

	Medupi Power Station Monthly Emissions Report	Template Identifier	240-43921804	Rev	7
		Document Identifier	240-88543153	Rev	2
		Effective Date	January 2025		
		Review Date	January 2027		

Stanley Koenaithe

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Date: 2025/02/28

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Ref: H16/1/13-AEL/M1/R1 – January 2025

Dear Mr Koenaithe

MEDUPI POWER STATION MONTHLY EMISSIONS REPORT FOR THE MONTH OF JANUARY 2025

This document serves as the monthly emissions report required in terms of Section 7.7.1 of Medupi Power Station Provisional Atmospheric Emission License (AEL), H16/1/13-AEL/M1/R1.

This report reflects Unit 1, 2, 3, 5 and 6 gaseous and particulate emissions performance against the AEL limit for the month of January 2025 only.

1. Raw Materials and Products

TABLE 1: QUANTITY OF RAW MATERIALS AND PRODUCTS CONSUMPTION IN JANUARY 2025

Raw Materials and Products used	Raw Material Type	Unit	Maximum Permitted Consumption/ Rate (Quantity)	Consumption – January 2025
	Coal	Tons/month	1 875 000	925 819
	Fuel Oil	Tons/month	20 000	2 416
Production Rates	Product/ By-Product Name	Unit	Maximum Production Capacity Permitted (Quantity)	Production Rate in Month of January 2025
	Energy	GWh	3 571.2	2 200.4
	Ash Emitted	Tons/month	not specified	294.9

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Date	Daily Reportable Hours of Operation						Coal usage	Production rate (MW)					
	U1	U2	U3	U4	U5	U6		U1	U2	U3	U4	U5	U6
01-Jan	24.0	24.0	1.0	0.0	0.0	24.0	27510	794	792	344	Off	Off	680
02-Jan	24.0	24.0	24.0	0.0	0.0	24.0	30151	729	753	729	Off	Off	653
03-Jan	24.0	24.0	24.0	0.0	0.0	24.0	29543	758	672	712	Off	Off	673
04-Jan	24.0	24.0	24.0	0.0	0.0	24.0	30661	794	689	720	Off	Off	669
05-Jan	24.0	24.0	24.0	0.0	0.0	24.0	34941	747	783	703	Off	446	653
06-Jan	24.0	24.0	24.0	0.0	24.0	24.0	34566	689	715	651	Off	577	632
07-Jan	24.0	24.0	24.0	0.0	24.0	24.0	36076	789	793	736	Off	580	591
08-Jan	24.0	24.0	24.0	0.0	24.0	24.0	35883	794	723	730	Off	577	618
09-Jan	24.0	24.0	24.0	0.0	24.0	24.0	34429	791	704	730	Off	589	624
10-Jan	24.0	24.0	24.0	0.0	24.0	24.0	34922	756	793	724	Off	605	638
11-Jan	24.0	24.0	24.0	0.0	18.6	24.0	33467	794	793	721	Off	584	637
12-Jan	24.0	24.0	24.0	0.0	0.0	24.0	31189	718	710	686	Off	513	615
13-Jan	24.0	24.0	24.0	0.0	20.7	24.0	28434	611	613	550	Off	501	605
14-Jan	24.0	22.2	12.0	0.0	24.0	20.8	26738	768	523	603	Off	472	614
15-Jan	24.0	0.0	3.9	0.0	24.0	0.0	20537	794	Off	663	Off	473	359
16-Jan	24.0	0.0	24.0	0.0	24.0	7.0	25148	780	229	636	Off	470	547
17-Jan	24.0	0.0	24.0	0.0	24.0	16.3	26911	622	717	652	Off	460	643
18-Jan	24.0	0.6	24.0	0.0	24.0	0.2	29331	675	689	589	Off	450	490
19-Jan	24.0	24.0	24.0	0.0	24.0	20.8	29300	600	709	644	Off	431	591
20-Jan	24.0	24.0	24.0	0.0	24.0	0.0	27004	600	713	627	Off	422	562
21-Jan	24.0	24.0	24.0	0.0	24.0	0.0	26779	600	620	600	Off	369	453
22-Jan	24.0	24.0	24.0	0.0	24.0	19.9	29973	600	610	610	Off	440	586
23-Jan	24.0	24.0	24.0	0.0	24.0	24.0	30844	600	604	597	Off	485	591
24-Jan	17.8	24.0	24.0	0.0	24.0	24.0	30443	597	647	616	Off	462	626
25-Jan	0.0	24.0	24.0	0.0	24.0	24.0	31651	581	663	695	Off	405	609
26-Jan	21.1	24.0	24.0	0.0	24.0	24.0	32151	600	657	674	Off	369	629
27-Jan	24.0	24.0	24.0	0.0	24.0	24.0	33073	630	655	665	Off	431	605
28-Jan	24.0	24.0	24.0	0.0	24.0	24.0	32875	637	637	630	Off	456	613
29-Jan	24.0	24.0	24.0	0.0	24.0	24.0	33894	686	646	652	Off	509	630
30-Jan	24.0	24.0	24.0	0.0	24.0	24.0	34373	655	675	639	Off	520	624
31-Jan	24.0	24.0	24.0	0.0	24.0	24.0	36614	793	757	650	Off	458	626

