

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

Date:  
 6<sup>th</sup> April 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 MARCH 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	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
		2017	2017	2017	2017	2017	2017	2017	2017	2017	2018	2018	2018
Monthly Tonnage	1	78.69	59.33	70.23	34.95	61.36	65.19	71.68	108.77	90.10	46.69	Off	Off
	2	Off	Off	36.73	31.62	47.40	56.79	51.66	99.27	84.35	165.43	57.98	60.80
	3	52.70	44.69	39.75	30.24	48.85	61.23	47.64	97.34	82.94	172.35	55.05	62.50
	4	132.59	71.47	31.23	22.41	165.94	148.80	183.23	165.67	173.61	188.43	166.34	132.22
	5	39.39	27.69	25.52	17.14	30.95	45.36	147.51	74.42	49.59	82.97	68.06	97.63
	6	85.91	63.43	44.15	39.51	Off	Off	Off	5.37	22.74	53.43	62.15	50.91
	Station	389.3	266.62	247.61	175.85	354.51	377.37	501.73	550.84	503.33	709.30	409.57	404.02
GWhSO		1767.8	1768.5	1357.6	1977.7	1557.1	1703.4	1580.5	1802.7	1998.5	1783.6	1562.9	1733.7

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		APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018
Load Factor		79.94	77.79	77.44	73.03	75.25	78.05	80.55	83.88	85.33	82.96	88.34	86.45
Ash Content	%	26.17	28.43	26.01	26.24	28.42	28.70	24.34	24.11	29.57	27.15	23.3	26.41
Sulphur Content	%	1.00	1.00	0.79	0.94	1.00	1.00	1.00	1.0	1.0	1.0	0.95	1.00
Total Moisture	%	9.53	8.54	9.46	9.33	9.54	7.10	8.11	10.69	9.64	9.43	9.60	9.57

**3. GASEOUS EMISSIONS:**

**CO<sub>2</sub> emissions: kilotons emitted per month, calculated from coal analysis and emission factors.**

	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018
Units 1-3												
Unit 4												
Unit 5												
Unit 6												
All Units												

**SO<sub>2</sub> emissions: kilotons emitted per month, calculated from coal analysis and emission factors.**

	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018
Units 1-3	5.97	6.46	9.97	6.53	9.64	8.66	9.40	10.46	10.31	8.25	6.95	7.84
Unit 4	2.86	3.27	2.74	2.16	3.52	3.15	3.62	3.38	3.71	2.89	2.85	3.16
Unit 5	2.76	3.18	3.57	2.32	2.99	3.02	3.25	3.15	3.50	3.31	3.02	3.51
Unit 6	2.86	3.51	3.34	2.36	Off	Off	Off	0.44	2.80	3.70	2.46	3.13
All Units	14.45	16.42	19.63	13.37	16.15	14.83	16.27	17.43	20.32	18.15	15.28	17.64

**NO<sub>x</sub> emissions: kilotons emitted per month, calculated from coal analysis and emission factors.**

	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018
Units 1-3	1.87	2.02	3.12	2.96	3.02	2.71	2.95	3.28	3.23	2.59	2.18	2.46
Unit 4	0.98	1.02	0.86	0.98	1.10	0.99	1.13	1.06	1.16	0.91	0.89	0.99
Unit 5	0.87	1.00	1.12	1.05	0.94	0.95	1.02	0.99	1.10	1.04	0.95	1.10
Unit 6	0.90	1.10	1.05	1.07	Off	Off	Off	0.14	0.88	1.16	0.77	0.98
All Units	4.53	5.14	6.15	6.07	5.06	4.65	5.10	5.46	6.37	5.69	4.79	5.53



**CO<sub>2</sub> emissions: kilotons emitted per month, measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only.**

	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018
Units 1-3												
Unit 4												
Unit 5												
Unit 6												
All Units												

**SO<sub>2</sub> emissions: kilotons emitted per month, measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only.**

	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018
Units 1-3	8.82	7.32	8.91	6.29	7.60	7.82	7.59	12.65	9.94	7.15	5.55	8.31
Unit 4	2.20	3.64	1.49	1.27	2.89	1.54	2.91	2.51	2.43	1.61	1.81	2.28
Unit 5	3.38	4.04	2.34	2.25	4.66	1.55	2.84	3.05	2.89	2.54	2.57	2.74
Unit 6	2.47	2.99	2.81	2.05	Off	Off	Off	0.14	1.06	1.44	1.03	1.22
All Units	16.86	17.99	15.55	11.85	15.15	10.91	13.35	18.36	16.33	12.74	10.96	14.55

