contractor on the rectification of any pollution, contamination or damage to the project site, rights of way and adjacent land.
- Attend regular site meetings (scheduled and ad hoc).
- Arrange the presentation of the environmental awareness training course to all staff, Contractors and Sub-contractors and monitor the undertaking by the Contractor(s) of environmental awareness training for all new personnel on-site.
- Ensure that a copy of the RoD and latest version of the EMP are available on site at all times.
- Ensure that the Contractors are made aware of all applicable DFFE-approved changes to the EMP.
- Remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is handed over to Eskom by the contractor for operation.

The Environmental Officer shall also provide information to the Site Director or his representative, as required during external audits conducted by or on behalf of the Site Director as part of the auditing programme. The information required will include the reports of internal audits conducted by the Environmental Officer.

All contractors (including subcontractors and staff) and service providers are ultimately responsible for:

- complying with the environmental management specifications where applicable;
- Provide Environmental Method Statements to the Site Director with regards to how certain activities on-site will be conducted. The Method Statements will be accepted by the Environmental Control officer and the Environmental Manager one month prior to the activity commencing.
- adhering to any environmental instructions issued by the Site Director/Project Manager on the advice of the ECO;
- Submitting a report, in a format and frequency as decided upon by the Project Manager/Site Director, which will document all incidents that have occurred during the period before the progress meeting.
- Arrange that all his employees and those of his subcontractors receive training appropriate for the level of the tasks and functions undertaken.

The Environmental Method Statement referred to above will cover applicable details with regard to

- Construction procedures
- Materials and equipment to be used
- Getting the equipment to and from site
- How the equipment/material will be moved while on-site
- How and where material will be stored
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur
- Compliance/non-compliance with the Environmental Specifications
- Any other information deemed necessary by the Site Director

2.2. Environmental Specification: Awareness and Competence

It is important to ensure that all personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and ongoing minimisation of environmental harm.

To achieve effective environmental management, it is important that Employees, Contractors and Subcontractors are aware of the responsibilities in terms of the relevant environmental legislation and the contents of this EMP.

Environmental training may typically include the following:

- Employees must have a basic understanding of the key environmental features of the construction site and the surrounding environment;
- Employees will be familiar with the requirements of the EMP and the environmental specifications as they apply to the construction of the power station.
- Basic training in the identification of archaeological artefacts, and rare and endangered flora and fauna that may be encountered on the site.
- Awareness of any other environmental matters, which are deemed to be necessary by the ECO.
- Records must be kept of those that have completed the relevant training.

Training can be done either in a written or verbal format or in an appropriate language, but will be in an appropriate format for the receiving audience. Where training has been done verbally, persons having received training must indicate in writing that they have indeed attended a training session. A regular form of written or verbal testing will have to be designed.

2.3. Monitoring and Measurement Programme

Monitoring programs for specifically water quality, noise and dust **(**in accordance with specifications detailed in relevant permits and standards) will be put in place by the Contractor, not only to ensure conformance with the EMP, but also to monitor any environmental issues and impacts which have not been accounted for in the EMP that are, or could result in significant environmental impacts for which corrective action is required. These monitoring programmes will reflect the relevant variables to be monitored, as well as the frequency, into which the ECO will give inputs. The monitoring programme will be determined in consultation with relevant stakeholders and authorities. The Site Director will ensure that the monitoring is carried out.

Scientific monitoring

- **Groundwater Monitoring**

A groundwater monitoring system will be established on-site by the Site Environmental Manager. It may be necessary to alter construction procedures should there be any evidence of groundwater pollution emanating from site activities. Such alterations shall be identified through discussions between the Contractor, Environmental Officer and the Site Director/Environmental Manager and shall be tabled and ratified at the EMC

- **Monitoring of sewage and stormwater systems**

A monitoring system shall be established on site by the Environmental Manager to assess water discharge conditions (sewage, concrete water effluent, stormwater, etc.) as stipulated by the water use license as well as any conditions or standards required by or in accordance with the local municipality's regulations. Violation of these standards shall be a cause for the Site Director to order the suspension of all effluent discharges, until such time that a suitable solution has been implemented.

- **Monitoring of dust in the atmosphere**

A scientifically based dust monitoring programme must, as a minimum, include a schedule for dust suppression (spraying), speed limits for vehicles on unpaved roads, location and treatment of material stockpiles, the minimisation of the area disturbed at any one time and protection of exposed soil against wind erosion and a reporting mechanisms and action plan in case of excessive wind and dust conditions.

Dust measurement will be only be required at those portions of the working area where working is actively occurring. Removable dust collectors, mounted at a height of 2 meters above ground, shall be used of this, the exact number and position to be decided in consultation with the ECO and Site Environmental Manager. As a minimum, at least four dust monitors should be positioned on the perimeter of the site. Dust shall be collected on a weekly basis from the dust collectors and the dust fallout shall be calculated according to the formula: *Fallout = M/ (AxD),* where M= mass of dust sample, A= area of opening dust collector and d= number of days over which sample was collected. Should fallout exceed standards set in SANS1929:2005 then the Contractor shall cease with the operation**s** that are causing the dust until such time as remedial measures have been put in place to ensure that dust levels are within the specified limit. Records of all dust level measurements shall be kept for the duration of the construction period, and where necessary, will be discussed at and made available to the EMC.

2.4. Non-Compliance and Corrective Action

The monitoring of the construction of the power station may identify non-compliances to the EMP. Non-compliances may also be identified though incidents, emergencies or complaints.

In order to correct these non-compliances, the source must be determined and corrective actions must be identified.

2.4.1. Compliance with the Environmental Management Plan Environmental Specifications, Environmental Method Statements and/or Record of Decision conditions

- The EMP will be available on-site at all times.
- All employees on-site will abide by the requirements of the EMP.
- Any members of the construction workforce found to be in breach of any of the specifications contained within the EMP may be ordered by the Site Director to leave the site. The order may be given orally or in writing. Confirmation of an oral order will be provided as soon as practically possible, but the absence of a written order will not be cause for an offender to remain on site.
- The Contractor will not direct a person to undertake any activity which would place them in contravention of the specifications contained within the EMP.
- Should the Contractor be in breach of any of the specifications contained in the EMP, the Site Director will, in writing, instruct the Contractor responsible for the incident of non-compliance regarding corrective and/or remedial action required, specify a timeframe for implementation of these actions, implement a penalty and/or indicate that work will be suspended should non-compliance continue.
- The Environmental Monitoring Committee (EMC) must report to the Director-General of the DFFE on a quarterly basis, insofar as project compliance to the condition of this Record of Decision, environmental legislation and specific mitigation requirements as stipulated in the Environmental Impact Report (EIR) and the Environmental Management Plans is concerned. The report should be sent to the
- Director: Environmental Impact Evaluation (EIE) as well.
- The applicant must notify the DFFE, in writing, within 24 hours thereof if any condition of the ROD authorisation cannot, or is not, adhered to. The notification must be supplemented with reasons for non-compliance.
- Departmental officials will be given access to the property referred to in the ROD authorisation for the purpose of assessing and/or monitoring compliance with the conditions contained in the ROD, at all reasonable times.
- Records relating to monitoring and auditing must be made available for inspection to any relevant authority in respect of this development.

The DFFE reserves the right to monitor and audit the development throughout its full life cycle to ensure that it complies with the RoD conditions, as well as mitigation measures in the final Environmental Impact Report (EIR), addendum report to the EIR and the construction EMP.

2.5. Documentation and Reporting

The following documentation must be kept on site by the Environmental Control Officer in order to record compliance with the EMP:

- Record of Complaints
- Monitoring Results
- Notification of Emergencies and Incidents.
- Any other documentation as required by the Record of Decision

In addition, the Environmental Officer shall maintain records to demonstrate compliance to the Environmental Specifications and Environmental Method Statements. The Contractor shall ensure that all records of spills, pollution incidents, spot fines, training details, etc. are copied to the ECO for his/her records. All documents shall be open for inspection by the ECO.

The Site Director may identify a Contractor that is best implementing the Environmental Specifications and Environmental Method Statements and may periodically award or acknowledge, that Contractor.

Spot fine shall be imposed by the Site Director or his representative on the Contractor if the Contractor is found to be infringing on this Specification. The Contractor shall be advised in writing of the nature of the infringement and the amount of the spot fine.

The Contractor shall determine how to recover the fine from the relevant person and/or sub-contractor and/or supplier. The Contractor shall also take the necessary steps (e.g. training) to prevent a recurrence of the infringement and shall advise the Site Director accordingly.

The imposition of spot fines does not replace any legal proceedings the local authorities, environmental authorities and/or members of the public may institute against the Contractor.

Spot fine amounts shall be guided shall guided by values in the project specific rewards and discipline procedure (Procedure no: 200.11984 Rev 1), depending on the severity of each infringement. The decision on how much to impose will be made by the site director in consultation with the ECO, and will be final. In addition to the spot fine, the Contractor shall be required to make good any damage caused as a result of the infringement at his own expense to the satisfaction of the ECO.

The values set for spot fines, depending on the severity of each infringement as contained in the project specific rewards and discipline procedure (Procedure no: 200.11984 Rev 1), must be submitted to the Department for review and approval.

A preliminary list of infringements for which spot fines will be imposed is as follows:

- Moving outside the demarcated site boundaries
- Littering of the site and surrounds
- Burying waste on site and surrounds

- Smoking in the vicinity of fuel storage and filling areas and in any other areas where flammable materials are stored/used.
- Making fires outside designated areas
- Defacement of natural features
- Using the veld for ablution purposes
- Spillage onto the ground of oil, diesel, etc.
- Picking/damaging plant material
- Damaging/killing wild animals
- Additional fines as determined by the Site Director and added to this list

Receipts for fines paid shall be issued, and the appropriate documentation retained, by the Site Director. Money "raised" through fines may be used to fund environmental/social projects and initiatives (to be decided on by the ECO in conjunction with Site Director).

2.5.1. Environmental Register

The Contractor will report environmental incidents involving Contractor employees and/or the public:

- The contractor will develop a risk-ranked environmental impact and aspects register pertaining to all the activities to be conducted and update this on a monthly basis.
- Report environmental incidents involving Contractor employees and/or the public
- Report environmental complaints and correspondence received from the public to the Environmental Control Officer.
- Record and report incidents that cause harm or may cause harm to the environment to the Environmental Control Officer.
- Record all hazardous materials used on site.
- Maintain a record of all Hazardous Waste Disposal Manifests detailing the nature of the hazardous waste disposed of, the hazardous waste classification and the location of the site to which such waste was sent.

The above records will form an integral part of the Contractors' Records. These records will be kept with the EMP, and will be made available for scrutiny if so requested by the Project Manager or his delegate and the Environmental Control Officer.

The Environmental Control Officer will put in place an Environmental Register to document:

- All environmental complaints and correspondence received from the public, Eskom or the construction workforce.
- Incidents of non-compliance with the EMP.

- Any other environmental incidents related to the construction phase of the project.

The Environmental Control Officer will ensure that the following information is recorded for all complaints/incidents:

- Nature of complaint/incident.
- Causes of complaint/incident.
- Party/parties responsible for causing complaint/incident.
- Immediate actions undertaken to stop/reduce/contain the causes of the complaint/incident.
- Additional corrective or remedial action taken and/or to be taken to address and to prevent reoccurrence of the complaint/incident.
- Timeframes and the parties responsible for the implementation of the corrective or remedial actions.
- Procedures to be undertaken to be applied if corrective or remedial actions are not implemented.
- Copies of all correspondence received regarding complaints/incidents.

2.6. Public Communication and Liaison with I&APs

Eskom must ensure that the public and surrounding communities are informed and updated throughout the construction phase, or as and when specific issues arise. An appropriate method of communication shall be decided upon by the Project Manager and be managed by the communications department. This could be done through media articles in the local press as well as having representatives attend local meetings.

