Eskom	MANUAL	Lethabo Power Station

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1. INTRODUCTION

Lethabo Power Station management has implemented and aligned its environmental management system in compliance with ISO 14001:2015 as a means of managing impacts to and ensuring continual improvement of the environment in which it operates.

This document, the Lethabo Power Station Environmental Management System Manual LBE11001, is applicable to all areas owned by Lethabo Power Station. It also describes the general organization at the station and defines the personnel structure; methods and resources required minimizing environmental impacts and are applicable to all phases of its activities. The manual is the property of Lethabo and is supported by written procedures and work instructions applicable to the BU for the performance of specific tasks. It constitutes the environmental component of Lethabo Environmental Management System.

The EMS manual document and related procedures are available on Hyperwave.

Name and address of the power station

Lethabo Power Station
Private Bag X 415
Vereeniging
1930

Owner of Land

Eskom
Megawatt Park
Maxwell Drive
Sunning hill

PO Box 1091
Johannesburg
2000

2. SUPPORTING CLAUSE

2.1 SCOPE

The scope of the Lethabo Power Station is outlined in the manual below. The scope shall be maintained as documented information and be available to interested parties.

2.1.1 Purpose

Lethabo Power Station management has decided to implement and align its environmental management system to conform with the ISO 14001:2015 standard as a means of managing impacts to and ensuring continual improvement of the environment in which it operates.

This manual defines the scope and requirements of the Lethabo Power Station Environmental Management System (EMS) and provides a linkage of system documents to the various elements of the ISO 14001:2015 standard.

2.1.2 Applicability

This document shall apply throughout Eskom Lethabo Power Station to all departments and permanent contractors at Lethabo Power Station including those service providers we can control and those we can influence where applicable.

2.2 NORMATIVE/INFORMATIVE REFERENCES

2.2.1 Normative

240-133087117	Environmental Incident Management Procedure
240-157509873	Ash, Gypsum and Clinker Utilisation Standard
240-56242363	Emissions Monitoring and Reporting Standard
32-245	Eskom Waste Standard
32-727	Eskom SHEQ policy
ISO 14001:2015	Environmental Management system standard
LBA00164	Emission Monitoring Procedure
LBE21001	Work instruction for identifying and updating Environmental Aspects
LBE21002	Work Instruction for Compliance Obligations
LBE22001	Training, Awareness and Competence
LBE22002	Environmental Communication & Reporting (Internal &External)
LBE22004	Waste Management Procedure
LBE22005	Environmental Spill Pollution Management
LBE23001	Environmental Audits
LBE23003	Environmental Non-conformance Investigation and Reporting
LBE23004	Environmental Monitoring and Measurement

LBE23005	Minimum Surveillance Requirements on Ground water Monitoring Boreholes and Surface Storm water
LBE23006	Monitoring, Control and Eradication Plan for Invasive Species on Lethabo Power Station Land
LBE24001	Biodiversity Management Procedure
LBQ10001	Management Documentation Numbering System
LBQ21001	Preparation and Control of Documents
LBQ21002	Control of Records
LBQ25011	IIAM Technical and Audit Issue Management
LBQ25015	Corrective & Preventive Action Management Process
LBQ31001	Writing Management Documentation
LBS00002	Emergency Preparedness Station Response Plan
LFM124	Aspects and Impacts register
LFME021	Training and Awareness Matrix
LPA01002	Environmental Land Management Guide for Lethabo Power Station
LPL22001	Environmental Emergency Preparedness
LRG09001	Risk and Opportunity Register
PS010	Environmental statement of commitment

2.2.2 Informative

- None

2.3. DEFINITIONS AND ABBREVIATIONS

2.3.1 Classification

a) Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

Definition	Explanation
Audit	Systematic, independent and documented process (3.3.5) for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled
Certification	Procedure by which a third party gives written assurance that a product process or service conforms to specified requirements (ISO)
Competence	Ability to apply knowledge and skills to achieve intended results
Compliance obligations	Legal requirements that an organization has to comply with and other requirements that an organization has to or chooses to comply with
Conformity	Fulfilment of a requirement
Continual improvement	Recurring activity to enhance performance

Definition	Explanation
	Note 1: Enhancing performance relates to the use of the environmental management system to enhance environmental performance consistent with the organization's environmental policy. Note 2: The activity need not take place in all areas simultaneously, or without interruption.
Corrective action	Action to eliminate the cause of nonconformity and to prevent recurrence.
Document control centre (hyperwave)	Central controlled environment where documents are saved.
Documented information	Information required to be controlled and maintained by an organization and the medium on which it is contained
Effectiveness	Extent to which planned activities are realized and planned results achieved
Environment	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) and (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. National Environmental Management Act
Environmental aspect	Element of an organization's activities or products or services that interacts or can interact with the environment.
Environmental condition	State or characteristic of the environment as determined at a certain point in time
Environmental impact	Change to the environment whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects..
Environmental management programme (EMP)	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.
Environmental management system (EMS)	Part of the management system used to manage environmental aspects, fulfil compliance obligations and address risks and opportunities. Part of an organisation's management system used to develop and implement its environmental policy and manages its environmental aspects.
Environmental objective	Overall environmental goal, consistent with the environmental policy, that an organisation sets itself to achieve.

Definition	Explanation
Environmental performance	Performance related to the management of environmental aspects
Environmental policy	Overall intentions and directions of an organisation related to its environmental performance as formally expressed by top management.
Eskom holdings limited	Eskom as defined in the Eskom Conversion Act, 2001 means the juristic person referred to in Section 2 of the Eskom Act and upon conversion means Eskom Holdings Limited. What this implies is that the word Eskom refers to Eskom Holdings Limited, which is made up of all Divisions.
Eskom land	Any land and/or servitude registered in the deeds office in Eskom's name
Indicator	Measurable representation of the condition or status of operations, management or conditions
Interested party	Person or organization that can affect, be affected by, or perceive itself to be affected by a decision or activity.
Internal audit	Systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the environmental management system audit criteria set by the organization are fulfilled.
Life cycle	Consecutive and interlinked stages of a product (or service) system, from raw material acquisition or generation from natural resources to final disposal
Management representative	The organization's top management shall appoint a specific management representative who irrespective of other responsibilities, shall have defined roles, responsibilities and authority
Measurement	Process to determine a value
Monitoring	Determining the status of a system, a process or an activity
Nonconformity	Non-fulfilment of a requirement. A Non-conformance is interpreted to include legal non-compliance, deviations from policy, objectives and indicators not met as well as accidents, ineffective procedures, and deviations from specified conditions and from other requirements of the environmental management system.
Nonconformity	Non-Fulfilment of a requirement
Organisation	Person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives. Generation Head Office Portfolios
Outsource (verb)	Make an arrangement where an external organization performs part of an organization's function or process
Performance	Measurable result
Pollution	Any change in the environment caused by- (i) substances;

