

 Eskom	<b>Guideline</b>	
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This document should be read in conjunction with the Eskom Environmental Procedure, EPC 32-96.

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## **1 Introduction**

One of Eskom's environmental strategies is the development and implementation of an environmental management system (EMS). Linked to this is a requirement for the development and implementation of environmental management programmes (EMPs). Furthermore, Eskom's environmental land policy requires that all Eskom land be continually managed, through the control of operations and activities that take place on it, to ensure the sustainable utilisation of the asset. It also requires that all Eskom land be managed, operated, and maintained in terms of an established EMP.

An EMP is a plan of action that sets out a required environmental end state and sets out how activities that could have a negative impact on the environment will be managed and monitored and how impacted areas will be rehabilitated.

The main Eskom Environmental Procedure, EPC 32-96, should be consulted for all elements relating to the scope, normative references, etc.

## **2 Requirements**

### **2.1 General**

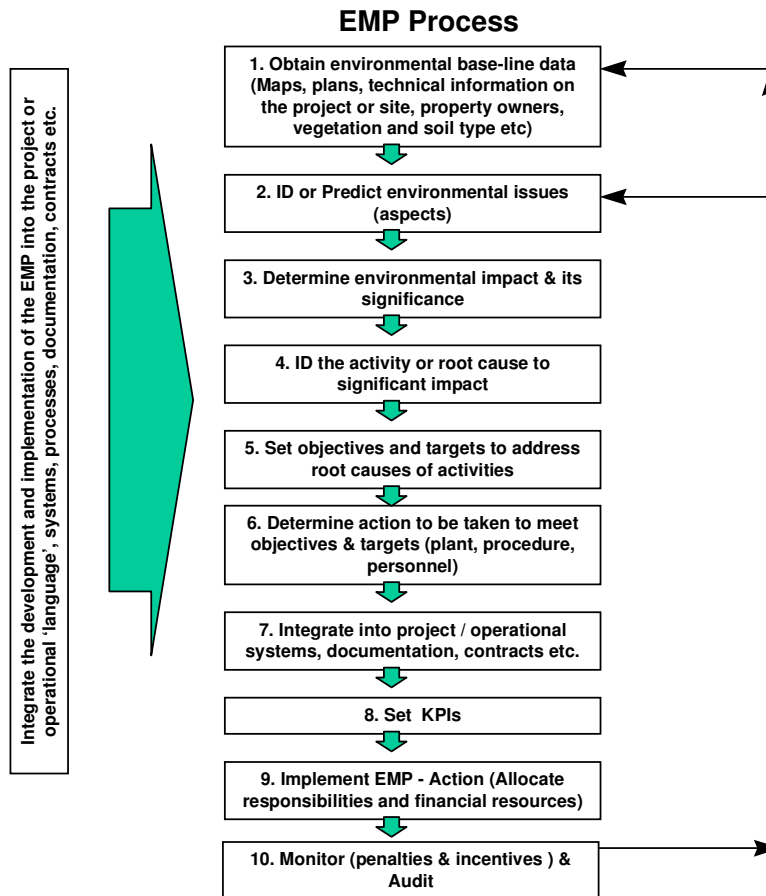
**2.1.1** An EMP shall be developed and implemented, in terms of the relevant line division EMS for:

- a) existing and future Eskom land (site, servitude); and
- b) projects for which an environmental impact assessment (EIA) or screening was undertaken.

Applicable significant environmental issues are to be included in an EMP (see 2.12 for general environmental aspect). In the development and implementation of an EMP for existing Eskom land (site/servitude) or for a proposed project, the procedures in 2.2 to 2.11 should be followed to ensure compliance with Eskom's Environmental Land Policy and national environmental legislation.

**2.1.2** Each Eskom division and subsidiary should establish key performance indicators (KPIs)/EMS for the development and implementation of EMPs. These indicators and actual performance figures should be reported for inclusion in Eskom's Annual Report where appropriate.

**2.1.3** The line business unit (BU) managers shall be accountable for the coordinated development and implementation of the environmental management programmes in their respective areas in line with the set KPIs/EMS.



## 2.2 Collect environmental baseline data

a) This step involves the collection of baseline data or background information on:

- 1) the proposed project (technical and project management programme);
- 2) the existing land (site/servitude) and operations (technical and operational practices); and
- 3) the environment (and surrounding environment) of the proposed project of existing land (site/servitude) and operation.

b) Collection of data should start with obtaining existing information from:

- 1) past EIAs;
- 2) operational and maintenance records (including inspection reports);
- 3) incident investigation and audit reports;
- 4) geographical information systems (GIS); and
- 5) landowners and government departments.

c) Thereafter, gaps in data would have to be filled through specialist studies and field

sampling. For a power line route, this could involve a specialist on vegetation, bird interactions with power lines, soil types, and national heritage sites. For a site, specialist studies would be needed for soil types, vegetation control, and technical aspects of the site (that is, maintenance practices, oil traps, etc.).

- d) This information should be collated in a format that will allow it to be stored and utilised in a convenient manner.
- e) If an EIA had already been undertaken for the route or site, much of this baseline information can be obtained from that EIA report.
- f) See Annex B for a generic list of baseline information required for specific sites.
- g) Background information on the environment (land, air, water, local communities, and other interested and affected parties) should include issues that are applicable to the project or the existing site, and associated environmental impacts. It should cover the physical, biological, and social environments that could be or are adversely affected by the development or operation, respectively.
- h) This baseline information is required to identify changes, through monitoring, as a result of the project or operational impacts. Baseline information studies will provide the “control” records against which all monitoring can be measured. The information will also be used in the development of EMP actions to avoid impacts or to restore areas.