2.7. (Lephalale) Environmental Monitoring Committee

According to RoD condition 3.2.2.1, this development has been authorised “on condition that the developer establishes an EMC with clear terms of reference”.

The purpose/terms of reference of the EMC is to execute the following:

- To monitor and audit project compliance to the condition of this Record of Decision, environmental legislation and specific mitigation requirements as stipulated in the Environmental Impact Report (EIR) and the Environmental Management Plans
- To make recommendations to the Director-General on issues related to the monitoring and auditing of the project
- The EMC shall decide on the frequency of meetings should a need arise to review the prescribed frequency. This change should be communicated to the department (DFFE) for acceptance.

According to RoD condition 3.2.2.2, the EMC shall consist of, amongst others, the following members:

- An independent chairperson who has appropriate people and project management skills, to be appointed by the EMC

- The ecologist that participated in the EIA process or any other suitably qualified and experienced ecologist approved for this purpose by the department
- Two representatives of the public: one community member from Marapong and one from Lephalale
- The Environmental Control Officer (ECO)
- A senior Site Director

2.7.1. Functional Aspects

- The EMC must meet on a quarterly basis from the inception of the project. These meetings should be coordinated, facilitated and chaired as per agreement by the EMC members.
- The EMC must report to the Director-General of the Department of Environmental Affairs on a bi-monthly basis (or possibly the Director: EIE), and the report must deal with matters as specified in the purpose/terms of reference of the EMC.
- All costs associated with the EMC during the construction phase shall be borne by Eskom Enterprises Division.
- In addition to the purpose of the EMC as set-out above, the TOR for the EMC must clearly set out roles and responsibilities related to logistical arrangements, administration and financial arrangements associated with the EMC.
- Upon completion of construction, the role, responsibilities and constitution of the EMC shall be re-considered and re-established with new terms of reference for the operational phase of the development.

3. ENVIRONMENTAL GUIDELINES, STANDARDS AND PERMITS

3.1. Legal Summary

The following is a summary of the applicable environmental legislation for the establishment of the new Coal-fired Power Station and associated infrastructure.

The detailed summary has been included in Appendix C. It should be noted that applicable legislation and regulations may not be limited to this summary.

APPLICABLE LEGISLATION **ALREADY IN EFFECT AT DATE OF THIS EMP**
National Legislation
Constitution of South Africa (Act No. 108 of 1996)
Environment Conservation Act (Act No. 73 of 1989)

APPLICABLE LEGISLATION **ALREADY IN EFFECT AT DATE OF THIS EMP**
National Environmental Management Act (Act No. 107 of 1998)
National Heritage Resources Act (Act No. 25 of 1999)
Hazardous Substances Act (Act No. 15 of 1973)
Occupational Health and Safety Act (Act No. 85 of 1993)
National Road Traffic Act (Act No. 93 of 1996)
Atmospheric Pollution Prevention Act (Act No. 45 of 1965)
National Water Act (Act No. 36 of 1998)
Conservation of Agricultural Resources Act (act No. 43 of 1983)
National Veld and Forest Fire Act (Act No. 101 1998)
Health Act (Act No. 63 of 1977)
National Environmental Management: Air Quality act (Act No. 39 of 2004)
National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
National Environmental Management: Waste Act (Act No. 59 of 2008)
National Forest Act (act No. 84 of 1998)
Protection Act (Act 71 of 1962)
Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (No 36 of 1947).
Explosives Regulations, 2002 as published in Government Gazette No. 24272

* Please keep in mind that all local bylaws must also be adhered to.

3.2. Environmental Guidelines and Standards

All applicable environmental standards contained within environmental legislation will be adhered to. Where there is no applicable local standard, international best practice will be followed, in consultation with the ECO and Environmental Manager.

3.2.1. Local and International Ambient Air Quality Guidelines and Standards

All conditions contained in any permit/licence issued under the Atmospheric Pollution Prevention Act (Act No. 45 of 1965) and the National Environmental Management: Air Quality act (Act No. 39 of 2004 with regard to air quality will be adhered to.

3.2.2. Blasting Regulations and Standards

Wherever blasting activity is required on the site, the Contractor will rigorously adhere to the relevant statutes and regulations that control the use of explosives. These regulations include *inter alia* the regulations as laid out in the Explosives Regulations, 2002 as published in Government Gazette No. 24272 on 17 January 2003.

3.2.3. Control of Alien Vegetation

In terms of Government Notice R1048, the following regulations are applicable with regards to the control of invasive alien vegetation and declared weeds:

- It is illegal to have declared weed species or invasive alien vegetation on one's property.
- The landowner must immediately take steps to remove alien vegetation as per Conservation of Agricultural Resource Act, namely:
    - Uprooting, felling or cutting;
    - Treatment with a weed killer that is registered for use in connection with such plants in accordance with the directions for the use of such a weed killer;
    - The application of control measures regarding the utilisation and protection of veld in terms of regulation 9 of the Act;
    - The application of control measures regarding livestock reduction or removal of animals in terms of regulations 10 and 11of the Act;
    - Any other method or strategy that may be applicable and that is specified by the executive officer by means of a directive.

According to the Conservation of Agricultural Resource Act (No. 43 of 1983) as amended, the person applying herbicide must be adequately qualified and certified as well as registered with the appropriate authority to apply herbicides.

- One may not uproot or remove such plants and dump or discard them elsewhere to re-grow or allow their seeds to be spread or blown onto other properties.
- If the landowner does not comply with requirements above, a person may be found guilty of a criminal offence.

For further detail about the management of the alien vegetation on site refer to section 4.12.4.

3.2.4. Waste Disposal

As far as possible, waste should be avoided, reduced, re-used and/or recycled. Where this is not feasible, all waste (general and hazardous) generated during the construction of the power station may only be disposed of at appropriately licensed waste disposal sites (in terms of Section 20 of the Environment Conservation Act, No 73 of 1989 and in accordance with the new waste act: National Environmental Waste Management Act 2008).

3.2.5. Noise Control Regulations

The National Noise Control Regulations (NCR) of the Environment Conservation Act (No 73 of 1989), Government Notice No. R55 of 14 January 1994, apply for this project.

3.3. Environmental Permitting Requirements

Environmental permits, which will be required to be obtained for construction and operation, are discussed briefly below. These will be required to be obtained before construction commences.

3.3.1. Protected Plants

In terms of the National Forest Act (No 84 of 1998) and Government Notice 1339 of 6 August 1976 (promulgated under the Forest Act (No 122 of 1984) for protected tree species), the removal, relocation or pruning of any protected plants will require a permit.

Protected indigenous plants in general are controlled under the relevant Provincial Ordinances or Acts dealing with nature conservation, i.e. Limpopo Environmental Management Act (No 7 of 2003, Schedule 12)., in which the legislation regarding the plant species on the Red Data list is included.

Due to the fact that protected plants were identified on site during the impact assessment, the above regulation will be applicable. The protected plants found on site are listed in Table 3.11.

Table 3.11: Protected plants found on site

Botanical Name	Family	English Name	Afrikaans name
Acacia erioloba	Mimosaceae	Camel thorn	Kameeldoring
Adansonia digitata	Bombacaceae	Baobab	Kremetart
Boscia albitrunca	Capparaceae	Shepherd's tree	Witgat
Sclerocarya Birrea	Anacardiaceae	Marula	Moroela
Spirostachys Africana	Euphorbiaceae	Tamboti	Tambotie
Combretum imberbe	Combretaceae	Leadwood	Hardekool

3.3.2. Abstraction of Water

Water for construction activities is to be supplied via a pipeline from the existing Matimba Power Station. A water use authorisation from DWS in terms of Section 21, 40 and 41 of the National Water Act (No 36 of 1998) has already been obtained.

3.3.3. Heritage Sites

In terms of the National Heritage Resources Act (No 25 of 1999), a permit is required to be obtained for the disturbance, removal or destruction of any national and provincial heritage sites, archaeological and palaeontologic sites, burial grounds and graves and public monuments and memorials.

3.3.4. Public Health

Appropriate ablution facilities must be approved by the nearest local authority in terms of their by-laws and relevant provincial standard by-laws. These facilities do not fall under provisions of the National Water Services Act (No 108 of 1997). The appropriate provisions of the Occupational Health & Safety Act must also be complied with as well as requirement stipulated by the Site Director.

3.3.5. Traffic and Transport

- Abnormal Load Permit Application

A permit to transport abnormal loads in terms of the National Road Traffic Act, 1996 (Act No. 93 of 1996 will be required by the relevant Contractor.

The critical part of the Abnormal Load Route Permit application is the survey of the prospective route by a qualified structural engineer/transport engineer who needs to examine all the bridges/overpasses/underpasses and issue a certificate of compliance for the particular vehicle type/width/length and height.

- Transport of hazardous materials

The handling and transportation of hazardous substances must comply with all the provisions of the Hazardous Substances Act, (Act No. 15 of 1973) as well as SANS 10228 and SANS 10229

4. CONSTRUCTION ACTIVITIES

4.1. Contractor Selection and Performance

- The Medupi Environmental Team shall be involved in tender selection to ensure that potential Contractors demonstrate compliance with the RoD, EMP and relevant environmental legislation and project specific environmental specifications.

- Eskom and the Contractor will ensure that the EMP is complied with during the execution of this project.

- The Medupi Environmental Team as well as the Environmental Control Officer must monitor the performance of the Principal Contractors from time to time to ensure compliance with the requirements of this EMP.

4.2. Legal and Other Requirements

- Compliance with the relevant provisions of the applicable environmental legislation and associated regulations promulgated

4.2. Social Interaction

- All construction activities must take place within the demarcated footprint. If it is necessary for activities to take place outside of this area, permission must be obtained from the relevant authorities.

4.3 Labour

- Night-time activities must be limited as far as possible, and when necessary to engage in these, the EMC must be informed accordingly.

- The local authorities must be consulted and a written permission obtained from them, should this become a recurring/regular practice.

4.4. Employment

4.4.1. Local Preference

- Contractors are not permitted to employ casual job seekers outside the confines of the agreed channels. The proper channels for the employment of labour are contained within the Project Labour Agreement (PLA) and are to be strictly adhered to.

4.5. Safety and Security

In terms of RoD condition 3.2.8.2, all provisions of the Occupational Health and Safety Act, 85 of 1993, and any other applicable legislation, must be adhered to by the holder of this authorisation. In terms of condition 3 (iv) ("General Conditions"), the applicant/holder "shall be responsible for ensuring compliance with the conditions contained in this RoD by any person acting on his behalf, including but not limited to, an agent, servant, employee or any person rendering a service to the applicant in respect of the activity, including but not limited to, contractors and consultants."

Please refer to Appendix D for the Health, Safety and Environmental Specification for Medupi Power Station.

Please refer to Section 4.9. of the employer's policies and procedures 'SHE requirements schedule'.

4.6. Hazard Risk and Emergency Response

In terms of RoD condition 3.2.8.2, all provisions of the Occupational Health and Safety Act, 85 of 1993 and the National Veld and Forestry Fire Act, must be adhered to by the holder of this authorisation. In terms of condition 3 (iv) ("General Conditions"), the applicant/holder "shall be responsible for ensuring compliance with the conditions contained in this RoD by any person acting on his behalf, including but not limited to, an agent, servant, employee or any person rendering a service to the applicant in respect of the activity, including but not limited to, contractors and consultants."

- The contractor will develop a risk-ranked environmental impact and aspects register pertaining to all the activities to be conducted and update this on a monthly basis.

- The contractor will develop and submit an emergency response procedure which must be accepted by the Medupi Environmental Team and ECO.

4.7. Fire Control

In terms of RoD condition 3.2.8.2, all provisions of the Occupational Health and Safety Act, 85 of 1993 and the National Veld and Forestry Fire Act, must be adhered to by the holder of this authorisation. In terms of condition 3 (iv) ("General Conditions"), the applicant/holder "shall be responsible for ensuring compliance with the conditions contained in this RoD by any person acting on his behalf, including but not limited to, an agent, servant, employee or any person rendering a service to the applicant in respect of the activity, including but not limited to, contractors and consultants."