**NO<sub>x</sub> emissions: kilotons emitted per month, measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only.**

	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018
Units 1-3	4.71	3.73	2.65	3.04	3.78	3.57	3.48	5.98	5.03	3.26	2.98	3.78
Unit 4	1.39	2.24	1.03	0.85	1.81	0.87	1.84	1.53	1.52	0.98	1.30	1.26
Unit 5	1.71	1.96	1.30	1.16	2.41	0.68	1.35	1.41	1.35	1.43	1.32	1.28
Unit 6	1.23	1.36	1.38	0.99	Off	Off	Off	0.07	0.54	0.79	0.55	0.63
All Units	9.05	9.29	6.35	6.04	8.01	5.12	6.66	8.99	8.44	6.46	6.15	6.95

**CO<sub>2</sub> emissions (mg/Nm<sup>3</sup>): Average concentration per month (at 273 K, 101.3 kPa and 10% O<sub>2</sub>), measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only**

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

**SO<sub>2</sub> emissions (mg/Nm<sup>3</sup>): Average concentration per month (at 273 K, 101.3 kPa and 10% O<sub>2</sub>), measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only**

Limit	APR 2017	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018
4000												
Units 1-3	2604	2021	1671	1582	1875	2094	1831	2390	2127	1883	1587	2246
Unit 4	1687	2492	1938	1589	2112	1627	2023	1513	1447	1476	1350	1626
Unit 5	1932	2025	2003	1749	2562	1731	1966	2046	1906	1751	1827	1856
Unit 6	1590	1658	1508	1395	Off	Off	Off	1421	1385	1353	1406	1425

**SO<sub>2</sub> daily average emissions: AEL limit exceedances**

Limit	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
3500	2017	2017	2017	2017	2017	2017	2017	2017	2017	2018	2018	2018
Units 1-3	0	0	0	0	0	0	0	0	0	0	0	0
Unit 4	0	0	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<sub>x</sub> emissions (mg/Nm<sup>3</sup>): Average concentration per month (at 273 K, 101.3 kPa and 10% O<sub>2</sub>), measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only**

Limit	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
1700	2017	2017	2017	2017	2017	2017	2017	2017	2017	2018	2018	2018
Units 1-3	1392	1030	763	760	932	956	838	1128	1074	858	851	1017
Unit 4	1070	1539	1326	1042	1313	914	1269	914	894	896	970	872
Unit 5	981	975	1109	915	1291	759	938	949	892	982	936	859
Unit 6	799	746	741	657	Off	Off	Off	682	705	751	751	740

**NO<sub>x</sub> daily average emissions: AEL limit exceedances**

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

**4. PARTICULATE EMISSION PERFORMANCE**

	MONTH AVERAGE EMISSIONS	AEL LIMIT(DAILY AVERAGE)	HIGHEST DAILY AVERAGE
UNIT	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>	mg/Nm <sup>3</sup>
1, 2 & 3	32.22	200	123.22
4	120.12	200	652.16
5	64.71	100	186.38
6	63.76	100	224.08
Station	70.20		
YTD	58.78		

**ABATEMENT APPARATUS AVAILABILITY**

Unit		1	2	3	4	5	6	Station
Precipitator efficiency	%	Off	99.87	99.87	99.57	99.76	99.85	99.78
Precipitator availability	%	Off	100.00	100.00	96.83	99.13	97.48	98.88
SO <sub>3</sub> plant utilisation	%	Off	97.41	97.26	96.73	97.16	96.06	96.92



## ATMOSPHERIC EMISSION LICENSE LIMIT EXCEEDED

	AEL LIMIT EXCEEDED (TOTAL)	AEL LIMIT EXCEEDED (LIGHT-UP/SHUT DOWN)	AEL LIMIT EXCEEDED (UPSET CONDITIONS)	AEL LIMIT EXCEEDED (MAINTENANCE)	AEL LIMIT EXCEEDED (SECTION 30 / CONTRAVENTION)
UNIT	Days	Days	Days	Days	Days
1, 2 & 3	0	0	0	0	0
4	4	2	0	2	0
5	2	0	0	2	0
6	4	2	0	2	0
Station	10	4	0	6	0
YTD	67	12	20	26	9

### 5. DISCUSSION

#### Unit 1:

Unit was taken off load on the 10<sup>th</sup> January 2018 for a major refurbishment outage.