### **2.3 Identify and/or predict the environmental aspects (Aspects Register)**

**2.3.1** Identify the environmental aspect (waste, oil spills, soil erosion, air and water emissions, vegetation control, landowner requirements, etc.) that need to be addressed, managed, controlled, or avoided through the adequate control of that activity resulting in the aspect.

**2.3.2** For new developments and projects requiring an EIA, relevant statutory requirements shall be adhered to.

**2.3.3** For an existing operation or site, the assessment to identify environmental issues could be from:

- a) incident investigations and past experience (maintenance records, investigation reports, etc.);
- b) a life-cycle assessment (LCA);
- c) an EIA (for upgrades or changes to plant);
- d) routine maintenance inspections/audits;
- e) environmental due diligence;
- f) an environmental risk assessment (ERA); and
- g) an audit of the plant, site, or route.

**2.3.4** A checklist, matrix, or some other assessment tool should be used to record the issues that were identified (see Annex C).

**2.3.5** For both new projects and existing sites, a process of public participation should be undertaken to ensure that the concerns of interested and affected parties are taken into

consideration when compiling and implementing the EMP.

## **2.4 Determine the environmental impacts and their significance**

**2.4.1** The environmental impacts associated with each identified environmental aspect should be determined (that is, an oil spill is an environmental aspect, and its impact is the contamination of soil and water). Significance involves a value judgement by society concerning the importance of the effects of human activities. The primary concerns of the public are human health and safety. Thereafter, it is the concern for potential losses of important commercial species or commercially viable production and a high priority on species and areas of major recreational or aesthetic importance.

**2.4.2** The significance of each impact that is predicted or identified should be quantified. The significance should be rated as high, medium, or low. In the determination of what is significant, techniques should be adopted that remove the subjectivity from the determination.

**2.4.3** Significance can be determined with regard to:

- a) the **nature** of the proposed or existing activity with regard to the causes of the effect;
- b) the **extent** of the activity regarding whether the impact will be or is local or regional;
- c) the **duration** of the activity's impact (short, medium, long, or even permanent);
- d) the **intensity** of the activity's impact, classified in terms of the following: **low** – natural or social functions and processes are not affected; **medium** – the environment is altered, but the natural and social functions are able to continue in a modified way; and **high** – natural or social functions or processes are altered to such an extent that they will temporarily or permanently stop; and
- e) the **probability** that the impact will actually occur in terms of the following: **improbability** – due to design or historical experience, the chance of impact occurring is very low; **probable** – where there is the possibility that the impact could occur; **highly probable** – in the case where it is more than likely that the impact will occur; and **definite** – here the impact will occur regardless of any preventative measures being implemented.

**2.4.4** The criteria for significance should include the level of public concern and legal implications and impact on image should the impact occur.

**2.4.5** The significance of the environmental impact could be to use it in conjunction with the cost benefit analysis (CBA) approach, which seeks to express impacts in monetary terms.

## **2.5 Identify the activity or root cause associated with the significant impact**

**2.5.1** Once all the significant environmental aspects have been identified based on the significance of their impacts, the activity that causes them should be identified. This is, in a sense, determining the root cause of the problem, and it is the root cause that one needs to manage and control to ensure that corrective and preventative measures are implemented through the EMP.

**2.5.2** An impact is the result of a failure of plant/procedures/personnel to perform as expected (that is, no bund wall, wrong use of herbicides, uncontrolled management of storm water, ash and slurry plant inefficiency, personnel not trained, no operational procedure in place, etc.).

## **2.6 Set objectives and targets to address root cause**

**2.6.1** After identifying, determining, and quantifying the environmental aspects and their associated activities (the root causes) that need to be addressed in the EMP, translate them into specific management objectives and specific measurable targets.

**2.6.2** When these objectives and targets have been set, ensure that they conform to statutory requirements.

**2.6.3** The objectives and targets set should be based on a combination of the legal requirements, the significance of the identified environmental aspect and its impacts, technological options, alternatives, financial limitations, business requirements, and the views of interested and affected parties.

**2.6.4** The objectives should be specific and the targets measurable. These objectives and targets should address the identified root cause as identified in 2.5.

**2.6.5** When objectives and targets are set, they should be linked to measurable environmental key performance indicators (KPIs) for measuring, monitoring, and auditing purposes.

## **2.7 Determine actions to be taken to meet objectives and targets – project or operational actions**

**2.7.1** The action required to achieve the set objective and targets in order to address the root cause should be established. Solutions to problem areas should be quantified, that is, Eskom procedures or standards, specialists' reports and recommendations, and past successful solutions. The project actions could be one of the following:

- a) **Plant:** that is, waste disposal site, storm water system, hazardous material store, rehabilitation of soil erosion areas, water treatment equipment, an oil trap, storm water berms, waste collection and separation site, new plant, screening vegetation and other forms of landscaping, etc. (This should include the actual location of plant and construction and operational procedures.)
- b) **Procedures:** that is, the development of specific operational procedures for the carrying out of certain activities: to preserve archaeological sites, bush clearing, herbicide application, waste minimisation, water conservation, dust suppression, noise minimisation, etc. (The procedure should include responsibilities, reporting, monitoring, and conformance with permit requirements.)
- c) **Personnel:** that is, training and skills development, awareness, incentives, penalties, etc.

