



PROCEDURE

Duvha
Power
Station

RESPONSIBLE FUNCTIONAL AREA RISK MANAGEMENT - ENVIRONMENT

TITLE:

**Procedure for Waste Management
(Environmental)**

Allocation Centre: 03A
 Document ID: ENVP0005
 Alternate Doc. ID: -
 Revision: 4
 Total Pages: 12
 Revision Date: AUGUST 2015
 Next Review Date: AUGUST 2018

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REV	DESCRIPTION OF REVISION	DATE
0	ORIGINAL	10/03
1	REVIEW	09/05
2	CHANGES TO 3.0, 4.0, 5.0, 6.0 AND 7.0	10/09
3	CHANGES TO 4.0, 5.0, 6.0, 7.0 AND 8.0	12/12
4	MINOR CHANGES	08/15

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1.0 PURPOSE

The purpose of this procedure is to set out the waste management requirements for Duvha Power Station. Effective waste management is required to ensure the prevention of pollution and ecological degradation. An integrated approach is required to minimise and manage waste and the associated risks in an environmentally acceptable and cost-effective manner. Duvha Power Station will manage waste in a responsible manner through the identification and proactive management practices of waste management. The avoidance of waste generation, and where avoidance is not possible, promote the conservation of resource use through effective and efficient resource utilisation, minimisation, reuse, recycling and the disposal of the remaining waste

2.0 SCOPE

This document is applicable to Duvha Power Station and its contractors.

3.0 REFERENCES

- 3.1 DUV0048 Duvha Environmental Management Policy
- 3.2 ENVP0014 Duvha Environmental Management Resources, roles, responsibilities and authority
- 3.3 IMP0006 Duvha Document Management Procedure
- 3.4 32-245 Eskom Waste Management Standard
- 3.5 Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste, 1998
- 3.6 National Environmental Management Act (Act 107, of 1998)
- 3.7 National Environmental Management: Waste Act (Act 59 of 2008), its associated Norms & Standards and Regulations
- 3.8 National Water Act (36 of 1998)
- 3.9 National Road Traffic Act (93 of 1996)
- 3.1 SANS 10228 Identification and classification of dangerous goods for transportation.
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4.0 DEFINITIONS & ABBREVIATIONS

4.1 DEFINITIONS

4.1.1 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

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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 (ii) any portion of waste, once re-used, recycled and recovered, ceases to be waste.

4.1.2 General waste

means waste that does not pose an immediate hazard or threat to health or to the environment, and includes—

- (a) domestic waste;
- (b) building and demolition waste;
- (c) business waste: and
- (d) inert waste;

4.1.3 Domestic Waste

Means waste, excluding hazardous waste that emanates from premises that are used wholly or mainly for residential, educational, health care, sport or recreation purposes.

4.1.4 Ferrous and non-ferrous Material

Ferrous metals are iron and surface treated iron and non-ferrous metals include copper and copper alloys, zinc, lead aluminum, tin and precious metals such as gold and silver.

4.1.5 Hazardous Waste

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.

4.2 ABBREVIATIONS

4.2.1	DWS	Department of Water & Sanitation
4.2.2	SRM	Safety Risk Management
4.2.3	WHS	Waste Holding Site
4.2.4	PCB's	Polychlorinated Biphenyls
4.2.5	FFB's	Fabric Filter Bags
4.2.6	EMD	Electrical Maintenance Department

5.0 RESPONSIBILITIES

5.1 The Waste Officer is responsible for the implementation of this Procedure.

5.2 The Environmental Department will monitor and oversee implementation of this Procedure.

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5.3 Operating Support Services and Waste Officer are responsible for management of waste

Lube Oil Supervisor	<ul style="list-style-type: none"> • Proper storage of oil drums • Offloading & loading of the drums containing oil • Cleanliness of the storage area • Access control
Waste Officer	<ul style="list-style-type: none"> • Ensuring that there is sufficient containers (skips, bins) available for the disposal of waste • Ensuring that the correct colour coding is adhered to • Waste holding containers are in good condition • Waste reconciliation is practiced

5.4 All employees including contractors working on site must adhere to this procedure.

6.0 PROCESS

6.1 General

6.1.1 Equipment and Infrastructure.

- Tractor and front end loader
- Domestic bins
- Hazardous waste bins and skips
- Chemical stores and sorting area, including hazardous chemicals
- The containers in which any waste is stored, must be intact and not corroded or in any other way rendered unfit for the safe storage of waste and adequate measures must be taken to prevent accidental spillages or leakages.