#### Unit 2:

The flue gas cleaning plant performed well during the month and emissions well below the AEL limit was recorded.

#### Unit 3:

The flue gas cleaning plant performed well during the month and emissions well below the AEL limit was recorded.

#### Unit 4:

The unit was taken off load on the 3<sup>rd</sup> March 2018 at 15:29 for boiler tube leak repairs. The unit returned to service on the 6<sup>th</sup> March 2018 at 09:36. The opportunity was utilised to carry out minor precipitator repairs.

The unit spuriously tripped on the 6<sup>th</sup> March 2018 at 17:25. The unit returned to service on the 6<sup>th</sup> March 2018 at 22:23.

Right hand precipitator fields 3, 5 and 6 were taken out of service on the 15<sup>th</sup> March 2018 at 05:20 for maintenance to safely replace right hand field 5 transformer. All fields were back in service at 21:20 on the 15<sup>th</sup> March 2018. Higher than normal emissions were reported for the day.

The unit was taken off load on the 26<sup>th</sup> March 2018 at 22:06 for maintenance to repair a cooling water leak on the 20kV breaker. The unit returned to service on the 27<sup>th</sup> March 2018 at 17:15.

The unit tripped on the 29<sup>th</sup> March 2018 at 00:13 when the 275kV breaker opened. The unit returned to service on the same day at 16:49

A few minor incidents related to precipitator field failures and SO<sub>3</sub> flue gas conditioning failures were reported during the month.

**Unit 5:**

The unit tripped on the 16<sup>th</sup> March 2018 at 03:13 on low drum level protection. The unit returned to service at 08:56 on the same day.

The unit experienced several SO<sub>3</sub> flue gas conditioning plant failures during the month. These incidents marginally increased the particulate emissions recorded for the month.

**Unit 6:**

Left hand precipitator field 8 failed on the 3<sup>rd</sup> March 2018 due to an internal fault. The particulate emissions increased as a result of the failure.

The unit was taken off load on the 20<sup>th</sup> March 2018 at 00:38 to remove a clinker from the boiler throat. The unit returned to service on the 25<sup>th</sup> March 2018 at 02:40. The opportunity was utilised to carry out precipitator repairs.

The unit experienced several SO<sub>3</sub> flue gas conditioning plant failures during the month. These incidents marginally increased the particulate emissions recorded for the month.

**SO<sub>3</sub> common Plant:**

The SO<sub>3</sub> common plant was taken off line on the 28<sup>th</sup> March 2018 at 04:14 for maintenance to replace steam traps on the warming steam line. All of the flue gas conditioning plants were back in service by 04:45 on the 29<sup>th</sup> March 2018. High particulate emissions were reported for the day on all units.

**Gas Emissions:**

The availability of the CEMS improved and only 2 days data is not availability on the south stack.

**General:**

The coal quality supplied to boilers 5 and 6 deteriorated during the month, impacting negatively on the particulate emissions.

## 6. LIGHT UP:

Unit:	4	
Fires in:	04:00	6 March
Synchronisation:	09:36	6 March
Emissions below Limit:	14:21	March
Fires in to synchronisation:	5:36	Hours
Synchronisation to < Limit:	4:45	Hours

Unit:	4	
Fires in:	18:35	6 March
Synchronisation:	22:23	6 March
Emissions below Limit:	01:15	7 March
Fires in to synchronisation:	3:48	Hours
Synchronisation to < Limit:	2:52	Hours

Unit:	5	
Fires in:	04:14	16 March
Synchronisation:	08:56	16 March
Emissions below Limit:	12:10	16 March
Fires in to synchronisation:	4:42	Hours
Synchronisation to < Limit:	3:14	Hours

Unit:	6	
Fires in:	18:30	24 March
Synchronisation:	02:40	25 March
Emissions below Limit:	9:52	March
Fires in to synchronisation:	8:10	Hours
Synchronisation to < Limit:	7:12	Hours

