| Eskom | Scope of Work | Kusile Power Station |
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Title: **Kusile Power Station - Dust Fallout and Noise Monitoring Scope of Work**

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# 1. Introduction

Sources of impacts on air quality associated with the operation of Kusile Power Station include fugitive dust releases form coal stockpile, ash dump, untarred roads, limestone stockpile area, silos, dust handling plant and recovery and use of topsoil material. Whereas sources of noise associated with the power station include turbine cooling fans, boiler, compressor house, FGD plant, PJFFP pulsing and traffic associated with the operation of the power station.

To establish the effects of the dust and noise generated by the power station on the surrounding environment and communities, Kusile Power Station will conduct dust fallout and noise monitoring. The monitoring will also benefits Kusile Power Station to achieve the following:

a) Comply with the Atmospheric Emissions Licence and Environmental Management Plan for operation and maintenance
b) Early detection of non- compliance to legislative requirements;
c) Compliance to NEM:AQA National Dust Control Regulations, 01 November 2013 as well as SANS 1929:2011 and SANS 1137:2012

# 2. Supporting Clauses

## 2.1 Scope

### 2.1.1 Purpose

The purpose of this document is to define the scope of work for dust fallout and noise monitoring at Kusile Power Station.

### 2.1.2 Applicability

This document is applicable to Kusile Power Station.

### 2.1.3 Effective date

The scope of work shall be effective immediately after signature.

## 2.2 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs

### 2.2.1 Normative

[1] National Ambient Air Quality Standards, 24 December 2009

[2] NEM:AQA National Dust Control Regulations, 01 November 2013 as well as SANS 1929:2011 and SANS 1137:2012

[3] National Environmental Management: Air Quality Act 39 of 2004

[4] Atmospheric Emissions Licence 2012 (License No: 17/4/AEL/MP311/12/01)

[5] National Environmental Management Act, Act 107 of 1998

[6] ASTM D1739-98 (Latest)

[7] Noise Control Regulations of the Environment Conservation Act (73 of 1989), gazetted on 10 January 1992 (GN. R.154) including SANS 10103:2008

### 2.2.2 Informative

[1] 32-727 Safety, Health, Environment and Quality (SHEQ) Policy

[2] 240-105777156 Kusile Power Station Fugitive Dust Management Plan

[3] Kusile Power Station Environmental Management Plan for Operation and Maintenance

## 2.3 Definitions

**2.3.1 Approved:** Acknowledged and authorized in accordance with authoritative governing body/ies i.e. SANS

**2.3.2 Contractor:** Selected service provider employed to provide a specific service to Eskom, Kusile Power Station.

**2.3.3 Employer:** Eskom Kusile Power Station or Representative

## 2.4 Abbreviations

| Abbreviation | Explanation |
|---|---|
| GN | Government Notice |
| SABS | South African Bureau of Standards |
| SHEQ | Safety, Health, Environment and Quality |
| ASTM | American Standard for Testing and Measurement |
| SANS | South African National Standard |
| ICP-MS | Inductively Coupled Plasma Mass Spectrometry |

## 2.5 Roles and Responsibilities

### 2.5.1 Environmental Department

a) To monitor dust fallout levels for comparison with SANS 1929:2011, SANS 1137:2012 and the National Dust Control Regulations (GN R827 of 2013).
b) To monitor the noise level for comparison with SANS 10103:2008 and other applicable legislation.
c) To determine the source of dust fallout.
d) To monitor the trends of dust fallout and noise levels.
e) To provide a measure of the overall efficiency of the Kusile Power Station Fugitive Dust Management Plan.

### 2.5.2 Contractor

a) The contractor will be responsible for the implementation of dust fallout and noise monitoring at Kusile Power Station which includes routine assessment of current monitoring points and installation of additional points where required.
b) Chemical analysis of dust fall out (dissolved and undissolved trace elements as per Appendix 1)
c) Conduct analysis and interpretation of dust fallout and noise monitoring results.
d) Submit results of analysis via email and post in a standardised format acceptable to Eskom on a monthly basis, within 21 days after sample collection. The results interpretation report should include, but not limited to, interpretation of the results and trends represented in graphs and recommendations for improvement.
e) The service provider must also submit detailed dust fallout monitoring methodology and noise monitoring methodology for acceptance.
f) Calibration of instruments should be done by a by SANAS accredited laboratories or equivalent accreditation body and calibration must be made available to Eskom
g) Submit an annual report at the end of the 12-month cycle or timeframe as agreed. Each report should detail areas of improvement in the program, summary of results and trends for the year. Summary table showing exceedances for every month in the year should be included in the 12-month cycle report.

h) Should a new or unforeseen dust situation arise based on report recommendations, environmental complaints, ISO 14001 Environmental Management Systems (significant aspect and impact as well as objectives and target) then a service provider must allow for installation or provision of extra dust fall out or noise monitoring points. This will only be done upon the instruction from Kusile Power Station.

i) Presentation at EMC on quarterly basis

j) Form part of dust fallout exceedances investigation team when required.