**2.7.2** The project actions are the key aspect of the EMP in that they are the actions taken that will achieve the required end state.

## **2.8 Integrate into project/operational systems, documentation, contracts**

**2.8.1** The actions in 2.7 should be integrated into applicable existing processes, systems, and documentation that are part of either the project for the development or of the existing operation.

**2.8.1.1** For new development projects: the EMP action requirements should be integrated into the scope of work or work description as part of tender documents and subsequent contracts. A register (see Annex D) should be maintained identifying the EMP requirements and where they can be located within the contract documentation, that is, design specifications, procedures, work instructions, etc.

**2.8.1.2** For existing sites: the EMP action requirements should become individual projects or specific responsibilities of an individual or team. For projects, the EMP shall be integrated into the scope of work or work description as part of the tender documents and subsequent contracts. A register (see Annex D) should be maintained identifying the EMP requirements and where they can be located within the operation.

**2.8.2** In some cases, an EMP could be represented in a single document, but for full effectiveness, it should be integrated into the appropriate project or operational systems and documentation.

## **2.9 KPIs**

**2.9.1** Link performance of the EMP to existing business performance measures and reporting practices.

## **2.10 Implement EMP action**

**2.10.1** Once the EMP has been formulated, accountabilities set, and resources made available, the EMP should be implemented. This may, for a new project, be in terms of a single contract or many contracts with contractors and subcontractors.

**2.10.2** For an existing site, it may be action undertaken by the responsible BU or individuals. It may also be in the awarding of contracts to undertake a specific project or part of operational and maintenance practices.

## **2.11 Monitoring and audit**

**2.11.1** Monitoring: the EMP will only be effective if there are mechanisms to measure and report on the KPIs. Together with the KPIs, there should be a monitoring programme in place to not only measure the EMP requirements, but also the environmental variables – that is, to measure not only conformance, but also environmental aspects and impacts that have not been accounted for in the EMP that are or could result in significant environmental impacts for which corrective action is required.

**2.11.2** The monitoring should include evaluation of compliance with statutory and other legal (contract) requirements. The results of monitoring should be analysed and used to identify areas of good performance as well as those requiring corrective and preventive action.

**2.11.3** Audit: to ensure the undertaking and conformance with the EMP requirements, an audit should be undertaken to close the EMP cycle. The audit can be used to identify non-conformances for which corrective action should be taken. The audit can also be used to identify findings that can be used to improve other EMPs.

**2.11.4** Audit findings should result in updating baseline information and the assessment techniques used in the identification of environmental issues and impacts.

## **2.12 General environmental aspects to be addressed in an EMP**

(Refer to respective division or Eskom subsidiary needs for specific aspects.)



### **2.12.1 Air quality**

**2.12.1.1** The negotiated CAPCO registration certificate requirements for power stations shall be adhered to.

**2.12.1.2** The regulations issued in terms of the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983), section 6 (j) in respect of burning veld shall be adhered to.

**2.12.1.3** In situations where firebreaks must be constructed to prevent fires spreading from the site as well as fires entering the site from adjacent land, these shall be constructed in accordance with the National Veld and Forest Fires Act, Act No 101 of 1998.

**2.12.1.4** Vehicle drivers shall drive at moderate speed on site access roads to minimise or eliminate dust pollution. In urban areas, access roads shall be treated to reduce dust pollution (tar, concrete, chipstone, etc.).

**2.12.1.5** Fumes (black smoke) emitted from vehicles and equipment/appliances shall be monitored and action taken to avoid causing a nuisance to the public.

**2.12.1.6** Burning of waste material such as vegetation and old cleaning materials resulting from maintenance activities at a site is strictly prohibited.

**2.12.1.7** Ash disposal areas shall be managed (rehabilitated) to minimise their potential for dust pollution.

### **2.12.2 Water quality**

**2.12.2.1** In accordance with the requirements of the Water Act, surface or groundwater shall not be polluted (oil, petrol, cleaning materials, herbicides, power station "dirty water" and ash, etc.) under any circumstances. Storm water shall be managed to ensure that it does not become polluted.

**2.12.2.2** An adequate sewage facility (big enough capacity, no leaks, and emptied regularly in the case of a septic tank) shall be established, and the permit requirements of treatment equipment shall be adhered to.

**2.12.2.3** Proper toilet facilities (possibly portable) shall be provided for field staff.

**2.12.2.4** All hazardous substances at the site shall be adequately stored and accurately identified, recorded, and labelled (that is, polychlorinated biphenyls – PCB/Askarel). All waste to be disposed of at an appropriate waste facility.

### **2.12.3 Land management**

**2.12.3.1** The boundaries of the Eskom site shall be clearly identified and demarcated to ensure that the whole site is addressed in the EMP (the site usually extends far beyond the security fence).

**2.12.3.2** The site's title deed or deed of servitude shall be obtained, and the conditions contained therein shall be adhered to.

**2.12.3.3** All bush clearing shall be undertaken in terms of an EMP and in conformance with legislation and Eskom policy and standard requirements.