NB: Operating hours less than 24 highlighted in pink.

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2. Abatement Technology

TABLE 2: ABATEMENT EQUIPMENT CONTROL TECHNOLOGY EFFICIENCY FOR MONTH OF JANUARY 2025

Associated Unit/Stack	Technology Type	Efficiency	FFP Utilization
Unit 1	Fabric Filter Plant (FFP)	99.932%	100%
Unit 2	Fabric Filter Plant (FFP)	99.887%	100%
Unit 3	Fabric Filter Plant (FFP)	99.916%	100%
Unit 4	Fabric Filter Plant (FFP)	Off	Off
Unit 5	Fabric Filter Plant (FFP)	99.931%	100%
Unit 6	Fabric Filter Plant (FFP)	99.819%	100%

Note: FFP does not have bypass mode operation, hence plant 100% Utilised.

3. Energy Source Characteristics

TABLE 3: ENERGY SOURCE MATERIAL CHARACTERISTICS FOR THE MONTH OF JANUARY 2025

Characteristic	Stipulated Range (% by weight on a dry basis)	Monthly Average Content (% by weight on a dry basis)
Coal		
Sulphur Content	1.3 - 2.2	1.39
Ash Content	35 - 39	34.36

TABLE 4: ENERGY SOURCE MATERIAL CHARACTERISTICS FOR THE MONTH OF JANUARY 2025

Characteristic	Stipulated Range (%)	Monthly Average Content (%)
Oil		
Sulphur Content	0.5 - 3.5	2.3
Ash Content	0.02 - 0.1	0.030

4. Emissions Reporting

Medupi Power Station uses Continuous Emission Monitoring System which uses the extractive method for analysis.

The emission limits are as follows:

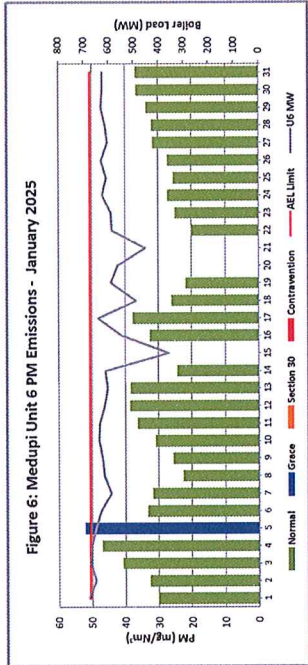
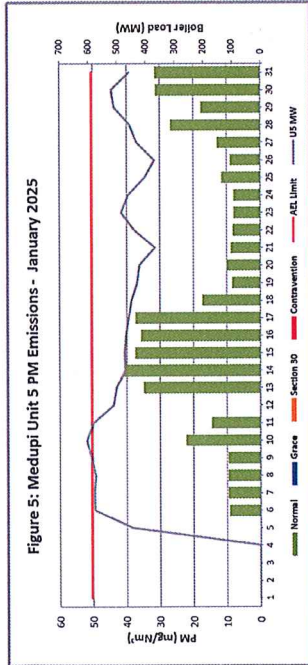
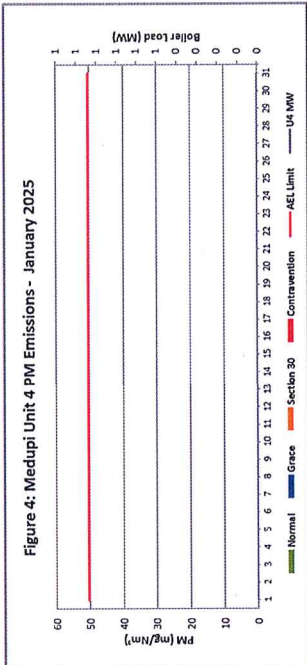
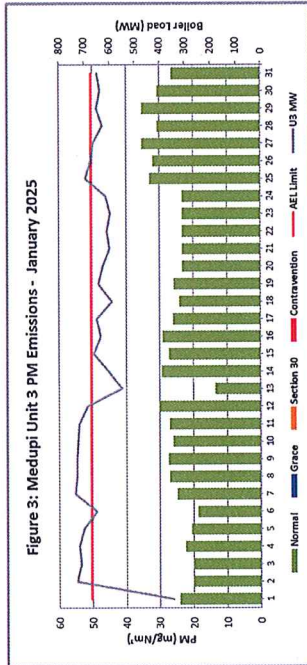
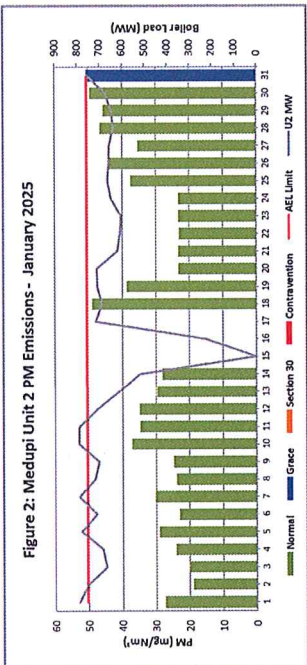
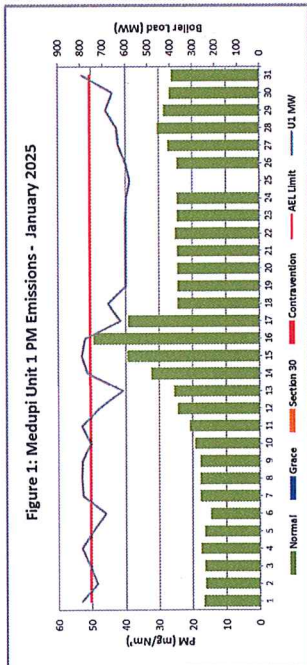
SO₂ Monthly = 3500 mg/Nm³

