Eskom	Fugitive Emissions Management Plan	Camden Power Station

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Content

1. Introduction

Fugitive emissions are those emissions to the air from a facility for which the emissions license has been issued, other than those emitted from a point source (GN No. 37054, 22 November 2013). Fugitive emissions may be emitted from a number of sources at Camden Power Station, namely unpaved roads, fuel oil storage tanks, the ashing facilities and the coal stockyards,

Fugitive Emissions Management Plan (FEMP) as required by the Atmospheric Emissions License (AEL) for Camden Power Station aims at identifying the process adopted by Camden Power Station to manage and mitigate fugitive emissions at various plants within the facility and the procedures to be followed to control such emissions.

The objective is to identify plants or areas that could potentially generate fugitive emissions, identify the roles and responsibility within the facility and the control measures in place and those that can be developed to manage the identified emissions.

2. Supporting Clauses

2.1 Scope

This Fugitive Emission Management Plan (FEMP) demonstrates how fugitive dust emissions and fugitive emissions from fuel oil storage tanks are managed and mitigated at Camden Power Station. Emissions resulting from fugitive dust are considered to be a significant/medium environmental aspect as also indicated in the environmental aspects and impacts register (Document No: 240-87388531). Therefore, this FEMP has been developed to ensure the plant is demonstrating continual improvement by appropriately managing and minimising fugitive dust sources at the facility.

2.1.1 Purpose

The plan is compiled to indicate the initiatives that are already in place and implemented for the management and mitigation of fugitive emissions from Camden Power Station.

2.1.2 Applicability

This document shall apply to Camden Power Station.

2.1.3 Effective date

The document is effective from the day it is authorised

2.1.4 Normative References (Eskom documents)

004-4082	Environmental Aspects and Impacts Identification Procedure
240-118610503	Leak Detection and Repair Programme
240-87388531	Camden Environmental Aspect and Impact Register

2.1.5 Informative References (Non-Eskom documents i.e. Acts, SANS, ISO, etc.)

National Environmental Management: Air Quality Act 39 of 2004

National Dust Control Regulations Government Gazette 36974 November 2013

SANS 1137-2012 / ASTM D 1739-1998

2.2 Definitions

N/A

2.3 Abbreviations

Abbreviation	Explanation
AEL	Atmospheric Emissions Licence
HPA ITT	Highveld Priority Area Implementation Task Team
FEMP	Fugitive Emissions Management Plan

2.4 Related/Supporting Documents

Atmospheric Emissions Licence *(Msukaligwa/Eskom H SOC Ltd/CPS/0012/2015)*

3. Fugitive Emission Sources

Figure 1: Plants or areas within the facility generating fugitive emissions

3.1.1 Ashing Facilities

3.1.1.2 Existing Ashing facility

The ash facility at Camden Power Station was initially designed by Eskom in 1965 and

Commissioned in 1967 (herewith referred to as “Old Ash Dam”), Camden Power Station is still in a process of constructing a new ashing facility (referred to as “New Ash Dam”). The operation of the existing ashing facility generates fugitive emissions in a form of dust, from the ash deposited through the ash lines in a form of slurry. Ash contaminated water is then deposited to De Jagers Dam while the ash settles (Fig 1).

3.1.1.2 New Ashing facility

Currently Camden Power Station is busy constructing the new ashing facility due to the fact that the existing ashing facility is running out of capacity. The construction activities generate fugitive emissions in a form of dust and during operational phase the facility will generate dust from the ash deposited through the ash lines in a form of slurry. Ash contaminated water is then deposited to De Jagers Dam while the ash settles (Fig 1).

3.1.2 Coal Stock Yard

A coal stock yard is a storage area of coal that is delivered by haul trucks and consists of a Live Pile, Strategic Pile and an Emergency Pile. At the coal stock yard the coal is crushed by screens and loaded onto covered conveyor belts (E1 & 18). From the conveyor belts, the coal is stored in coal staithes and also delivered into the plant bunkers and thereafter to the mills in the generating units via conveyors.

Front end loaders are used to reload the coal for compaction. The operations of the coal stock yard area generate fugitive emissions in a form of dust that is from the crushing and loading activities, movement of trucks and heavy machinery around the area (Fig 1).

3.1.2.1 Live Pile

The live stockpile is a stockpile constructed by the delivered coal onto the ground close to the in-loading bay. This pile usually has a bulk density of between 0.95 and 1.05 ton/m^3. The value changes depending on the size grading, the in-situ density of the coal being mined, the height of the pile and moisture content. Live piles are continuously in use unless otherwise the instruction is given to stop feeding from the live piles due to poor coal qualities (Fig 1).

3.1.2.2 Strategic Pile

The strategic coal stockpile represents a fully compacted stockpile constructed for long term strategic storage of coal. The coal is directly off-loaded to the strategic pile from the trucks only when the live piles are full. The coal is spread, layered, watered (if necessary) and compacted with a vibro roller or impact roller to give the specified compaction (Fig 1).