### 2.6 Process for Monitoring

This specification will be reviewed every 3 years after the initial authorisation or when necessary.

## 3. Scope of Work

### 3.1 Dust Monitoring

There are currently 26 active dust monitoring sites, 16 around Kusile Power Station property, 4 around Kendal Poutry Farm and 6 around the 60 year ash dump (Fig 1,2 and 3). The service provider is required to:

a) Collection and analysis of dust from sampling buckets in all active monitoring points.

b) The Dust Watch single bucket fall out dust sampling units shall be used to collect fall out dust (> 30µm to < 100 µm) samples from the monitoring points. Each sampler consist of 5litre plastic bucket with lid, distilled water inside bucket, bucket container, windshield for bucket container, collapsible supporting stand of approximately 2m in height, safety pin and stand base.

c) The Contractor is required to collect dust from the dust buckets on a monthly basis and provide detailed Inductively Coupled Plasma Mass Spectrometry (ICP-MS) analysis of results (Total elements +/- 35 elements). Chemical analysis on Fall-out-Dust for both soluble and insoluble fraction using (ICP-MS) technique for 32 selected trace inorganic elements.

d) Replace dust collection equipment if damaged or stolen.

e) Perform analysis as per the American Society for Testing and Materials (ASTM) Standard Test Method for Collection and Measurement of Dust Fall Settleable Particulate Matter), Reference No. ASTM D 1739 – 98 (Latest).

f) Calibration of instruments should be carried out by a SANAS accredited laboratory or equivalent accreditation body.

g) Move around dust buckets as and when required.

h) Review the current monitoring network and installation of addition monitoring points, this will include placements of buckets and monthly monitoring. This will be done upon receiving instruction form the employer.

### 3.2 Current Dust monitoring points


Fig 1. Sampling points around Kusile Power Station


Fig 2. Sampling points around the Kendal Poultry Farm

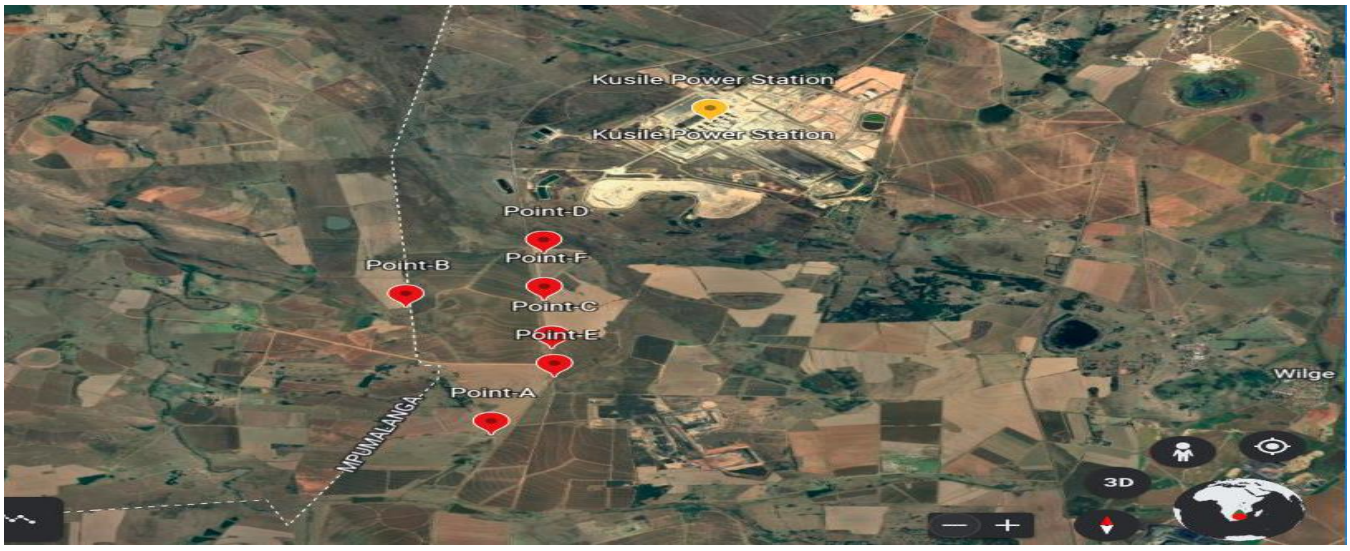


Fig 3. Sampling points around 60 years ash dump

### 3.3 Noise Monitoring

There are currently 5 noise monitoring sites in and around the Kusile Power Station property (Table 1: Noise Monitoring Points). The service provider is required to do the following:

a) Noise monitoring should be undertaken and evaluated against the limit specified in the Kusile Construction Environmental Management Plant, with reference to the Standard Environmental Specification (SES) as derived from the Noise Control Regulations of the Environment Conservation Act (73 of 1989) and evaluated against the guidelines provided in the SANS 10103: 2008.