**2.12.3.4** Protected or endangered plant and animal species occurring on Eskom sites and servitudes shall be identified and protected from Eskom's activities or plant. Permits shall be obtained from the relevant authority for the clearing of protected trees (see Environmental

Procedure – Land – Procedure for vegetation clearance and maintenance within overhead power line servitudes and on Eskom-owned land).

**2.12.3.5** Eskom shall adhere to the legal requirements in terms of herbicide usage.

**2.12.3.6** Fences and gates of property owners shall not be damaged when gaining access to the site. The condition of Eskom gates and locks shall be regularly monitored to ensure that they are secure (that is, to prevent animals getting in or out as well as to prevent access to the site by unauthorised personnel). Gates shall always be kept closed.

**2.12.3.7** Access roads and site ground shall be monitored for deterioration and possible erosion. Soil erosion shall be prevented at all times. Proactive measures shall be implemented to curb erosion and to rehabilitate eroded areas.

**2.12.3.8** During construction of new sites/power lines, concrete dumping/washing is to be done on the piles of ground removed from the foundation excavations, which shall then be placed back into the foundation excavations.

**2.12.3.9** Weeds shall not be allowed to grow or spread. Invasive plants and weeds shall be identified and controlled to prevent their spreading.

**2.12.3.10** All animal fatalities due to the site infrastructure such as bird collisions and small mammal electrocutions shall be identified, and appropriate action shall be implemented to minimise or eliminate the problem. Wildlife interactions shall be reported, recorded, and investigated in compliance with BU procedure, and after action has been implemented to solve the problem, they shall be followed up to assess the effectiveness of the remedial measures taken.

**2.12.3.11** No fires shall be made for waste destruction. Firebreaks shall be constructed to prevent fires from spreading from or into the site. Regulations in respect of veld burning issued under the Conservation of Agricultural Resources Act, Act No 43 of 1983, section 6 (j) shall be adhered to. These shall align with the Forest Act, Act No 122 of 1984 and the National Veld and Forest Fires Act, No 101 of 1998.

**2.12.3.12** A plan/programme for the landscaping of the site shall be considered. This shall cover the aesthetics of the site (screening of site using embankments, walls, and/or vegetation) and rehabilitation.

## **2.12.4 Community issues**

**2.12.4.1** A list of the neighbouring properties, property owners' names, addresses, and telephone numbers, and land use shall be drawn up.

**2.12.4.2** A plan of action shall be concluded with the neighbouring property owners and the relevant authorities in the case of an emergency (veld fire, oil spillage, water contamination, etc.). Eskom contact names and telephone numbers shall be given to all neighbours, and vice versa.

**2.12.4.3** Property owners and local residents shall be treated with respect and courtesy at all times.

**2.12.4.4** The culture and lifestyles of the communities living in close proximity to the site and work sites shall be respected.

**2.12.4.5** Removal (pilfering) of agricultural products (sugar cane, fruit, vegetables, stock, fire wood, etc.) and poaching are prohibited. Receipts shall be obtained for any merchandise purchased or received from landowners.

**2.12.4.6** Environmental clauses shall be included in contract documents for all contractors (the services of contractors with proven track records of sound environmental performance shall be used).

**2.12.4.7** Graves, archaeological sites, and sites of historical interest (as defined in the National Heritage Resources Act, Act No 25 of 1999) in close proximity to an Eskom site or other work sites shall be protected and treated with respect.

**2.12.4.8** All complaints shall be reported, recorded, and investigated in compliance with the BU/procedure.

**2.12.4.9** Eskom sites shall be evaluated in terms of their contribution to noise pollution, and actions shall be implemented to ensure conformance with legal requirements and taking into consideration the views of adjacent land users/landowners.

### **3 Supporting clauses**

#### **3.1 Scope**

The purpose of this document is to ensure that:

- a) there is a process to identify existing negative environmental impacts or to predict potential negative environmental impacts;
- b) objectives and targets are set to ensure that negative impacts are mitigated and existing impacts rehabilitated;
- c) resources and responsibilities are allocated to each target;
- d) actions are implemented to mitigate the identified negative environmental impacts; and
- e) monitoring programmes are developed to track the actions that have been implemented to ensure the effectiveness of the actions.

This procedure is applicable to Eskom Holdings (Pty) Limited and its divisions and wholly owned subsidiaries.

#### **3.2 Definitions and abbreviations**

For general definitions, refer to the Environmental Procedure. Definitions specific to this document are repeated below

BU	Business unit
CAPCO	Chief Air Pollution Control Officer
EIA	Environmental impact assessment
EMP	environmental management programme
Environmental management programme	A programme that seeks to achieve a required environmental end state and describes how activities that could have a negative impact on the environment will be managed and monitored and impacted areas rehabilitated.

#### **3.3 Normative references**

The following documents contain provisions that, through reference in the text, constitute requirements of this procedure. Latest versions apply.

At the time of publication, the editions indicated were valid. All controlled documents are subject to revision, and parties to agreements based on this guideline are encouraged to investigate the possibility of applying the most recent edition of the documents listed below.

Information on currently valid national and international standards and specifications can be obtained from the Information Centre and Eskom Documentation Centre at Megawatt Park.

SANS ISO 14015, *Environmental management – Environmental assessment of sites and organisations (EASO)*

### **3.4 Implementation date**

The implementation date will be 1 January 2007.