Definition	Explanation
	(ii) radioactive or other waves; or (iii) noise, odours, dust or heat, emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future. National Environmental Management Act
Portfolio	Organisations within Generation's structure, reporting to the Managing Director Generation
Prevention of pollution	Use of processes, practices, techniques, materials, products, services or energy to avoid, reduce or control (separately or in combination) the creation, emission or discharge of any type of pollutants or waste, in order to reduce adverse environmental impacts.
Preventive action	Action to eliminate the cause of a potential nonconformity.
Process	Set of interrelated or interacting activities which transforms inputs into outputs
Record	Document stating results achieved or providing evidence of activities performed.
Risk	Effect of uncertainty
Risks and opportunities	Potential adverse effects (threats) and potential beneficial effects (opportunities)
Stakeholder	Includes customers, investor's, government, the general public and employees
Sustainable development	Development which meets the needs of the present without compromising the ability of future generations to meet their own needs (Report of the World Commission on Environment and Development, 1987)
Top management	Person or group of people who directs and controls an organisation at the highest level. Includes PSM and departmental heads
Validation	The process of deciding if an item or service can comply with agreed requirements
Verification	The process of deciding if an item or service complies with agreed requirements by carrying out functional testing

Definition	Explanation
Waste	(a) any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes as defined in Schedule 3 to this Act; or (b) any other substance, material or object that is not included in Schedule 3 that may be defined as a waste by the Minister by notice in the Gazette, but any waste or portion of waste, referred to in paragraphs (a) and (b), ceases to be a waste- (i) once an application for its re-use, recycling or recovery has been approved or, after such approval, once it is, or has been reused, recycled or recovered; (ii) where approval is not required, once a waste is, or has been re-used, recycled or recovered; (iii) where the Minister has, in terms of section 74, exempted any waste or a portion of waste generated by a particular process from the definition of waste; or (iv) where the Minister has, in the prescribed manner, excluded any waste stream or a portion of a waste stream from the definition of waste. [Definition of "waste" substituted by s. 38 of Act 14/2013 and s. 1 of Act 26/2014]

2.4 ABBREVATIONS

Abbreviations	Description
AEL	Air Emissions License
DFFE	Department Forest, Fisheries and the Environment
EIA	Environmental Impact Assessment
EMP	Environmental Management Programme
EMS	Environmental Management System
Gx	Eskom Generation Division
HOD	Head of Departments
ISO	International Organisation for Standardisation
ITT	Implementation Task Team
KPI	Key Performance Indicator
LTF	Leeu-Taaiboschspruit forum
MC	Management Committee
MSRG	Multi-Stakeholder reference Group
PSGM	Power Station General Manager
SCCC	Site Change Control Committee

SEAC	Station Environmental Action Committee
VTAPA	Vaal Triangle Airshed Priority Area
WML	Waste Management License
WUL	Water Use License

2.5 ROLES AND RESPONSIBILITIES

The roles and responsibilities will be detailed as per the ISO 14001 clause detailed in the document content. The role of the EMS rep has been assigned to the environmental manager.

2.6 PROCESS FOR MONITORING

Environmental Management System Documentation – According to ISO Clauses.

2.7 RELATED /SUPPORTING DOCUMENTS

None

3. ENVIRNMENTAL MANAGEMENT SYSTEM MANUAL

3.1 CONTEXT OF THE ORGANIZATION

3.1.1 Understanding the organization and its context

Lethabo Power Station is situated in the Northern Free State at an altitude of 1460m above sea level. The Power Station lies approximately 22km east of Sasolburg and 8km south of Vereeniging. Its proximity to the heart of the Vaal Triangle enables Lethabo Power Station to feed electrical energy into Eskom's local 275kV transmission network for distribution to its customers.

Construction of Lethabo started in 1980. Extensive environmental studies were conducted at the chosen site. This was in accordance with Eskom's established policy of protecting fauna and flora considered valuable to the country's heritage. From the studies it was concluded that the condition of the land and vegetation in question had deteriorated, and it was established that the rehabilitation programs implemented as part of Eskom's normal operations would contribute considerably to the restoration and revaluation of the whole area. During site clearing 350 hectares of Blue gum plantation had to be removed. 190,000 Blue gum trees were cleared over a period of 5 months. Removal of the trees saw a significant increase in the underground water table. 2.2 Million cubic metres of earth was levelled during the successive terracing stages, and a 400mm deep layer of ash and sand mixture was used to provide the final surface. In addition to this, the Power Station was built in an area of the Free State where heaving soil is prevalent.

Due to this, a very sophisticated piling foundation system for all the major structures was required. The piles were installed in competent soil layers at depths of more than 25 metres, and the top 15 metres of each pile was isolated from the upper layers of heaving clays. In total, 11,000 piles were sunk and foundations were then constructed on these piles. The piling contract at Lethabo is the largest contract of its kind in South Africa. A 750mm void was left under the foundations to allow for expansion and contraction of the underlying soils. The first set of Lethabo Power Station's six generating units went into operation in December 1985. The last of the Generating sets was commissioned in December 1990.

Lethabo Power Station is also termed a ZLED-station (Zero-Liquid-Effluent-Discharge). This means that the whole station is a closed system and no water from our processes are allowed to leave the power station premises. An extensive water recycling and cleaning system is in place. Lethabo is committed to minimize its impact on the environment by pursuing sound environmental practices.

Lethabo comprises six generating sets (units) of 618 Megawatts each and has the generating capacity of 3708 Megawatts.

The raw materials for power generation are coal, water, fuel oil and minimal liquefied petroleum gas. The by-products are ash, gas and particulate emissions, effluents and waste oil. A unique aspect of Lethabo is the unusually low grade and quality of coal that is burnt in the power generation process. The coal burnt has an average calorific value of about 16 MJ/kg, sometimes dropping as low as 14 MJ/kg.

At full load, the power station consumes about 38,000 tons of coal per day. The ash content of the coal ranges between 35% and 42%, which means that the power station produces approximately 16,000 tons of ash per day. This ash is deposited into areas where coal has been mined out and rehabilitated to above ground level. An extensive rehabilitation program is in place to ensure that the mined area is rehabilitated to the same or better condition it was before mining operations.

Lethabo Power Station provides water services, i.e. potable water and sewage treatment, to a number of organisations/communities within the surrounding area of the station.

