

Department of Agriculture, Rural Development, Land and Environmental
 Affairs
 The Director: Pollution and Waste Management
 Private Bag X11219
 Nelspruit 1200

Date:
 15th February 2018
 Enquiries:

Attention:
 Mr. M Mahlalela

Nkangala District Municipality
 PO Box 437
 Middelburg 1050

Attention:
 Mr. V Mahlangu

MATLA POWER STATION AIR QUALITY REPORT FOR JANUARY 2018

The figures reported in this report are preliminary, and are to be considered for information purposes only. Final annual figures are those reported within 60 days of the independent audit conducted at the end of the financial year (March).

1. PARTICULATE EMISSIONS: MONTHLY TONNAGES.

	BLR	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN
		2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2018
Monthly Tonnage	1	107.2	42.2	78.69	59.33	70.23	34.95	61.36	65.19	71.68	108.77	90.10	46.69
	2	Off	Off	Off	Off	36.73	31.62	47.40	56.79	51.66	99.27	84.35	165.43
	3	102.8	51.3	52.70	44.69	39.75	30.24	48.85	61.23	47.64	97.34	82.94	172.35
	4	64.9	108.8	132.59	71.47	31.23	22.41	165.94	148.80	183.23	165.67	173.61	188.43
	5	42.9	29.5	39.39	27.69	25.52	17.14	30.95	45.36	147.51	74.42	49.59	82.97
	6	33.8	76.4	85.91	63.43	44.15	39.51	Off	Off	Off	5.37	22.74	53.43
	Station	351.7	308.3	389.3	266.62	247.61	175.85	354.51	377.37	501.73	550.84	503.33	709.30
GWhSO		1445.3	1553.0	1767.8	1768.5	1357.6	1977.7	1557.1	1703.4	1580.5	1802.7	1998.5	1783.6

Generation Division (Operating Unit Coal 2)
 Matla Power Station SA
 Delmas Road
 Private Bag X 5012, Kriel, 2271 SA
 Tel +27 17 612 9111 Fax +27 17 612 6651 www.eskom.co.za

2. COAL AND LOAD FACTOR:

STATION		FEB 2017	MAR 2017	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018
Load Factor		82.33	81.32	79.94	77.79	77.44	73.03	75.25	78.05	80.55	83.88	85.33	82.96
Ash Content	%	25.57	26.46	26.17	28.43	26.01	26.24	28.42	28.70	24.34	24.11	29.57	27.15
Sulphur Content	%	1.0	1.00	1.00	1.00	0.79	0.94	1.00	1.00	1.00	1.0	1.0	1.0
Total Moisture	%	9.36	9.60	9.53	8.54	9.46	9.33	9.54	7.10	8.11	10.69	9.64	9.43

3. GASEOUS EMISSIONS:

CO₂ emissions: kilotons emitted per month, calculated from coal analysis and emission factors.

	FEB 2017	MAR 2017	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018
Units 1-3	612.78	645.83	622.50	685.71	1034.15	960.58	972.55	880.37	950.46	1098.05	1060.43	845.56
Unit 4	275.50	333.31	298.96	347.30	284.66	318.14	355.20	319.93	365.65	354.99	381.89	296.65
Unit 5	273.48	306.60	288.18	338.16	370.82	341.70	302.26	306.49	328.49	330.43	360.01	339.44
Unit 6	295.34	373.60	298.19	372.34	347.03	347.74	Off	Off	Off	45.96	288.59	378.79
All Units	1457.1	1659.09	1507.84	1743.52	2036.67	1968.17	1630.01	1506.78	1644.60	1829.43	2090.92	1860.43

SO₂ emissions: kilotons emitted per month, calculated from coal analysis and emission factors.

	FEB 2017	MAR 2017	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018
Units 1-3	6.21	6.15	5.97	6.46	9.97	6.53	9.64	8.66	9.40	10.46	10.31	8.25
Unit 4	2.79	3.18	2.86	3.27	2.74	2.16	3.52	3.15	3.62	3.38	3.71	2.89
Unit 5	2.77	2.92	2.76	3.18	3.57	2.32	2.99	3.02	3.25	3.15	3.50	3.31
Unit 6	2.99	3.56	2.86	3.51	3.34	2.36	Off	Off	Off	0.44	2.80	3.70
All Units	14.77	15.81	14.45	16.42	19.63	13.37	16.15	14.83	16.27	17.43	20.32	18.15

NO_x emissions: kilotons emitted per month, calculated from coal analysis and emission factors.

	FEB 2017	MAR 2017	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018
Units 1-3	1.95	1.93	1.87	2.02	3.12	2.96	3.02	2.71	2.95	3.28	3.23	2.59
Unit 4	0.88	1.00	0.98	1.02	0.86	0.98	1.10	0.99	1.13	1.06	1.16	0.91
Unit 5	0.87	0.91	0.87	1.00	1.12	1.05	0.94	0.95	1.02	0.99	1.10	1.04
Unit 6	0.94	1.12	0.90	1.10	1.05	1.07	Off	Off	Off	0.14	0.88	1.16
All Units	4.63	4.95	4.53	5.14	6.15	6.07	5.06	4.65	5.10	5.46	6.37	5.69

CO₂ emissions: kilotons emitted per month, measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only.

	FEB 2017	MAR 2017	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018
Units 1-3	981.52	1206.7	812.0	767.1	721.5	831.2	860.28	787.10	693.99	1098.30	927.16	785.03
Unit 4	605.2	604.2	250.3	393.9	181.5	157.0	317.0	163.1	343.4	284.98	292.14	194.99
Unit 5	396.8	383.5	418.9	459.4	283.1	285.5	577.5	176.9	320.7	349.97	334.91	321.41
Unit 6	536.1	518.8	320.3	359.3	379.4	279.6	Off	Off	Off	19.67	144.65	198.16
All Units	2519.6	2713.2	1801.4	1979.6	1565.5	1553.2	1754.8	1127.0	1358.1	1752.92	1698.85	1499.59

SO₂ emissions: kilotons emitted per month, measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only.

	FEB 2017	MAR 2017	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018
Units 1-3	6.19	10.50	8.82	7.32	8.91	6.29	7.60	7.82	7.59	12.65	9.94	7.15
Unit 4	3.83	4.36	2.20	3.64	1.49	1.27	2.89	1.54	2.91	2.51	2.43	1.61
Unit 5	3.05	3.29	3.38	4.04	2.34	2.25	4.66	1.55	2.84	3.05	2.89	2.54
Unit 6	2.06	2.90	2.47	2.99	2.81	2.05	Off	Off	Off	0.14	1.06	1.44
All Units	15.13	21.04	16.86	17.99	15.55	11.85	15.15	10.91	13.35	18.36	16.33	12.74

NO_x emissions: kilotons emitted per month, measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only.