The Project team will compile a Fire Management Plan (FMP) and Contractors directed by the ECO will submit a FMP. The Project FMP shall be approved by local Fire Protection Association, and shall include *inter alia* aspects such as relevant training, equipment on site, prevention, response, rehabilitation and compliance to the National Veld and Forest Fire Act, Act No. 101 1998. This FMP should form part of this EMP as required by ROD condition 3.2.3.1.

4.8. Site Establishment and Management

4.8.1. Construction Site Layout Plan

A construction layout plan has been developed, indicating the intended use of the site. It includes inter alia the following:

- The extent of the power station construction area.
- Site access during construction (including all entry and exit points).
- Construction laydown areas/contractors' yards

Please refer to Appendix E for the construction layout plan.

In addition, the following will be indicated by the Contractor:

- All material and equipment storage areas (including storage areas for hazardous substances such as fuel, cement and herbicides).
- Construction offices and other structures.
- Security requirements (including temporary and permanent fencing and lighting) and security buildings and control points.
- Areas where vegetation is required to be cleared.
- Areas where material is to be stockpiled (including construction materials and topsoil).
- Solid waste collection facilities.
- Temporary construction phase stormwater control measures.
- Areas which require slope stabilisation during construction.
- Provision and management of potable water and temporary sanitation and ablution facilities for construction personnel.

The construction area must be clearly demarcated on the site plan, and all other areas must be considered no-go areas for the construction personnel.

Only areas designated by Site Director in consultation with the ECO may be used for the storage of construction material, topsoil, machinery, equipment and establishment of site offices.

4.8.2. Environmental Specification: Contractors' Yards

All contractors' yards on-site will be established, maintained and managed in accordance with the applicable Environmental Method Statements. In addition to this, the following contactors' yard environmental specification shall be adhered to:

Please refer to Appendix E for a general layout of various contractors' yards onsite.

The Contractor will produce a layout plan showing the positions of all buildings, vehicle wash areas, fuel and cement storage areas and other infrastructure for approval of the Site Director. If possible, it is considered preferable to locate the contractors' yards as close as possible to the construction site.

Please refer to the updated site layout through the doc control system.

Construction staff must be adequately educated by either Eskom or the Contractor (in the case of contractors' employees) as to the provisions included in the EMP and general environmentally friendly practice.

The conduct of on-site workers must be specified to the Contractor by Eskom. Specifications are to include sanitation, water and waste (litter), as well as informal trading and interfering in local community/cultural affairs. The following activities must be prohibited at contractors' yards and by the construction staff in general and are to be communicated during the induction process and toolbox talks:

- The irresponsible use of welding equipment, oxyacetylene torches and other naked flames which could result in veld fires or constitute a hazard.
- Indiscriminate disposal of rubbish or rubble.
- Littering on site.
- Spillage of potential pollutants, such as petroleum products.
- Collection of firewood, unless authorised by the Site Director.
- Lighting of fires for cooking, heating or other purposes outside designated areas, and failure to exterminate any fires.
- Burning of general waste material under any circumstances, unless done in an on-site licensed smokeless incinerator.
- Burning of cleared vegetation under any circumstances.
- Interference with any wildlife, fauna or flora.
- Poaching of any description.
- Use of any ablution facility other than those provided.
- The use of rivers, streams, dams or any watercourses/surface water for washing purposes.

Entering areas outside of the demarcated construction area without relevant permissions.

An Environmental Method Statement on the operation and maintenance of the various contractors' yards will be submitted to the Site Director by the relevant contractors 30 days after Contract award.

4.8.3. Environmental Specification: Site Management

Element	Management Plan
Controls	• The Contractor must take responsibility for the camp to conform to all contractual aspects and environmental standards applicable. This includes aspects related to stormwater management and waste management. • The Contractor must provide adequate refuse bins that must be cleaned/emptied and the waste removed from site on a regular basis. • The construction camp must be kept neat and tidy at all times. • Water sources/taps available for drinking water etc. must be pointed out by the ECO. It is not advisable that a contractor makes use of or collects water from any other source other than those pointed out to them as being suitable for use. • Food preparation must only be done in areas designated by the ECO. • Smoking will only be permitted in designated areas where the appropriate safety equipment is available. This will include a sand bucket for depositing stubs and a fire extinguisher.

4.8.4. Site Access

Element	Management Plan
Controls	• Access in and out of the site will be controlled by the Project and main access must be allowed only at one point to minimise impacts during construction. • All areas of construction activity will be fenced by the Contractor prior to establishment/ construction, unless authorisation to the contrary is given by the Project Manager. Fencing will be completed around individual areas of construction and around the full perimeter of the site. • Site access and the control thereof must be incorporated in the traffic management plan, to be compiled and submitted to the ECO and Site Director, by the Project and Principal Contractors for approval.

4.8.5. Environmental Specification: Site Clearing

4.8.5.1. Removal of rare, endemic or endangered species

An ecological specialist shall provide input into site clearance. Endemic, rare or endangered species will be removed prior to site clearance.

Element	Management Plan
Controls	• The size of areas subjected to land clearance will be kept to a minimum. • Only areas as instructed by the Site Director must be cleared and grubbed. • Cleared vegetation debris which has not been utilised will be collected and disposed of to a suitable waste disposal site. It will not be burned on site. • No vegetation will be cut or collected off construction sites for burning or for any other purpose without the prior permission of the Site Director. • All vegetation not required to be removed will be protected against damage. • The use and storage of chipped vegetation for Project, mine, ash dump and other rehabilitation must be investigated, and if found to be practicable, should be implemented as such.

Wood can be offered to people working on site with permission from the Site Director

4.8.6. Environmental Specification: Plant Repair, Maintenance & Cleaning

Element	Management Plan
Controls	• Vehicle maintenance and repairs will only be conducted in designated areas (contractors workshops) approved by the ECO. • Emergency repairs may be carried out if the environmental impact of moving the vehicle to a more suitable location is considered greater than that posed by conducting repairs in situ. • No vehicle maintenance and repairs will be undertaken within a 30m radius of any water courses and drainage lines. Any facilities susceptible to oil, petrol and diesel spillage will be located a minimum of 30m and preferably 50m from all water courses. Suggest to remove as there are no water courses on site. • Repair yards, batching plants and stationary machines will be provided with sumps, and spilled fluids and runoff will be kept in a holding structure/tank until removed from the site in terms of the relevant legislative requirements. • Adequate collection facilities such as diversion mounds, ditches, drains, oil separation sumps and sedimentation ponds will be constructed at each location with a pollution potential. • All repairs will only be done in bunded areas and in cases were a vehicle had a breakdown and cannot get to the bunded area, drip trays must be used, and the owner of the vehicle has to ensure that a drip tray and spill kit is available on the vehicle in use. • Regular inspections will be carried out to detect leaks and spillages. These facilities will be maintained as regularly as is necessary to ensure they meet the original specification.

An on-site spill response team, equipped with the necessary spill response/control equipment, must be created by all relevant parties, with the explicit task of cleaning-up all spills on-site.

4.9. Noise

The following mitigation measures are applicable prior to the start of construction:

- During this phase, consideration must be given to the noise mitigating measures required during the construction phase and which should be included in the tender document specifications and the design.

Element	Management Plan
Potential Impact	Nuisance noise from construction and commissioning activities affecting the

Element	Management Plan
	surrounding areas
Sources	• Site preparation and earthworks • Construction related transport • Foundations and plant equipment installation • Building activities • Plant steam cleaning activities • Commissioning activities
Controls	• Noise control measures must be implemented. All noise levels must be controlled at the source, where possible. • Affected parties must be informed of any excessive noise factors. • An appropriate speed restriction will be imposed on all construction vehicles on site, in order to limit additional noise generated by these vehicles. • Contractors' yards, concrete batching plants, asphalt batching plants, and other noisy fixed facilities should be located well away from noise sensitive areas adjacent to the development site. • In general operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No 85 of 1993). • In terms of the South African National Standards Code 10103: 2004, the acceptable average ambient noise levels for a rural area (such as where Medupi is being built) during daytime (06h00 – 22h00) and night-time (22h00 – 06h00) are 60dBA and 60 dBA respectively. • Eskom will ensure that the noise levels exceedances are determined, and that appropriate noise mitigation measures are implemented, eg. Hearing protection. • All noise measurements must be done in accordance with the SANS Code 10103: 2004 "The measurement and rating of environmental noise with respect to land use, health annoyance and speech communication."
Maintenance	All construction equipment must be maintained in good working order. **Standard silencers on construction equipment will be maintained to**

Element	Management Plan
	ensure no deterioration in noise dampening capacity.
Monitoring	Noise monitoring conducted following commissioning to ensure noise levels meet specified levels. Pure and Impulsive tones must be monitored.
Corrective actions	The Contractor will respond timeously in the event of any complaints by local residents or others about disturbing noise. The noise source will be identified and appropriate noise mitigatory measures instituted in consultation with the affected party (ies).

4.10. Aesthetics

Due to the size of the facility, it is not considered a viable option to shield the plant from the observer but to rather implement measures to shield the observer from the plant. The strategic placement of the power station is the first level of visual impact mitigation. The placement must occur with utmost care and sensitivity towards potential observers and must address both primary and secondary associated impacts.

Element	Management Plan
Potential Impact	The negative visual impact of the construction of the power station on surrounding communities.
Sources	• Power station construction site • Roadways • Associated construction equipment and vehicle movement
Controls	• The strategic placement/orientation of the Power Station. • Careful planning and sensitive placement of light fixtures and the fitment of covers and shields designed to contain rather than spread light. • The use of vegetation in order to screen the observer from the power station. • Damage to the natural environment must be minimised. • Trees and tall woody shrubs must be planted to provide a natural visual shield. Excavated material must not be placed on such plants and movement across them must not be allowed, as far as practical. • No painting or marking of natural features must be allowed. Marking for surveying and other purposes must only be done with pegs and

Element	Management Plan
	beacons. • Avoid over use of contrasting and bright colours when painting the Power Station. • All lighting where practical, must be "down" to minimise the visual impact of the facility at night. Lighting must be directed towards the areas they are supposed to illuminate. • The minimum amount of lighting must be used.
Monitoring	Timely maintenance of the Power Station, ancillary infrastructure and general surrounds of the property (i.e. gardens, access roads etc.).
Corrective actions	If a visually intrusive component of the site is identified, procedures must be altered or updated to ensure effective management.

4.11. Vegetation

4.11.1. Environmental Specification: Vegetation clearing and disposal of vegetative material

All vegetative matter will be physically removed from all areas where construction is to take place. Harvesting of any medicinal plants that may occur on site, must occur prior to site clearance – please refer to Appendix F for a list of all medicinal plants identified on-site. A detailed survey of the vegetation in the area has been undertaken by a qualified horticulturist and all the trees and other protected plant species on-site have been recorded, their positions established by Global Satellite Positioning and appropriately marked. The appropriate permit/s must be obtained from the Provincial Department of Conservation in the event that protected plants need to be relocated. All cleared areas will be stabilised as soon as possible in order to minimise the risk of erosion.

Appendix G's Annexure A (Register of Trees) lists all the trees, their GPS coordinates and other information

In terms of the Environment Conservation Act (No 73 of 1989), the disposal of vegetation by burying or burning is prohibited. The use of herbicides will only be allowed after a proper investigation into the necessity, the type to be used, the long term effects and the effectiveness of the agent. Herbicides will only be used in accordance with legal and other requirements.

The Contractor will ensure:

- The areas needing to be cleared and the degree of clearing required must be determined and demarcated in consultation with the ECO before clearing begins.
- The Contractor may not deface, paint or otherwise mark and or damage natural features / vegetation on the site, unless agreed beforehand with the ECO. Any features / vegetation defaced by the Contractor must be restored to the satisfaction of the ECO.

