Eskom	WORK INSTRUCTION	Lethabo Power Station

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1. INTRODUCTION

Lethabo Power Station supports Eskom Holdings SOC Limited in upholding government's commitment to the management ensuring the protection of the environment. The industrial Waste Management Plan for Generation division is the tool that is used to uphold the principles of the National Environmental Management Act, (Act 107 of 1998) and the National Environmental Management Waste Act, (Act 59 of 2008). Industrial areas such as Power Stations generate large volumes of both general and hazardous waste, by proactively managing these wastes the station can prevent environmental degradation, contamination of natural resources and promote good housekeeping.

2. SUPPORTING CLAUSES

2.1 SCOPE

The waste management procedure deals with the handling of different waste streams, the different colour coding for the different waste streams, the disposal methods for the different waste streams as well as reporting requirements for the waste streams.

2.1.1 Purpose

The purpose of this work instruction is to ensure the correct control, safe storage and removal of waste by a competent waste removal body to a registered waste site or Class 1 hazardous waste disposal site.

2.1.2 Applicability

This procedure applies to all departments at Eskom Lethabo Power Station that produce waste requiring disposal, including all waste produced by contractors.

2.2 NORMATIVE/INFORMATIVE REFERENCES

2.2.1 Normative

Identifier	Name
32-303	Requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles,
32-245	Eskom Waste Management Standard
LBE22005	Environmental Spill Pollution Management Procedure
LBE22005	Environmental Spill Pollution Management Procedure
LBE23003	Environmental Non-conformance Investigation and Reporting
LBE23003	Environmental Non-conformance Investigation and Reporting
LBE23004	Environmental Monitoring and Measurement procedure

Identifier	Name
GNR 926, 29 November 2013	National Norms And Standards for The Storage Of Waste
GNR 634, 23 August 2013	Waste Classification and Management Regulations
GNR 635, 23 August 2013	National Norms and Standards for the Assessment of Waste for Landfill Disposal
GNR 636, 23 August 2013	National Norms and Standards for the Disposal of Waste to Landfill
SANS 10231	Transport of dangerous goods by road - Operational requirements
SANS 10234	Globally Harmonized System of classification and labelling of chemicals (GHS)
240-157509873	Ash, Gypsum and Clinker Utilisation Standard

2.2.2 Informative

- SANS ISO 14001:2015 Environmental Management System: Requirements with guidance for use
- National Environmental Management Act (act 107 of 1998)

2.3 DEFINITIONS

2.3.1 Classification

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

Definition	Explanation
Asbestos-related work	Asbestos-related work refers to any work involving asbestos, irrespective of the extent of the work. This includes for example, inspections conducted at sites where substandard conditions in relation to asbestos, or cleaning of asbestos roofs, removal of seals and packing, where the potential exposure to asbestos dust exists. Copies of notification correspondence shall be kept on site for AIA verification and auditing purposes.
Contract Supervisor	Eskom employee/section responsible for the management of waste management contract (Ops Support)
Disposal	Means the burial, deposit, discharge, abandoning, dumping, placing or release of any waste into, or onto, any land.
Employee	Includes full time and contracted workers as defined by the OHSAct.
Environment	Means the surroundings within which humans exist and that are made up of- (i) the land, water and atmosphere of the earth; (ii) micro-organisms, plant and animal life; (iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and

Definition	Explanation
	(iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being;
E-Waste	Is the term used for old or end-of-life or discarded electronic devices. All types of waste containing electrically powered components. It includes useful as well as hazardous material which needs reuse and recycling. Examples: Computers, LCD/CRT screens, printers, cartridges and all other electronic equipment.
General waste	Means waste that does not pose an immediate hazard or threat to health or to the environment and includes: domestic waste; building and demolition waste business waste; and inert waste;
Hazardous waste removal body	A competent body with which Lethabo has an agreement to remove its waste. This body must be able to prove that the waste is transported to and disposed of on a registered disposal site according to legal requirements.
Hazardous/Toxic waste	Means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment. Waste containing elements or compounds listed as Group I and Group II hazardous substances in terms of the Hazardous Substances Act, No.15 of 1973 (Government Gazette Volume 235, No.R452 and Volume 234, No. R2825). Including all substances deemed to have a detrimental effect on human health and the environment. Refer also to Appendix A "List of hazardous or toxic materials which may only be disposed of onto a Class I disposal site" as recommended by the Department of Water Affairs & Forestry.
Medical waste	Waste that is generated at health care facilities, such as hospitals, clinics, physician's offices, dental practices, blood banks, and veterinary hospitals/clinics, as well as medical research facilities and laboratories.
Production Waste	This includes coal and ash only.
Recycle	Means a process where waste is reclaimed for further use, which process involves the separation of waste from a waste stream for further use and the processing of that separated material as a product or raw material.
Removal and disposal of hazardous waste	Removal and disposal practises that conform to the "Suggested Guidelines for the Transport and Disposal of Hazardous Waste"(Reference 8.5) as well as the DWAF, 1998, Waste Management Series (Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste).

Definition	Explanation
Re-use	Means to utilise articles from the waste stream again for a similar or different purpose without changing the form or properties of the articles.
Storage area	Temporary hazardous waste storage areas (indicated by marked bins) situated within the following demarcated plant or office regions: Medical Centre Mechanical Maintenance Degreasing Plant Temporary Hazardous Waste Store (south of eastern fuel oil building) Temporary hazardous waste site (temporary storage of crushed fluorescent tubes and sodium lamps)
Treatment	Means any method, technique or process that is designed to: change the physical, biological or chemical character or composition of a waste; or remove, separate, concentrate or recover a hazardous or toxic component of a waste; or destroy or reduce the toxicity of a waste, in order to minimise the impact of the waste on the environment prior to further use or disposal
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 re-used, 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]

Definition	Explanation
Waste classification	Means establishing **a)** Whether waste is hazardous based on the nature of its physical, health and environmental hazardous properties (hazard classes); and **b)** The degree or severity of hazard posed (hazard categories)
Waste Contractor	Supplier providing waste management services through the waste management contract (ERI)
Waste coordinator	Person responsible for the day to day operations at the Temporary hazardous waste storage facility
Waste Generator (Consignor)	means any person whose actions, production processes or activities, including waste management activities, results in the generation of waste;
Waste management facility	A place, infrastructure, structure or containment of any kind wherein, upon or at, a waste management activity takes place and includes a waste transfer station, container yard, landfill site, incinerator, a lagoon, recycling or composting facility
Waste manager (Consignee)	Any person who re-uses, recycles, recovers ,recovers, treats or disposes of waste
Waste manifest system	Means a system of control documentation, which accompanies a load if hazardous waste transported from the point of generation to the waste management facility
Waste transporter	Any person who conveys or transfers waste **a)** Between the waste generator and a waste management facility; or **b)** Between waste management facilities