	FEB 2017	MAR 2017	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018
Units 1-3	3.43	4.51	4.71	3.73	2.65	3.04	3.78	3.57	3.48	5.98	5.03	3.26
Unit 4	2.22	2.89	1.39	2.24	1.03	0.85	1.81	0.87	1.84	1.53	1.52	0.98
Unit 5	1.44	1.61	1.71	1.96	1.30	1.16	2.41	0.68	1.35	1.41	1.35	1.43
Unit 6	1.26	1.80	1.23	1.36	1.38	0.99	Off	Off	Off	0.07	0.54	0.79
All Units	8.36	10.81	9.05	9.29	6.35	6.04	8.01	5.12	6.66	8.99	8.44	6.46

CO₂ emissions (mg/Nm³): Average concentration per month (at 273 K, 101.3 kPa and 10% O₂), measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only

	FEB 2017	MAR 2017	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018
Units 1-3	341640	399171	239581	212766	208197	209366	211616	211833	166737	207352	198044	206891
Unit 4	518667	471072	191806	269683	235512	195673	229751	171640	237475	171643	173230	180096
Unit 5	224580	231436	239607	229567	242284	223021	312309	196668	222066	234834	221440	221288
Unit 6	382157	302193	206539	197864	204034	185755	Off	Off	Off	193197	189016	186582

SO₂ emissions (mg/Nm³): Average concentration per month (at 273 K, 101.3 kPa and 10% O₂), measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only

Limit	FEB 2017	MAR 2017	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018
4000	2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2018
Units 1-3	2144	3450	2604	2021	1671	1582	1875	2094	1831	2390	2127	1883
Unit 4	3281	3416	1687	2492	1938	1589	2112	1627	2023	1513	1447	1476
Unit 5	1726	1975	1932	2025	2003	1749	2562	1731	1966	2046	1906	1751
Unit 6	1471	1680	1590	1658	1508	1395	Off	Off	Off	1421	1385	1353

SO₂ daily average emissions: AEL limit exceedances

Limit	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN
3500	2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2018
Units 1-3	0	0	0	0	0	0	0	0	0	0	0	0
Unit 4	24	27	0	0	0	0	0	0	0	0	0	0
Unit 5	0	0	0	0	0	0	0	0	0	0	0	0
Unit 6	0	0	0	0	0	0	0	0	0	0	0	0

NO_x emissions (mg/Nm³): Average concentration per month (at 273 K, 101.3 kPa and 10% O₂), measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only

Limit	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN
1700	2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2018
Units 1-3	1196	1499	1392	1030	763	760	932	956	838	1128	1074	858
Unit 4	1907	2260	1070	1539	1326	1042	1313	914	1269	914	894	896
Unit 5	814	974	981	975	1109	915	1291	759	938	949	892	982
Unit 6	898	1058	799	746	741	657	Off	Off	Off	682	705	751

NO_x daily average emissions: AEL limit exceedances

Limit	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN
1200	2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2018
Units 1-3	7	0	30	0	1	0	0	0	0	2	0	0
Unit 4	24	27	0	14	15	0	17	0	20	0	0	0
Unit 5	0	0	0	0	1	0	21	0	0	0	0	0
Unit 6	0	1	0	0	0	0	0	0	0	0	0	0

All units: kilotons emitted per month, calculated from coal analysis and emission factors (Verified).

	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN
	2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2018
CO ₂			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SO ₂	10.19	10.75	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NO _x	7.94	8.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

All units: Average concentration per month (at 273 K, 101.3 kPa and 10% O₂) (Verified).

	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN
	2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2017	2018
CO ₂ mg/Nm ³			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SO ₂ mg/Nm ³	1457	1389	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NO ₂ mg/Nm ³	907	906	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

4. PARTICULATE EMISSION PERFORMANCE

	MONTH AVERAGE EMISSIONS	AEL LIMIT(DAILY AVERAGE)	HIGHEST DAILY AVERAGE
UNIT	mg/Nm3	mg/Nm3	mg/Nm3
1, 2 & 3	99.79	200	197.92
4	152.60	200	640.08
5	54.76	100	151.34
6	47.98	100	158.94
Station	88.78		
YTD	56.14		

ABATEMENT APPARATUS AVAILABILITY

Unit		1	2	3	4	5	6	Station
Precipitator efficiency	%	99.59	99.61	99.59	99.49	99.79	99.88	99.66
Precipitator availability	%	100.00	99.99	99.63	98.77	99.94	99.80	99.67
SO ₃ plant utilisation	%	100.00	92.47	88.25	97.03	92.57	91.76	92.65

ATMOSPHERIC EMISSION LICENSE LIMIT EXCEEDED

UNIT	AEL LIMIT EXCEEDED (TOTAL) Days	AEL LIMIT EXCEEDED (LIGHT-UP/SHUT DOWN) Days	AEL LIMIT EXCEEDED (UPSET CONDITIONS) Days	AEL LIMIT EXCEEDED (MAINTENANCE) Days	AEL LIMIT EXCEEDED (SECTION 30 / CONTRAVENTION) Days
1, 2 & 3	0	0	0	0	0
4	4	0	0	4	0
5	2	0	0	2	0
6	3	0	0	3	0
Station	9	0	0	9	0
YTD	49	5	19	17	8

5. DISCUSSION

Unit 1:

The unit was taken off load on the 10th January 2018 at 04:44 for a major refurbishment outage.

Unit 2:

The unit experience several SO₃ flue gas conditioning plant trips during the month. These incidents resulted in an increase in particulate emission for the month.

Unit 3:

The unit experience several SO₃ flue gas conditioning plant trips during the month. These incidents resulted in an increase in particulate emission for the month. Several precipitator field failures were experienced on the 28th January 2018 due to full dust hoppers. All of the fields were back in service on the 29th January 2018.

Unit 4:

The unit experienced several precipitator field failures on the 9th January 2018 due to full dust hoppers. The incidents resulted in an increase in particulate emissions.

The unit was taken off load on the 12th January 2018 at 22:40 for damper repairs. The unit returned to service on the 15th January 2018 at 02:08.

The unit tripped on the 22nd January 2018 at 07:10 when a main steam flow transmitter failed. The unit returned to service at 12:02 on the 22nd January 2018 but tripped again at 15:15 on turbine steam inlet temperatures. The unit synchronised back on load at 17:33 on the same day.

The SO₃ flue gas conditioning plant was taken off load on the 25th January 2018 at 13:16 for maintenance to repair a gas leak on the SO₃ distribution piping. The plant returned to service at 18:30 on the same day.