- The ECO must be present during vegetation clearing.

Plant search and Rescue:

- Plant search and rescue (i.e. the location and removal of specified plant species, without unnecessary damage, and their transfer to a specified location) and the collection of seed, will be conducted prior to the onset of any site clearing operations, should the detailed survey indicate this to be necessary.

- Sensitive areas and/or species that have been selected for conservation by the ecologist or ECO will be demarcated with danger tape/hazard tape. No activity will take place at these areas.

Specific Recommendations:

- remove and relocate the single Adansonia digitata individual present on Naauwontkomen (S23.70484° and E27.56224°) (could be utilised in landscaping);

- remove, relocate, protect and utilize as many of the other protected tree species as possible, preserving existing integrity of natural vegetation;

- contain all construction and operational activities within the boundaries of the specified areas;

- utilise trees that normally grow to extensive heights for screening effects;

- implement a collection and re-establishment programme of bulbs and geophytes for rehabilitation purposes;

- contain human movement and activities within the construction camp in order to prevent peripheral impacts on surrounding natural habitat.

Appendix G's Annexure B (General Specification for Replanting Trees) outlines the steps that need to be taken when especially large trees are transplanted.

Annexure B should be read in conjunction with Annexure A, as well as Annexure C (General Specification for the care of Replanted Trees) and Annexure D (Specific Requirements for Trees at Medupi site).

4.11.2. Protection of Vegetation

- All provisions of the National Environment Management: Biodiversity Act, Act 10 of 2004, must be adhered to.

- The Contractor will ensure that all works are undertaken in a manner, which minimises the impact on vegetation outside of the site area as designated in the construction site layout. However, it may be necessary in certain instances to remove or prune vegetation outside of the development in order to prevent possible damage to the facilities. This must be undertaken in consultation with the Site Director/Environmental Control Officer. In general, protection of indigenous vegetation where such is not affected by the physical footprint of the power station or ancillary infrastructure and associated construction works must be ensured.

4.11.3. Threatened and/or Protected Plant Species

This is to be dealt with in accordance with 4.11.2 above.

4.11.4. Environmental Specification: Removal of Alien Vegetation

Monitoring the potential spread of declared weeds and invasive alien vegetation to neighbouring land and vice versa and protecting the agricultural resources and soil conservation works are regulated by the Conservation of Agricultural Resources Act (No 43 of 1983) and must be addressed on a continual basis, through an alien vegetation control and monitoring programme.

In view of the fact that the presence of declared weeds is illegal, it is recommended that the landowner/manager comply with the following legally prescribed requirements (refer to Sections 1, 2, 5 and 6 of the Conservation of Agricultural Resources Act (No 43 of 1983), as well as government notice GN R1048):

a) The landowner/manager must take steps to eradicate the declared weeds by using the methods prescribed in the regulations, namely:

- Uprooting, felling or cutting;
- Treatment with a weed killer that is registered for use in condition with such plants in accordance with the directions for use of such a weed killer;
- The application of control measures regarding the utilisation and protection of veld in terms of regulation 9 of the Act;
- The application of control measures regarding the livestock reduction or removal of animals in terms of regulations 10 and 11 of the Act;
- Any other method or strategy that may be applicable and that is specified by the executive officer by means of a directive.

b) One may not uproot or remove such plants and dump or discard them elsewhere to re-grow or to allow their seeds to be spread or blown onto other properties.

c) If the landowner/manager does not comply with the requirements under a) and b) above, he/she is guilty of a criminal offence.

The Contractor will remove all alien vegetation on the site as listed in the Conservation of Agricultural Resources Act (No 43 of 1983), as directed by the Environmental Control Officer during the construction period.

An alien control and monitoring programme must be developed during the construction phase and to be carried over into the operational phase. The following elements could be included in such a programme:

- The active control of all alien invasive species by means of manual removal, ring-barking, chemical control or a combination of these methods.
- The bigger trunks and branches must be removed while the smaller branches can be used as a soil stabiliser against wind erosion in exposed areas, while providing micro-habitat for seedling establishment.

- Rehabilitation of the cleared areas, starting with the establishment of a grass cover and phasing in the re-establishment of bushveld vegetation.
- All emergent seedlings must be removed by hand and re-sprouting from existing rootstock must be chemically treated in a continual monitoring and follow-up programme.
- The Control of Alien invasive species will be an ongoing process, especially if the source of invasion is not removed.

If properly planned and motivated this could serve as a trade-off programme with the potential of attracting external funding (e.g. Working for Water and/or Extended Works Programme). The method used for clearing of alien plants must include a full long-term alien eradication programme. The mature woody plants can be cut down to knee height and herbicide must be applied to all exposed surfaces (a dye must be mixed with the herbicide to assist with identifying plants where it has been applied). All alien plant material must then be removed from site to reduce seeds from spreading. All seedlings, young plants and forbes can be removed by hand, ensuring that roots are removed with the plant. Follow-up clearing must be implemented following the initial alien removal (after approximately two months), to eradicate all the seedlings that will germinate following the removal of the mature specimens. Follow-up clearing must be required on an annual basis to prevent the aliens from re-establishing (Bromilow, 2001).

A detailed Environmental Method Statement on the control of alien vegetation, i.e. a Management Plan for Alien Vegetation Eradication, shall be compiled by the Project Team Environmental Manager, directing the Contractor as to how to deal with this issue.

4.11.5. Herbicide Use

The use of herbicides will be in compliance with the Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (No 36 of 1947). In terms of this Act, a registered pest control operator will apply herbicides, or will supervise the application of herbicides. Herbicide use will only be allowed with the approval of Eskom. The application will be according to set specifications and under supervision of a qualified technician.

Therefore, the Contractor will:

- Ensure that a registered pest control operator applies or supervises the application of all herbicides.
- Ensure that all Eskom policies on the use and application of herbicides will be adhered to.
- Ensure that all herbicides are stored in a well-ventilated demarcated storage area.
- Ensure that a register of all contents of the storage area is kept and updated on a regular basis.
- Ensure that a daily register of all relevant details of herbicide usage is kept, and that such a register is maintained by the relevant Eskom custodian.

4.12. Environmental Specification: Fauna

Element	Management Plan

Potential Impacts	Impact on both terrestrial fauna and avifauna as a result habitat destruction due to construction activities.
Sources	• Labour • Mobile construction equipment • Traffic to and from site
Controls	• No disturbing, injuring or killing of any fauna (including snakes) for any purposes. • No feeding of wildlife outside formal wildlife management programme. • No domestic animals are to be brought onto site except for purpose of security and rodents/vermin • The construction site will be kept clean and tidy and free from rubbish which would attract animal pest species. • Eskom will advise all employees, contractors and subcontractors of the penalties associated with the needless destruction of wildlife, as set out in the Animals Protection Act (Act 71 of 1962) sec. 2 (fine R2000 and/or 12 months imprisonment). • Allow for free movement of small and medium size mammals on the other side of the fence away from the station and access roads. • Relocate large mammals that are unable to utilise available movement corridors.
Corrective actions	• The Contractor will, as soon as reasonably possible, but within 24 hours of becoming aware of a complaint relating to wildlife interaction, respond to the complaint and register the complaint in the Environmental Register (refer to Section 4.16). In addition, the complaint must be reported to the Environmental Control Officer as soon as possible such that the incident can be investigated by the ECO or Contractor. • As far as possible, in the event that a snake or any other problem animal is encountered, a professional must be called in to remove the problem animal (i.e. the local Nature Conservation Officer).

4.13. Environmental Specification: Heritage

Element	Management Plan
Potential Impacts	Heritage objects or artefacts found on site and inappropriately managed.
Controls	• All relevant legislation regarding the conservation of national heritage sites must be adhered to. • Cemeteries/grave sites should be identified and as far as possible. Alternatively, if that is not possible, mitigation measures can be implemented by relocating the graves.
Maintenance	Awareness of procedures for dealing with heritage objects must be updated where necessary.
Corrective actions	• In the event that any heritage sites are found within the footprint of the power station all work in the vicinity of the find will cease immediately, and the event reported to the Limpopo Province office of SAHRA immediately. • Under no circumstances shall any artefacts be destroyed or removed from the site. • The excavation must be examined by an archaeologist as soon as possible. The ECO will advise the Contractor of necessary actions to be taken after receiving advice from the archaeologist. All necessary actions to ensure that delays to construction are minimised must be taken. • If any human remains are discovered they must be treated with respect and SAHRA notified immediately. An archaeologist/palaeontologist must be contracted to remove the remains at the expense of the developer. • Eskom may need to apply for a permit from SAHRA to destroy the occurrences if they are to be affected by the proposed activities. The provincial archaeologist may at his/her discretion ask that mitigatory work in form of archaeological trial excavations and rescue of archaeological material be conducted by an accredited archaeologist as a condition of such a permit being issued. • Any recommendation from the SAHRA must be included in the construction EMP.

4.14. Air Pollution Management

4.14.1. Air Quality

Element	Management Plan
Sources	• Fuel burning engines • Stack emissions • Emissions from Concrete and asphalt batch plants • Fire
Controls	• Establish a monitoring station at Marapong residential area which will provide actual monitored data with respect to the following gases: SO2, NO2, PM10, PM2.5 and ozone (O3). The air quality monitoring station will be SANAS accredited. Ambient air quality results will be reported to DFFE on a quarterly basis, and reports will include the following: measured concentrations for identified pollutants for the following averaging periods (hourly, daily, monthly, annually); comparisons to applicable legislated air quality standards and a summary of historical trends from the commencement of the monitoring station. • Eskom currently operates a passive monitoring network for SO2 in the area, albeit for research purposes. Eskom is in the process of installing an additional active monitoring station for SOx, NOx and PM10, to be erected at an appropriate location down wind of the station. • Investigate further the technology options which would ensure compliance with ambient air quality standards, and prior to commissioning determine the mitigation measures that may be required. • All activities on-site must comply with the provisions of the Atmospheric Pollution Prevention Act (Act No. 45 of 1965) and the National Environment Management: Air Quality Act, Act 39 of 2004. • Burning of materials including wood, grass and refuse which emit visible smoke will not be permitted on construction sites. • Waste must be disposed, as soon as possible at a municipal transfer station, skip or on a permitted landfill site. Waste must not be allowed to stand on site to decay, resulting in malodours and attracting vermin. • No open fires are to be allowed on site. • Ensure that batching plants are fitted with the appropriate filters. • Power Station equipment must be performance tested during the

Element	Management Plan
	commissioning phase to ensure that the manufacturer's standard has been delivered
Maintenance	The Contractor will ensure that all vehicles and machinery are fitted with appropriate emission control equipment, are maintained frequently and serviced to the manufacturers' specifications.
Monitoring	Initial monitoring undertaken following commissioning to ensure emissions are meeting specified levels.
Corrective actions	• If monitoring results or complaints indicate inadequate compliance with the EMP, the source of the problem must be identified and existing procedures or equipment modified to ensure that the problem is rectified. • Non-compliance with the EMP must be reported to the department, in writing, within 24 hours of an incident.

4.14.2. Environmental Specification: Dust Control

Element	Management Plan
Potential Impacts	Dust and particulates from vehicle usage, excavation, temporary stockpiles and land clearing affecting the surrounding community and site visibility
Sources	• Clearing of vegetation and topsoil • Excavation, grading / scraping and transport of material • Loading and unloading of trucks • Re-entrainment of deposited dust by vehicle movement • Wind Erosion from stockpiles and unsealed roads and surfaces
Controls	• Speed limits must be enforced on-site to limit the levels of dust pollution • Dust must be suppressed on access roads and construction sites during dry periods by the regular application of water or a biodegradable soil stabilisation agent. Water used for this purpose must be used in quantities that will not result in the generation of run-off. • Dust dispersion from construction activities, unsurfaced roads, spoil dumps and other construction locations will be limited and suppressed to the maximum extent practical.