Dust Daily= 50 mg/Nm³

NO₂ Daily= 750 mg/Nm³

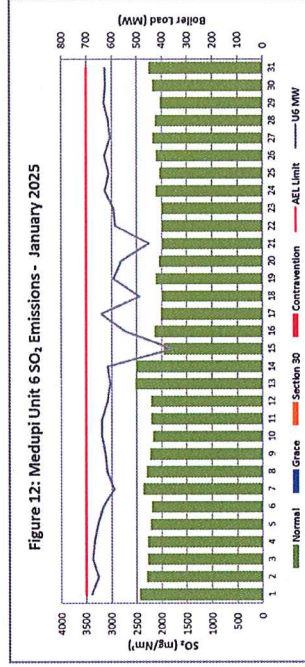
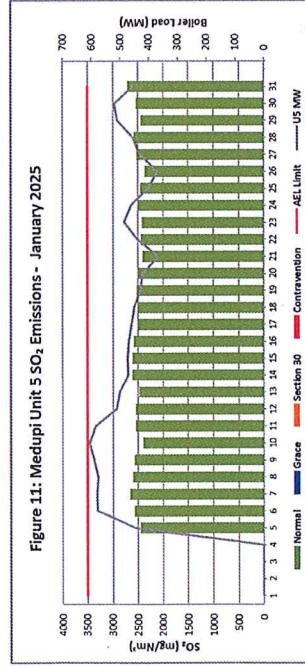
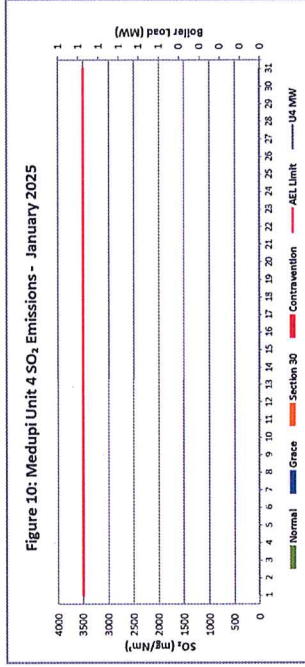
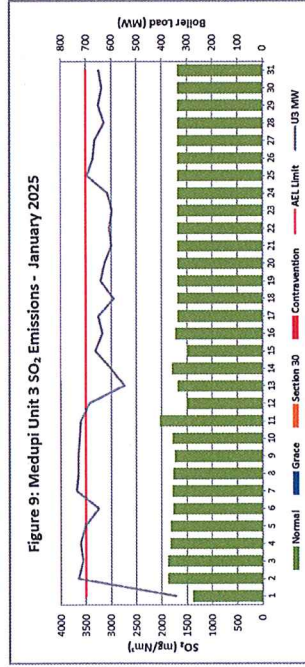
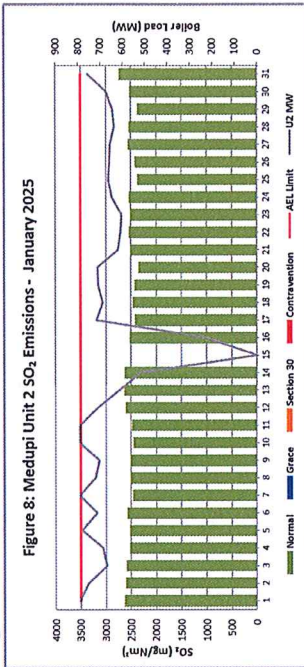
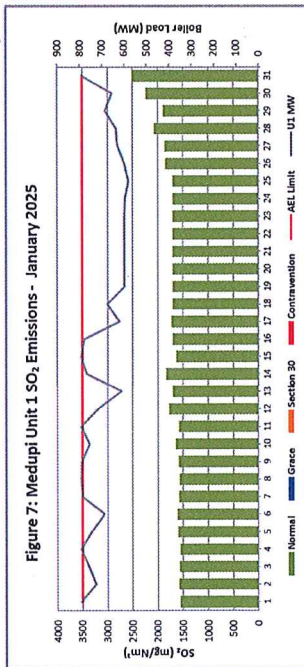
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4.1 PM Daily Averages



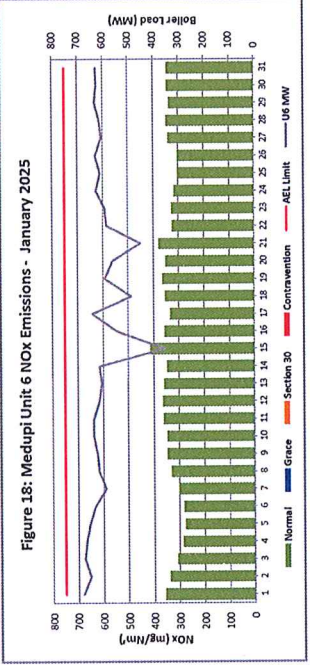
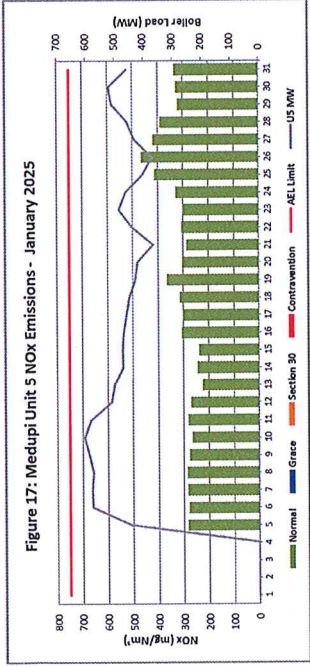
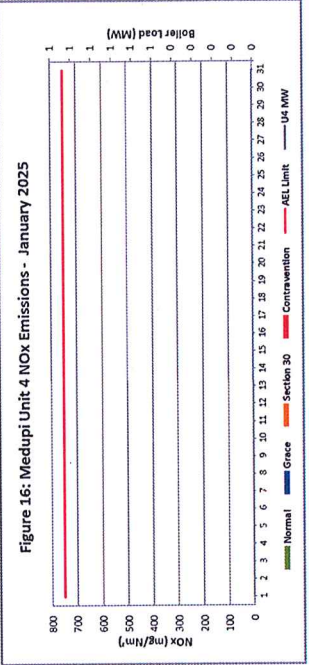
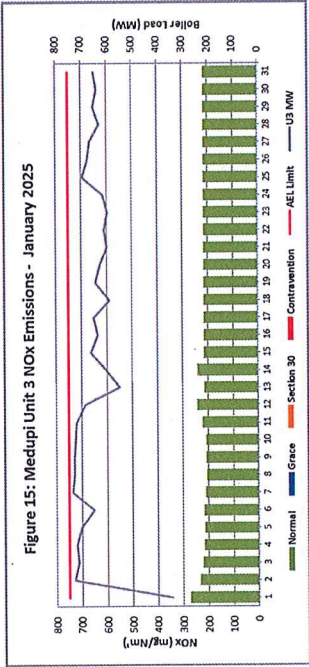
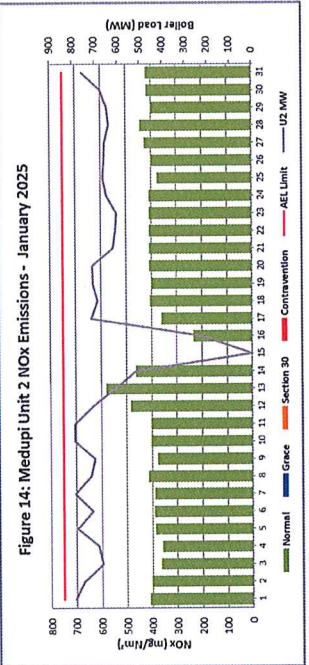
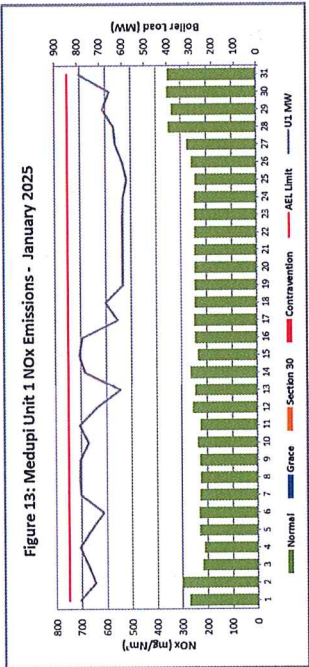
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4.2 SO_x Daily Averages