Unit:	4	
Fires in:	12:15	27 March
Synchronisation:	17:15	27 March
Emissions below Limit:	19:05	March
Fires in to synchronisation:	5:00	Hours
Synchronisation to < Limit:	1:50	Hours

Unit:	4	
Fires in:	13:30	29 March
Synchronisation:	16:49	29 March
Emissions below Limit:	19:25	March
Fires in to synchronisation:	3:19	Hours
Synchronisation to < Limit:	2:36	Hours

**7. GRAPHS:**

See attached graphs

**8. COMPLAINTS**

Name of complainant	Date	Description of complaint	Action taken
No Complaints			



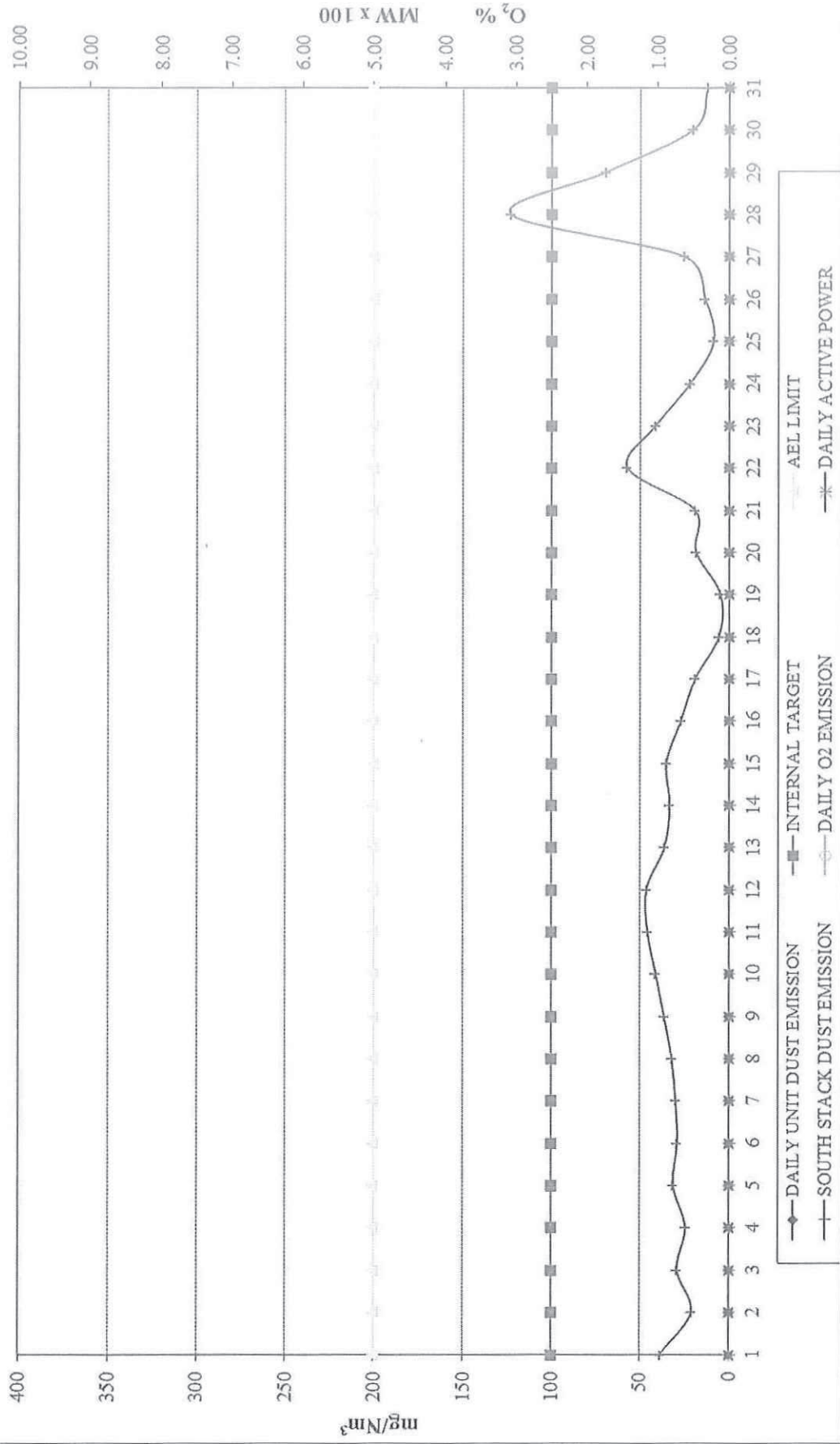
## 9. NOTIFICATION OF CONTRAVENTION OF EMISSION LICENCE CONDITIONS

<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: Tel no: Email:
<i>Responsible manager and contact details</i>	Name: Tel no: Email:

## **BOILER PLANT ENGINEERING**

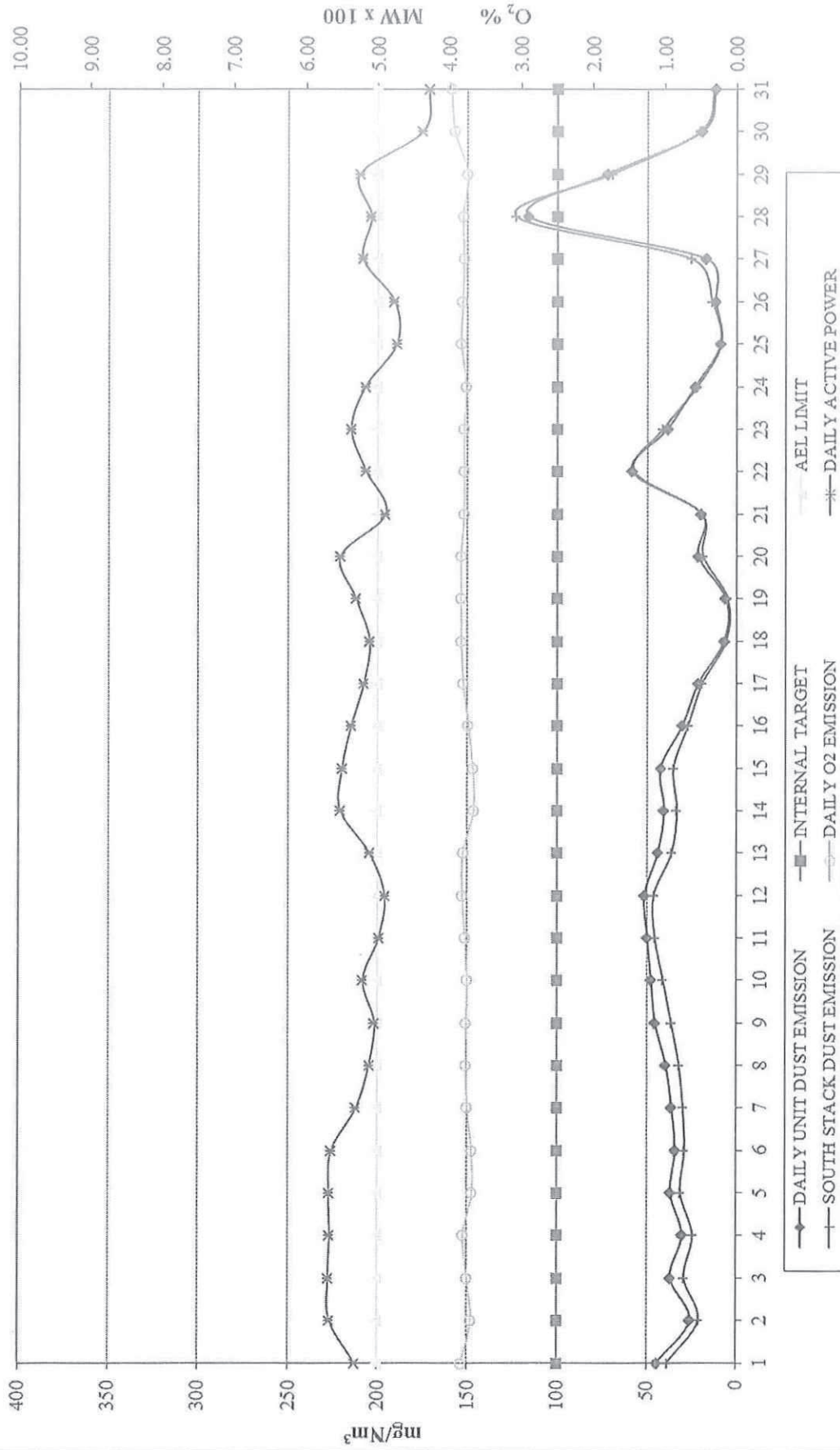
Copies to:   Licensing Authority  
              Power Station Manager  
              Environmental Practitioner  
              Engineering Manager  
              Boiler Plant Engineering Manager  
              Maintenance Manager  
              Unit Electrical Maintenance Manager  
              Operating Manager  
              Production Manager (J Ngoepe) (J Khoza)  
              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  
MARCH 2018**