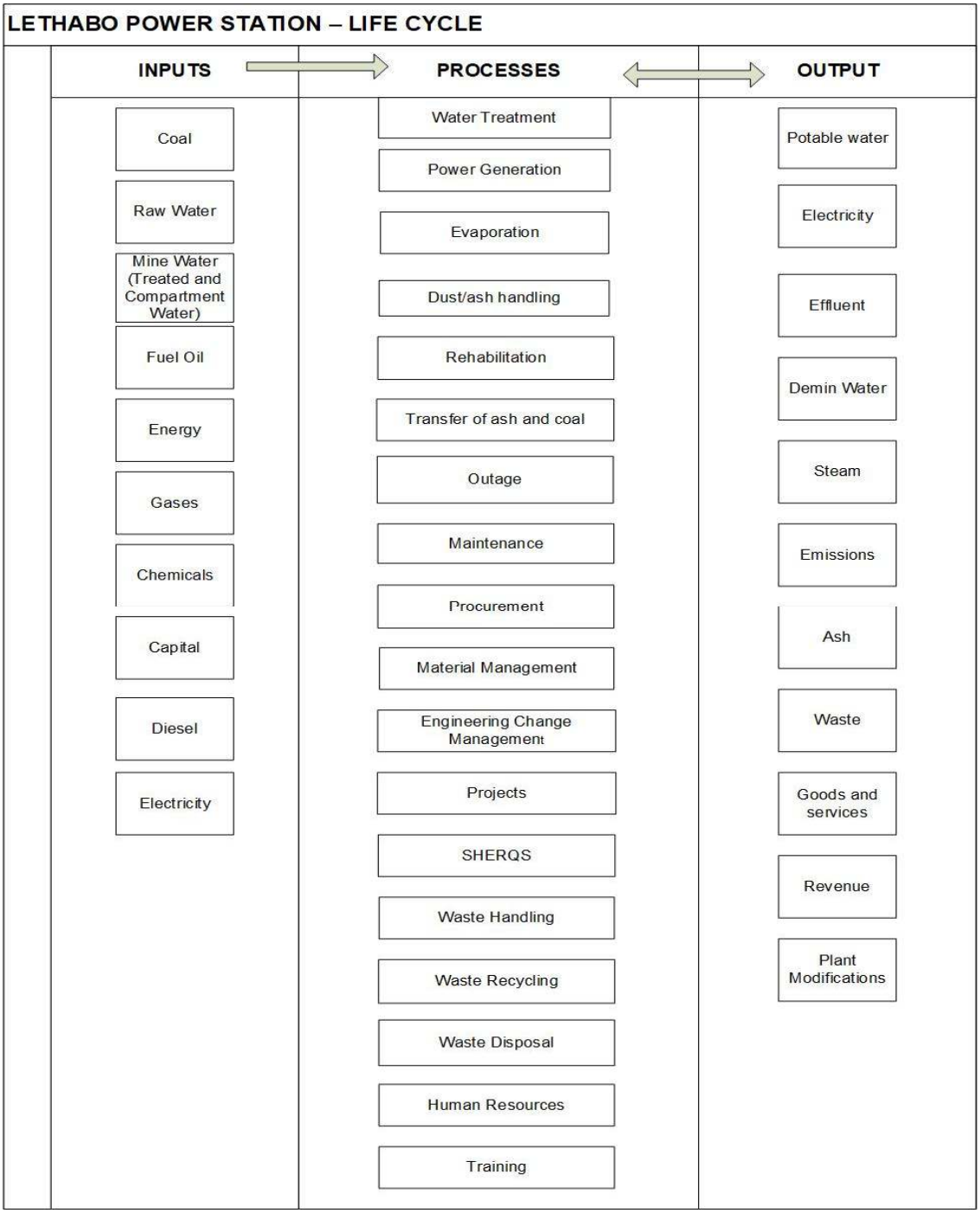


Figure 1: Lethabo Power Station Life cycle

Table 1: internal and external issues identified for Lethabo's Environmental Management System. A comprehensive list of internal and external issues can be found in LRG09001 – Risk and Opportunity register.

External Issues	**Internal Issues**
Vaal Triangle Airshed Priority Area (VTAPA) Multi stakeholder Reference Group	No transfer of skills – dependent on one person
Power Station is Visible around the Vaal (Location of station close to residential areas)	People's way of thinking and doing things – e.g. not open to change
Authorisations (AEL, WUL, WML's, Fish Permit)	Non-compliance to procedures
Catchment forum (LTF)	Wetland Management
Land management (Requirement to register contaminated land, ash dump land ownership, rehabilitation requirements)	Monkeys on site (Monkey-human conflicts)
Air Quality (Fugitive Dust)	Alien Invasive species (flora)
Electricity demand	EOL management
Stricter emission limits over time	Air quality management
Overall economic performance in the country (treasury restrictions)	Water management
Raw material availability (coal, fuel oil, sulphur, Water)	Ash production
Ambient temperature variations	Potable water for station and 3rd party
High rainfall	Sewage treatment for 3rd parties
Funding for stakeholder events i.e. VTAPA, LTF	Electricity production
Project delays	Structure of the organization
Emission Source apportionment study – sampling commenced. (needs of interested parties)	Roles within the organization
WUL amendment timelines	Availability of reliable, qualified and competent workforce
Air quality offsets projects implementation	Contractual arrangements
Vaal Triangle Air shed Priority Area (VTAPA)	Resilience of infrastructure (maintenance issues)
Power Station is Visible around the Vaal (Location of station close to residential areas)	Effluent handling during outages
Authorisations (AEL, WUL, WML's, Fish Permit)	Strain on work load due to Retirement\Resignations of staff
Catchment forum (LTF)	Procurement process delays
Land management (Requirement to register contaminated land, ash dump land ownership, rehabilitation requirements)	Availability of spares (including waste drums and drizit)
Air Quality (Fugitive Dust)	Data integrity

Electricity demand	Illegal modification of plant
Stricter emission limits over time	Delayed verification of Boiler Tube Leaks
Overall economic performance in the country (treasury restrictions)	Extended leave
Coal – quality, wet coal	

3.1.2 Understanding the needs and expectations of interested parties

Table 2: Interested parties, needs and expectations and which are compliance obligations

Interested Party	**Needs/Expectations**	**Compliance obligation (Y/N)**
Ash Resources	Potable water supply, continuous ash supply, sewage treatment, effluent water;	Y
Clinker supplies	Potable water supply, sewage treatment, effluent water	Y
Complainants	Response and action to complaints - site visits and meetings to show plans in place to prevent pollution;	Y
Contractors on site	Communication and support; clear work instructions/good working conditions	Y
Emergency services	Good risk management. Emergency procedures in place and drilled	Y
Leeu-Taaiboschspruit Forum	Water resource management, awareness on water related issues, attendance of quarterly meetings	Y
Lethabo Employees	Safe and healthy working environment, i.e. monkey, snake and dust issues; Good working conditions, training opportunities, maintenance of company reputation and continued income	Y
Licensing authority	Reporting as per legal requirements, emergency incidents notifications, application of authorizations	Y
Mine	to accept more water, potable water supply, sewage treatment, dust free environment;	Y
Neighbouring farmers	Communication regarding fire break preparation and management	N
Randwater	Communication regarding water management operations, day to day levels on the reservoirs, operational levels (daily pumping,) day to day	Y
Sustainability	Complying to reporting requirements as per 32-249 and 240-133087117 - Include them in external communications, comply to practice notes, data reliability	Y