### **3.5 Monitoring process**

Reporting on EMP implementation is included in Eskom's Annual Report. This information is subject to internal and external audit.

### **3.6 Related documents**

Environmental Land Policy EPL 32-97

Environmental Procedure – Land – Procedure for vegetation clearance and maintenance within overhead power line servitudes and on Eskom-owned land EPC 32-96

### **3.7 Authorisations**

This document has been seen and accepted by the ELC and duly authorised by the General Manager Corporate Sustainability.

### **3.8 Revisions**

Date	Rev	Compiler	Remarks
Dec 2005	2	Dave Lucas	Revised totally in terms of policy review process.

## **4 Annexes**

### **Annex A**

(Informative)

There are three main categories of documentation that one should have access to for EMP development. These three sets of documents provide the link between Eskom's activities and the legal requirements that have to be complied with.

- Eskom Legal Register that links Eskom activities to the relevant legal requirements
- Specific pieces of legislation as made mention of in the Legal Register above
- The relevant Eskom control documentation that is based on ensuring compliance with legislation through controlling how activities need to take place

The link to relevant Eskom environmental documentation and legislation can be found at the following link: <http://teknowrep/cs/>.

### **A.1 Eskom-controlled documentation**

Many of the standards and procedures are being combined into an overall Control Document for the Environmental Procedure. It contains all supporting documentation and clauses required for environmental procedures in Eskom and should be referenced in all documentation forming part of the procedure. All requirements and clauses shall apply to all supporting documentation unless specifically mentioned.

Access to the relevant environmental documentation can be gained through the following link: <http://teknowrep/cs/>.

#### **Eskom environmental documentation**

- SHE Policy
- Environmental Liaison Committee (ELC) Reporting Procedure
- ELC Terms of Reference
- Air Quality Management Policy
- Water Management Policy
- Climate Change Policy
- Environmental Land Policy
- Environmental Procedure, containing sections on the following:
  - Environmental management system
  - Environmental management programme
  - Waste management
  - Land management
  - Electro and magnetic fields
  - Due diligence
  - Reporting on environmental expenditure

**Annex A**

(Continued)

**A.2 Environmental statutory requirements**

**Eskom Environmental Legal Register**

These environmental legal registers have been developed based on the activities of Eskom and, in particular, those activities that have an impact on the environment. They are based on the relevant divisional aspect registers, which identify the aspects of the division's activities that have a significant impact on the environment.

The registers have been developed by Imbewu Legal Consultants to fulfil the ISO 14001 Environmental Management System Standard requirements for all divisions in Eskom.

The Eskom environmental legal registers can be found at <http://teknowrep/cs/legal/>.

The Eskom Environmental Legal Register consists of the following:

- Eskom Group Environmental Legal Register
- Corporate Sustainability (SHE) Legal Register
- Generation Environmental Legal Register
- Distribution Environmental Legal Register
- Finance Environmental Legal Register
- Transmission Environmental Legal Register
- Abbreviation Index and the Environmental Legal Commentary


All of these may be accessed directly from this main index or from the index of each of the registers.

The legal registers cover all South African national legislation and regulations and also refer to relevant international conventions, which are discussed in further detail in the Eskom Environmental Legal Commentary. Relevant Eskom policy documents have been referred to in the tables. It is important to note that the register covers generic legal obligations and that each facility will need to investigate its own site-specific legal requirements, for example, provincial legislation, local by-laws, permits, contracts, etc., to ensure that all legal obligations that are applicable to the particular facility are covered.

At the beginning of each aspect table, the generally applicable legal requirements that apply to that aspect are set out, for example, the requirements that are applicable to air emissions generally. Legal obligations relevant to particular components of the aspect, for example, carbon dioxide or dust emissions, are then dealt with separately.

The best way to access the applicable legal obligations is to select the aspect that one wishes to investigate by first going to the index of aspects in the Environmental Register, double-clicking on that aspect, and then perusing the legal obligations and guidelines set out in the table relating to that aspect. All of the phrases underlined in the tables on legal obligations (that is, the main source of the legal obligation, set out in abbreviated form, for example, NEMA for National Environmental Management Act) indicate that the text has been linked by Eskom to the relevant section of the particular Act or regulation included in the Eskom environmental legislation database.

A brief description of the essence of the legal provision and its relevance to Eskom is provided. Where further information has been included in the Legal Commentary on the

particular obligation listed in the table, a link  is provided under the obligation directly to that point in the Legal Commentary.

**Annex A**

(Concluded)

The Legal Commentary should be read in conjunction with the tables summarising the applicable legal obligations. It is important to note that although hard copies of the Legal Register have been provided for ease of reference, the register has been specifically compiled for electronic use and so that the legal obligations could be directly linked to the actual legislation contained in the Eskom environmental database.

The legislation database is updated on a regular basis, depending on the nature and extent of changes in relevant legislation. The legal registers have been prepared to assist Eskom with compliance with generally applicable legal obligations and are intended as a guideline only. The legal registers are not a substitute for detailed legal advice on specific issues and do not cover all legal obligations. Should you require more detailed legal advice or have any queries in regard to the content or application of the registers, kindly contact Catherine Warburton at IMBEWU Enviro-Legal Specialists (Pty) Ltd on (011) 325-4928.