The unit was taken off load on the 28th January 2018 at 09:08 for maintenance to repair a leaking spraywater valve. The unit returned to service on the 29th January 2018 at 18:40.

Unit 5:

The unit experience several SO₃ flue gas conditioning plant trips during the month. These incidents resulted in an increase in particulate emission for the month.

The unit experienced a few precipitator field failures due to full dust hoppers on the 7th January 2018.

Unit 6:

The unit experienced a few precipitator field failures due to full dust hoppers on the 7th January 2018. Most of the failures were of a short duration and the impact on the particulate emissions was limited.

SO₃ common Plant:

The SO₃ common plant tripped on the 11th January 2018 at 14:10 when the power supply to the PLC was lost. The power supply was restored and all of the flue gas conditioning plants were back in service by 16:35.

The SO₃ common plant tripped on the 14th January 2018 at 21:10 on low temperature protection due to a high steam demand by unit 4 during the return to service of the unit. All SO₃ plants were back in service by 23:49.

The SO₃ common plant was out of service on the 16th January 2018 at 09:52 in order to connect a new power supply to the PLC. All SO₃ flue gas conditioning plants were back in service by 12:06.

The SO₃ common plant was taken out of service on the 18th January 2018 at 06:00 for maintenance to replace several steam traps on the warming steam line. The replacement of the planned section was completed at 21:00 and the plant warm up commenced. All of the SO₃ flue gas conditioning plants were back in service at 17:05. This activity resulted in AEL limit exceedances on boilers 4 to 6.

The SO₃ common plant was taken out of service on the 31st January 2018 at 08:15 for maintenance to replace several steam traps on the warming steam line. The replacement of the planned was completed at 21:30 and the plant warm up commenced.

Gas Emissions:

The south stack gas analyser data failed to download as from the 1st January 2018 to the 14th January 2018. The average of the last half of the month was used to supplement the missing data.

General:

The coal quality was managed within acceptable limits.

6. LIGHT UP:

Unit:	4	
Fires in:	20:30	14 January 2018
Synchronisation:	02:08	15 January 2018
Emissions below Limit:	14:27	15 January 2018
Fires in to synchronisation:	5:38	Hours
Synchronisation to < Limit:	12:19	Hours

Unit:	4	
Fires in:	09:05	22 January 2018
Synchronisation:	17:33	22 January 2018
Emissions below Limit:	19:46	22 January 2018
Fires in to synchronisation:	8:28	Hours
Synchronisation to < Limit:	2:13	Hours

Unit:	4	
Fires in:	23:00	28 January 2018
Synchronisation:	18:40	29 January 2018
Emissions below Limit:	06:07	30 January 2018
Fires in to synchronisation:	19:40	Hours
Synchronisation to < Limit:	11:27	Hours

7. GRAPHS:

See attached graphs

8. COMPLAINTS

Name of complainant	Date	Description of complaint	Action taken
No Complaints			

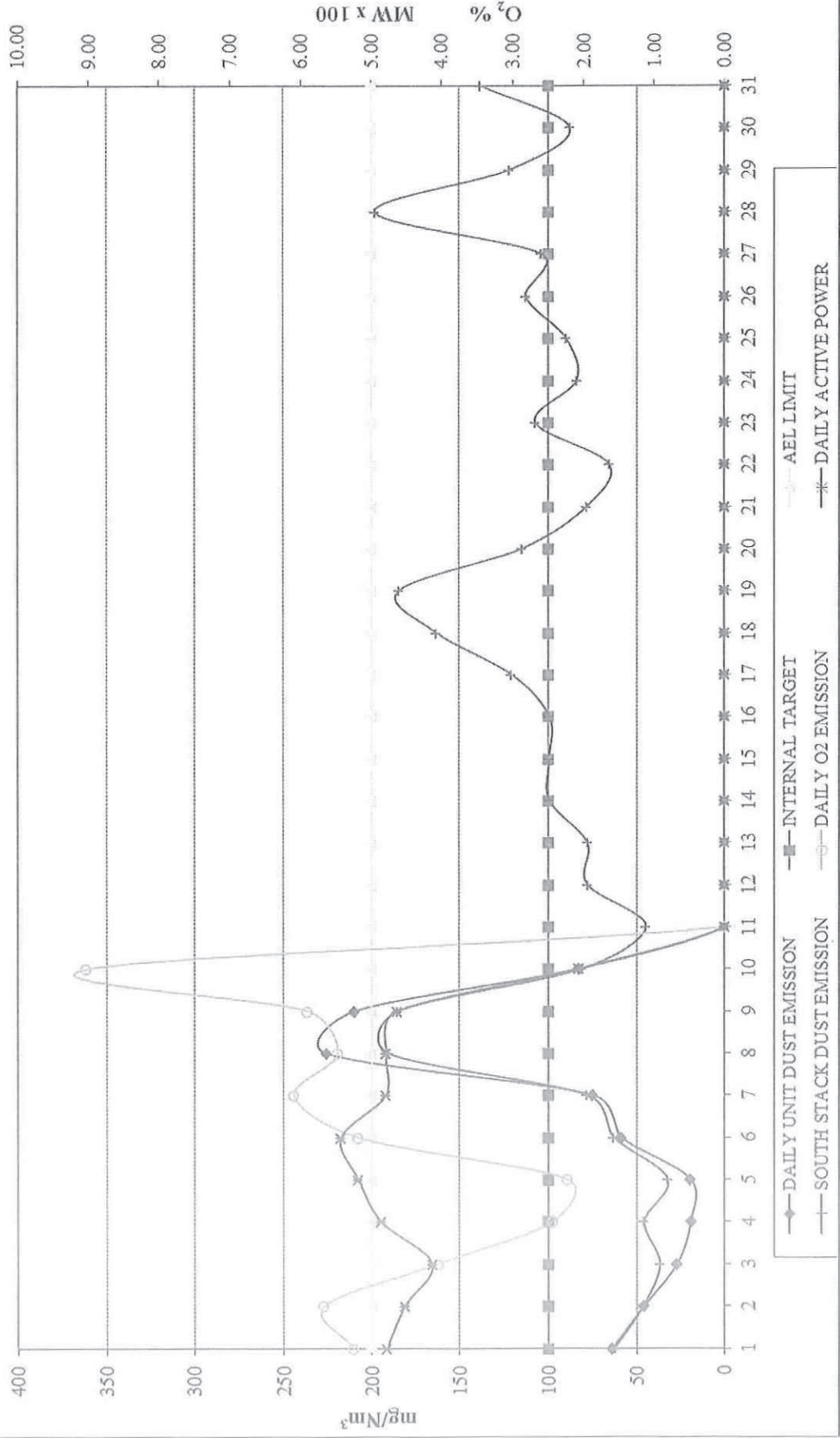
9. NOTIFICATION OF CONTRAVENTION OF EMISSION LICENCE CONDITIONS

<i>Date</i>	
<i>Power Station Unit(s)</i>	Matla Power Station -
<i>Date of incident</i> <i>Time of incident</i>	Start date and time: End date:
<i>Nature of incident</i>	Extended start-up <input type="checkbox"/> On-line maintenance <input type="checkbox"/> Extended shut-down <input type="checkbox"/>
<i>Emission limit exceedance</i>	
<i>Details of incident</i>	
<i>Risks posed by the incident to public health, safety and property</i>	
<i>Toxicity of substance or by-products released by the incident</i>	
<i>Mitigation to avoid or minimize the incident effects on public health and the environment</i>	
<i>Compiler and contact details</i>	Name: Mbali Mhlana Tel no:017 612 6410 Email: mbali.mhlana@eskom.co.za
<i>Responsible manager and contact details</i>	Name: Bruce Moyo Tel no: 017 612 6614 Email: bruce.moyo@eskom.co.za