Element	Management Plan
	• Spoil dumps will be positioned such that they are not vulnerable to wind erosion. • Untarred roads will be sprayed with water from a water cart to limit dust generation by construction vehicles. Where spraying of water on roads is not adequate for dust control, environmentally benign binding agents will be used to limit dust generation by construction vehicles. • An appropriate freeboard will be maintained in trucks hauling dirt, sand, soil and other loose material when leaving the road reserve. • Spoil and other dust generating dumps which are left unused for 28 days and longer will be appropriately treated to control dust
Maintenance	• Roads must be sealed as soon as possible and maintained to ensure that dust from road or vehicle sources will not exceed prescribed levels • Any cleared areas must be watered to ensure that dust levels are minimised prior to sealing or revegetation
Corrective actions	• In the event of serious levels of dust pollution, the implementation of constant dust monitoring by qualified consultants must be undertaken at intervals specified by the ECO. • If monitoring results or complaints indicate inadequate compliance with the EMP, the source of the problem must be identified and existing procedures modified to ensure that the problem is rectified

4.15. Environmental Specification: Water Management

All provisions of the National Water Act, Act 36 of 1998, must be adhered to. The management of water and effluent at the new coal-fired power station will be managed according to its own design and operating philosophies. *

4.15.1. Water for Domestic Use

Element	Management Plan
Controls	• The provision of potable water and safe drinking utensils at various points on the site. • Provision of facilities for hand washing at all ablution facilities and near all toilet facilities. • The contractor will submit a Water Management Plan in which measures to ensure that the construction workforce present on the site has access to sufficient portable water and manage water efficiently. • All runoff water from fuel deposits, workshops, vehicles washing areas and other equipment must be collected and directed through oil traps to settlement ponds. These ponds must be suitably lined. These ponds should be cleaned as soon as practicable, and the sludge disposed off at a suitable waste site. • All runoff washing water and changing facilities must not be disposed of directly into drainage lines, streams or rivers. This water should be discharged to sewage in accordance with the municipal regulations.

4.15.2. Water Consumption

Element	Management Plan
Controls	• Create awareness and encourage the construction workforce to use water sparingly such that there is no water wastage. • Ensure that no natural water sources (i.e. streams, rivers) are used for construction activities or for domestic purposes by the construction workforce. • Negotiate the use of water for any purpose with the appropriate authorities and obtain written approval. • The contractor will not make use of/collect water from any other source than those pointed out to them as suitable for use.

4.15.3. Water Pollution Management

Element	Management Plan
Controls	• Ensure that working areas where hazardous substances (such as cement and vehicle fuels) are handled or stored are designed to collect and contain these hazardous substances. • Ensure that no pollution enters surface water or has the potential to pollute groundwater by ensuring that there is containment of spillages (e.g. diesel, oils, etc) and that there is an emergency plan in place to deal with accidental spillage • Ensure that washing of containers, equipment, vehicles and other surfaces only occurs at designated washing areas. • Ensure that sufficient ablution facilities are provided. Adequate numbers and placement of portable chemical toilet facilities at construction sites is crucial to prevent unnecessary pollution of the surrounding environment. • As far as possible, all fuel, chemical, oil, etc spills should be prevented and managed in such a way that that they do not interfere with stormwater and groundwater (referred to as 'clean water'). This can be achieved through the use of appropriate structures and methods such as the construction of bunded areas, berms and pans, or through the application of surface treatments that neutralise toxic effects. • Groundwater quality shall be monitored every three months by Eskom Enterprises Division (during construction), and measures implemented to ensure that pollution of the resource does not occur.

4.15.4. Environmental Specification: Stormwater Management

- Clean water shall be confined to a clean water system, away from any dirty area by constructing the necessary works to divert clean water away from any dirty area
- Any water system at the operations, activities or processes shall be designed, constructed, maintained and operated so that it is not likely to spill into any dirty water system more than once in 50 years.
- Stormwater leaving the Medupi premises shall not be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped or spilled on the premises.
- **The storm water management section will becomes practical once operational phase is achieved. It is currently not practical due to forever changing construction activities. However, Eskom commits to ensure that no storm water leaves the construction sites. Currently, all storm water runoff is captured in the clean and dirty storm water systems, and only released if**

confirmed not to be contaminated. On isolated occasions, the storm water has been used to supplement dust suppression water.

- All run-off water (stormwater) arising as a result of precipitation on dirty areas, or as a result of operational activities, will be considered as water containing waste, and will be contained within the dirty water system
- Uncontaminated water will not be used to dilute water containing waste, but will be diverted to and discharged into the nearest stormwater channel. Please refer to Appendix I for the Medupi stormwater layout.

Element	Management Plan
Controls	• Adequate measures will be put into place to control surface water flows across and around all construction sites. • The quantity of uncontaminated stormwater entering cleared areas will be minimised by appropriate site design and by installation of control structures and drains which direct such flows away from cleared areas and slopes to stable (vegetated) areas or effective treatment installations. • Site drainage lines will be identified and control measures installed to handle predicted stormwater and sediment loads generated in the mini catchment. • The extent of continuous slopes in zones where flowing water is anticipated will be minimised by appropriate design and the installation of control structures. • The velocity of stormwater flows and associated scouring across construction sites will be controlled though the installation of geo-textiles, rock- or other structures.

4.15.5. Environmental Specification: Waste Water

Element	Management Plan
Controls	• A waste/foul water management system shall be designed by CED Engineering and approved by the Site Director. • If the design and operating regime allow for it, all water discharged from the works including effluent from sewage treatment, wash water and stormwater from workshops and refuelling areas, as well as all runoff from areas with pollution potential will comply with national effluent standards. • Plan the layout of wash areas, batching areas and workshops with the following guidelines in mind:

	• Optimise the layout to minimise disturbance to the environment and to neighbours • Concrete slabs must slope towards a conservancy tank so that run-off water can be collected. These tanks must be emptied, at least once a week or when they are 60% full

4.16. Soil Management

4.16.1. Environmental Specification: Handling of Topsoil

Element	Management Plan
Controls	• Topsoil[1] will be sourced from areas which are cleared for construction and spoil dumps, conserved and used judiciously in the rehabilitation of disturbed land. • The Contractor is required to strip topsoil together with grass from all areas where permanent or temporary structures are located, construction related activities occur, and access roads are to be constructed. Topsoil must be stockpiled for later use. • Topsoil stripping will be scheduled for the dry season, as far as possible. • Topsoil is to be handled twice only - once to strip and stockpile, and secondly to replace, level, shape and scarify. • Topsoil must not be compacted in any way, nor should any object be placed or stockpiled upon it. No vehicles may be allowed access onto the stockpiles after they have been placed • As far as possible, topsoil stripped from different sites must be stockpiled separately and clearly identified as such. • Land to which topsoil has been applied will be vegetated as soon as possible after application.
Maintenance	• Stored topsoil will be free of deleterious matter such as large roots, stones, refuse, stiff or heavy clay and noxious weeds which would adversely affect its suitability for planting. • Topsoil which is to be stockpiled for periods exceeding 28 days must be appropriately treated as specified by the ECO to control dust pollution and erosion.

[1] Topsoil is defined as the top layer of soil that can be mechanically removed to a depth of about 100mm without ripping or blasting.

4.16.2. Environmental Specification: Spoil Material

Cutting and filling operation is the preferred method for the construction of the plant terrace at Medupi Power Station. Where applicable though, the following will apply:

Element	Management Plan
Controls	• The location of spoil stockpile sites will be agreed upon by the ECO and the Site Director prior to the onset of any operations that will generate spoil materials. • No spoil material will be dumped outside the defined site. • The Contractor will ensure that the material does not blow or wash away. • If the spoil material is in danger of being washed or blown away, the contractor will cover it with a suitable material such as hessian or plastic. • All cut material will be tested against quality requirements for other works. • If material meets quality requirements for other works it must be taken to the relevant area on instruction of the Site Director • If material does not meet the quality requirements for other works the material must be disposed of at a relevant waste disposal site. • Spoil dumps will be located at least 10 m away from natural drainage lines. • Spoil dumps will be placed wherever practical in topographically sheltered locations to obtain maximum protection from wind exposure. • All spoil dumps assessed as being unstable will be encircled with silt fences or drainage systems that will collect and dispose of contaminated water. • Spoil dumps will have slopes not greater than 1:2 (vertical to horizontal). Less steep slopes will be applied in conditions where erosion risks are indicated to be high.

4.16.3. Environmental Specification: Excavation, Backfilling and Trenching

Element	Management Plan
Controls	• Excavations should preferably not be undertaken until such time that all required materials/services etc. are available onsite, to facilitate immediate laying of such services or the construction of subsurface infrastructure.

	• Any such excavations must comply with relevant legislation. • Consider using any excess rocks and boulders that were excavated from the construction site for any erosion protection work which is required on site. • Excess material as a result of excavation activities is not to be dumped along the roadsides, but must, together with construction rubble be removed, once construction is completed, and appropriately disposed of. • Suitable excavated material is to be stockpiled next to excavations for use as backfill and all unsuitable or excess material must be loaded onto trucks and hauled to designated spoil areas. • Backfill material must be from excavated material or imported from a suitable source if the excavated material does not conform to the required specifications • Areas to be backfilled must be cleared of all unsuitable material and debris

An Environmental Method Statement for Excavation, Backfilling and Trenching shall be submitted by the Contractor 30 days after Contract award.

4.16.4. Environmental Specification: Erosion Control

The Contractor shall take all reasonable measures to limit erosion and sedimentation due to construction activities and shall, in addition, comply with such detailed measures as may be required by the Enabling Works Specification. Where erosion and/or sedimentation, whether on or off the site, occurs, rectification shall be carried out in accordance with details specified by the Site Director. Where erosion and/or sedimentation occur due to the fault of the Contractor, rectification shall be carried out at the expense of the Contractor.

Element	Management Plan
Controls	• Areas susceptible to erosion must be protected by installing the necessary temporary and/or permanent drainage works as soon as possible and by taking other measures necessary to prevent surface water from being concentrated in streams and from scouring slopes, banks or other areas. • Any tunnels or erosion channels developed during the construction period of during the vegetation establishment period shall be backfilled and compacted, and the areas restored to a proper condition. • Appropriate anti-erosion material/methods shall be used to suppress dust and erosion. The application rate shall conform to the manufacturer's recommendations. The material used shall be of such quality that grass seeds may germinate and not prohibit growth. • The following erosion control methods can be considered where required

Element	Management Plan
	and appropriate: ▪ Brushcut packing ▪ Mulch or chip cover ▪ Straw Stabilisation ▪ Watering ▪ Planting/sodding ▪ Hand seeding/sowing ▪ Hydroseeding ▪ Retaining walls ▪ Soil binders and anti-erosion compounds ▪ Log/pole fencing • These erosion control measures, including stormwater drainage systems, should ideally be installed soon after the commencement of construction activities. • Installed erosion control measures will be appropriate to site conditions to handle a one-in-two-year storm event for temporary structures, and a one-in-fifty year storm event for permanent structures which provide ongoing sediment control after a site has been rehabilitated. • Contingency plans will be in place for extreme storm events. • Blocking of stormwater drainage systems must be prevented and storm water must be managed to prevent soil erosion. • Natural stormwater run-off, which is not polluted by the site operations, must be diverted around spoil dumps and soil stockpiles. • Where stormwater has accumulated in the working area and needs to be pumped out, it must be disposed of into the nearest stream or river in such a way that erosion does not occur along the course of its passage. Alternatively, holding dams and/or soak away areas must be investigated. • No stormwater must be allowed to enter drainage installations (i.e. installations for the reception, conveyance, storage or treatment of sewage. • Maintain soil erosion structures such as stone pitching, gabions, etc to

Element	Management Plan
	enable effectiveness. • Site activities will take overall recognition of the importance of measures to avoid and reduce erosion by phasing the work program to minimise land disturbance in the planning and design stage, by keeping the areas of land cleared to a minimum, and by ensuring that the period of time for which areas remain cleared are kept to a minimum. • All cleared areas will be rehabilitated at the end of land use and in accordance with specific instructions from the Site Director. • Soil must be exposed for the minimum time possible once cleared of invasive vegetation. The timing of clearing and grubbing must be co-ordinated as much as possible to avoid prolonged exposure of soils to wind and water erosion. • Stockpiled topsoil must be either vegetated with indigenous grasses or covered with a suitable fabric to prevent erosion and invasion by weeds. • Where possible, only light equipment may be used for transport and delivery of construction material in areas of unstable soils, in areas where no erosion is evident.