2.4 ABBREVIATIONS

Abbreviation	Description
ACM	Asbestos Containing Material
AF	Assurance and Forensic
LCD	Liquid Crystal Display
CRT	Cathode Ray Tube
IMS	Information Management Services
IT	Information Technology
TRI	Technology Research and Investigations
OPS	Operating
SO3	Sulphur Trioxide
NEMA	National Environmental Management Act (Act 107 of 1998)
NEM:WA	National Environmental Management: Waste Act (Act 59 of 2008)
OHSAct	Occupational Health and Safety Act (Act 85 of 1993)
MWP	Mega Watt Park
ERI	Eskom Rotek Industries

Abbreviation	Description
PrDP-D	Professional driving permit dangerous goods
DGD	Dangerous goods declaration
THWS	Temporary Hazardous Waste Site
Tremcard	Transport emergency card
SDS	Safety Data Sheet
MWP	Megawatt Park
EOL	Emergency offloading are
DEFF	Department of Environment, Forestry and Fisheries
DWS	Department of Water and Sanitation

2.5 ROLES AND RESPONSIBILITIES

2.5.1 All Departmental Managers shall be accountable for:

- Adherence to this procedure by their respective departments/sections.
- Ensuring that their departments are familiar with and comply with LBE22005 (Environmental Spill Pollution Management Procedure) and LBE23002 (Environmental non-conformance Investigation and Reporting) in the case of spillage of a waste substance.

2.5.2 The Chemical Services Manager is responsible for:

- The organic chemical waste produced in his/her area of jurisdiction and the safe delivery thereof to the appropriate collection point e.g. Temporary Hazardous Waste Storage Site.
- Ensuring that safe storage containers are provided at satellite collection points, within the Chemical Services Section, prior to removal of hazardous waste from the section.
- Notifying the waste contract supervisor, in a timely manner, of the need for collection of hazardous waste directly from the Chemical Services Section depending on the type of waste and volumes.
- Ensuring all hazardous waste is delivered to the Temporary Hazardous Waste Storage Site with the appropriate SDS
- Ensuing medical waste (rubber gloves, used tissue, germ protection wipes) are stored safely and to contract the contract supervisor when the bins are full

2.5.3 The Senior Sister/Manager in charge of the Medical Centre shall be responsible for:

- The safe storage of Medical Waste.
- Notifying the Contract Supervisor, in a timely manner, of the need for collection of medical waste from the Medical Centre.
- Receipt of medical waste collection notes and the delivery of any medical waste removal documentation to the Contract Supervisor.

- Ensuring that medical waste produced from the use of first aid kits is brought to the medical waste storage bin at the Medical Centre.

2.5.4 The Electrical Maintenance Manager shall ensure that

- Defective fluorescent tubes and sodium lamps are safely collected, stored, and delivered to the Temporary Hazardous Waste Storage site and kept in the locked designated area at all times.

2.5.5 The Mechanical Maintenance Manager shall be responsible for

- The safe storage of all waste solvents / chemical waste in the drums (solvent bay) at the Mechanical Maintenance Degreasing Plant.
- The condition of the solvent bay surrounds is clean and free from any spills or environmental contamination.
- The solvent bay sump is cleaned as needed.

2.5.6 Civil Maintenance

- Ensuring notice boards indicating colour codes of bins for different waste streams are maintained and update as per request from the Environmental Department

2.5.8 The Contract Supervisor shall be responsible for

- The safe storage of hazardous waste in the Hazardous Waste Storage Site.
- The safe collection of waste from satellite collection points.
- Ensuring that satellite bins and drip trays that are in need of replacement or re-painting / re-labelling are attended to.
- The contract supervisor will reserve the right to turn away leaking drums or drums without lids and new wastes that do not have SDS's
- Will ensure that the site is kept clean at all times.
- Update the waste register on a monthly basis and send to environmental officer.
- Communication with the hazardous waste removal body.
- Organising the removal of the hazardous chemical waste, medical waste, solvents and other hazardous waste from the different storage areas respectively (as requested by the responsible persons of the storage areas).
- Sending a "request of service" notification to supplier, for the removal of waste.
- Ensure integrity of information supplied through the waste manifest system, and ensure all information required by Annexure 2 of the Waste classification and management regulations: GNR 634, 23 August 2013 is captured within the waste manifest system
- Ensure waste manifests and safe disposal certificates are retained from the waste contractor and records are kept for at least five years.
- Ensure that waste is removed from site within the timeframe of 90 days after it has been generated

- Ensure all relevant scope for waste removal is included in the SOW for the Waste contract

2.5.8. The Waste Manager (Contractor) shall be responsible for:

- Safe disposal of general and hazardous waste generated by Lethabo Power Station
- Assessment of waste in accordance with the Norms and Standards for Assessment of Waste for Landfill Disposal prior to the disposal of the waste to landfill.
- To provide waste transporters which fulfil all legal requirements
- Ensure vehicles used by waste transporters are in good condition and fulfil legal requirements
- Supply of domestic waste skips that are in good condition
- Ensure waste manifests and safe disposal certificates are retained from the waste contractor and records are kept for at least five years.
- Ensure that waste manifests and safe disposal certificates of waste disposed are delivered to Lethabo Power Station for safe keeping.

2.5.9 The Environmental Officer shall be responsible for:

- Overall monitoring of domestic and hazardous waste on Lethabo Power Station waste sites.
- Monitor that landfill sites used by Lethabo Power Station is operated legally and that waste is disposed legally.
- Requesting and/or conducting internal reviews/monitoring /audits when required.
- Conducting compliance reviews on all waste sites used by Lethabo Power Station
- Submitting verified waste register to Waste Centre of Excellence on a monthly basis.
- Reporting on all waste streams on site in accordance to 32-245 on a biannual basis using template 240-43921804
- Verifying the ash figures on the spreadsheet (annexure C) supplied by process engineering section (Ash disposed, Ash emitted, ash recycled)
- Verify that the coal tonnages are as per the STEP report
- Verify that the ash % figure is as per the STEP report
- Safe keeping of all waste manifests.
- Ensuring that all waste streams generated by Lethabo Power Station is classified in accordance with SANS 10234 and the Waste Classification Regulations
- Compile monthly ash tonnages template for Waste Centre of Excellence

2.5.10 The Occupational Hygienist shall be responsible for:

- The development and maintenance of an asbestos and ACM register in accordance to the template in 32-303.
- The development and maintenance of an asbestos and ACM phase out plan that will meet the Eskom phase-out-date of 2033.