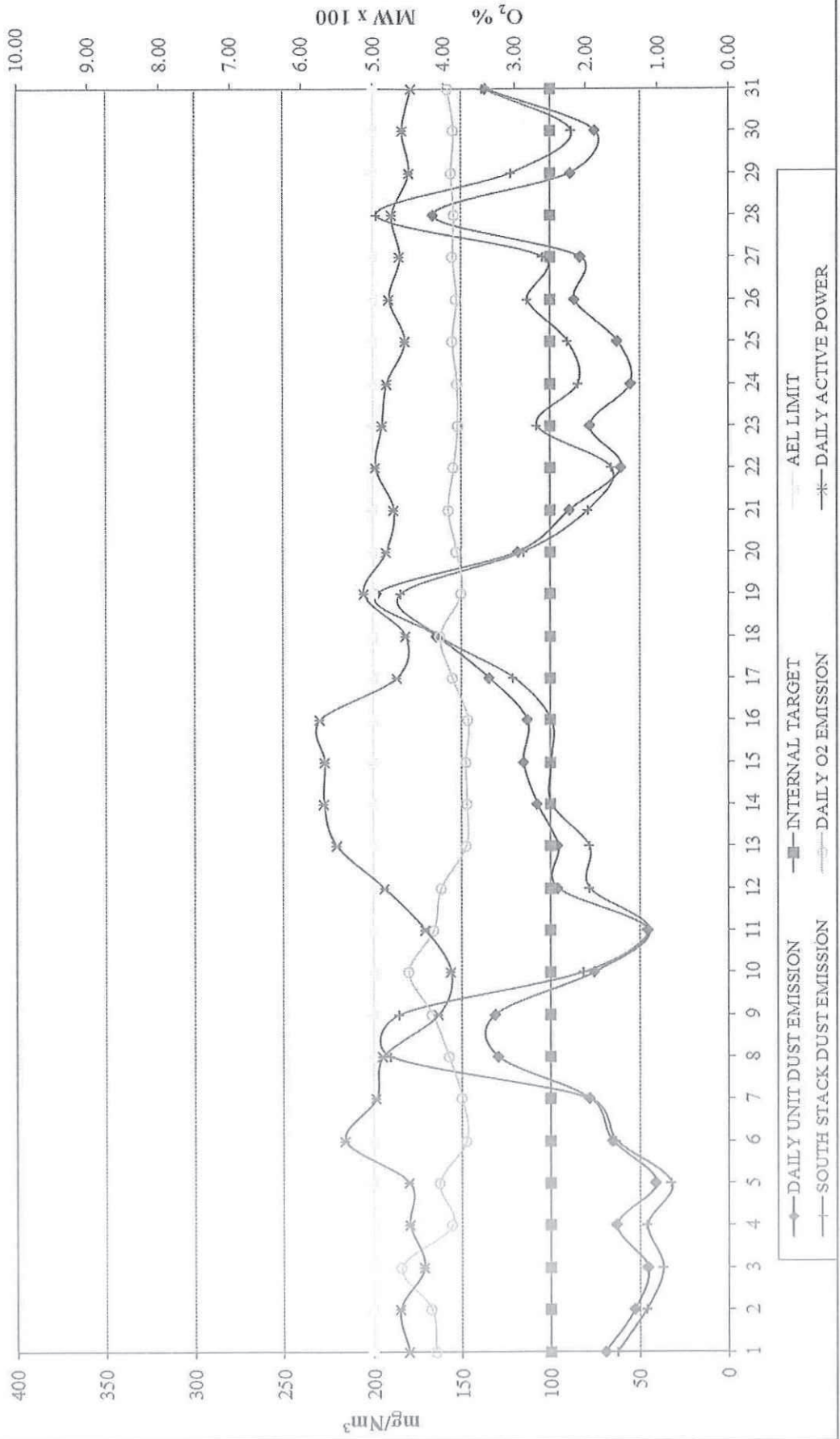
BOILER PLANT ENGINEERING

Copies to: Licensing Authority
 Power Station Manager
 Environmental Practitioner
 Engineering Manager
 Boiler Plant Engineering Manager
 Maintenance Manager
 Unit Electrical Maintenance Manager
 Operating Manage
 Production Manager
 Outside Plant Maintenance Manager
 Coal Manager
 Megawatt Park, Corporate Consultant Air Pollution
 Plant Performance Units 1 to 6