4.17. Environmental Specification: (Solid) Waste Management

Element	Management Plan
Potential Impacts	Inefficient use of resources resulting in excessive waste generation Litter or contamination of the site or water through poor waste management practices.
Sources	• Packaging • Construction wastes • Waste dirt or rock from excavation • Storage of oils and fuels • Domestic waste form site offices and contractors' yards
Controls	• Adhere to the relevant Eskom waste management procedure/guidelines and any relevant license conditions imposed • Where possible, construction wastes on site must be reused or recycled • Disposal of waste must be in accordance with relevant legislative requirements. • The Contractor must familiarise themselves with the definitions of waste and the handling, storage and transport of it as prescribed in the applicable environmental legislation (refer to Appendix C). • Integrated waste management on site will be carried out by applying, in order of preference, waste avoidance, reuse, recycling and disposal. • The use of small on-site incinerators for waste burning should be investigated, and if found feasible, be implemented. • Waste will be sorted at source (i.e. the separation of tins, glass, paper etc). Recycled waste of this sort will be collected by accredited waste removal contractor. • A high quality of housekeeping will be maintained on all construction sites to ensure that materials are not left where they can be washed or blown away to become litter. • Littering must be prohibited. • Stockpiled waste must not remain on site for longer than 18 months. • The contractor must supply waste bins/skips throughout the site at locations where construction personnel or labourers are working. The bins must be provided with lids and an external closing mechanism to

Element	Management Plan
	prevent contents from blowing out, and must be scavenger proof to prevent animals attracted to waste. Bins must be emptied on a regular basis and the waste removed to the construction camp where it must be contained in scavenger, water and windproof containers until disposed of. • All waste (general and hazardous) generated during the construction phase may only be disposed of at appropriately licensed sites in terms of applicable Environmental legislation • The collection, storage and disposal of waste may not cause any nuisance (odours, fumes, aesthetic impacts, etc.). • No waste may be disposed of on neighbouring land. • Illegal dumping must be prohibited.
Maintenance	• Litter collection at all construction sites will be undertaken at regular intervals as determined by the need. Work teams will be supplied with refuse bags which can be disposed of in skips at centralised locations. • All waste containers will be emptied at least once a week or as per the need. • Waste documentation must be completed and kept onsite.
Corrective actions	• A complaints register must be maintained, in which any complaints from the community must be logged. All complaints must be investigated and, if appropriate, acted upon • Corrective actions are required to be undertaken immediately after a complaint is made or a non-conformance is identified.

4.18. Environmental Specification: Transportation, Storage and Handling of Hazardous Substances

Element	Management Plan
Potential Impacts	• Release of contaminated water from contact with spilt chemicals • Fuel source for on-site fires • Generation of contaminated wastes from used chemical containers.
Controls	• The transportation, storage and handling of hazardous substances must comply with all the provisions of the Hazardous Substances Act (Act no. 15 of 1973), associated regulations, as well as SABS 0228 and 0229 codes. • The relevant Contractor must put an effective monitoring system in place

Element	Management Plan
	to ensure safety and to detect any leakage or spillage from all oil containing equipment during transportation, their handling and installation. • Any spills will be rendered harmless and arrangements made for appropriate collection and disposal including cleaning materials, absorbents and contaminated soils. • Ensure that spill kits and other equipment are available on site to clean up spills and leaks. • Where deemed necessary, obtain any storage and disposal permits / approvals necessary and comply with the conditions attached to such permits and approvals • Ensure that any delivery drivers are appropriately supervised by an individual familiar with all procedures and restrictions on site. This is of particular importance during off and on-loading of materials. • Ensure that only designated areas are used for the handling or storage of construction materials. • All materials must be stored at one location, to be approved by the ECO. • The Contractor must comply with all national, regional and local legislation with regard to the storage, transport, use and disposal of chemicals, harmful and hazardous substances and materials. • The Contractor will furthermore be responsible for the training, education and awareness of all personnel on site who must be handling the material about its proper use, handling and disposal as well as spill response. • The Contractor must be responsible for establishing an emergency procedure for dealing with spills. • Storage of all hazardous materials is to be safe, tamper proof and under strict control. • The containers in which the products are kept must, in compliance with hazardous material management procedures, be removed from the site once empty. Hazardous products must otherwise be stored on adequately bunded surfaces in the designated hazardous material storage areas. • All manufactured and/or imported material must be stored in an appropriate manner on-site. As far as possible, and depending of the type of material stored, storage areas will be roofed with impervious material (e.g. cement and chemicals).

Element	Management Plan
	• Fluids must not be stored together with solids; instead fuels, lubricants, transmission and hydraulic fluids must be stored in a designated area for fluids. • Cement, building sand, topsoil and subsoil must also be stockpiled separately in their designated areas. • Separate material delivery and storage, and lay-down areas must be demarcated as needed • All material storage areas must be sited away from ecologically sensitive areas. • Hazardous chemicals used during construction must be stored in secondary containers. The relevant Material Safety Data Sheets (MSDS) must be available on site. • Facilities for the storage and recycling of used oil and contaminated hydrocarbons must be provided, with the intention of preventing pollution of the surrounding area and environment. • Identify and maintain a register of all activities that involve the handling of potentially hazardous substances, as well as devise and supervise the implementation of protocols for the handling of these substances. This will include all fuels, oils, lubricants and grease. Dissemination of product must be well-controlled, eg, signing – out of chemicals, etc. Also, encourage the return of un-used product.
Maintenance	• Any accidental chemical/fuel spills to be corrected immediately. • Keep MSDS records of chemicals in use up to date. • Waste records must be kept available for review • Implement appropriate actions and measures to reduce, stop or contain a spill of potentially hazardous substances (e.g. fuel or lubricating oil). • Implement appropriate actions and measures to reduce or prevent contamination of the ground and surface water as a result of a spill of potentially hazardous substances
Corrective actions	• Observation and supervision of chemical storage and handling practises and vehicle maintenance throughout the construction phase. • Arrange and supervise the implementation of clean-up operations and appropriate disposal of contaminated materials at the hazardous waste

Element	Management Plan
	disposal site. • A complaints register must be maintained, in which any complaints from the community must be logged. All complaints must be investigated and, if appropriate, acted upon • Keep written records detailing the type of spill, the corrective and remedial measures implemented in the stopping or reduction of the spill, and the clean up of the spill. Such progress reporting is important for monitoring and auditing purposes and the written reports may afterwards be used for training purposes in an effort to prevent similar future occurrences. • Report the nature and extent of the spill to the ECO as soon as reasonably possible, but within 24 hours. • The ECO will prescribe measures to be implemented in order to prevent spills of potentially hazardous substances.

4.18.1. Environmental Specification: Cement and Concrete batching

The Contractor is advised that cement and concrete are regarded as hazardous to the natural environment on account of relatively high pH of the material and the chemicals contained therein. Approximately one million cubic meters of concrete would be utilised during the construction period, for various purposes (foundations, smokestacks, etc.). The concrete batching plant will be designed and operated to meet this required output over the construction period.

The Contractor shall be responsible for the safe positioning, operation, maintenance and closure of any batching site used during the contract period. The Contractor shall provide additional measures to prevent, contain and rehabilitate against environmental damage from toxic/hazardous substances. In this regard, the Contractor shall provide plans that take into account such additional measures as concrete floors, bunded storage facilities, linings to drainage channels and settlement dams.

All batching sites shall adhere to the following requirements:

- Effluent from concrete batch plants and crusher plants shall be treated in a suitable designated sedimentation dam to the legally required standards according to the
- Water Act, to prevent surface and groundwater pollution, and disposed of via the wastewater system. The designs of such a facility should be submitted to the ECO/Site Director for approval.
- Contaminated water storage facilities shall not be allowed to overflow and appropriate protection from rain and flooding shall be implemented.
- All wastewater and runoff from batching areas shall be strictly controlled, and cement-contaminated water shall be collected, stored and treated as for the effluent from the batch plant, and disposed of via the wastewater system. Where applicable, or where sensitive environments occur, mixing trays shall be used at all mixing and supply points.
- Used bags shall be appropriately disposed of by the Contractor.
- Reject concrete, whether it has failed quality tests for a particular use or whether it is excess material for a particular use, will be reassigned for use in alternate areas. Where such use can not be identified before the curing period the concrete will be allowed to harden.
- Due to the quantities of concrete used on site, approximately 25000m3 per month, with an industry standard rejection rate of 3% this will result in approximately 750m3 of rejected concrete per month. Cured, hardened inert concrete will be moved to a centralized storage facility whereby it will be crushed.
- Crushed material will then be reused as a fill material on site either in construction areas or roadways. Such material will be stockpiled adjacent to areas where it is most likely to be reused to be determined by the Site Director.

An Environmental Method Statement for the operation and maintenance of the concrete batching plant shall be submitted by the relevant Contractor 30 days after Contract award.

4.18.2. Environmental Specification: Fuel storage

Where reasonably practical, plant shall be refuelled at the fuel depot or at the workshop as applicable. If it is not reasonably practical then the surface under the refuelling area shall be protected against pollution to the reasonable satisfaction of the Site Director. The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb/breakdown and where possible be designed to encapsulate minor hydrocarbon spillages. The quantity of such material shall be able to handle a minimum of 200 litres of hydrocarbon spill. The Site Director must approve this material prior to any refuelling or maintenance activities.

Tanks containing fuels shall have lids/covers and shall remain firmly shut. Only clean, empty tanks may be stored on the bare ground. Fuel storage tanks shall be placed on a bounded sealed base (such as a concrete plinth). The bund shall accommodate 110% of the total volume for single tanks. Where two or more tanks are installed within the same bund, the bund should be able to accommodate 110% of the largest tank.

Any wastewater or spilled fuel collected within the bund shall be disposed of as hazardous waste. The Contractor shall take all the necessary precautions to prevent fires or spills at the fuel storage facility. No smoking shall be allowed in the vicinity of the stores. Failure to adhere to this specification shall constitute an offence. The Contractor shall ensure that there is adequate and appropriate fire-fighting equipment at the fuel storage facility.

Element	Management Plan
Controls	• All legal compliance requirements with respect to Fuel storage and dispensing must be met. • All fuel storage tanks (temporary or permanent) and associated facilities must be designed and installed in accordance with the relevant oil industry standards, SANS codes and other relevant requirements.
Maintenance	• Regular inspections will be carried out by the Contractor to detect leaks and spillages. All storage facilities will be maintained as regularly as is necessary to ensure they meet the original specification. Inspections on the fuel storage facilities will be carried out as per legal requirements and industry standards/relevant SANS codes. • All equipment that leak oil or fuel must be repaired immediately or removed from the construction site
Corrective actions	Absorbent material must be available at tanks to absorb any spills

An Environmental Method Statement for the operation and management of the fuel storage facility shall be submitted by the Contractor 30 days after Contract award.