6.2 Domestic Waste

- 6.2.1
- Separate waste at the source (only domestic waste in the white skip)
 - Place the white skips and bins strategically throughout the station.
 - Collect waste from station waste bins and place into skips.
 - The waste disposal contractor collects the waste on a weekly basis (or when necessary), and transports it to a permitted landfill site.
 - Duvha receives documentation in the form of waybill & safe disposal certificates for record purposes.

All employees
Waste Officer
Cleaning Contractor
Contractor
Waste Officer

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6.2.2 Garden refuse

- This waste is generated by a contractor which is cleaning the station yard.
- The refuse is quantified and taken to a permitted landfill site, for disposal.

Waste Officer

6.2.3 Building rubble

This waste is generated by different sections during construction. The waste is placed in white skips, when the skip is full a contractor is notified and then the waste is dumped at a permitted landfill site.

Waste Officer

6.3 Ferrous and Non-ferrous Metals

6.3.1 Place six cubic meter maroon skips strategically throughout the station with the lettering Scrap Metal depicted on them.

Waste Officer

6.3.2 Collect scrap metal from station and place into scrap metal waste skips.

6.3.3 The assigned Scrap Metal Dealer will then collect and transport the metals under contract to his site. Once the scrap metal has been weighed, documentation will be returned to Duvha for invoicing purposes. The Environmental Department must keep records of scrap metal collected.

Contractor/
Waste Officer

6.4 Mineral Fibers (e.g. Lagging)

6.4.1 Mineral fibers normally originate from the turbine hall, boiler and ash plant.

6.4.2 Originator to double-bag fibers and place in the six cubic meters skip for removal to permitted landfill site.

6.4.3 Operating Support Services makes the necessary arrangements for the above.

6.4.4 Duvha receives documentation for record purposes.

Waste Officer

6.5 Hazardous Waste, Liquids and Solids

6.5.1 Chemicals (including Thinners, Solvents)

NOTE: Chemicals are accepted at the Waste Holding Site only if labelled correctly.

- Place chemical waste in a chemical store under lock and key.
- Contact the Waste Disposal contractor to collect the load, for disposal thereof (maximum period of storage on site is 90 days).
- The chemicals may only leave site once a Hazardous Waste Transportation and Acceptance form has been completed and signed. It is then transported to the permitted hazardous landfill site where the Waste Disposal contractor will decide on trenching, treatment, filling or encapsulation of the waste.
- A Safe Disposal Certificate will be issued and kept in the Waste Management file.

Contractor

Contractor/
Waste Officer

Waste Officer

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6.5.2	<u>Fluorescent Tubes</u>	<ul style="list-style-type: none"> Used fluorescent tubes and mercury globes are delivered to the Waste Storage Area on site, where they are stored in a locked skip until collected Contact the Waste Disposal Contractor once the skip is full The Waste Disposal Contractor collects the 6m3 skip then transports it to a permitted landfill site. The assigned company at the permitted landfill site treats and trenches the contents of the drums. A certificate of Safe Disposal and Waste Manifest will be issued and kept in the Waste Management file. 	EMD Contractor Waste Officer
6.5.3	<u>Nicad Batteries</u>	<ul style="list-style-type: none"> Receive batteries from the station, and place in drums in the Battery Store under lock and key. Dispose of batteries in a 210-litre drum. Seal and label drum when full and Roshcon to remove the full drums to a permitted hazardous disposal site. A Certificate of Safe Disposal and Waste Manifest will be issued and kept in the Waste Management file. 	EMD Waste Officer
6.5.4	<u>Asbestos, Coatings and Putty</u>	<ul style="list-style-type: none"> Cover or pack asbestos-containing article completely with double, impermeable material and seal with tape, so that no fibres can break off and be dispersed into the atmosphere, before being delivered to the permitted Hazardous Landfill Site. Place asbestos putty, sealed in packets, in a labelled drum before delivering it to the permitted Hazardous Landfill Site. A Certificate of Safe Disposal and Waste Manifest will be issued and kept in the Waste Management file. 	Contractor Waste Officer
6.5.5	<u>Medical Waste</u>	<ul style="list-style-type: none"> Place medical waste in the containers at the Medical Centre. A certificate of Safe Disposal and Waste Manifest will be issued and kept in the Waste Management file. 	Waste Officer
6.5.6	<u>FFB's</u>	<ul style="list-style-type: none"> The FFB's are stored in skips at the ash plant The appointed contractor is notified when the skip is full. The container is taken to permitted landfill site for disposal A Safe Disposal Certificate and Waste Manifest is issued and kept in the Waste Management file. 	Waste Officer Waste Officer