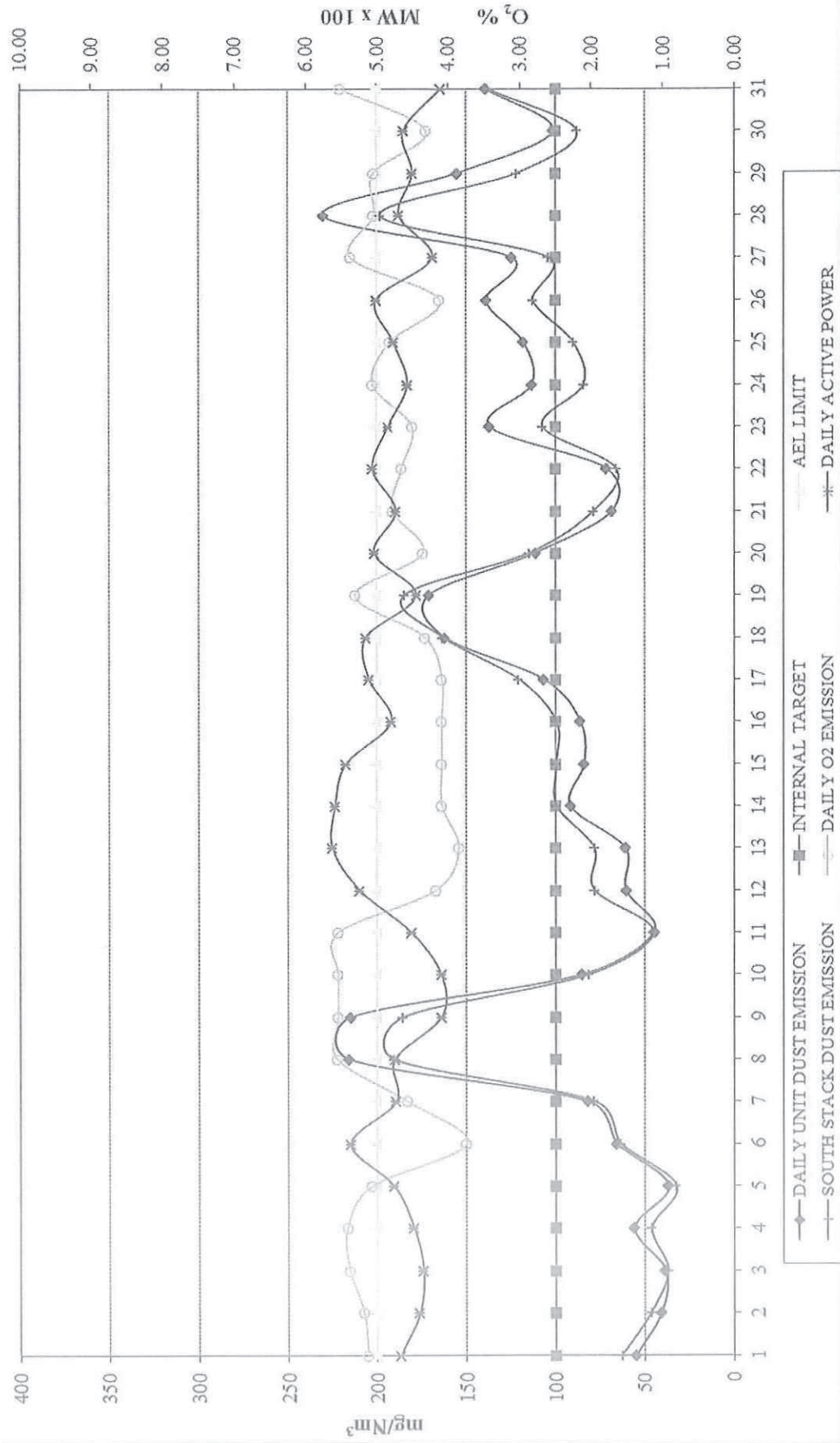
**MATLA POWER STATION
UNIT 1 DUST EMISSION REPORT
JANUARY 2018**



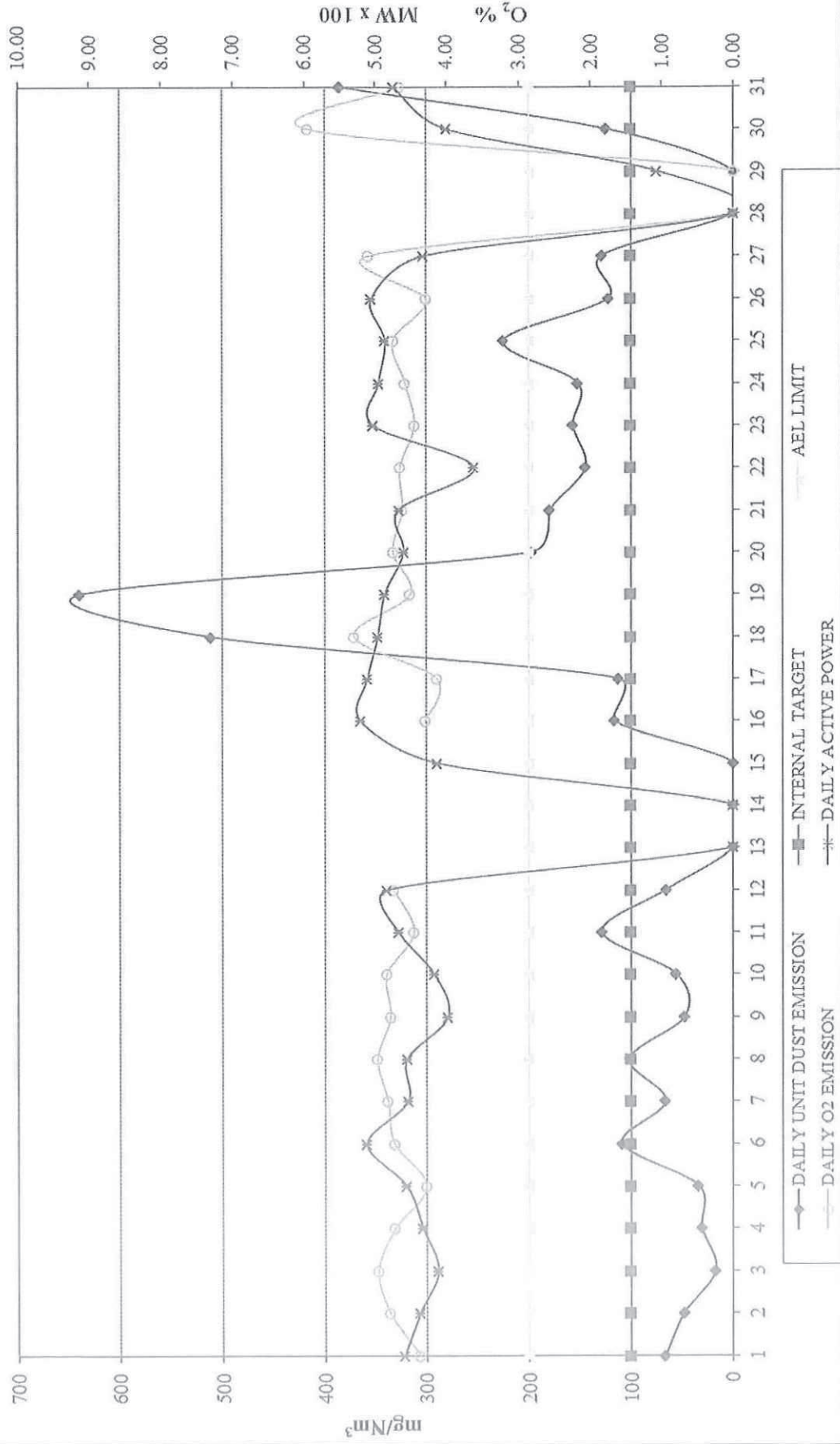
**MATLA POWER STATION
UNIT 2 DUST EMISSION REPORT
JANUARY 2018**



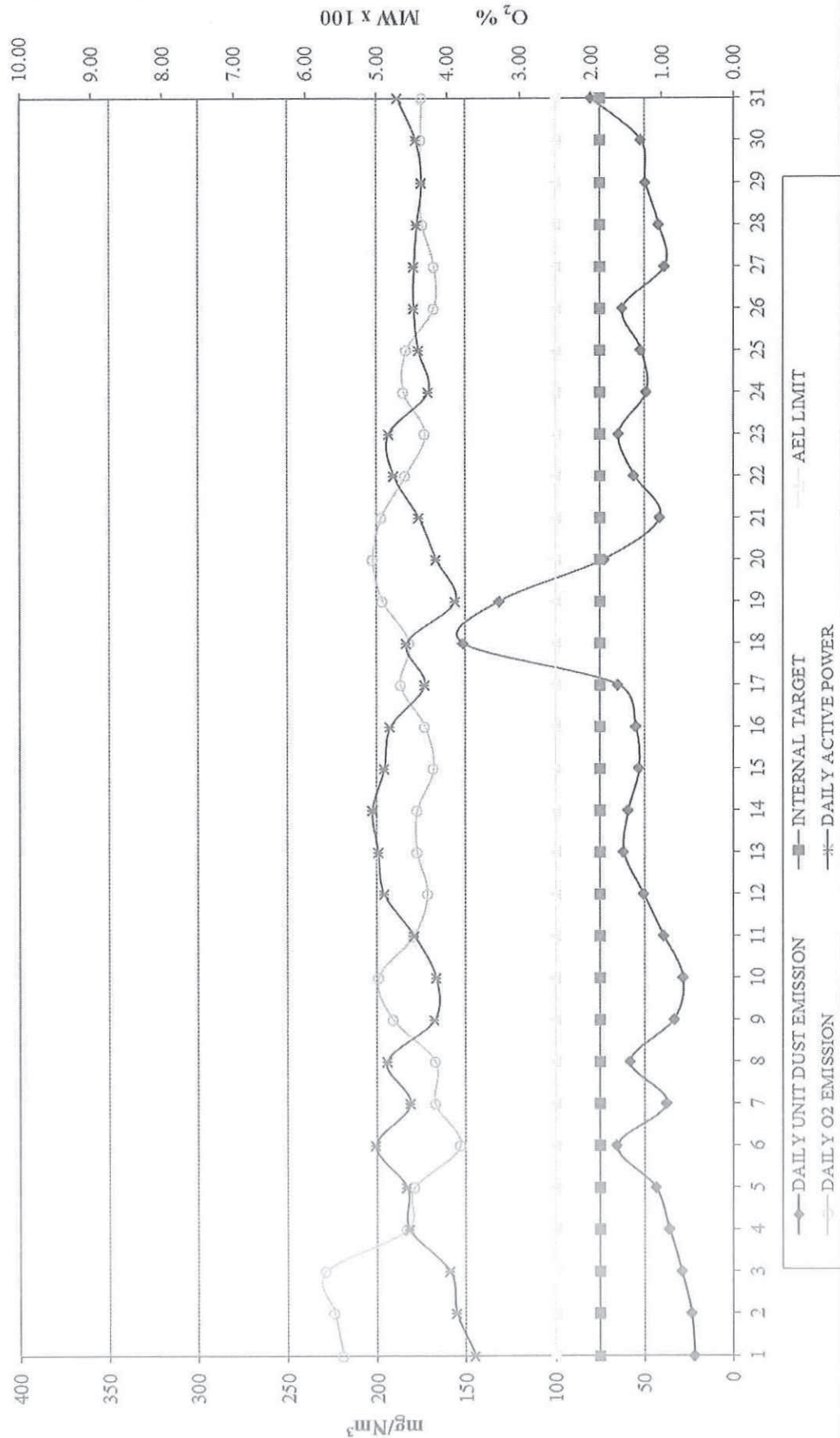