b) Noise monitoring results shall be evaluated against the guidelines provided in the SANS 10103:2018.

c) Noise Monitoring Equipment and their calibration shall meet the requirements as outlined in SANS 10103:2018.

d) The sound level meter shall be calibrated at yearly intervals by an Acoustics Laboratory approved by the Kusile Power Station and proof or calibration records shall be submitted to the Kusile Power Station.

e) Day and night monitoring to be undertaken at various sampling points during operation.

f) Noise levels shall be measured at weekly intervals (or more frequently if so required by the Employers) at the closest sensitive receptor to the site locations agreed with the client.

g) Noise recordings shall reflect typical ambient noise levels during operation and accordingly noise levels shall be recorded during normal construction operations or more frequently if so required by the Employers.

h) Records of all noise level measurements for the duration of the contract shall be submitted to Kusile Power Station at agreed timeframes.

| **Sampling Point** | **Latitude** | **Longitude** |
|---|---|---|
| Viviers Farm | $25^0$56’49.7”S | $28^0$55’40.2”E |
| Accommodation Area | $25^0$56’20.4”S | $28^0$57’00.1”E |
| House at main entrance | $25^0$56’24.0”S | $28^0$57’21.5”E |
| Final relocation | $25^0$53’17.4”S | $28^0$55’51.9”E |
| Relocation North | $25^0$53’36.5”S | $28^0$54’43.3”E |

**Table 1: Noise Monitoring Points**


Fig 3: Noise monitoring points

### 3.4 Reporting

a) Noise monitoring results shall be submitted on a weekly, monthly and annual basis via email and post in a standardised format acceptable to Eskom. The results interpretation report should include, but not limited to, interpretation of the results and trends represented in graphs and recommendations for improvement.

b) Dust fallout monitoring results including chemical analysis results shall be submitted on monthly and annual basis via email and post in a standardised format acceptable to Eskom, within 21 days after sample collection. The results interpretation report should include, but not limited to, interpretation of the results and trends represented in graphs and recommendations for improvement.

c) An annual report shall be submitted at the end of the 12 month cycle or the timeframe as agreed upon by both parties. Each report should detail areas of improvement in the program, summary of results and trends for the year. Summary table showing exceedances for every month in the year should be included in the 12 month cycle report.

d) Should a new or unforeseen dust or noise situation arise based on report recommendations, environmental complaints, ISO 14001:2015 Environmental Management Systems (significant aspect and impact as well as objectives and target) then a service provider must allow for installation or provision of extra dust fall out noise monitoring. This will only be done upon the instruction from Kusile Power Station.

e) The service provider must also submit detailed Dust Fallout Monitoring Methodology for acceptance to Kusile.

### 3.5 General information regarding health and safety

a) Kusile Power Station is fully committed to protecting the health and safety of employees, consultants, visitors and members of the public. Occupational health and safety is a core value in Eskom and the belief is that all unsafe acts and incidents are preventable and this belief guides our approach to safety across our business activities.

b) The Eskom Safety, Health, Environment and Quality policy is available from the Kusile Safety Department.

### 3.6 Eskom SHEQ Policy and Life Saving Rules

a) There are 5 lifesaving rules that have been identified by Eskom. Failure to adhere to these rules by any Eskom employee or employee of any Principal Consultant or Consultant will be considered a serious transgression. These rules are being implemented to prevent serious injury or death of any employee, labour broker or consultant working in any area within Eskom.

b) Kusile Management team has taken a stance of zero tolerance on these rules.

c) Non-compliance to a lifesaving rule will be considered serious misconduct and will lead to serious disciplinary action, which may include permanent access restriction to Eskom’s consultant site.

d) This is to ensure that every person who works on or visits Kusile Power Station returns home safely to his or her family.

e) The Consultant shall at all times comply with the health and safety requirements prescribed by law as they may apply to the services.

### 3.7 Project Acceptance Criteria

a) Service providers and personnel shall have minimum experience of three (3) years in environmental dust particulate matter and noise monitoring; performed in the past three years

## 4. Acceptance

This document has been seen and accepted by:

| Name | Designation |
|---|---|
| Lesiba Kgobe | Environmental Manager |
| Portia Hlungwani | Environmental Officer |
| Muwanwa Sinthumule | Environmental Officer |
| Cylia Malebana | Senior Advisor Environmental |

## 5. Revisions

| Date | Rev. | Compiler | Remarks |
|---|---|---|---|
| November 2022 | 3 | M Sinthumule | 2nd Review |
| August 2019 | 2 | C Mabelana | 1st Review |
| February 2017 | 1 | C Mabelana | 1st Issue |

## 6. Development Team

The following people were involved in the development of this document:

a) Cylia Malebana

b) Muwanwa Sinthumule

## 7. Acknowledgement