- Progress on the asbestos and ACM phase-out plans (Signed by the Power Station Manager) will be reported on a six monthly frequency to the environmental officer.

2.5.11 Any contractor who produces waste on site will be responsible for

- The transport of hazardous waste to the temporary hazardous waste site, with the appropriate SDS when bringing in new waste.
- Ensuring that all employees under their control are familiar with and comply with this work instruction, LBE22005 (Environmental Spill Pollution Management Procedure) and LBE23002 (Environmental non-conformance Investigation and Reporting) in the case of spillage of a waste substance
- Ensuring adequate waste management is exercised in their area

2.5.12 Senior Environmental Adviser

- Verify the contents waste register
- Sign off on the waste register to ascertain that the information contained therein is correct
- Verify report on waste streams biannually

2.5.13 Environmental manager

- Signs off waste report biannually
- Sign off of monthly ash utilisation template

2.5.14 Performance and Testing Engineering

- To compile on a monthly basis the ash figures report (annexure C)
- To send the ash figures report to the environmental department with the STEP report on a monthly basis in the first week of the month

2.5.15 Boiler Plant Engineering

- To provide the verified ash emitted figures from the emissions summary report on a monthly basis

2.5.16 Ash Recycling Company

- To provide the station with the verified ash recycled spreadsheet on a monthly basis timeously
- The off takers and/or end-users are responsible for compliance with the handling, storing, collecting, transporting, data reporting and disposal requirements of the ash, gypsum and clinker as specified in this standard.
- The off takers and/or end-users are responsible to ensure that ash, gypsum and clinker collected is managed in an environmentally sound manner by taking practicable steps to protect the human health and the environment

2.5.17 Waste Coordinator

- The access control and operation of the Temporary Hazardous Waste Storage Site.
- Identify waste that can be removed from Temporary Hazardous Waste Storage Site and sending the list to Contract Supervisor to load a “request of service”
- Helping the people with waste sorting e.g. spotters
- Sorting of waste drums in the yard and labelling them
- Recording of all waste that comes in and going out to land fill sites for disposal
- Cleaning of the temporary waste yard
- Loading of the drum carriers
- Checking the correctness of the manifests, trem carts, plug carts for hazardous waste
- Make sure that the waste collectors/transporters cleans up after waste collection
- Making sure that waste loaded in one drum carrier are not reacting to one another as per waste collection and loading chart.
- Filling checklist for waste trucks when waste is collected
- Inspection of:
    - the condition of waste bins/skips and reporting the ones that are full and ready for collection(daily)
    - The secondary containment system (bunded area) of the Temporary Hazardous Waste Site (weekly)

2.5.17 Finance and Services

- Supplying of Sanitary waste disposal certificates to Environmental Department

2.5.18 Power Station General Manager

- Ensuring compliance to all statutory requirements pertaining to waste management at Lethabo Power Station
- Provide supporting resources required to fulfil adequate waste management at Lethabo Power Station
- Sign off of biannual waste report
- Sign off of monthly ash utilisation template

2.5.19 All other Section Heads of sections producing hazardous waste shall be responsible for:

- Must ensure the safe delivery of such waste to the Temporary Hazardous Waste site.
- Informing the contract Supervisor of deliveries to the Hazardous Waste Site.
- Requesting correct colour coded containers from Contract Supervisor and/or collecting waste containers from stores.

- Section Heads must encourage sections to correctly manage waste.

2.6 PROCESS FOR MONITORING

The process as set out in this procedure shall be subjected to audits as undertaken by the Waste Centre of Excellence for:

- Verification of data
- Adherence to procedures,
- Internal audits, and;
- External audits as required for assurance purposes.

2.7 RELATED/SUPPORTING DOCUMENTS

- LFM058 - Acceptance of type and amount of waste
- LFM259 - Non-rotable items identified as scrap / obsolete
- LFM259B - Rotable items identified as scrap / obsolete
- 240-47176064 - Waste Reporting Template
- 240-51752992 - PCB Inventory Template
- 240-47176039 - Spill Assessment Table
- 240-47176095 - Spill Feedback Form
- LFME015 - pre-journey inspection checklist - waste trucks
- ENV18-R214 - ESKOM MONTHLY REPORT RESULTS GENERATION SIGN-OFF BY THE OWNER OF EACH KPI

3. DISPOSAL PROCEDURE

Waste management at Lethabo shall be conducted in a manner that does not impact negatively on the environment and always adhering to the principles of the waste hierarchy which includes waste prevention, reduction, reuse, recycling, recovery and the last option being waste disposal. All waste disposal sites used by Lethabo Power Station must have the necessary permits/licences.

Waste streams that will be reused or recycled before disposal is considered shall include: ash, scrap metal (various grades), florescent tubes, waste paper, waste oil, used 210 litre drums, conveyor belts and building rubble. It is the responsibility of the persons generating these waste streams to ensure that the recycling routes provided, are used to avoid unnecessary disposal of waste.

3.1 WASTE CLASSIFICATION

Waste Classification and Management Regulations, GNR. 634 came into operation on the 23 August 2014. The purpose of the regulations is to regulate the classification and management of waste in a manner which supports and implements the provisions of the Act; establish a mechanism and procedure for the listing of waste management activities that do not require a Waste Management Licence; prescribe requirements for the assessment of the environmental risk associated with disposal of waste to landfill; prescribe requirements and timeframes for the management of waste; and prescribe general duties of waste generators, transporters and managers.

Chapter 2 of the regulations deals with Waste Classification and states that:

- All waste generators must ensure that they classify all of the waste they generate within 180 days of generation, in accordance with SANS 10234.
- Waste must be kept separate for the purpose of classification and must not be mixed with other wastes prior to classification.
- Waste must be re-classified every 5 years, or within 30 days of modification to the process or activity that generate the waste, changes in raw materials or other inputs or any other variation of relevant factors.
- Waste that has been subjected to any form of treatment must be re-classified under SANS 10234 as well as any waste generated as a result of the treatment process.
- In addition all generators of hazardous waste must ensure that a safety data sheet for the hazardous waste is prepared in accordance with SANS 10234.

NOTE Lethabo is designed to use effluents for ash conditioning and dust suppression thus all materials not utilised for this purpose should be sent to the Hazardous Waste Store. These materials include organic, solvents and oils.