**MATLA POWER STATION
UNIT 3 DUST EMISSION REPORT
JANUARY 2018**



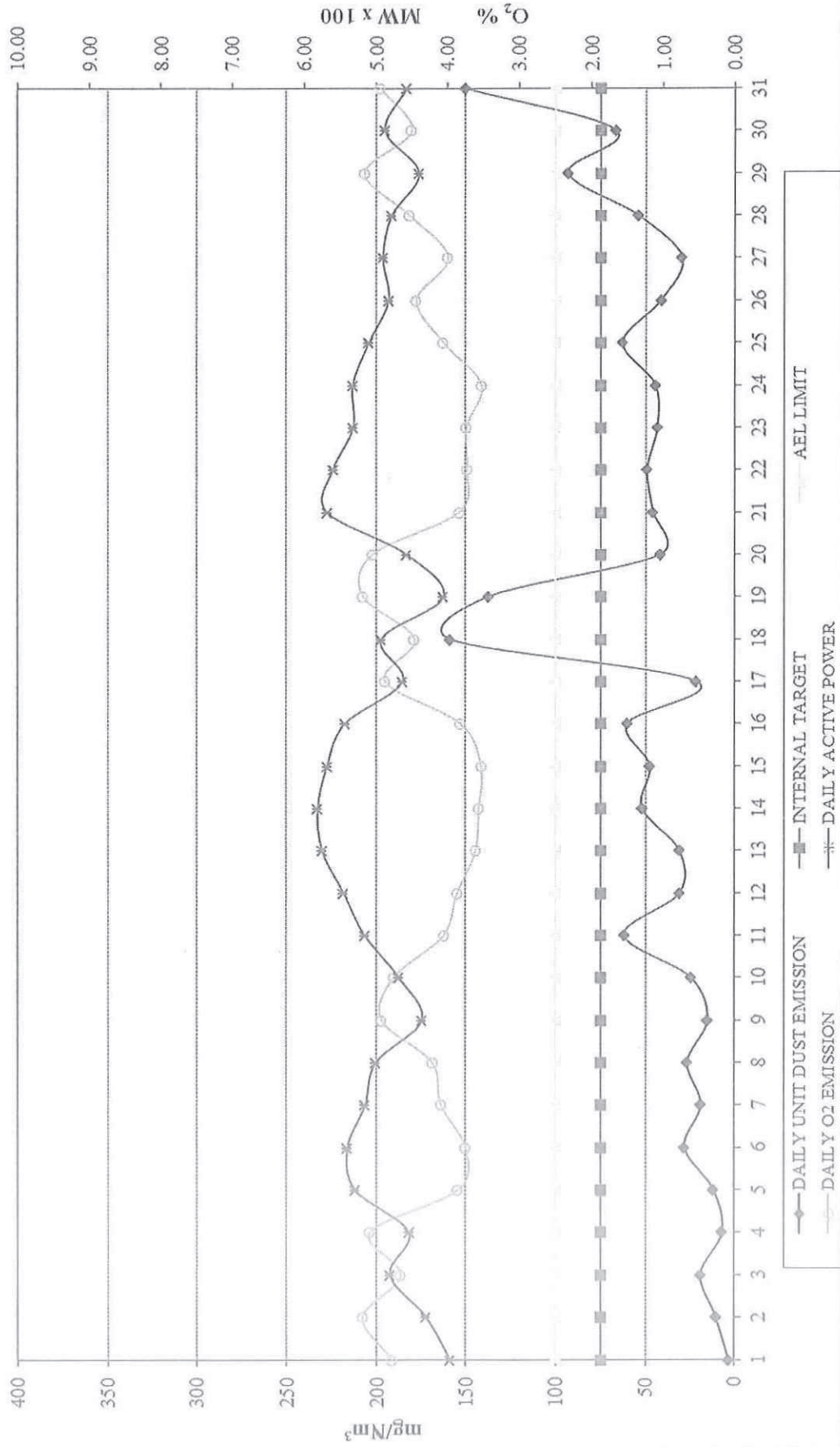
**MATLA POWER STATION
UNIT 4 DUST EMISSION REPORT
JANUARY 2018**



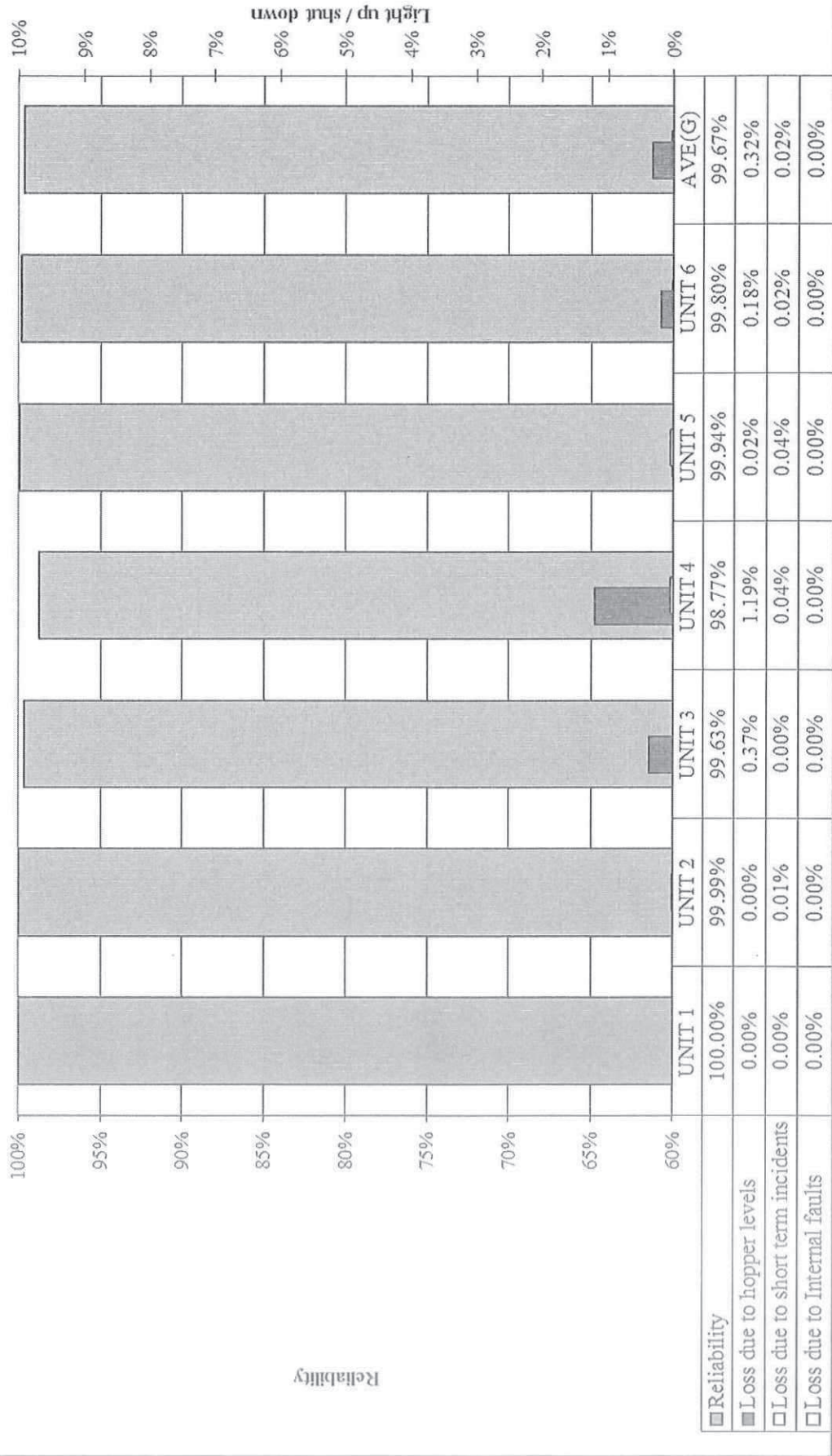