3.1.2.3 Emergency Pile

The emergency stockpile has been constructed for rainy seasons using the screened coal from the live stockpile using bulldozer/ trucks/hauls/dump equipment. This pile is used when the coal on the strategic or live pile is too wet above 10% moisture, to be loaded into the conveyors. This stockpile is screened to sizes of between 6mm and 40mm. Compaction is exerted by the mobile equipment which is moving the coal and the compacted bulk density is generally 1.3 and 1.5 ton/m^3 and must be covered by a maximum of 800mm layer of normal coal (Fig 1).

3.1.3 Unpaved Road

Unpaved roads around Camden Power Station include the road to the ash dam which covers a distance of approximately 5 km around the ash dam complex, the road leading to Rail siding and the road leading to the new ashing facility. These roads are used by Camden employees and contractors to conduct site inspections Rail siding trucks for transportation of coal, Eskom Rotek Industries for ashing facility maintenance and dumping of coal rejects. The frequency of these vehicles travelling the road is on a daily basis. The unpaved road generates fugitive emissions in a form of dust, which is predominant during dry and windy seasons (Fig 1).

3.1.4 Fuel Oil Storage Tanks

Camden Power Station uses heavy fuel oil 150 for boiler light up and combustion support. Heavy fuel oil is received via road tankers into storage tanks which are located within designated bunded areas, from storage tanks the fuel oil is pumped into the burners. The fuel oil storage tanks generate fugitive emissions in a form of fumes.

4. Control Measures for Fugitive Emissions

Camden Power Station has identified the fugitive emissions sources, plants or areas and below is the mitigations or control measures in place deployed to manage fugitive emissions emanating from such sources, plants and/or areas.

4.1 Control Measures at the Ashing Facilities

4.1.1 Existing Ashing facility

Camden Power Station uses a wet-ashing system; however when the ash settles at the ashing facility the dust becomes predominant mainly because it settles in a form of fly ash, which can significantly affect the air quality if not controlled adequately. Camden Power station has put in place the following control measures to manage fugitive emissions in a form of dust emanating from this area:

- Dust suppression on daily basis on the roads within the ashing facility in form of water tankers
- Use of sprinkler system continuously to suppress the fly ash dust from the ashing facility,
- Camden Power Station is in a process of re-soiling the entire ashing facility complex, which will be coupled with the rehabilitation after the facility is decommissioned.

4.1.2 New Ashing facility

The construction activities of the new ashing facility generates predominant fugitive emissions in the form of dust, and the dust is controlled in a form of dust suppression by water tankers continuously on daily basis, during the operational phase the same control measures that are in place at the existing ashing facilities will be deployed here, but not limited to the improved control measures that might be available during that phase.

4.2 Control Measures at the Coal Stock Yard

- Fugitive dust emissions from the coal stock yard are generated in a form of dust from the offloading, loading and crushing activities in this area. There are also potential fugitive emissions when coal is transferred from screens to the conveyors, from one conveyor to another and from conveyor belts to the bunkers. The dust generated from these activities is controlled by the following:
- Dust suppression by water tankers on a daily basis
- Coal compaction
- Chutes/covers have been installed on various transfer points between equipment and conveyors to inhibit re-entrainment of fugitive dust into the ambient environment.

  Camden Power station makes use of four water tankers control excessive dust at the Coal Stock Yard.

4.3 Control Measures for Unpaved Roads

Fugitive emissions are generated in a form of dust from unpaved road and the dust from this area is controlled by the following:

- Dust suppression on daily basis by water tankers

4.4 Fuel Oil Storage tanks

Fugitive emissions from the fuel oil tanks are generated in a form of fumes from these tanks, which can be difficult to control due to the fact that the fumes coming out of the tanks can be negligible due to the chemical properties of the heavy fuel oil. However a Leak detection and repair program has be developed which outlines routine leak check done by operating department (Document No. 240-118610503 – Annexure A).

5. Monitoring and Reporting

A consultant has been appointed by Camden Power Station to conduct a fugitive dust emissions monitoring within the boundaries of its operations, but not limited to areas which can be affected by

the activities of the facility. Thirty six (36) static dust precipitation samplers have been strategically placed (Fig 2).

Fugitive Emission reports are submitted to the Licencing Authorities on a quarterly basis, however analysis of data is conducted monthly.

The methodology adopted by the consultants (SANS 1137-2012 / ASTM D 1739-1998 - Annexure B), to conduct this monitoring complies with the requirements set out in the National Dust Control Regulations (Government Gazette 36974 November 2013).

Figure 2: Fugitive Emission Monitoring Network

6. Conclusion

Sources of fugitive emissions have been identified and appropriate control measures have also been identified and implemented. Progress on the implementation of this plan and the monitoring results (where applicable) will be reported to the Licencing Authority quarterly or as stipulated in the AEL to ensure compliance. However Camden Power Station does not limit itself in adopting any best practices and control measures which may arise in future to significantly control fugitive emissions from its operations.

7. Document Acceptance (Stakeholders)

This document has been seen and accepted by:

Name	Designation	Approval Signatures
Phahla Nthlane	Environmental Officer	

8. Revisions

Date	Rev.	Remarks	Compiler
20 October 2015	0	Original Issue	F.N Sithole
28 September 2017	1	First Revision	F.N Sithole

9. Development Team

- N/A

10. Acknowledgements

- N/A