**Environmental legislation**

Eskom has access to a legal database (<http://teknowrep/cs/legal/>) to access relevant environmental legislation. This database only covers national legislation, provincial legislation, and some local legislation. Please consult your local authority to get by-laws applicable to your business unit.

**Relevant external legal links**

<a href="#">ECOLEX: Gateway to Environmental Law</a>	A gateway to environmental law, (international site by UNEP, looking at international treaties, national legislation, court decisions, and literature)	This site has a good search engine.
<a href="#">SA Government</a>	Official government documents	Sometimes difficult to find specific document.
<a href="#">Acts Online</a>	Access to South African Acts	Simple to access specific acts; not sure how up to date the site is.

**Annex B**  
(Normative)

**B.1 Checklist for required power line baseline data**

Power line name: .....

Responsible person/BU: .....

Assessor's name: ..... Unique no: .....

Assessment date: .....

No	Item	Yes	No	Reference/location	Action
1	1:50,000 map with annotated power lines and towers				
2	Spanning plans/profiles				
3	Vegetation types				
4	Soil types				
5	General climate				
6	Vegetation control procedures/standards				
7	Herbicide procedures/standards				
8	Herbicide Register				
9	Bird Interaction Register				
10	Sections of power line fitted with bird markers/protectors/shields/guards				
11	Vegetation control contracts in place				
12	Affected landowners' property details, names, addresses, telephone numbers, and land use				
13	Lightning frequency				
14	Sensitive environmental areas				
15	Complaints/Communication Register				
16	Archaeological/historical sites				
17	Technical data on the power line				
18	Line slope analysis (slope and soil type and rainfall)				
19	Schedule of landowners' "special conditions"				
20					
21					
22					
23					
24					



**Annex B**

(Continued)

**B.2 Checklist for baseline data required for land, substation, and radio repeater sites**

Site name: .....

Responsible person: .....

Assessor's name: ..... Unique no: .....

Assessment date: .....

No	Item	Yes	No	Reference/location	Action
1	Map showing extent of Eskom property (servitude or property diagram)				
2	Layout map showing site layout on Eskom property				
3	Plans showing water supply, sewage discharge, oil traps/bund walls/canals/ holding dams, storm water drains, fire hydrants				
4	Register of All Hazardous Substances and their hazardous data sheets				
5	Waste Register (domestic, medical, hazardous, garden, building rubble)				
6	Herbicide Register				
7	Register of Legal Requirements				
8	Register of Operational Policies, Standards, Procedures, and Work Instructions				
9	Register of All Operations Taking Place on the Site				
10	Register of All Contracts in Place				
11	Soil type				
12	Problematic vegetation				
13	Adjacent property descriptions, landowners' names, addresses, telephone numbers, and land use				
14	Environmental emergency plan				
15	Title deeds of property				
16	Special conditions in terms of land use zoning and landowners' "special agreements"				
17	Firebreak statutory requirements and programme				
18					
19					
20					
21					
22					

**Annex B**  
(Continued)

**B.3 Checklist for baseline data required for power station sites**

Site name: .....

Responsible person: .....

Assessor's name: ..... Unique no: .....

Assessment date: .....

No	Item	Yes	No	Reference/location	Action
1	Map showing extent of Eskom properties (property diagrams)				
2	CAPCO registration certificate				
3	Water quality requirements (permits)				
4	Registration certificate of waste site				
5	Copies of title deeds of properties				
6	All lease contracts of Eskom land with third parties				
7	Special conditions in terms of land use zoning and landowners' "special agreements"				
8	Layout map showing site layout on Eskom property and associated plant and activities				
9	Plans/schematic drawings showing coal stockyard, coal bunkers and mills, coal conveyors, dumping of coal discards				
10	Plans showing location and drainage at precipitators, hoppers, ash and slurry plant, ash pipelines/conveyors, ash disposal areas				
11	Plans showing location and drainage at turbine lubricating store and processing plant, transformer oil purification and processing plant, bulk oil and lighting up plant, clean and dirty oil stores				
12	Plans showing water systems, that is, potable water treatment plant, demineralisation plant, condensate polishing plant, chemical laboratories and stores, storm water drainage system, blowdowns, dirty water effluent dam/station drain dams, clean water dams, intermediate/emergency dams, storm water disposal systems, sewage plant, raw water reservoir, diversion of streams				

**Annex B**  
(Concluded)

No	Item	Yes	No	Reference/location	Action
13	Plans showing plantations, nursery yard, rehabilitated and landscaped areas, recreational areas, degraded areas				
14	Plans showing power lines, airstrip, roads, parking areas, boundary fences, security fences, firebreaks, fire station and training area, medical centre, buildings, workshops, accommodation, leased areas, surrounding land use, waste collection and disposal areas				
15	Register of All Hazardous Substances and their hazardous data sheets				
16	Waste Register (domestic, medical, hazardous, garden, building rubble, oil, metals)				
17	Herbicide Register				
18	Register of Legal Requirements				
19	Register of Operational Policies, Standards, Procedures, and Work Instructions				
20	Register of All Operations Taking Place on the Site that Affect Environmental Performance				
21	Register of All Contracts in Place				
22	Soil type				
23	Problematic vegetation				
24	Adjacent property descriptions, landowners' names, addresses, telephone numbers, and land use				
25	Environmental emergency plans				
26	Firebreak statutory requirements and programme				
27	Climate and weather				
28	All environmentally-related permits and certificates and correspondence				
29	Environmental monitoring results, reports, and performance indicators				
30					
31					
32					
33					
34					
35					
36					
37					
38					

**Annex C**

(Normative)

**C.1 Checklist for identification of environmental aspects and impacts  
on power line routes**

Site name: .....