4.19. Traffic and Transport

During the construction phase, the following vehicles/trips are foreseen:

- Cars & LDV's: approximately 100 daily from mid-2007 – 2014

- 4-10 ton trucks: approximately 60 daily from mid-2007 – 2014
- 15-25 ton trucks: approximately 16000 trips from mid-2007 – 2014
- 100-500 ton trucks: approximately 2400 trips, from 2008 – 2013

Element	Management Plan
Potential impacts	• Traffic, and thus accident potential, increase at the proposed access point • Traffic, and thus accident potential, increase on neighbouring roads • Accident potential from heavy and wide loads.
Sources	• Transport of abnormal loads • Construction traffic specifically related to the physical construction of the Power Station over a period of approximately 48 months.
Controls	• The transport contractor must obtain the relevant permits and obtain approval for transport routes to be used. • Optimal use must be made of existing access roads. The construction of new access roads must be minimised. • Obtain the appropriate abnormal load permits. • Ensure the use of approved routes for the transportation of heavy loads. • Management of traffic during construction where the site access roads and other transportation networks intersect.
Maintenance	• Appropriate maintenance of all vehicles • Appropriate maintenance of access roads
Corrective actions	• Appropriate monitoring of dust produced by traffic in order to minimise dust emissions • Monitoring of traffic control measures to ensure they are effective • A complaints register must be maintained, in which any complaints from the community must be logged. All complaints must be investigated and, if appropriate, acted upon.

4.20. Environmental Specification: Site Clean –up and Rehabilitation

Please refer to Appendix H for a comprehensive Environmental Specification for Site Clean-up and Rehabilitation

APPENDIX A

ESTIMATED MANPOWER NUMBERS DURING CONSTRUCTION: MEDUPI POWER

APPENDIX B

RECORD OF DECISION: MEDUPI POWER STATION

APPENDIX C

SUMMARY OF ENVIRONMENTAL LEGISLATION

LIST OF APPLICABLE LEGISLATION AND AUTHORISATIONS REQUIRED FOR THE ESTABLISHMENT OF THE NEW COAL-FIRED POWER STATION AND ASSOCIATED INFRASTRUCTURE IN LEPHALALE, LIMPOPO PROVINCE

Applicable Environmental Law	Aspect Component	Compliance Requirement
National Legislation		
Constitution of South Africa (No 108 of 1996)	"Environmental rights" are created by Section 24(a) of the Constitution of the Republic of South Africa Act (No 108 of 1996). The rights include the right "to an environment that is not harmful to their health or well-being".	Ensure that best practice technology is used to minimise impacts on the environment. Respect and protect the public and employees' rights to an environment which is not detrimental to their health and well being.
Environment Conservation Act, No 73 of 1989 and Regulations 1182 and 1183 published there under.	Commencement of any activity that is considered to be detrimental to the environment must be preceded by written authorisation obtained from the relevant authority.	An Environmental Impact Assessment must be submitted to the competent authority (i.e. DFFE).
Environment Conservation Act (No 73 of 1989), Section 19	Section 19 prohibits discarding, dumping or leaving of any litter on any land or water surface, street, road or site in or on any place to which the pubic has access, except in a container or at a place which has been specifically indicated, provided or set apart for such purposes.	Adequate numbers of containers must be placed in strategic positions for the collection of litter.
Environment Conservation Act (No 73 of 1989), Section 20 (1)	Section 20 (1) provides that where an operation accumulates, treats, stores or disposes of waste on site for a continuous period, it must apply for a permit to be classified as a suitable	If applicable a permit application will be submitted to DFFE. On receipt of a permit, the conditions of the permit must be complied with at all times.

Applicable Environmental Law	Aspect Component	Compliance Requirement
	waste disposal facility, from DFFE.	
National Environmental Management Act (No 107 of 1998)	The Act: • Establishes principles to guide the decisions and actions of all organs of State. • establishes institutions to: ▪ co-ordinate and harmonise the environmental functions ▪ of organs of State; and ▪ promote the participation of stakeholders in environmental governance. • establishes procedures for co-operative governance. • establishes procedures for conflict management. • defines the environmental rights of employees (s.2) and the restraints on management when employees exercise these rights (s.29). • establishes a general “duty of care” towards the environment on developers and prescribes the “measures” demanded from them to demonstrate such	In terms of NEMA, it has become the legal duty of a project proponent to consider a project holistically, and to consider the cumulative effect of a variety of impacts.

Applicable Environmental Law	Aspect Component	Compliance Requirement
	duty of care (see s.28). • defines who has a legal standing to institute litigation against transgressors of environmental legal provisions (s.32). These provisions are in line with those contained in Section 38 of the Constitution. • provides also for a policy of co-regulation and Environmental Management Co-operation Agreements (s.35). This section will be read in conjunction with the document entitled: "Environmental Management Cooperation Agreements: A Guide for their Design and Use," published by the Department of Environmental Affairs and Tourism, June 2000	
National Environmental Management Act (No 107 of 1998), Section 24 (1)	Requires the consideration, investigation and assessment of the potential impact on the environment, socio-economic conditions and cultural heritage as a result of activities that require authorisation by law (i.e. in terms of the ECA), and that may significantly affect the environment.	An Environmental Impact Assessment must be submitted to the competent authority (i.e. DFFE).
National Heritage Resources Act (No 25 of 1999)	Provides general principles for governing heritage resources management throughout South Africa including national and provincial heritage sites, archaeological and palaeontologic sites, burial grounds and graves and public monuments and memorials. The demolition or dismantling of all man-made structures and buildings older than 60 years is subject to the	If applicable, a permit must be obtained from the relevant provincial heritage council.

Applicable Environmental Law	Aspect Component	Compliance Requirement
	approval of the relevant provincial heritage council under the National Heritage Council Act, 11 of 1999.	
Hazardous Substances Act, No 15 of 1973	This act regulates the control of substances that may cause injury, or ill health, or death by reason of their toxic, corrosive, irritant, strongly sensitising or inflammable nature or the generation of pressure thereby in certain instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products. • Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc, nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared to be: • Group I or Group II hazardous substance; • Group IV: any electronic product; • Group V: any radioactive material The use, conveyance or storage of any hazardous substance	It is important to identify and list all the Group I,II,III and IV hazardous substances that may be on the premises and in what operational context they are used, stored or handled. If applicable, a license application will be submitted to the Department of Health.

Applicable Environmental Law	Aspect Component	Compliance Requirement
	(such as distillate fuel) is prohibited without an appropriate license being in force.	
Occupational Health and Safety Act, No 85 of 1993 – Major Hazard Installation Regulations – GN R692 of 30 July 2001	In terms of the regulations, the Chief Inspector, Provincial Director of the Department of Labour and the relevant local government need to be notified of either a temporary or permanent erection, installation, conversion or modifying of a major hazard production installation or any quantity of a substance that can pose a significant risk of resulting in a major incident that could affect the health and safety of persons outside the premises.	Written application is to be lodged with the relevant authorities to erect any installation that will be classified as a major hazard installation or any conversion of an existing installation to a hazard installation. The proposed installation has to be advertised in at least one newspaper serving the surrounding communities and notices advertising the installation are to be posted within those communities.
Occupational Health and Safety Act, No 85 of 1993 – Major Hazard Installation Regulations – GN R692 of 30 July 2001	An employer must undertake a risk assessment of existing major hazard installations or substances which will be updated every three (3) years and submitted to the local emergency services, the employer must further in consultation with the local emergency services, establish an on-site emergency plan to be followed inside the premises of the installation classified as a major hazard installations. This plan must be updated at least every three (3) years.	Ensure that procedures and an on-site emergency plan are in place and updated at least once every three (3) years.
Occupational Health and Safety Act, No 85 of 1993 – GNR 1179 of 25 August 1995	An employer will, in order to avoid contamination with hazardous chemical substances, take all steps to ensure that hazardous chemical substances are stored or distributed and are properly identified and handled in accordance the SABS	Ensure that all hazardous substances are stored, handled and identified in terms of the relevant SABS codes of practice.

Applicable Environmental Law	Aspect Component	Compliance Requirement
	0228 Code	
Occupational Health and Safety Act, No 85 of 1993 – GNR 1179 of 25 August 1995	All drivers transporting hazardous material must be in possession of a valid, appropriate driver's licence, a medical certificate and a HazChem training certificate. In addition they must comply with the Road Transport Quality System, have full knowledge of emergency response procedures, and be equipped with and trained in the use of protective clothing.	Ensure that the relevant drivers have the correct licences and that awareness training programs, highlighting all transportation of dangerous goods risks are developed and implemented on all relevant driver levels.
Occupational Health and Safety Act, No 85 of 1993 – GNR 1179 of 25 August 1995	Before any employee is exposed or may be exposed to any hazardous chemical substance, it must be ensured that he/she is adequately and comprehensively informed and trained.	Develop and implement awareness-training programs highlighting the risks involved in respect of exposure to hazardous substances.
Occupational Health and Safety Act, No 85 of 1993 – GNR 60 of 16 January 1998	If a substance is supplied to your operation which results ion an installation being classified as a major hazard installation, then the supplier f such a substance must provide you with a material safety data sheet.	Ensure that procedures are in place to notify all suppliers of this regulation and that you have been supplied with material safety data sheet at all relevant times.
Occupational Health and Safety Act, No 85 of 1993 – GNR 7458 of 17 January 2003	Ensure that an emergency plan is established and implemented; the emergency plan is tested in practice at least once every twelve (12) months.	Implement an emergency plan that includes detailed evacuation procedures and test the plan every twelve (12) months.
National Road Traffic Act 93 of 1996 – GNR 225 of 17 May 2000	Regulation 274 (read with SABS Code 0232 which deals with transportation of dangerous goods and emergency	Ensure that procedures are in place to prevent that

Applicable Environmental Law	Aspect Component	Compliance Requirement
	information systems) states that the regulations are applicable where dangerous goods are transported in quantities, which exceed the exempt quantities (listed in Annex E of SABS Code 0232). Dangerous goods may only be transported in accordance with the provisions in the Regulations, unless the Minister of Transport has granted an exemption.	the quantities of dangerous goods transported exceed the prescribed quantity (listed in Annex E of SABS Code 0232). Apply for an exemption, if applicable.
Atmospheric Pollution Prevention Act, No 45 of 1965 (APPA) - Section 9	*Scheduled Processes* A specifications standard applies to the production of noxious or offensive gases. This means that pollution control equipment used in operating the process must conform to certain design criteria. Currently sixty nine (69) scheduled processes are listed in the Second Schedule to the Act No person may carry on a Scheduled Process in or on any premises unless he is the holder of a current registration certificate. The granting of a permit is subject to compliance with certain minimum standard specifications.	Obtain a registration certificate from the National Air Officer at DFFE n respect of each an every scheduled process, and ensure that the conditions in the certificate are complied with at all times.
Atmospheric Pollution Prevention Act, No 45 of 1965 (APPA) - Section 15	*Smoke emissions* The operation will not install in or on any premises any fuel-burning appliance, unless such an appliance is provided with effective appliances to limit the emission of grit and dust to the satisfaction of the local authority. A local authority may require any person to furnish information as to the fuel or	Ensure that best practice technology is used to prevent the escape into the atmosphere of noxious or offensive gases.

Applicable Environmental Law	Aspect Component	Compliance Requirement
	refuse used in fuel burning appliances.	
Atmospheric Pollution Prevention Act, No 45 of 1965 (APPA) – Section 16	No local authority will approve of any plan that provides for the installation of any fuel burning appliance, unless it is satisfied that a fuel burning appliance is suitably sited.	Ensure that best practice technology is used to prevent the escape into the atmosphere of noxious or offensive gases.
Atmospheric Pollution Prevention Act, No 45 of 1965 (APPA) – Part IV	*Dust* Part IV of the Act pertains to dust control and includes dust arising from industrial processes. In terms of section 27 the Minister may declare any area to be a dust control area for the purposes of the Act. If in terms of section 28 if the Air Quality Officer is of the opinion that dust originating on any land in a dust controlled area is causing a nuisance to persons residing or present in the vicinity of that land, he may by notice in writing require such owner or occupier to take the prescribed steps or adopt the "best practicable means" for the abatement of such nuisance.	Ensure that the operation adopt "best practicable means" in order to comply with the requirements of the relevant Air Quality Officer.
Atmospheric Pollution Prevention Act, No 45 of 1965 (APPA) – Part V	*Vehicle emissions* Part V of the Act deals with pollution emanating from vehicles and is applicable to areas specifically designated by ministerial order. The Minister may regulate the use on a public road of vehicles emitting specific noxious or offensive gases, or gases which	Ensure that all vehicles travelling to and from the operation are compliant with the provisions contained in the regulations regulating vehicle emissions.