3.2 MEDICAL WASTE

- All medical waste is placed immediately in either a Sharps container or a medical waste disposal box, depending on the nature of the waste.
- The lid of the medical waste container shall always remain closed.
- Latex gloves shall always be used when handling medical waste.
- The primary storage site will be at the medical centre dressing area until it is collected by waste contractor to the appropriate licensed waste site.
- All expired drugs/medicines shall be collected into the Bio-hazard container in their sealed original containers (no decanting) stored at the medical centre until they are removed by waste contractor to the appropriate licensed waste site.

3.3 FLUORESCENT TUBES AND SODIUM LAMPS

- After the lighting replacements are done, the old fluorescent tubes and sodium lamps are placed in specially lined boxes provided by the waste contractor.
- The waste is then taken to the allocated locked area at the temporary hazardous waste site, only authorised personnel will keep the keys to this area.
- The waste contractor collects the waste and transports it to a suitable facility for recycling of such waste.
- Recycling facilities shall be licensed to recycle such waste.

3.4 ALL WASTE SOLVENTS

- When solvent drums are full, contract supervisor is notified
- The waste is taken to the temporary hazardous waste site and will then be transported to a hazardous landfill site for disposal

3.5 SOLID MOLTEN SULPHUR

- After cleaning sulphur spillages, the sulphur waste is placed into plastic 210 Litre drums/plastic lined skips if it's of a large quantity.
- Solid waste sulphur, purged from the SO3 skids at 16m level, must be collected in the drip trays provided and taken to the collection drum at the sulphur common plant.
- Operating is responsible to inform Station Cleaning when purging has occurred at the skids, so that they may remove the solid sulphur before the drip tray becomes too full.
- 210 L drums temporarily storing solid sulphur must have lids or if they are left open, they must not be positioned so that the coal dust from the overhead conveyors can settle on the waste sulphur.
- The waste is then transported to the temporary hazardous waste site

3.6 BATTERIES

- Satellite collection bins for batteries are available on the 16m level between the control room change rooms i.e. one at unit one and two control rooms; one at unit three and four control rooms and one at unit five and six control rooms and all other plant areas where batteries are used.
- When these bins are full, Station Cleaning must take the batteries to the clearly marked collection drum in the Hazardous Waste Storage Site.
- Full battery bins at the workshops should be taken to Hazardous Waste Storage Site by the relevant section or OPS Support contacted to remove them to the site.

3.7 ASBESTOS WASTE

- All Asbestos related work shall be conducted in accordance to section 20 of the Asbestos regulation, 2001 procedure 32-303: Requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.
- When asbestos work is to take place, the waste contact supervisor needs to be notified of when the work is to take place so that the appropriate waste containers are made available depending on the quantity of the waste.
- All asbestos waste generated from any work shall be double bagged and labelled with the relevant “a” sign, then disposed of at the nearest “asbestos bin”.
- The bin/skip provided must be locked at all times and should only be opened when waste is deposited into the bin/skip
- When the bin is full, the waste contract supervisor shall be notified, so the waste removal body can remove the waste

3.8 SATELITE COLLECTION POINTS

- Satellite collection points, for both used solvents and oils, are present throughout the station. These points are clearly demarcated and labelled, and it is the responsibility of the waste contract supervisor to ensure that the hazardous materials eventually go to the Hazardous Waste Storage Site. The satellite collection points are there for convenience ONLY.

3.9 HANDLING OF SPILLAGE INSIDE THE HAZARDOUS STORAGE SITE, AT SATELLITE POINTS AND WORKING AREAS

- In the event of spillage on the floor of the Temporary Hazardous Waste site, or responsible person will cover it with oil absorbent, pick it up with shovels and place it back into the 210 litre drums.
- Spillages at Satellite points and working areas shall be handled according to procedure LBE22005 - Environmental Spill Management Procedure.

3.10 E-WASTE MANAGEMENT

- All empty cartridges, mouse, keyboards and old Computers shall be delivered to IMS and stored in a designated bin.
- IMS to ensure disposal of e-waste and empty cartages according to proper disposal requirements and regulations.
- Environmental Department to be supplied with Safe Disposal Certificates for waste disposed or recycled.

3.11 SEWAGE WASTE

- Request from water treatment plant to arrange the collection when beds are full and sewage is ready for collection.
- The sewage is regarded as hazardous waste and for that matter it is disposed at the land fill site for all hazardous waste

3.12 EMPTY CHEMICAL CONTAINERS

- All empty chemical containers must be punched before coming to the temporary hazardous waste site to prevent secondary poisoning to the people at land fill site that might want to re-use them.
- Empty chemical containers (punched/perforated) to be taken to temporary hazardous waste site and not disposed in the general waste skips

3.13 SALVAGE YARD

- Salvage yard shall be access controlled.
- All items deemed as scrap shall be accompanied by means of LFM259A or LFM259B signed by the relevant Line Manager. An inventory (LFM058) form shall be maintained, on the type of salvageable material delivered to the salvage yard, date of delivery, who delivered it, and the person accepting the salvageable material at the salvage yard.
- All equipment brought to the salvage yard shall be free of liquids. e.g Transformer oils, gearbox oils shall be drained before they are delivered to the salvage yard.
- Salvage yard rules:
    - No item will be delivered to salvage yard without the relevant paperwork from the section manager
    - No item been delivered to salvage yard which contains any form of liquid which becomes an environment threat will be accepted. It should be drained by the section and taken to hazardous waste site.
    - All items sold to anyone shall be taken to salvage yard to be inspected and normal procedures will take place.
    - All electrical equipment that contains copper and steel eg. Motors, transformers will go on tender via MWP.
    - All copper cables are not for sale. They are sold on a national contract via MWP
    - No dumping of any material is allowed on the outside of the salvage yard precast fence area.
    - For any dumping after hours the standby person from civil maintenance should be contacted via station control.
    - No sold items will be kept for anyone at the salvage yard for more than a week.