Interested Party	Needs/Expectations	Compliance obligation (Y/N)
Trade Unions	Adherence to professional and membership requirements. Maintenance of standards	N
Vaal Village	Potable water supply, sewage treatment;	Y
VEJA	Communication, public awareness, legal compliance, participation in environmental forums;	N
VTAPA MSRG	Progress feedback on emission reduction plans, reporting of ambient results, reporting of any major emission incidents, participation in all Vaal priority area working groups;	Y

3.1.3 Determining the scope of the environmental management system

The following issues were considered in developing the management system:

- internal and external issues,
- life cycle approach/thinking,
- interested parties and
- their needs and expectations as well as which of these are adopted as compliance obligations;

The scope of the Lethabo Power Station environmental management system will be outlined below in terms of organisational units, functions and physical boundaries, activities, products and services; authority and ability to exercise control and influence.

Lethabo Power Station's Environmental Management System (EMS) covers the boundaries of the Power Station, as shown in Diagram:

Figure 2: Lethabo Power Station boundaries

- River front and Yellow line is Lethabo land (Farm according to the title deed)
- Purple and orange line is the high security area
- Red line is the security fence next to the river front
- Note the whole area is a national key point and not only the high security area.
- Ash Dump area
    - Ash Dump (Pollution Control dams)
    - Ash Dump
- **Operational areas:**
    - Units (Control Rooms; Mills; Turbine, Generator and Boiler areas)
    - Cooling Towers
    - Dirty Dams area
    - Raw water reservoir
    - Temporary Hazardous Waste Storage Site
    - Salvage Yard

- Old domestic Waste Yard
- Emergency Ash Offloading Area
- Petrol Station
- Stores
- Wash Bay Area
- Sewage Treatment Plant
- Water Treatment Plant
- SO3 Plant
- Workshops
- Kitchen
- Permanent Contractors yards
- Clinic

- **Excludes**

  - The Coal stockyard – As the mine controls and manages the coal stock yard. The mine is ISO 14001 certified and Lethabo Power Station is issued with a copy of this certificate.
  - Ash Resources – They are currently ISO 14001 compliant
  - Servitudes under power lines – As this is the responsibility of Transmission
  - Power lines – As this is the responsibility of Transmission
  - Waste management off site – A contract is placed with Rotek to manage and dispose of Lethabo waste
  - The High Voltage Yard - As this is the responsibility of Transmission
  - Vaal Village
  - Lethabo Properties

Note 1: All permanent contractors need to conform to the Lethabo Power Station EMS.
Note 2: Some contracts are managed by Eskom head office and therefore we can influence them.

3.1.4 Environmental management system

To achieve the intended outcomes, including enhancing its environmental performance, Lethabo Power Station has established, implement, maintained and shall continually improve its environmental management system, including the processes needed and their interactions, in accordance with the requirements of ISO14001:2015.

3.2 LEADERSHIP

3.2.1 Leadership and commitment

Top Management, with respect to the EMS, consists of the management committee (MC) of Lethabo Power Station which includes the general manager of the power station and departmental managers. Top management demonstrates leadership and commitment with respect to the environmental management system by:

- Taking accountability for the effectiveness of the environmental management system; by taking decisions at management reviews and presentations specifically for the MC.
- Ensuring that the environmental Statement of commitment and environmental objectives are established and are compatible with the strategic direction and the context of the organization; by approving the environmental statement of commitment and objectives and indicators before they are implemented.
- ensuring the integration of the environmental management system requirements into the organization's business processes e.g. aspects and impacts registers, contract strategies, SCCC, SHE meetings and production meetings
- ensuring that the resources needed for the environmental management system are available;
- communicating the importance of effective environmental management and of conforming to the environmental management system requirements;
- ensuring that the environmental management system achieves its intended outcomes;
- directing and supporting persons to contribute to the effectiveness of the environmental management system;
- promoting continual improvement;
- Supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility.

3.2.2 Environmental policy

The environmental policy is a requirement as per clause 5.2 of the ISO 14001 EMS. Lethabo Power Station is committed to the Eskom SHEQ policy 32-727, however for onsite application; the Lethabo Power Station Environmental Statement of commitment (PS010) has been established which to be used parallel to the Eskom SHEQ policy. The statement of commitment shall be reviewed every 2 years and communicated annually.

The Lethabo Power Station Environmental Statement of Commitment (PS010) states the below:

Lethabo Power Station is a power generating utility. The power station activities create interaction with the environment due to raw materials used in the power generation process, which by nature impacts on water, land and air. Lethabo will strive to manage our aspects on the environment related to our activities, products and services as defined in our environmental management system. Lethabo Power Station commits to the following:

- The Eskom SHEQ policy 32-727 which the Lethabo Power Station Environmental Statement of Commitment (PS010) is derived from.
- Complying with South African environmental legislation and regulations, Eskom environmental policies, procedures; standards and compliance obligations relevant to our aspects.

- Setting Objectives and indicators to ensure natural resources are utilised efficiently by minimising the intake of raw water, lower emissions, and waste and improve biodiversity management.
- Protection of the environment including pollution prevention.
- Communication of the statement of commitment within the organization.
- Continual improvement of the environmental management system within the scope of the organization to enhance environmental performance.
- Managing waste in line with Compliance Obligations.
- Maintaining an Environmental Management System in accordance with the requirements of ISO 14001
- Making this statement of commitment available to interested parties on request.

Through the active participation of Lethabo employees and contractors, who are collectively responsible for the business unit's performance, we will incorporate environmental management in accordance to the ISO 14001 standards into the overall business strategy of our Power Station. Each person must ensure that his/her actions minimize the impact upon the environment and should call upon Lethabo's Environmental Section for advice and assistance.

3.2.3 Organizational roles, responsibilities and authorities

The roles and responsibilities in terms of the implementation and maintenance of the ISO 14001: 2015 Environmental Management System is detailed in the table below. The organisational structure for the power station is documented in Appendix B.