Responsible person: .....

Assessor's name: ..... Unique no: .....

Assessment date: .....

From tower no: ..... To tower no: .....

(Environmental issues identified shall be marked up on a sketch or map of power line.)

Checklist for issues to be identified

<b>Aspect</b>	<b>Aspect</b>	<b>Aspect</b>
Access road: <ul style="list-style-type: none"> <li>• Centre line</li> <li>• Other</li> </ul>	Bird interactions <ul style="list-style-type: none"> <li>• Collisions</li> <li>• Electrocutions</li> <li>• Pollution</li> <li>• Nests</li> <li>• Need for remedial action</li> </ul>	Storm water drainage <ul style="list-style-type: none"> <li>• Natural</li> <li>• Berms</li> <li>• Channels</li> <li>• Pipes</li> </ul>
Soil erosion <ul style="list-style-type: none"> <li>• Tower position</li> <li>• Access road</li> <li>• River crossing</li> <li>• Other</li> </ul>	Eskom gates <ul style="list-style-type: none"> <li>• General condition</li> <li>• Closed and locked</li> <li>• Locks</li> </ul>	Social activities under power line <ul style="list-style-type: none"> <li>• Houses</li> <li>• Farming</li> <li>• Structures</li> <li>• Mining</li> <li>• Airfields</li> <li>• Power lines</li> <li>• Telephone lines</li> <li>• Other</li> </ul>
Bush encroachment <ul style="list-style-type: none"> <li>• Clearance</li> <li>• Fire risk</li> </ul>	Construction material <ul style="list-style-type: none"> <li>• Concrete</li> <li>• Steel works</li> <li>• Insulators</li> <li>• Conductor</li> <li>• General</li> </ul>	Visual impact
Alien/invader vegetation <ul style="list-style-type: none"> <li>• Access</li> <li>• Fire risk</li> <li>• Clearance</li> <li>• Spread</li> </ul>		Soil type <ul style="list-style-type: none"> <li>• Sandy</li> <li>• Clay</li> <li>• Rocks</li> <li>• Wet</li> </ul>
Protection of natural vegetation	Fence crossings <ul style="list-style-type: none"> <li>• General condition</li> </ul>	Lightning
Archaeological/historical/natural heritage/cultural sites	River crossings	Complaints or requests from landowners
Noise complaints	Risk to airfields and flight paths (crop spraying and game management)	Radio/TV interference



**Annex C**

(Continued)

**C.3 Checklist for identification of environmental aspects and impacts at Eskom sites, land, substation, and radio repeater sites**

Site name: .....

Responsible person: .....

Assessor's name: ..... Unique no: .....

Assessment date: .....

(Environmental aspect identified should be marked up on this sketch.)

	Aspect	Description	Impact			
			N/A	High	Med	Low
	Erosion <ul style="list-style-type: none"> <li>• HV yard</li> <li>• Security fences</li> <li>• Storm water</li> <li>• Access road</li> </ul>					
	Vegetation control <ul style="list-style-type: none"> <li>• HV yard</li> <li>• Security fences</li> <li>• Outside fence area</li> <li>• Firebreak</li> <li>• Other</li> </ul>					
	Storm water <ul style="list-style-type: none"> <li>• Outlet</li> <li>• HV yard</li> <li>• Terraces</li> </ul>					

**Annex C**  
(Continued)

			Impact			
	Aspect	Description	N/A	High	Med	Low
	Leaching of herbicides <ul style="list-style-type: none"> <li>• Security fences</li> <li>• Outside Eskom property</li> </ul>					
	Oil spills <ul style="list-style-type: none"> <li>• HV yard</li> <li>• Oil dam</li> <li>• Storage area</li> </ul>					
	Littering <ul style="list-style-type: none"> <li>• General</li> <li>• Maintenance</li> <li>• Construction</li> </ul>					
	Waste disposal <ul style="list-style-type: none"> <li>• Waste separation</li> <li>• Bins</li> <li>• Site disposal</li> <li>• Contract for disposal</li> </ul>					
	Water <ul style="list-style-type: none"> <li>• Municipal</li> <li>• Storm water collection</li> <li>• Borehole</li> </ul>					
	Sewerage <ul style="list-style-type: none"> <li>• Municipal</li> <li>• Septic tank</li> <li>• French drain</li> </ul>					
	Hazardous material store <ul style="list-style-type: none"> <li>• Register</li> <li>• Data sheets</li> <li>• Ventilation</li> <li>• Storage</li> </ul>					
	Security of oil dam <ul style="list-style-type: none"> <li>• Security fence</li> <li>• Shade netting</li> </ul>					
	Animal interactions <ul style="list-style-type: none"> <li>• Security fence</li> <li>• HV yard (pollution/nests)</li> <li>• Oil dam</li> </ul>					
	PCB labelling					
	Firebreak					
	Oil trap					
	Landscaping					
	Visual impact					
	Complaints and requests by landowners					
	Noise pollution and complaints					
	Eskom fences and gates <ul style="list-style-type: none"> <li>• General condition</li> </ul>					

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	<ul style="list-style-type: none"><li>• Closed and locked</li><li>• Locks</li></ul>					
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**Annex C**  
(Continued)

**C.4 Checklist for identification of environmental aspects and impacts at power station sites**

Site name: .....