3.14 TEMPORARY HAZARDOUS WASTE STORAGE SITE

- Shall be managed in accordance to GNR 926 National Norms And Standards For The Storage Of Waste
- Temporary hazardous site shall be access controlled.
- No hazardous waste shall be allowed to be left unattended outside of the hazardous waste site.
- A daily register shall be maintained of the type of hazardous waste delivered onsite, the person delivering the waste, and the person accepting the waste.
- Bundwalls shall be inspected for integrity.
- The temporary hazardous waste site to have impermeable and chemically resistant floors.
- No waste shall be allowed to accumulate onsite for more than 90 days.
- Waste containers must be labelled with the type of waste and date of accumulation.
- All empty hazardous containers shall be punched to prevent re use.
- Process followed at the temporary hazardous waste site

    - Any new hazardous waste that comes to the temporary hazardous waste site must be accompanied by an SDS; all other hazardous waste can be delivered without the SDS.
    - An inventory is signed by the person who delivers the hazardous waste and the waste coordinator must acknowledge the receipt of the waste.
    - A new 210 litre drum with a lid will be issued to the person who has delivered the waste after the inventory is signed.
    - Drums with incorrect colour coding or drums without lids will not be accepted at the temporary hazardous waste site.
    - The lids on the drums must be correctly labelled with the contents of the waste being delivered.
    - Once the waste is in the temporary hazardous waste site yard, it is labelled correctly after checking the contents of the drums.
    - Housekeeping is always maintained as per the duties of the waste coordinator of the temporary hazardous waste site ensuring that the site is as clean as possible, that there is no windblown litter or odours.
    - Inspection is done on the waste bins/skips to ensure that there is no leaking
    - The waste is then loaded into drums carriers making sure that the waste loaded in the drum carriers do not react to each other as per the load compatibility chart (Appendix F)
    - Once drum carriers are full, the waste coordinator reports to the waste contract manager that the waste is ready for collection

- When the waste contractor comes to site for collection of the waste; the waste coordinator conducts an inspection in accordance with LFME015 pre-journey inspection checklist - waste trucks to ensure that the driver has the correct documents for collection and transportation of hazardous waste such as a valid appropriate license, PrDP, DGD, trem card and Eskom permit
- The truck is then checked for the appropriate pictograms on all sides e.g. orange warning diamond in the front and orange box in the vehicle.
- Once the waste coordinator is done with the inspection, the waste is loaded for transportation and disposed of at a licensed hazardous landfill site.

3.15 DOMESTIC WASTE MANAGEMENT

- Domestic waste items which the Station is able to recycle e.g. paper must be separated from the rest of the domestic waste at source and disposed of in the recycling bins provided.
- Domestic waste skips outside the station to be fitted with a lid, waste bins to be monkey proof
- The Environmental section is responsible to ensure the provision of recycling bins, as well as the timely emptying of these bins.
- Non-hazardous items which have potential re-sale value upon being scrapped must be sent to the Salvage Yard. This excludes scrap metal which must be disposed of in the scrap metal skips positioned in the Station and scrapped computer hardware which is normally sold via the IT section
- The section producing building rubble must inform the waste contract supervisor before rubble is produced so that the appropriate waste bin/skip is provided.
- It is the responsibility of the person that is loading waste into a domestic waste bin/skip to open and close it.
- No waste bin/skip shall be left open

3.16 SCRAP METAL MANAGEMENT

- Metal skips are distributed between the all the units, and at various other points around the station.
- When skips are full, civil maintenance is contacted to replace the full skip with the empty skip.
- When a metal skip is required civil maintenance is contracted and a skip is provided.

3.17 WASTE OIL MANAGEMENT

- Auxiliary services notify civil maintenance when various oil drums in the station are full.
- Civil maintenance contacts OPS support to transport empty oil drums to the salvage yard.

- Civil maintenance contracts contractor to collect oil drums and oil in the station.

3.18 SANITARY WASTE

- Sanitary waste is disposed through a third party, who is managed by the Finance and Services Department
- Safe disposal certificates shall be forward to Environmental Officer on a monthly basis and included in the monthly waste register.

3.19 ALL OTHER HAZARDOUS WASTE

- The waste contract supervisor ensures that empty hazardous waste drums with lids are available at the temporary hazardous waste site where the waste coordinator makes them available on request
- When hazardous waste is produced by a section, the Head of the Section (or whoever is assigned) takes the waste to the temporary hazardous waste site with the SDS of the material where the waste coordinator receives the waste, the contract supervisor or the waste coordinator can be contacted to ensure someone is available to receive the waste.
- The Head of that section must ensure that the waste is delivered in leak-tight 210 litre drums (As provided in point 1) to the temporary Hazardous Waste site. The lids on the drums must be closed tightly. The drums must be labelled to indicate the contents and section from which it originated.
- No waste may be left outside the gate or at any other place on the premises. If the waste coordinator is not available at the time the delivery is made there are numbers available at the site that can be called for assistance. However the waste coordinator is never away from the site for long.
- The waste coordinator keeps an inventory of all the waste that is stored at temporary hazardous waste site.
- The waste coordinator informs Contract Supervisor(OPS support) for the removal of waste, OPS support then informs the waste contractor(ERI) to remove the waste
- Once ERI removes the waste, it's disposed of at a licensed hazardous landfill site and safety disposal certificates/waste manifest are retained.
- A waste register is kept with the environmental department for all the waste that has been removed from the site with all the waste manifests.

3.20 WASTE TRANSPORTER REGISTRATION

- All vehicles used for the purpose of waste transportation must be permitted in accordance to the prescribed legal requirements.
- Waste must only be collected by a registered waste transporter in terms of the National Waste Information Regulation 625 of 2012.
- Waste transporters must only accept waste that was classified in accordance to regulation 4 of the National Environmental Management waste Act 59 of 2008.
- Waste transporters may not accept waste that is classified hazardous without the Waste Manifest for that waste.

- The Waste transporter must provide the following information to the generator:
    - Name of the transporter
    - Address and the telephone number of the transporter
    - Declaration acknowledging receipt
- All waste transporters must complete a Manifest document.
- Waste transporters must provide the waste information to the generator before transporting the waste from Lethabo Power Station.
- Waste transporters must provide the waste information to the Waste Management Officer at the time of delivery of the waste for the waste management activity e.g., landfill site, incineration facility, recycling facility etc.

3.21 CALCULATING ASH PRODUCED, DISPOSED AND RECYCLED

- Calculation of ash produced figure
- Coal burnt x Ash %= Ash produced in tons
- Conversion from tons to kT= $\frac{\text{Ash produced in tons}}{1000}$
- Ash recycled figure shall be obtained from the dispatch sheets obtained from the contractor that is purchasing the ash from the station.
    - Fly ash recycled figures shall be supplied by Ash Resources representatives
    - Bottom ash recycled figures shall be supplied by Eskom Rotek Industries before the 8th of each month.
- The ash emitted figure shall be obtained from the emissions summary report
- kT final ash disposed= Ash Produced in tons – ash recycled –ash emitted
- A risk assessment has been conducted to identify all the things that might go wrong when compiling the ash figures and included in the aspects and impacts register