**MATLA POWER STATION
UNIT 5 DUST EMISSION REPORT
JANUARY 2018**



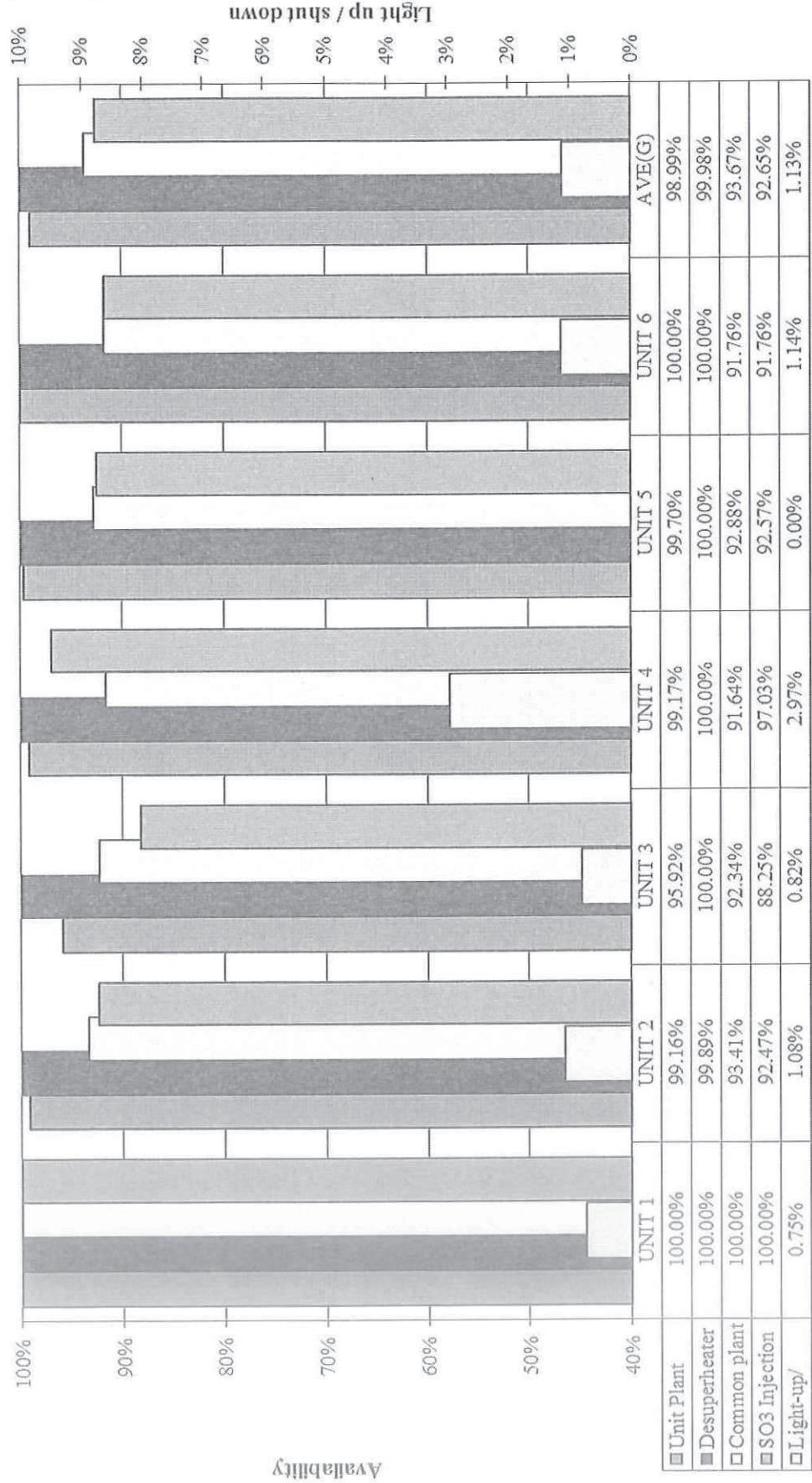
**MATLA POWER STATION
UNIT 6 DUST EMISSION REPORT
JANUARY 2018**



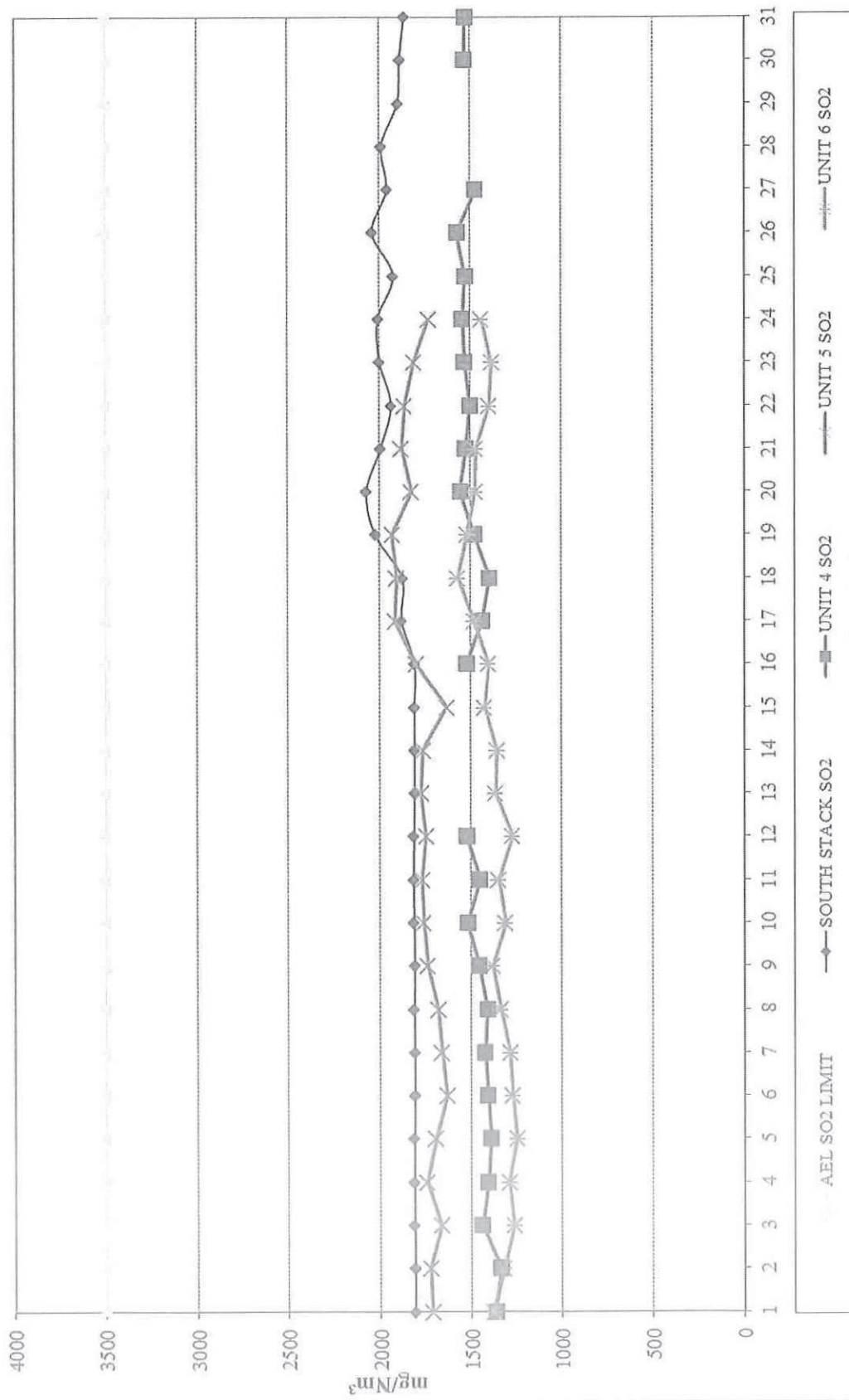
**MATLA POWER STATION
PRECIPITATOR RELIABILITY
JANUARY 2018**



**MATLA POWER STATION
SO₃ PLANT AVAILABILITY
JANUARY 2018**



**MATLA POWER STATION
SMOKE STACK SO₂ EMISSION REPORT
JANUARY 2018**



**MATLA POWER STATION
SMOKE STACK NO₂ EMISSION REPORT
JANUARY 2018**