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6.5.7 Sulphur Waste

- Sulphur waste is stored in a 210-litre container next to the SO₃ plant.
- Once the container is full the removal contractor is notified.
- The container is taken to a permitted landfill site for disposal.
- A Safe Disposal Certificate and Waste Manifest is issued and kept in the Waste Management file.

Waste Officer
Waste Officer

6.5.8 Oil Rags and Absorbent

- Oil rags and used absorbent are deposited in 210 litre containers and 6m³ skips.
- When the containers are full a contractor is notified.
- The container is taken to a permitted landfill site for disposal.
- A Safe Disposal Certificate and Waste Manifest is issued and kept in the Waste Management file.

Waste Officer
Waste Officer

6.5.9 Sewage Sludge

- Sewage sludge is stored at the Sewage plant in a 6m³ skip.
- When the container is full a contractor is notified.
- The contractor completes and signs the Hazardous Waste Transportation and Acceptance form.
- The container is subsequently removed to permitted landfill site for disposal.
- A Safe Disposal Certificate and Waste Manifest is issued and kept in the Waste Management file.

Waste Officer
Waste Officer

6.5.10 Coal and Ash Discards

- The above is placed in skips or directly into trucks (depending on the quantities) by the cleaning contractors or Eskom personnel.
- After a week of accumulation, Eskom employees/contractor (commonly known as Station Cleaning) remove, by means of trucks and dispose of on the ash disposal facility.
- The Waste Officer records the quantities disposed off.

Waste Officer

6.5.11 Contaminated Broken Glasses and Hazardous Waste Containers

- This is generated at Water Treatment Plant.
- This is placed into 210L red drum once the container is full the contractor is informed and the drum is taken to the permitted landfill site for disposal.
- A Safe Disposal Certificate and Waste Manifest is issued and kept in the Waste Management file.

Waste Officer
Waste Officer

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6.5.12 Paint Containers

- This is generated by various Contractors and Eskom employees.
- The paint containers are placed in a red colour-coded skip.
- Once the skip is full the contractor is informed and the skip is taken to the permitted landfill site for disposal.
- A Safe Disposal Certificate and Waste Manifest is issued and kept in the Waste Management file.

Waste Officer

Waste Officer

6.5.13 Used De-greaser and Paraffin

- This is mostly generated during outages by different sections.
- The used liquid is poured into two different 210L red drums.
- The contractor is contacted once the drums are full and are taken to the permitted landfill site for disposal.
- A Safe Disposal Certificate and Waste Manifest is issued and kept in the Waste Management file.

Waste Officer

Waste Officer

6.5.14 Silica Gel Crystals

- This is generated by EMD sections.
- The crystals are placed into a 210L red drum at EMD Outside plant.
- Once the drum is full the contractor is informed and the drum is taken to the permitted landfill site for disposal.
- A Safe Disposal Certificate and Waste Manifest is issued and kept in the Waste Management file.

EMD

Waste Officer

Waste Officer

6.5.15 Bunker Oil 150 Sludge

- This generated from fuel oil plants.
- The sludge is either placed in brown 6m3 skip, 210L drum or directly into trucks depending on the quantity.
- Once the container is full the waste collector is informed and the sludge is taken to the permitted landfill site for disposal.
- A Safe Disposal Certificate and Waste Manifest is issued and kept in the Waste Management file.

Ops Support

Waste Officer

6.5.16 Used Lubrication oil

- The above waste is collected from different dirty oil tanks.
- The oil is placed into 210L drums. The drums are stored at the dirty oil store area from there the oil is pumped into the main dirty oil tank.
- Once the tank is full a contractor specializing in oil recycling is contacted. The oil is sold for recycling purposes.