3.22 ASH OFFTAKERS

The following measures to be taken by ash off takers at Lethabo Power Station

- Trucks to be fitted with tight fitted tarpaulins at all times;
- Trucks to have drip trays at all times;
- Truck drivers to use our bins to dispose of general waste and avoid littering;
- Truck drivers shall report all spillages to environmental department and contract supervisor;
- The owner of the contract responsible for clean-up and remediation of all spillages that they cause

3.23 AUDITING

- Waste management will be audited during the ISO14001 audits twice a year; and legal compliance audits every second year
- A waste review may be conducted every second year by the Waste Centre of Excellence to determine compliance to legislative requirements (mainly the National Environmental Management Waste Act (Act 59 of 2008) and its Regulations), conditions of station's Waste related permits and/or licenses, Eskom Waste Management Procedure and to determine station's readiness to comply with the upcoming new waste regulations.
- Internal audits to be conducted on the Temporary Hazardous Waste Site and Salvage Yard, based on the requirements of the National Norms and Standards for Storage of waste twice a year (biannually). An official report must be compiled by the relevant auditor to report the findings of the audits, which must be made available to the external auditor.
- An independent external auditor must be appointed to audit the porary Hazardous Waste Site and Salvage Yard, to evaluate compliance to the National Norms and Standards for Storage of waste, biennially (every 2 years) and the auditor must compile an audit report documenting the findings of the audit, which must be submitted to the relevant authority.

3.24 COLOUR CODING

According to the waste separation requirements for Lethabo Power Station the different waste streams produced will be disposed of in the appropriate bins and skips provided specifically for each of these streams. Notice boards displaying colour coding for Lethabo Power Station shall be placed in key areas on site and maintained.

Table 1: Lethabo Waste Colour coding

Waste Stream	**Disposal**
Domestic	White skips and bins
Production	Black skips
Hazardous Waste	Red drums
Medical Waste	Marked medical waste
Asbestos	Yellow drums/skips
Batteries	Purple containers
Scrap Metal	Blue Skips
Paper	Marked recycling boxes
E-waste	Marked e-waste

NOTE Colour coding will be used as best practice however, it is subject to change based on supplier capability

3.25 REPORTING

- Reporting shall be done in accordance with Eskom Waste Management Procedure, 32 – 245.
- A waste register is kept on site detailing the amount of waste produced for the month, how much waste was recycled and how much waste was disposed of.
- Monthly Ash Utilisation Template - ENV18-R214 - Eskom Monthly Report Results Generation Sign-Off By The Owner of Each KPI

3.26 RECORDS

- All certificates of safe disposal and waste inventories shall be retained for the life of the power station.
- This procedure shall be retained for the life of the power station, unless it is deemed no longer necessary by the Power Station Manager or when it is superseded.
- This procedure shall be reviewed every three years from the date of last review.

4. AUTHORISATION

This document has been seen and accepted by:

NAME	DESIGNATION
B Phahle	Risk & Assurance Manager
S Maringa	(Acting)Outage Manager
L Monnakgotla	Maintenance Manager
T Mocoancoeng	HR Manager
M Tsoaeli	Finance & Services Manager
H Sewsunker	Engineering Manager
V Mokoena	Operating Manager
T Ramulumisi	Production Manager – Essential Plant
P Motaung	Production Manager – Units
S Tshabalala	Production Manager – Units
M Holtzhausen	Programme Manager
M Hariram	Environmental Manager
Mawande Kutyana	Primary Energy
Sifiso Maringa	Compliance Manager

In the preceding table, list the manager/s of the departments that will be affected by the content of this document.

5. REVISIONS

Date	Rev	Compiler	Description of Revision
2008-03-20	00		Scrapped changed to salvage yard Mechanical Maintenance Manager (OP) to Mechanical Maintenance Manager (PP) Waste removal body to waste removal undertaker Requesting and for conducting internal audits when required (box inserted) Hazardous Chemical Waste to Hazardous Organic Waste & Spent Solvent Mechanical Maintenance Manager (OP) to (PP) Insertion of :Note Waste as above removal body to waste removal undertaker Insertion of paragraph : Satellite collection PTAs Change LBA00054 to LRA000015
2010-06-07	01		Include salvage yard, Temporary hazardous site, Waste Management Procedure 32-245 and change LRA000015 to LBE22004PC. Change format to incorporate ISO9001 Standard.
2010-07-27	02		5.13.2, 6.2&6.3 - Salvage yard procedure update: All items deemed as scrap shall be accompanied by means of LFM259A or LFM259B signed by the relevant Line Manager. An inventory (DCC058) form shall be maintained, on the type of salvageable material delivered to the salvage yard, date of delivery, who delivered it, and the person accepting the salvageable material at the salvage yard. Temporary Hazardous Waste Site: Add 5.13.5 All empty hazardous containers shall be punctured to prevent re-use 5.13.6 Nominally empty packaging certificate will be issued to the contractor when taking empty containers for disposal. OPS Support is replaced with OPS Support.
2011-03-02	03		The following paragraphs has been inserted Definitions – 3.19 – E-Waste 5.12 – E-Waste Management
2012-10-08	04		Add Appendix C to procedure- waste reporting requirement
2013-12-09	05	L Moreoane	The following has been amended The definitions as far as practical are in accordance to NEMA and NEMWA where applicable. The explanation for OHSAct has been inserted in the abbreviations

Date	Rev	Compiler	Description of Revision
			Reference to 32-303 Requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles has been added to the Asbestos waste disposal. The auditing part has been added on The layout of the procedure has changed. The roles and responsibilities for OPS Support Supervisor and Environmental officer have been amended. Responsibility for the Occupational Hygienist. Waste bins colour coding Scrap metal management Waste oil management
2014/11/21	06	L Moreoane	Definitions added Roles and responsibilities of the following have been added or amended • Environmental Officer • Environmental manager • Process Engineering • Boiler plant engineering • Ash Recycling Company • Waste coordinator Process for calculating ash has been added into the procedure Monthly waste register signoff sheet Salvage yard rules Sewage sludge Empty chemical containers Ash Figures Spreadsheet
2015/12/03	07	L Moreoane	The following definitions were added • Medical waste The following abbreviations were added • PrDP-D • DGD • Tremcard • MSDS All roles and responsibilities were amended All disposal processes were amended Process followed at the temporary hazardous waste site was added
2017/07/05	08	WFL de Klerk	Definitions added/changed: • Waste Manager (Consignee) • Waste Generator (Consignor) • Contract supervisor • Waste contractor Roles and responsibilities updated.