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4.3 NOx Daily Averages



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TABLE 5: MONTHLY TONNAGES FOR THE MONTH OF JANUARY 2025

Associated Unit/Stack	PM	SO ₂	NO ₂
Unit 1	46.1	3 391.2	504.3
Unit 2	70.7	6 062.5	981.0
Unit 3	52.3	3 655.0	466.3
Unit 4	Off	Off	Off
Unit 5	27.0	3 909.6	480.2
Unit 6	98.7	7 412.5	1 129.4
SUM (Tons)	294.9	24 430.9	3 561.2

TABLE 6: MONTHLY AVERAGES FOR THE MONTH OF JANUARY 2025

Associated Unit/Stack	Average PM (mg/Nm ³)	Average SO _x (mg/Nm ³)	Average NO _x (mg/Nm ³)
Unit 1	24.6	1 745.4	259.9
Unit 2	32.1	2 518.4	405.9
Unit 3	25.9	1 709.7	219.9
Unit 4	Off	Off	Off
Unit 5	18.9	2 520.9	312.7
Unit 6	32.1	2 184.2	338.8

5. Continuous Emission Monitoring Systems (CEMS)

Unit 1, 2, 3, 5 and 6 Continuous Emission Monitoring Systems were always in operation when the unit was on load.

TABLE 7: PERIODS DURING WHICH CEMS WAS INOPERATIVE/MALFUNCTIONING

Date	CEMS status	Comments
18-Jan- 2025 19- Jan- 2025 28-Jan-2025 29-Jan-2025 30-Jan-2025 31-Jan-2025	Unit 1 faulty PM Monitor	The monitor was repaired. Monthly average figures were used on the affected days. Spot checks were also conducted, and the report is attached
20 – 24 Jan 2025	Unit 2 faulty PM Monitor	Faulty monitor was restored on 25 Jan 2025
20 – 24 Jan 2025	Unit 3 faulty PM Monitor	Faulty monitor was restored on 25 Jan 2025

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TABLE 8: CEMS MONITOR RELIABILITY PERCENTAGE (%)

Associated Unit/Stack	PM	SO ₂	NO ₂	O ₂
Unit 1	100.0	100.0	97.3	90.9
Unit 2	100.0	99.8	99.7	98.7
Unit 3	100.0	99.6	98.3	94.1
Unit 4	Off	Off	Off	Off
Unit 5	100.0	100.0	99.4	99.7
Unit 6	100.0	99.4	99.4	98.7

6. CEMS Calibration certificates and equipment used for calibration.

A service provider was appointed to calibrate CEMS equipment at Medupi Power Station, calibration certificates are in place and may be made available upon request. Verification of the CEMS after calibration is conducted internally by Eskom.