Table 3: Roles and responsibilities for implementation and maintenance of the ISO 14001 management system

Position	Roles, Responsibility, Accountability and Authority
Top management	Top management shall demonstrate leadership and commitment with respect to the environmental management system by: • taking accountability for the effectiveness of the environmental management system; • ensuring that the environmental policy and environmental objectives are established and are compatible with the strategic direction and the context of the organization; • ensuring the integration of the environmental management system requirements into the organization’s business processes; • ensuring that the resources needed for the environmental management system are available; • communicating the importance of effective environmental management and of conforming to the environmental management system requirements; • ensuring that the environmental management system achieves its intended outcomes;

Position	Roles, Responsibility, Accountability and Authority
	• directing and supporting persons to contribute to the effectiveness of the environmental management system; • promoting continual improvement; • Supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility. • establish, implement and maintain an environmental policy that, within the defined scope of its environmental management system • ensure that the responsibilities and authorities for relevant roles are assigned and communicated within the organization • Top management shall review the organization's environmental management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness
Environmental Manager (Environmental representative)	• Ensuring that the environmental management system conforms to the requirements of the ISO 14001 standard • Reporting on the performance of the environmental management system, including environmental performance, to top management • Responsible to ensure that changes in legal and other requirements are received and communicated to relevant functions. • Accountable to integrate the Environmental Management System into operational systems continuously • Ensure finances are available for maintaining the EMS • Accountable to liaise with external parties • Accountable to compile the environmental performance report • Accountable to react on system or performance non-compliance as raised by the environmental officer/s or any other employees
Senior Environmental Advisor	• Responsible to oversee the implementation Environmental Management System • Responsible to raise concerns related to the Environmental Management System • Responsible to ensure conformance with ISO 14001 for the station • Responsible to coordinate management reviews • Responsible for coordinating the updating of Environmental Management System documents • Provide environmental advise to the environmental department and the station
Environmental officers	• Responsible to implement Environmental Management System in their area of responsibility • Responsible to compile the performance reports • Responsible to attend management review meetings • Responsible to raise concerns related to the Environmental Management System with the Environmental management representative for discussion at HOD's meetings

Position	Roles, Responsibility, Accountability and Authority

	• Responsible for environmental reporting on monitoring data
	• Responsible to ensure compliance with ISO 14001
	• Responsible to coordinate management reviews
	• Responsible to coordinate and conduct:
	  ▪ Site visits and inspections,
	  ▪ Environmental audits and to develop audit reports
	  ▪ Review environmental audit reports and coordinate corrective actions
	  ▪ Participate in incident investigation
	  ▪ Advice and support departments with EMS and general environmental issues
	• Responsible for the updating of Environmental Management System documents
	• Responsible for conducting awareness
	• Co-ordination of EIA's
	• Attendance of Public Participation Processes
	• Co-ordination of SEAC meetings
	
	Air Quality officer
	• Ensure compliance to AEL, other air quality related legislation and other requirements
	• Reporting of incidents and/or noncompliance's related to air quality to the relevant government authority
	• Notify authorities of changes to AEL
	• Verify monthly emissions figures
	• Attend daily emission morning meetings and keep the attendance register
	• Contract management for monthly fugitive dust monitoring
	• Ensure investigations are conducted for dust bucket exceedances
	• Capture, trend and respond to air quality related complaints
	• Attend air quality stakeholder engagement meetings (Sasolburg and Sedibeng implementation task team meeting, VTAPA Air Quality Awareness Task Team Meeting, VTAPA MSRG etc.)
	• Review and submit Ambient monitoring reports the relevant government authority
	
	Waste management officer
	• Ensure compliance to WML, other waste related legislation and other requirements
	• Reporting to Sustainability: CoE (Eskom environmental management) on a monthly basis
	• Verify waste register on a monthly basis
	• Submitting waste report on a 6 monthly basis
	• Auditing of waste areas on site and developing of audit reports

Position	Roles, Responsibility, Accountability and Authority
	• Attending and coordinating monthly waste meetings • Waste site reviews off site (site visits) **Water management officer** • Ensure compliance to WUL, other water related legislation and other requirements • Reporting of water incidents to relevant authorities • Quarterly reporting (ensure submission and verification) as per WUL (Ground water, surface water) • Analysis of groundwater and surface water results • Contract management of the ground water contract • Attendance of the quarterly LTF meeting • Attendance of water brine meeting with the mine • Attendance of weekly water plant meeting **Biodiversity management officer** • Ensure compliance to fish permit • Management of the flora and fauna management plan • Attendance of BLEAC on a monthly basis • Tracking of biodiversity complaints • Tracking of rehabilitation on the ash dump • Attendance of the ash dump meeting **Incident management officer** • Attendance of weekly issue classification meeting • Administration of incidents on Sap EH&S • Verification of SAP incidents • Submission of S30 incident progress reports • Compilation of weekly incident presentation for production meeting • Compilation of EEIC presentations for the classification of legal contravention incidents
EMS Rep in each section	• Responsible to implement Environmental Management System in your area of responsibility • Responsible to ensure that new issues are communicated to the Environmental officer • Responsible for compliance to operational control applicable to the EMS in their section • Responsible for communicating environmental information as well as improvements/ suggestions to system to their sections • Responsible to attend required Environmental meetings

Position	Roles, Responsibility, Accountability and Authority
	• Responsible to report non-conformances of the Environmental Management System to the environmental department
Training Department	• Responsible to schedule training • Responsible to arrange formal competency evaluation where applicable • Responsible to keep records of all training conducted Note: Training include: - General awareness training - Job specific training
Contract Supervisor	• Responsible to ensure that all people entering/ accessing site have completed induction training prior to any work being conducted • Send SHE files to the Environmental Section for approval
Staff	• Responsible for adhering to the stated commitments concerning the Environmental statement of commitment • Demonstrate commitment and implementation towards the Environmental Management System. • Responsible to report non-conformances of the Environmental Management System

Station Environmental Action Committee (SEAC) Responsibilities

SEAC shall be responsible to ensure that the following functions are properly executed at Lethabo Power Station:

- SEAC meetings shall be held every second month and shall be chaired by the Environmental Manager or his/her delegated authority;
- The SEAC meeting shall be attended by MC members, the environmental department, stakeholders from Land, air quality, water, biodiversity and waste management and relevant stakeholders as appropriate;
- The environmental practitioners shall take minutes from the SEAC meetings and ensure that they are circulated at appropriate times;
- Determine applicable environmental objectives, indicators and action plans;
- Drive and ensure effective implementation of objectives and indicators and action plans from land, water, air, biodiversity and waste and any other significant environmental aspects;
- Monitor environmental performance against set indicators and to recommend any appropriate actions where problem areas have been identified;
- Any changes or additions to environmental objectives, indicators and action plans shall be reviewed and updated at regular intervals to ensure continual improvement;
- Ensure that environmental statement of commitment, is established, discussed and approved;
- Feedback on stakeholder engagement meetings;
- Feedback on environmentally related projects;

- Informing top management on emerging environmental risks; and updating them on the environmental objectives and indicators;
- Progress of strategic level risks and opportunities shall be addressed at these meetings;
- Effectiveness of actions taken to address significant aspects, risk and opportunities and compliance obligations.