Date	Rev	Compiler	Description of Revision
			Florescent tubes disposal/recycling updated. Colour coding updated. Updated Annexure D to contain new waste register issued by Waste CoE.
2020/01/28	09	WFL de Klerk	Added Sanitary waste disposal requirements Added ash recycling reporting requirements Roles and responsibility of: Power Station Manager Environmental Manager Finance and Services Dept. Senior Environmental Manager
2021/04/13	10	Jerida Maphutha	Added requirements for waste transporter in the station Added requirements for registration of the vehicles transporting waste. Added waste classification requirements

6. DEVELOPMENT TEAM

- Lehlogonolo Moreoane,
- Jerida Maphutha
- Slindile Buthekezi
- George Sephooa
- Lucky Monyamane

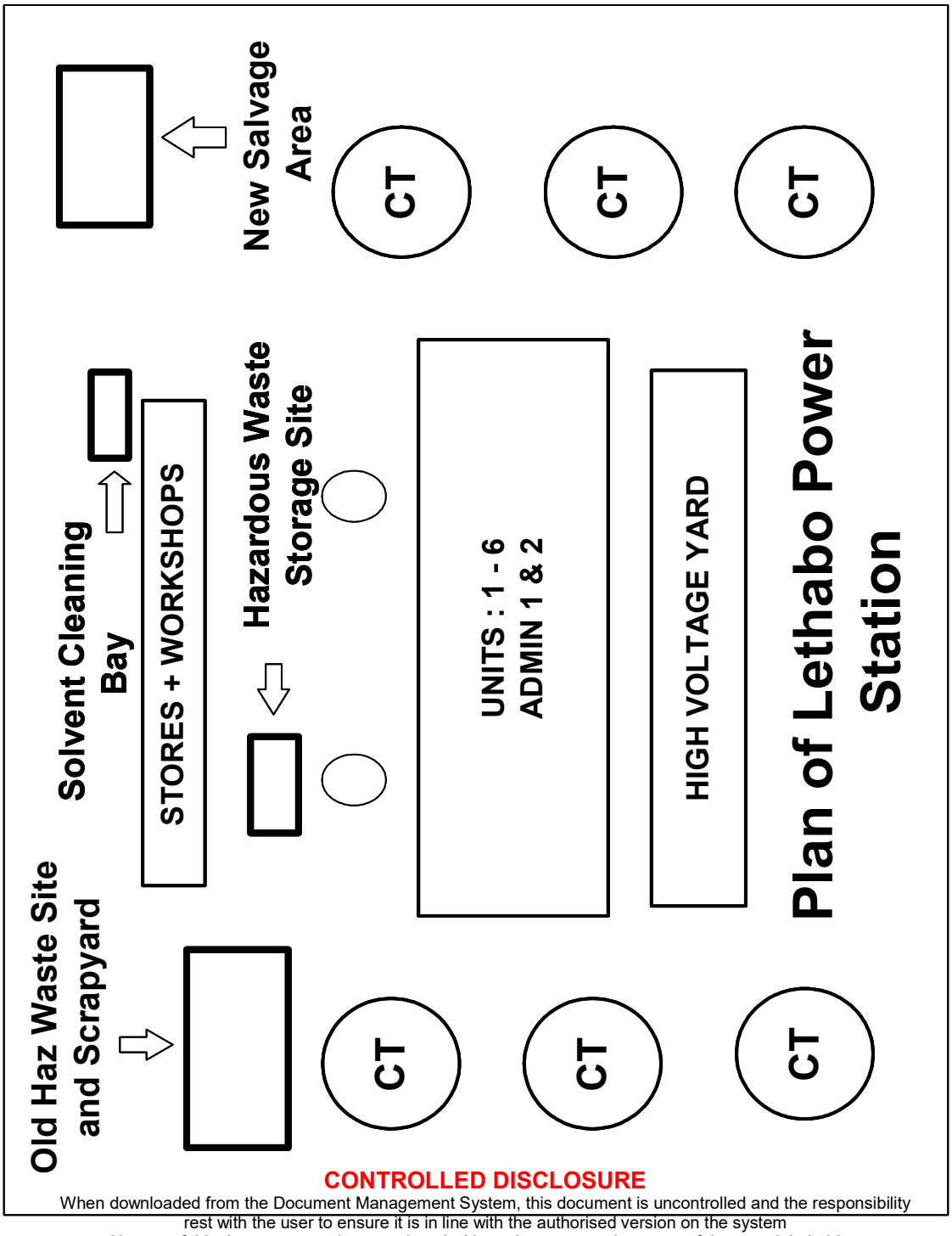
7. ACKNOWLEDGEMENTS

- None

8 APPENDICES

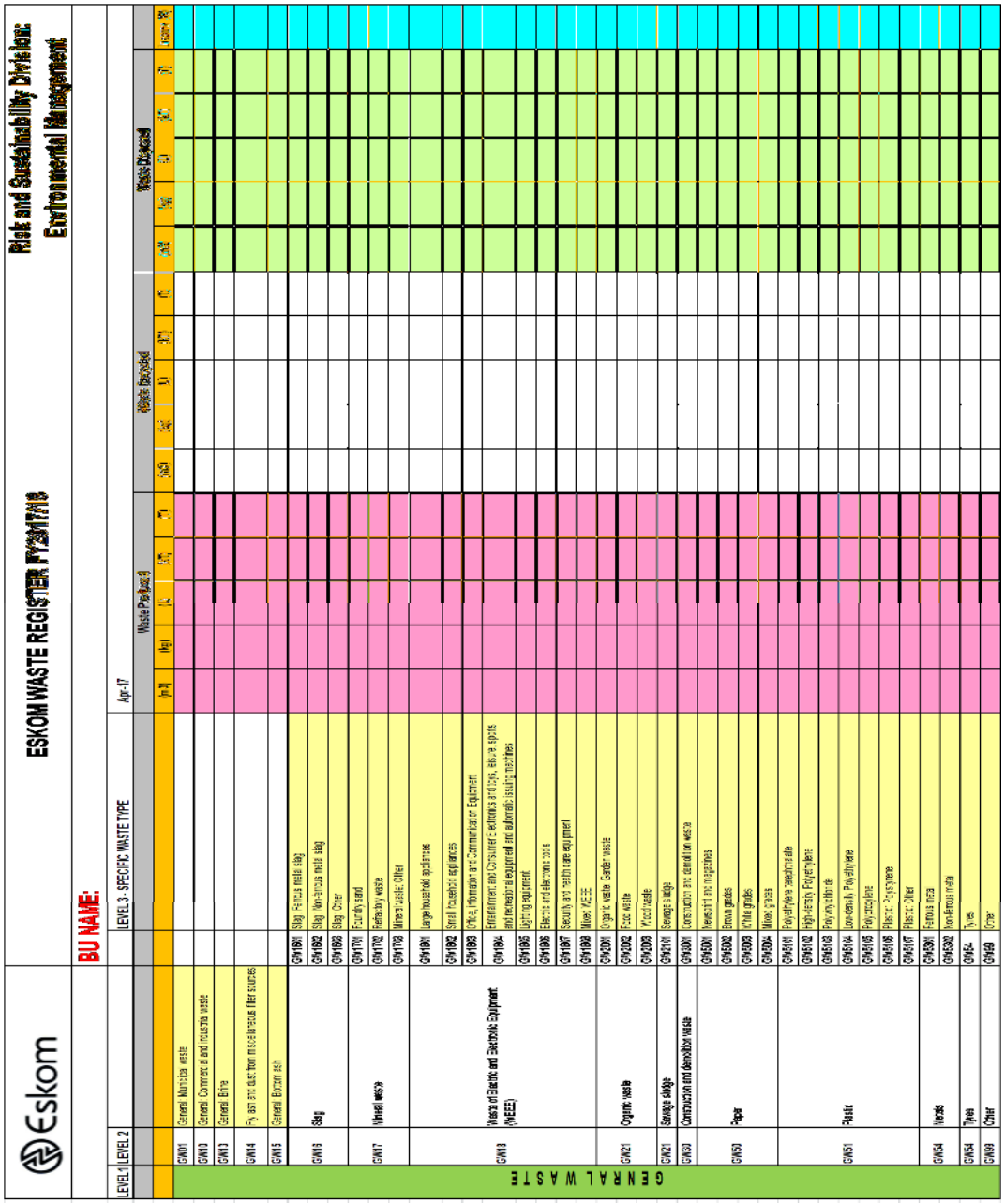
8.1 Appendix A - Plan of Lethabo Power Station indicating the location of the Hazardous Waste Store, degreasing plant and salvage yard.
8.2 Appendix B -Monthly waste register signoff sheet
8.3 Annexure C- Ash Figures Spreadsheet
8.4 Appendix D - Load Compatibility Chart as per SANS 10231