7. Ambient Air Quality Monitoring Report

The Ambient Air Quality Monitoring report and Dust Fallout report for the month of January 2025 was submitted on 25 February 2025.

8. Visual inspection of the exterior walls of the fuel oil tanks and TVOC Estimation

Visual inspection was conducted and there were no leaks observed on the exterior walls of the fuel oil tanks.

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TABLE 9: TOTAL VOLATILE ORGANIC COMPOUND (TVOC) FOR JANUARY 2025

 Eskom		
CALCULATION OF EMISSIONS OF TOTAL VOLATILE COMPOUNDS FROM FUEL OIL STORAGE TANKS*		
Date:	Tuesday, 25 February 2025	
Station:	Medupi Power Station	
Province:	Limpopo Province	
Tank no.	1-2	
Description:	Outdoor fuel oil storage tank	
Tank Type:	Vertical fixed roof (vented to atmosphere)	
Material stored:	Fuel Oil 150	
MONTHLY INPUT DATA FOR THE STATION Please only insert relevant monthly data inputs into the blue cells below Choose from a dropdown menu in the green cells The total VOC emissions for the month are in the red cells IMPORTANT: Do not change any other cells without consulting the AQ CoE		
MONTH:	January	
GENERAL INFORMATION:		
	Data	Unit
Total number of fuel oil tanks:	2	NA
Height of tank:*	14.2	m
Diameter of tank:	12	m
Net fuel oil throughput for the month:	2416	tons/month
Molecular weight of the fuel oil:		Lb/lb-mole
METEROLOGICAL DATA FOR THE MONTH		
	Data	Unit
Daily average ambient temperature	25.11	°C
Daily maximum ambient temperature	31.57	°C
Daily minimum ambient temperature	17.48	°C
Daily ambient temperature range	14.10	°C
Daily total insolation factor	5.87	kWh/m²/day
Tank paint colour	Aluminum/Specular	NA
Tank paint solar absorbance	0.39	NA
FINAL OUTPUT:		
	Result	Unit
Breathing losses:	0.74	kg/month
Working losses:	0.07	kg/month
TOTAL LOSSES (Total TVOC Emissions for the month):	0.81	kg/month
*Calculations performed on this spreadsheet are taken from the USEPA AP-42- Section 7.1 Organic Liquid Storage Tanks - January 1996. This spreadsheet is derived from materials provided by Jimmy Peress, PE, Tritech Consulting Engineers, 85-93 Chevy Chase Street, Jamaica, NY 11432 USA, Tel - 718-454-3920, Fax - 718-454-6330, e-mail - PeressJ@nyc.rr.com.		

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9. Air quality improvements initiatives and public education and awareness campaigns

No awareness campaign conducted for January 2025.

10. Complaints Register

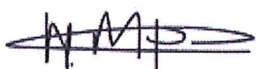
TABLE 10: COMPLAINTS FOR THE MONTH OF JANUARY 2025

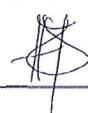
Name/ Source Code	Air pollution complaints received	Calculation of Impacts/ emissions associated with the incident	Date of complaint and date of response by the license holder	Results of investigation	Action taken to resolve the complaint
NA	NA	NA	NA	NA	NA

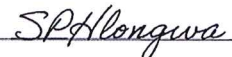
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Compiled By: Thabo Khoza
Senior Advisor
Environmental Management  Date: 2025/02/25

Verified by: Malose Langa
System Engineer Boiler  Date: 2025/02/25

Verified by: Shu Mpangase
System Engineer C&I  Date: 2025/02/25

Supported by: Mokgadi Dikgale
Environmental Manager  Date: 2025/02/26

Supported by: Sithokozile Hlongwa
Engineering Group Manager  Date: 2025.02.28

I Thozama Gangi, declares that the information provided in this report is accurate and correct.

Yours sincerely

Thozama Gangi
GENERAL MANAGER (Acting): MEDUPI POWER STATION Date: 09/03/2025