Applicable Environmental Law	Aspect Component	Compliance Requirement
	are of a darker colour or greater density or specific content and he may prescribe the steps to be taken to prevent the emission of noxious or offensive gases and the methods to be applied to determine whether noxious or offensive gases are being emitted.	
National Environmental Management: Air Quality Act 39 of 2004 – Section 26	The Minister or MEC may by notice in the Gazette, declare a substance or mixture of substances which, when used as a fuel in a combustion process, result in atmospheric emissions which through ambient concentrations, bioaccumulation, deposition or in any other way, present a threat to health or the environment or which the Minister or MEC reasonable believes present such a threat, as a controlled fuel	Establish whether any of the substances or mixture of substances used as a fuel in a combustion process by the applicant is a controlled fuel.
National Environmental Management: Air Quality Act 39 of 2004 – Section 28	No person may manufacture, sell or use a controlled fuel unless that manufacture, sale or use complies with the standards established in terms of section 27.	Ensure that the standards as established in terms of section 27 are adhered to.
National Environmental Management: Air Quality Act 39 of 2004 – Section 34	The Minister may prescribe essential national standards for the control of noise, either in general or specified machinery or activities or in specified places or areas; or for determining a definition of noise; and the maximum levels of noise	Ensure that the applicant is familiar with the contents of this section to ensure that it adheres to the standards prescribed by the Minister.
National Environmental Management: Air Quality Act 39	The Minister or MEC may prescribe measures for the control of offensive odours emanating from specified activities. The occupier of any premises must take al reasonable steps to	Ensure that the applicant is familiar with the contents of this section to ensure that it adheres to the measures prescribed by the Minister for the control of offensive odours. Take all

Applicable Environmental Law	Aspect Component	Compliance Requirement
of 2004 – Section 35	prevent the emission of any offensive odour caused by any activity on such premises.	reasonable steps to prevent the emission of any offensive odour.
National Water Act (No 36 of 1998)	Regulates the protection, use, development, conservation, management and control of water resources in South Africa. Provides for the Constitutional demands for pollution prevention, ecological and resource conservation, sustainable utilisation, the precautionary principle, social upliftment, participatory decision-making, transparency and just administrative action. In terms of this Act, water resource reserves for human use and maintaining sound ecosystems (the reserve) take precedence over agricultural and industrial demands. Water use permits are required to be obtained for water abstraction, water storage and water discharge in terms of Sections 27 – 29.	Appropriate water use permits must be applied for from the Department of Water and Sanitation (DWS), if required.
Conservation of Agricultural Resources Act (No 43 of 1983)	Regulates agricultural natural resources and the conservation, management and use thereof. The most important features of this legislation are the measures provided for the prevention of soil erosion, the development of soil conservation schemes, the protection of wetlands and associated vegetation, the utilisation and protection of veld, the prevention of the spread of declared weeds and invader plants, and grazing	Soil erosion prevention and soil conservation strategies must be developed and implemented. A weed control and management plan must be developed and implemented.

Applicable Environmental Law	Aspect Component	Compliance Requirement
	management	
National Veld and Forest Fire Act (No 101 of 1998)	Purpose of this Act is to prevent and combat veld, forest and mountain fires throughout South Africa. The Act provides for a variety of institutions, methods and practices for achieving this purpose. Every landowner on whose land a fire may start or burn or from where a fire may spread must prepare and maintain a firebreak on his/her side of the border between his/her land and all the neighbours	Appropriate emergency response plans must be in place to respond to and combat fires associated with the proposed project. Appropriate fire breaks must be in place and be maintained.
Health Act (No 63 of 1977)	Temporary ablution facilities at construction camps are required to be approved in terms of this Act by the nearest local authority.	If applicable, approval must be obtained from the local authority for temporary ablution facilities during construction.
National Forest Act 84 of 1998	No one may cut, disturb, damage or destroy any indigenous tree in…a natural forest or a protected tree declared as such under section 12(1) or 14 (2) of the Act.	If applicable the necessary permit will be obtained from DFFE.

LIST OF APPLICABLE NATIONAL LEGISLATION NOT YET TAKEN EFFECT AT DATE OF THIS DOCUMENT

Applicable Environmental Law	Aspect Component	Compliance Requirement
National Environmental Management: Air Quality Act 39 of 2004 – Section 21 (Expected to take effect on 1 September 2005)	The Minister, or the MEC may by notice in the Gazette publish a list of activities which result in atmospheric emissions and which the Minister or MEC reasonable believes have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage.	Determine whether any of the activities undertaken by the applicant is a listed activity.
National Environmental Management: Air Quality Act 39 of 2004 – Section 22	No person may without a provisional atmospheric emission license or an atmospheric emission license conduct an activity listed on the national list anywhere in the Republic or listed on the list applicable in a province anywhere in that province.	Apply for an atmospheric emission license from the Waterberg District Municipality (charged with implementing the atmospheric emission licensing system in terms of section 36)
National Environmental Management: Air Quality Act 39 of 2004 – Section 61	Despite the repeal of the Atmospheric Pollution Prevention Act by section 60 of this Act, a provisional registration certificate issued in terms of that Act and which was a valid certificate immediately before the date on which section 60 took effect, continues to be valid for a period of two (2) years from that date in respect of a registration certificate it is valid for a period of four (4) years from that date. The holder of the registration certificate must within the first three (3) years of the four year period lodge a renewal application in terms of section 47 of this Act. If the holder fails to lodge a renewal application within the first three years the certificate expires at the end of the three years.	If the applicant is the holder of a registration certificate apply for a renewal in terms of section 47 within the first three year period.

Applicable Environmental Law	Aspect Component	Compliance Requirement
Petroleum Pipelines Act 60 of 2003 – Section 4 (Expected to take effect during October 2005)	The Petroleum Pipelined Regulatory Authority must as appropriate, in accordance with this Act issue licenses for the construction and conversion of petroleum pipelines, loading facilities and storage facilities and the operation of petroleum pipelines, loading facilities and storage facilities. • "petroleum" means crude oil and petroleum products; "petroleum products" means any liquid petroleum fuel and any lubricant, whether used or unused, and includes any other substance which will be used for a purpose for which petroleum fuel or any lubricant may be used; • "petroleum pipeline" means a pipeline used to transport petroleum excluding those located on the premises of a manufacturer of petroleum products or a storage facility; • "storage facility" means any bulk storage facility and its auxiliary equipment that is or is intended to be used for the storage of petroleum and excludes storage facilities – ((b) for own final use	
Petroleum Pipeline Levies Act 28 of 2004 – Section 2	The Minister may by notice in the Government Gazette impose levies payable to the Petroleum Pipelined Regulatory Authority. The levy is payable by the person holding title to the petroleum immediately after it has entered the inlet	Establish whether a levy has been determined by the Minister and when it is payable. If applicable pay in time to avoid penalties and interest.

Applicable Environmental Law	Aspect Component	Compliance Requirement
	flange. "Petroleum" and "petroleum pipeline" means the same as in the Petroleum Pipelines Act 60 of 2003	
National Environmental Management : Biodiversity Act 10 of 2004 – Section 40	The Minister of MEC for environmental affairs in a province may by notice in the Gazette determine a geographic region as a bioregion for purposes of this Act if that region contains whole or several nested ecosystems and is characterized by its landforms, vegetation cover, human culture and history and publish a plan for the management of biodiversity and the components of biodiversity in such region.	Establish whether the development site falls within such a bioregion and ensure that you familiarize yourself with the measures for the effective management of biodiversity as contained in the bioregional plan.
National Environmental Management : Biodiversity Act 10 of 2004 – Section 43	The Minister may publish by notice in the Gazette a biodiversity management plan approved for (a) an ecosystem listed in terms of section 54 or an ecosystem that warrant special conservation attention (b) an indigenous species listed in terms of section 56 or a species which warrants special conservation attention.	Establish whether biodiversity management plans are in existence in respect of any ecosystem or species on the development site and if so familiarize yourself with the contents of the biodiversity management plan.
National Environmental Management : Biodiversity Act 10 of 2004 – Section 52	The Minister may by notice in the Gazette publish a list of national ecosystems that are threatened and in need of protection; an MEC for environmental affairs in a province may publish a provincial list of ecosystems in the province that are threatened and in need of protection.	Establish whether any listed ecosystem occurs on the development site.

Applicable Environmental Law	Aspect Component	Compliance Requirement
National Environmental Management : Biodiversity Act 10 of 2004 – Section 53	The Minister may by notice in the Gazette identify any process or activity in a listed ecosystem as a threatening process. A threatening process must be regarded as a specified activity contemplated in section 24 (2)(b) of the National Environmental Management Act and a listed ecosystem must be regarded as an area identified for the purpose of that section.	Establish whether the proposed activity constitutes a threatening process, if so authorization must be obtained from DFFE.
National Environmental Management : Biodiversity Act 10 of 2004 – Section 56	The Minister may by notice in the Gazette publish a list of critically endangered species, endangered species, vulnerable species and protected species	Establish whether any of the species found on the development site is a listed species.
National Environmental Management : Biodiversity Act 10 of 2004 – Section 57 (1)	A person may not carry out a restricted activity (as defined in section 1 of the Act) involving a specimen of a listed threatened or protected species without a permit issued in terms of Chapter 7.	Establish whether the proposed development of the site constitutes a restricted activity, if so obtain a permit from the issuing authority (In terms of section 97 the Minister may make regulations relating to the designation of organs of state which may be issuing authorities – no regulations published to date)
National Environmental Management : Biodiversity Act 10 of 2004 – Section 57 (2)	The Minister may, by notice in the Gazette prohibit the carrying out of any activity which is of a nature that may negatively impact on the survival of a listed threatened or protected species and which is specified in the notice or prohibit the carrying out of such activity without a permit issued in terms of chapter 7.	If applicable obtain a permit from the issuing authority.

Applicable Environmental Law	Aspect Component	Compliance Requirement
National Environmental Management : Biodiversity Act 10 of 2004 – Section 65	A person may not carry out a restricted activity (as defined in section 1 of the Act) involving a specimen of an alien species (as defined in section 1 of the Act) without a permit issued in terms of chapter 7.	If applicable obtain a permit from the issuing authority.
National Environmental Management : Biodiversity Act 10 of 2004 – Section 70,71	The Minister may by notice in the Gazette publish a list of invasive species; an MEC for environmental affairs in a province may publish a provincial list of invasive species. A person may not carryout a restricted activity (as defined in section 1 of the Act) involving a specimen of a listed invasive species without a permit issued in terms of Chapter 7.	If applicable obtain a permit from the issuing authority.

APPENDIX D

HEALTH, SAFETY AND ENVIRONMENTAL SPECIFICATION

FOR MEDUPI POWER STATION

APPENDIX E

CONSTRUCTION LAYOUT PLAN, INCLUDING THE CONTRACTORS' YARDS

APPENDIX F

LIST OF MEDICINAL PLANT FOUND ON THE MEDUPI POWER STATION SITE

APPENDIX G

CONSTRUCTION/ENABLING WORKS SPECIFICATION

APPENDIX H

ENVIRONMENTAL SPECIFICATION: SITE CLEAN-UP AND REHABILITATION

APPENDIX I

MEDUPI STORMWATER LAYOUT