Daily Emissions and Ash Plant Meeting

- Chaired by the production mangers (Units and Essential plant);
- Attended by the power station manager, engineering, maintenance and operating departmental mangers; system engineers (electrical, boiler plant, Essential plant), the shift supervisor, maintenance (Boiler auxiliary, electrical, MMS), production managers and the environmental department;
- Minutes of the meeting are taken by the environmental department and are circulated shortly after the meeting;
- The daily emissions report compiled by boiler plant and electrical engineering is discussed in the meeting and highlights the daily averages, precipitator defects, SO_3 plant defects and Essential plant status (hoppers, stacker availability, belt conditions and availability and) EOL availability;
- Mitigation measures to be taken are discussed in this meeting;
- The meeting occurs every weekday.

Weekly water plant meeting

- Chaired by the Essential plant production manager;
- Attendance registers are kept with essential plant production;
- The meeting is attended by the production manager, system engineers for the essential plant, calibration and instrumentation, chemical services (technologist, chemist and technician), maintenance (water treatment plant, electrical maintenance) and the environmental officer;
- Projects related to the plant are discussed in this meeting as well as current maintenance activities;
- The meeting occurs every second week;

Waste meeting

- The meeting is chaired by the Environmental officer;
- The attendance register is kept with the environmental officer, who also does the minutes for the meeting;
- In attendance is the OPS support senior supervisor, waste contractors on site, Support services, the environmental officer and the area rep from the waste management contractor;
- Contractual concerns, current issues (e.g. conditions of skips etc.), recycling, waste site visits, as well as objectives and indicators are discussed in this meeting;
- The meeting occurs monthly unless otherwise stated;

Ash Dump Meeting

- Chaired by the Essential Plant Production Manager
- The minutes and attendance register are kept with Eskom Rotek Industries.
- As a minimum the following parties shall attend, Ops Support, Land management, Operating, Environment, ash dump contract manager, Civil Maintenance, Essential plant Engineering, Security and Fire Risk Management.
- The following topics shall be included in the agenda of the meeting; fire breaks, land and biodiversity objectives and indicators, land inspection report and ash dump rehabilitation is discussed in this meeting.
- The meeting is held every two (2) weeks unless otherwise stated.

Business Review meeting

- The business review meeting will be used to present on the overall environmental objectives as contracted by the business;
- The progress on environmental assurance actions shall be tracked in that meeting,
- Process of SAP EH&S incidents and legal contravention closure

3.3. PLANNING

3.3.1 Environmental Aspects and Objectives and Indicators

ISO 14001:2015, clause 6.1.2, requires the organisation to establish, implement and maintain the processes needed to meet the requirements of clause 6 of the international standard as part of the planning actions to ensure the organisation achieves the following:

- give assurance that the environmental management system can achieve its intended outcomes;
- Prevent or reduce undesired effects, including the potential for external environmental conditions to affect the organization and achieve continual improvement.

Lethabo Power Station ensures that all environmental aspects that may pose significant impacts to the environment are under control and prioritised for improvements. This information is kept up-to-date.

The purpose of LBE 21001 (Work instruction for identifying and updating Environmental Aspects) is to set out the requirements for:

- Determining risks and opportunities and taking actions to address them
- Determining environmental aspects within the scope of the environmental management system related to Lethabo Power Station activities, products and services
- Determining compliance obligations

- Determining planning action
- Establishing environmental objectives and planning actions to achieve them

Work instruction LBE21001 establishes environmental goals for Lethabo Power Station, in line with its policy, environmental impacts, and the views of interested parties. Environmental goals are set at two levels: objectives are high level, broad goals; while indicators are more focused and quantifiable and measurable where practical.

Objectives and indicators shall be set annually. The Senior Management approves the objectives, indicators and programmes proposed by the Station Environmental Action Committee (SEAC) either at SEAC or other platforms where management is present.

3.3.2 Compliance Obligations

LBE21002 (Compliance Obligations) has been established to identify and ensure access to relevant environmental laws, regulations, and other requirements to which Lethabo Power Station subscribes. Compliance obligations have been identified as per work instruction.

3.4 SUPPORT

3.4.1 Resources

The General Manager of Lethabo Power Station ensures that the resources needed for the establishment, implementation, maintenance and continual improvement of the environmental management system. The environmental manager is responsible for identifying resources required for the Environmental Management System.

3.4.2 Competence, training and awareness

LBE22001 (Environmental training, awareness and competence) has been established, implemented and maintained to ensure that employees are trained as required and that employees are capable of carrying out their environmental responsibilities. The environmental performance of Lethabo Power Station is dependent on the environmental awareness and competency of its employees.

Lethabo Power Station shall ensure all persons performing tasks for it or on its behalf, whose work may have a significant impact on the environment, are competent on the basis of appropriate education, training and/or experience, and shall retain associated records.

LBA00232 (Identification and Application to Attend a Training Intervention and Capturing of Training Days) is used station wide and outlines the process of training needs identification and execution.

3.4.3 Communication

LBE22002 (Environmental Communication and reporting: internal and external) establishes processes for internal and external communication on EMS issues. The procedure outlines the process for receiving, documenting and responding to relevant communication from interested parties. The work instruction details how to communicate information as required by compliance obligations e.g. NEMA S30/NWA S20 reporting, monthly, quarterly, annual monitoring reports etc.

3.4.4 Documentation

Lethabo Power Station has documented its Environmental management system in the form of this manual (LBE11001) to provide information on the EMS and its related documents.

3.4.5 Control of documented information

The following procedures were developed to ensure effective management of procedures and other documents (Preparation & Control of Documents LBQ21001; Writing Management Documentation LBQ31001; Document and Record numbering system LBQ10001). These documents are managed centrally for the entire power station and not only for EMS related documents.

Documented information determined by the organisation to be necessary for the planning and operation of the EMS has been identified in LFM718.

3.5 OPERATION

Operational control procedures identify, plan and manage Lethabo Power Station's operations and activities in line with its environmental policy, objectives and indicators.

Lethabo Power Station ensures that all operations and activities, carried out by its employees or contractors that are associated with the significant aspects are properly controlled, and that appropriate operational control procedures are in place. These procedures are identified in each sections aspects and impacts registers.