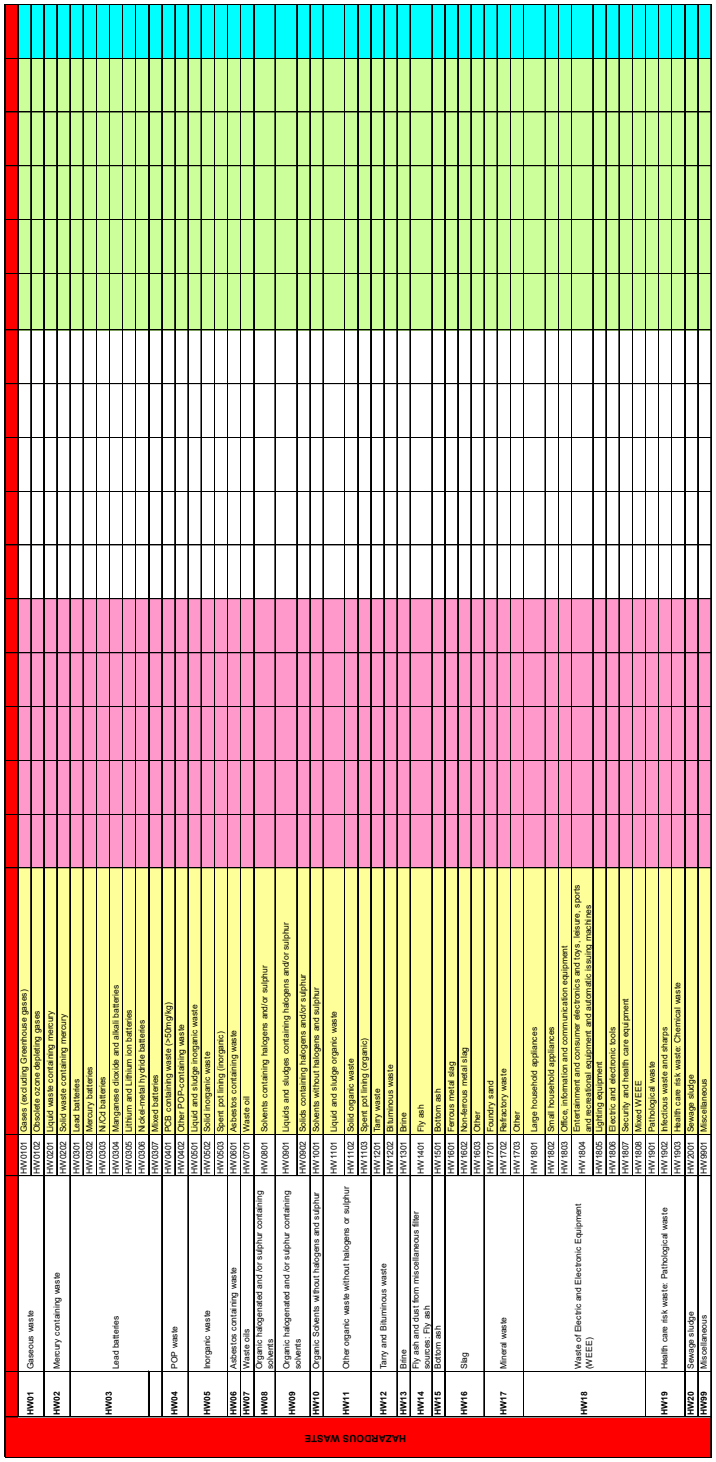
8.1 Appendix A - Plan of Lethabo Power Station indicating the location of the Hazardous Waste Site, degreasing plant and salvage yard.



8.2 Appendix B: Monthly wastes register

Waste Register





8.3 Appendix C: Ash Figures Spreadsheet

PROCESS ENGINEERING

LETHABO POWER STATION ASH FIGURES 20xx – 20xx

Month	Coal Tonnes	Ash %	Tonnes	KT Ash Produced	KT Ash Recycled	Ash Emitted	KT Final Ash Disposed
April							
May							
June							
July							
August							
September							
October							
November							
December							
January							
February							
March							
TOTAL							

8.4 Appendix D: Load compatibility Chart as per SANS 10231

CLASS	1	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6.1	6.2	7	8 acid	8 base	
1																
2.1											A	A		A		
2.2														A		
2.3																
3									A	A						
4.1									A	A						
4.2									A	A						
4.3									A	A						
5.1					A	A	A	A								
5.2					A	A	A	A						A		
6.1		A												A		
6.2		A												A		
7																
8 acid		A	A							A	A	A			A	
8 base														A		
9																