Responsible person: .....

Assessor's name: ..... Unique no: .....

Assessment date: .....

(Environmental aspect identified should be marked up on a site plan.)

			Impact			
	Aspect	Description	N/A	High	Med	Low
	Erosion <ul style="list-style-type: none"> <li>• General site</li> <li>• Security fences</li> <li>• Storm water</li> <li>• Access roads</li> </ul>					
	Vegetation control <ul style="list-style-type: none"> <li>• General site</li> <li>• Security fences</li> <li>• Outside fence area</li> <li>• Firebreak</li> <li>• Leased land</li> <li>• Other</li> </ul>					
	Storm water <ul style="list-style-type: none"> <li>• Outlet</li> <li>• Internal pollution</li> <li>• Network</li> </ul>					
	Leaching of herbicides <ul style="list-style-type: none"> <li>• Security fences</li> <li>• Outside Eskom property</li> </ul>					
	Oil spills <ul style="list-style-type: none"> <li>• Oil and grit plant</li> <li>• Turbine lubricating store and processing plant</li> <li>• Transformer oil purification and processing plant</li> <li>• Bulk oil and lighting up plant</li> <li>• Silt traps</li> <li>• Oil traps</li> <li>• Oil storage areas</li> <li>• General site</li> </ul>					

**Annex C**  
(Continued)

	Aspect	Description	Impact			
			N/A	High	Med	Low
	Waste disposal <ul style="list-style-type: none"> <li>• Waste separation</li> <li>• Bins</li> <li>• Holding/separation site</li> <li>• P/S waste site</li> <li>• Site disposal</li> <li>• Contract for disposal</li> </ul>					
	Water <ul style="list-style-type: none"> <li>• Cooling towers</li> <li>• Cooling water pump house</li> <li>• Potable water treatment plant</li> <li>• Demineralisation plant</li> <li>• Condensate polishing plant</li> <li>• Chemical laboratory and stores</li> <li>• Storm water drainage system</li> <li>• Storm water discharge</li> <li>• Borehole analysis</li> <li>• Blowdowns</li> <li>• Dirty water effluent dams/station drain dams</li> <li>• Clean water dams</li> <li>• Intermediate/emergency dams</li> </ul>					
	Sewerage <ul style="list-style-type: none"> <li>• Plant</li> <li>• Maintenance</li> <li>• Capacity</li> <li>• Effluent</li> </ul>					
	Hazardous material store <ul style="list-style-type: none"> <li>• Register</li> <li>• Data sheets</li> <li>• Ventilation</li> <li>• Storage</li> </ul>					
	General infrastructure <ul style="list-style-type: none"> <li>• Security fences</li> <li>• Power lines</li> <li>• Airstrip</li> <li>• Roads</li> <li>• Parking areas</li> <li>• Boundary fence</li> <li>• Firebreaks</li> <li>• Fire station and testing area</li> <li>• Medical centre</li> <li>• Buildings</li> <li>• Workshops</li> <li>• Accommodation</li> <li>• Leased farm land</li> </ul>					
	Animal interactions <ul style="list-style-type: none"> <li>• Security fence</li> </ul>					

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	<ul style="list-style-type: none"><li>• Plant</li><li>• Dams</li><li>• Other</li></ul>					
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**Annex C**  
(Concluded)

	Aspect	Description	Impact			
			N/A	High	Med	Low
	PCB labelling					
	Firebreak					
	Landscaping					
	Visual impact					
	Complaints and requests by landowners					
	Noise pollution and complaints					
	Eskom fences and gates <ul style="list-style-type: none"> <li>• General condition</li> <li>• Closed and locked</li> <li>• Locks</li> </ul>					
	Air pollution <ul style="list-style-type: none"> <li>• Stacks</li> <li>• Coal stockyard</li> <li>• Coal discards</li> <li>• Ash disposal</li> <li>• Waste site</li> </ul>					
	Coal <ul style="list-style-type: none"> <li>• Coal stockyard</li> <li>• Coal bunkers and mills</li> <li>• Coal conveyors</li> <li>• Coal discards</li> </ul>					
	Ash <ul style="list-style-type: none"> <li>• Ash dams</li> <li>• Ash water return dams</li> <li>• Ash water canals</li> <li>• Precipitators 7 hoppers</li> <li>• Particulate emissions</li> <li>• Ash crushers</li> </ul>					
	Waste <ul style="list-style-type: none"> <li>• General littering</li> <li>• Bins</li> <li>• Collection areas</li> <li>• Contracts</li> <li>• Disposal site</li> <li>• Hazardous</li> <li>• Domestic</li> <li>• Building</li> <li>• Garden</li> <li>• Medical</li> <li>• Oil</li> <li>• Metals</li> </ul>					

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**Annex D**

(Normative)

**EMP Register**

**D.1 Environmental Management Programme Register**

Site/power line: .....

Compiled by: .....

Date: .....

Revision date: .....

Activity/location	Environmental aspect	Impact (Y/N)	Significance (H/M/L)	Regulatory requirement	Action to be taken	Responsible person/team	Due date	References/ remarks	Date completed