Change management is dealt with in different ways:

- Change management affecting contractors is dealt with through the Tender Committee meeting, where the scope of work is reviewed and approved by management before changes are executed.
- Engineering, design and process changes at Lethabo Power station is dealt with at the SCCC meeting through 240-53114002 – Engineering Change Management Procedure.
- Projects change management is dealt with through 240-53114026 – Project Engineering Change Management Procedure.

- Legal changes that affect Lethabo Power Station are presented on at the Management Committee, SHE executive meetings and Management Review.

Environmental requirements are provided and advised on in different phases of project and change management life cycles i.e. contract strategies, design documentation, project documentation (Execution Release Approval – ERA) and execution of projects.

Environmental requirements are included in contract strategies for new goods and services procured at Lethabo Power Station. Furthermore the Environmental requirements are included in SHE files before new contractors are allowed on site. Environmental requirements are communicated to potential suppliers through request for quotation and contract strategies.

Lethabo Power Station has considered the need to communicate potential significant environmental impacts associated with the transportation or delivery, use, end-of-life treatments and final disposal of its products and services. Table 4 below provides examples of operations procedures at Lethabo Power Station, however each department has a list of operations procedures, work instructions etc. for their area.

Table 4: Examples of operations procedures used at Lethabo Power Station

Area	Documentation title and reference
Emissions to Air (Particulates / Smoke)	• LBA00164 – Emission Monitoring Procedure • 240-56242363- Emissions Monitoring and Reporting Standard
Emissions to Air (Dust)	• Manual – Lethabo Power Station Ash Dump Complex Construction Manual
Use of Hazardous Materials	• LET09702WN – Off Loading of Bulk Sulphuric Acid to the Main Tanks at the Water Treatment Plant • LET09710 – The off-loading of Bulk Ferric Chloride Solution at the Water Treatment Plant
Material consumption and Waste Management	• LBE22004 – Waste Management Procedure
Water	• LBA00215 - Reporting of water consumption to Sustainability • LBE23005 – Minimum Surveillance Requirements on Ground water Monitoring Boreholes and Surface Storm water
Biodiversity	• LBE23006 - Monitoring, Control and Eradication Plan for Invasive Species on Lethabo Power Station Land • LBE24001 - Biodiversity Management Procedure
Contractors and on-site suppliers	• LBA00067 – Health, Safety and Environmental Specification for Contractors • Contract strategies • Procurement procedures • Project management procedures
Design life cycle	• 240-53114002 - Engineering Change Management Procedure • 240-53113685 - Design Review Procedure

Area	Documentation title and reference
Project life cycle	• 240-53114026 - Project Engineering Change Management Procedure

3.5.1 Emergency preparedness and response

- LBS00002 has been developed to identify potential emergencies situations and responses to such situations.
- Emergency scenarios will be tested annually, where practical.

3.6 PERFORMANCE EVALUATION

3.6.1 Monitoring, measurement and analysis

Lethabo Power Station has established, implemented and maintains LBE 23004 (Environmental Monitoring and measurement) to monitor key activities and measure, on a regular basis, the key characteristics of its operations and activities that have significant impacts on the environment.

Lethabo Power Station has a decentralised process to plan and execute monitoring and measuring processes which means that monitoring is done by different departments and sections however results are shared to relevant persons.

The relevant section shall ensure that calibrated or verified monitoring and measurement equipment is used and maintained, as appropriate.

The effectiveness of the EMS is evaluated annually at the EMS management review.

3.6.2 Evaluation of Compliance

LBE21002 (Compliance Obligation) has been developed to ensure the periodic evaluation of compliance with applicable legal and compliance obligations to which Lethabo Power Station subscribes.

To meet the organisation's commitment to compliance, Lethabo Power Station conducts compliance obligation audits as per the LBE21002.

3.6.3 Internal audits

Clause 9.2 of the ISO 14001:2015 standard requires an organization to conduct internal audits at planned intervals and to establish, implement and maintain (an) internal audit programme(s), including the frequency, methods, responsibilities, planning requirements and reporting of its internal audits. LBE 23001 outlines how Lethabo Power Station does this.

3.6.4 Management Review

Top management shall review the environmental management system annually to ensure its continuing adequacy, suitability and effectiveness.

- Inputs of the management review are coordinated by the environmental department however information is provided by different role players within the different environmental spheres.
- The management review meeting is held by the Environmental department and is attended by top management and can include other SEAC members.
- Minutes of the meeting are captured and circulated for comments to all attendees of the meeting and signed off by the chairperson within a reasonable amount of time after the meeting has taken place.
- Recommendations for improvement from the management review will be captured in SAP QIM and progress thereof will be presented at the SEAC meeting.
- Results of the management review will be communicated to the rest of the departments after the meeting.

The agenda of the management review shall include:

- Status of actions from previous management reviews
- Changes in:
    - External and internal issues that are relevant to the EMS
    - Needs and expectations of interested parties including compliance obligations
    - Its significant environmental aspects
    - Risks and opportunities
- The extent to which the environmental objectives have been achieved
- Information on the Environmental Performance, including trends:
    - Non-conformities and corrective actions
    - Monitoring and measurement results
    - Fulfilment of its compliance obligations
    - Audit results
- Adequacy of resources
- Relevant communication(s) from interested parties, including complaints
- Opportunities for continual improvement
- Opportunities to integrate EMS requirements with current business processes

The outcomes of the management Review shall include

- Conclusions on the continuing suitability, adequacy and effectiveness of the environmental management system
- Decisions related to the continual improvement opportunities
- Decisions related to any need for changes to the environmental management system, including resources
- Actions, if needed, when environmental objectives have not been achieved
- Opportunities to improve the integration of the environmental management system with other business process, if needed.
- Any implications for the strategic direction of the organisation.
- Documented information of the management review shall be kept as evidence, with the Environmental Department.

3.7 IMPROVEMENT

3.7.1 Nonconformity and corrective action

LBE23003 (Environmental Non-conformance Investigation and Reporting) details the process to be followed by any employee who is part of; witnesses or discovers an environmental non-conformance. It outlines the initial determination of the nature of an environmental non-conformance, as well as summarises the internal reporting route to be followed. It outlines the method of investigation to be used by the Station's Environmental Department in investigating non-conformance and reporting them, as necessary, to the relevant Eskom and /interested parties (such as public and governmental) bodies.

3.7.2 General and Continual improvement

Activities that ensure improvement at Lethabo Power Station is identified at different platforms including but not limited to the management review meeting, SEAC meeting, and SCCC and management committee meetings. Opportunities for improvement are captured by system engineers by loading an Engineering Change Notification (ECN), after which the Change Management Process is facilitated by the Design and Spec. Section.
Opportunities are also identifies in the risk and opportunities register (LRG09001) for internal and external issues, compliance obligations as well as interested parties.