Ops Support

Waste Officer

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6.5.17 Conveyor Belts, Tyres and Rubber

- This is generated by different sections.
- The waste is placed in 9m3 or 6m3 red skip. The skips are placed at the back of HMD workshop.
- Once the container is full the waste collector is contacted and the waste is taken to the permitted landfill site for disposal.
- A Safe Disposal Certificate and Waste Manifest is issued and kept in the Waste Management file.

Waste Officer
Waste Officer

6.5.18 Water Treatment Plant Sludge

- The sludge is generated when different chemicals are used to clean water.
- This sludge is stored into a sump and once it reaches a certain level is pumped to the Ash dams.

Chemical
Services

6.5.19 Used Resins

- This is also generated by Water treatment plant when water is being purified.
- This is placed into 6m3 skip by a contractor. Once the container is full Eskom employees will transport the skip to the ash dams for disposal.

Ops Support

6.5.20 Ash

- This is generated when coal is burnt in the boilers.
- During the burning process coarse and fly ash is formed. Both these wastes will be pumped to the ash dams.
- The ash will be packed into layers and rehabilitation done when necessary

6.5.21 E-Waste

- It is waste emanating from electrical and electronic equipment.

6.5.22 Dead Animals Carcasses

- The carcass is to be inspected by the veterinarian.
- In addition to the former, blood analyses are performed, and the cause of death established.
- If the cause of death is natural, the carcass is to be buried. If the animal died from any communicable disease the carcass should be sent away for incineration.

Waste
Officer/
Environment
al
Management
Department

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6.5.23 Used kitchen oil

- The above waste is collected from the kitchen.
- The oil is placed in the 20L containers and then stored at the kitchen oil storage area.
- Once the container is full the waste collector is contacted and the waste is taken to the permitted landfill site for disposal.
- A Safe Disposal Certificate and Waste Manifest is issued and kept in the Waste Management file.

Waste Officer
Waste Officer

6.6 Colour Coding

Colour (Bins & Skips)	Waste Type
Red	Hazardous waste (which includes sulphur, soiled PPE, FFB's, fluorescent tubes, asbestos)
White	Domestic (which includes office waste)
Yellow	Coal & Ash Discards
Maroon	Scrap Metal
Brown	Oil rags / absorbent

6.7 Waste Handling, Storage and Transportation

- All waste handling, storage as well as transportation is to be performed in accordance with the *National Environmental Management: Waste Act (59 of 2008)*, its associated regulations and Norms & standards.
- All Sections of the *Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste* are applicable.
- Hazardous waste will be transported in a way that will not cause Environmental pollution. This will be ensured by checking waste transporters against the requirements contained in Annexure C (ENVP005-1).

Waste Officer

6.8 Waste Classification

Waste classification and hazard rating is to be performed in accordance with *Waste Classification and Management Regulations (GNR 634)*.

Waste Officer
&
environmental
department

7.0 RECORDS

- 7.1 Copies of all documentation and records are kept by the Waste Officer.
- 7.2 Certificates of Safe Disposal of all hazardous wastes will be kept at the Documentation Department as permanent records.
- 7.3 All invoices and delivery notes are forwarded to Finance Department.

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8.0 REPORTING

- 8.1. Waste reporting is as per Eskom Waste Management Procedure (32-245) Annexure K.
- 8.2. The amount of waste produced and collected for disposal will be recorded by the responsible person at Coal Management, Medical Centre & Materials Management and reported to the Environmental personnel on monthly basis.
- 8.3. The Environmental personnel shall update the waste register using and report to Sustainability (Center of Excellence: Waste) on a monthly basis.
- 8.4. Waste will be reported quarterly by using Annexure B.
- 8.5. The ash produced figure is obtainable from the STEP report generated on a monthly basis by the performance & testing department. It is a calculated value using the Coal Burnt figure and the percentage of Ash in Coal figure. The Performance & Testing and the Chemical Services (coal lab) Departments are responsible for ensuring that the correct coal burnt and Ash in coal figures is available.

9.0 APPENDICES

Up to date versions of the following forms are used with the procedure:

- 9.1. Hazardous Waste Collection-Checklist (Document ID: 03A ENVP0005-1)
- 9.2. Waste Reporting Template (Document ID: 240-47176-64)