4. AUTHORISSATION

This document has been seen and accepted by

NAME	DESIGNATION
B Phahle	Operating Manager
L Monnakgotla	Maintenance Manager
T Mocoancoeng	HR Manager
M Tsoaeli	Finance & Services Manager
H Sewsunker	Engineering Manager
V Mokoena	Risk and Assurance Manager – Acting

M Holtzhausen	Programme Manager
M Hariram	Environmental Manager
Sifiso Maringa	Compliance & Outage Manager
Thelma Ndimande	Procurement and Supply Chain manager

5. REVISION

Date	Rev	Compiler	Remarks
2010-07-13	01	M.HARIRAM	More references were added Scope has been defined with a legend
2010-10-15	02	M.HARIRAM	Inclusion of Environmental Management System Representative
2011-03-23	03	M.HARIRAM	Amended section 5.6. Removed some info from section 4 and added it to 5.6.
2014-04-01	04	PS.MAGARABA	Format of the procedure Purpose Definitions and abbreviations Responsibilities Scope Environmental Key Performance Indicators
2015-02-13	05	PS.MAGARABA	Change environmental policy procedure to environmental statement of commitment Change abbreviation of GEM to SCOE Change location from DCC to Hyperwave Change environmental structure
2015-12-09	06	L Moreoane	Structure of the procedure was changed Obsolete references removed, replaced with correct references
2016-10-18	07	L Moreoane	Inclusion of clinic into scope Removed definitions: • Activity • Audit Added definition of Top management Roles and responsibilities amended: • Addition of top management • Remove role of PSM, departmental heads, supervisors, stores controller • Amended the roles of the environmental manager • Added roles of the environmental officer in terms of air, biodiversity, water, waste and incident management Amended roles of SEAC

Date	Rev	Compiler	Remarks
			Included air, water, waste, land and biodiversity meetings.
2016-10-18	08	T Silal	Aligned to ISO14001:2015 standard
2018-02-19	09	L Moreoane	Addition of the life cycle process General and Continual Improvement Removal of obsolete definitions
2019-02-19	10	L Moreoane	References updated Ash Dump meeting description updated Opportunities for improvement were added under 3.7.2.
2020-01-22	11	L Moreoane	Updated the Scope drawing Internal and external issues Updated the normative references Tables and figures numbers
2020-07-03	12	L Moreoane	Updated tables and figure numbers Included Senior advisor roles and responsibilities Updated needs and expectations of Randwater and farmers
2021-04-01	13	L Moreoane	Updated the interested parties compliance status Removed abbreviations that were no longer in use
2021-09-01	14	L Moreoane	Updated definitions Removed list of procedures no longer applicable and added additional procedures Edited the Different meeting requirements Updated the organogram

6. DEVELOPMENT TEAM

Lehlogonolo Moreoane
Willem de Klerk
Jerida Maphutha

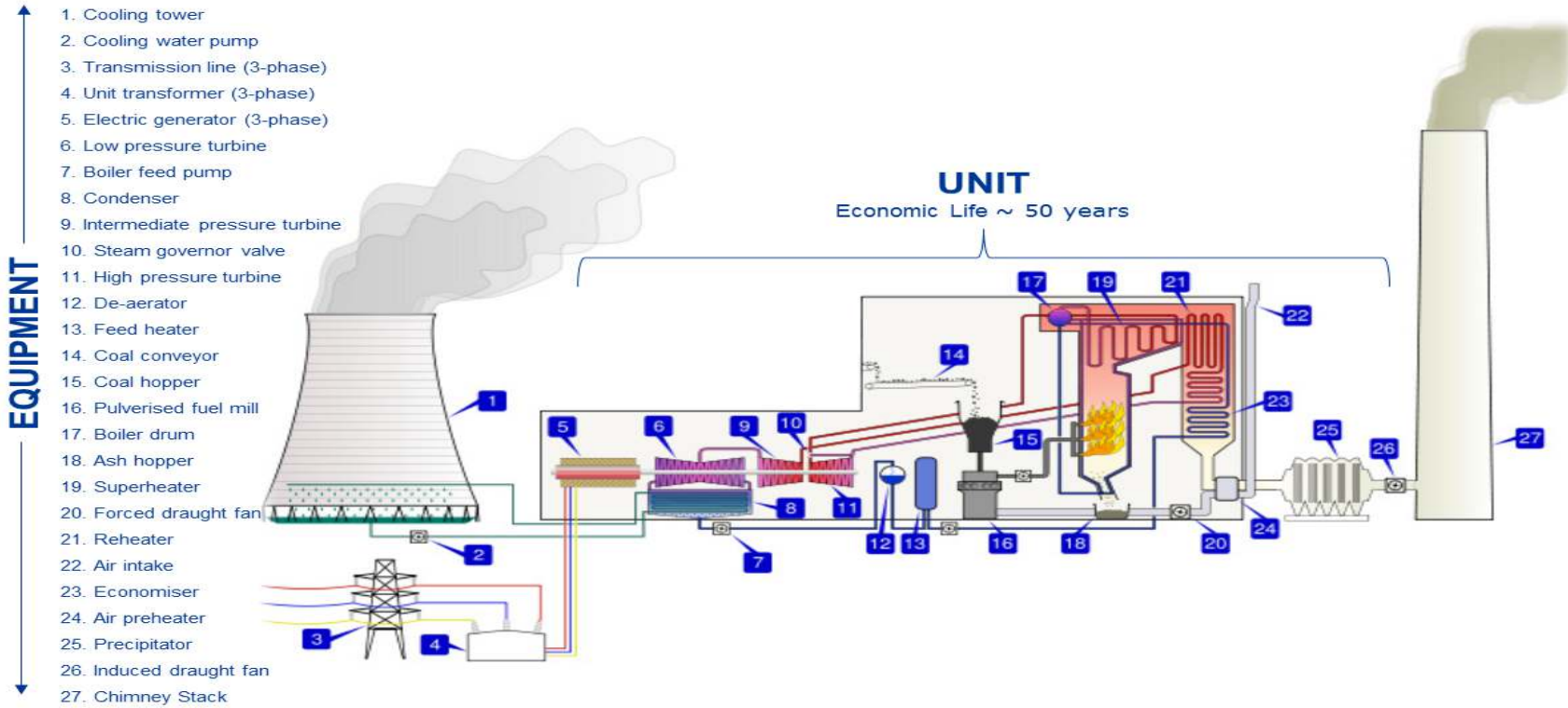
7. ACKNOWLEDGEMENTS

None

8. APPENDICES

8.1 Appendix A – High Level Layout of the Power Station
8.2 Appendix B – Organisational Structure

8.1 Appendix A – High Level Layout of the Power Station



8.2 Appendix B – Organisational Structure