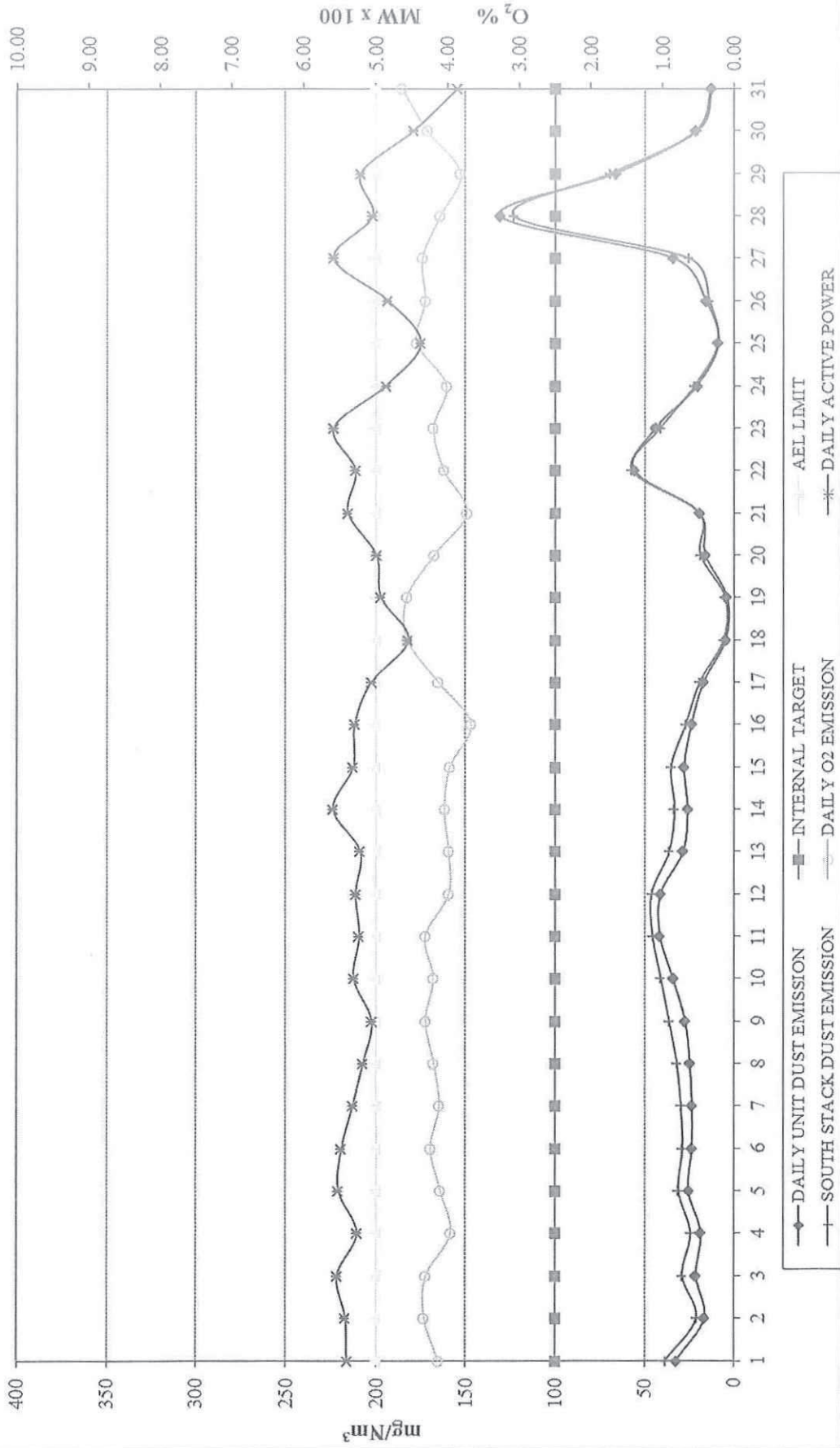




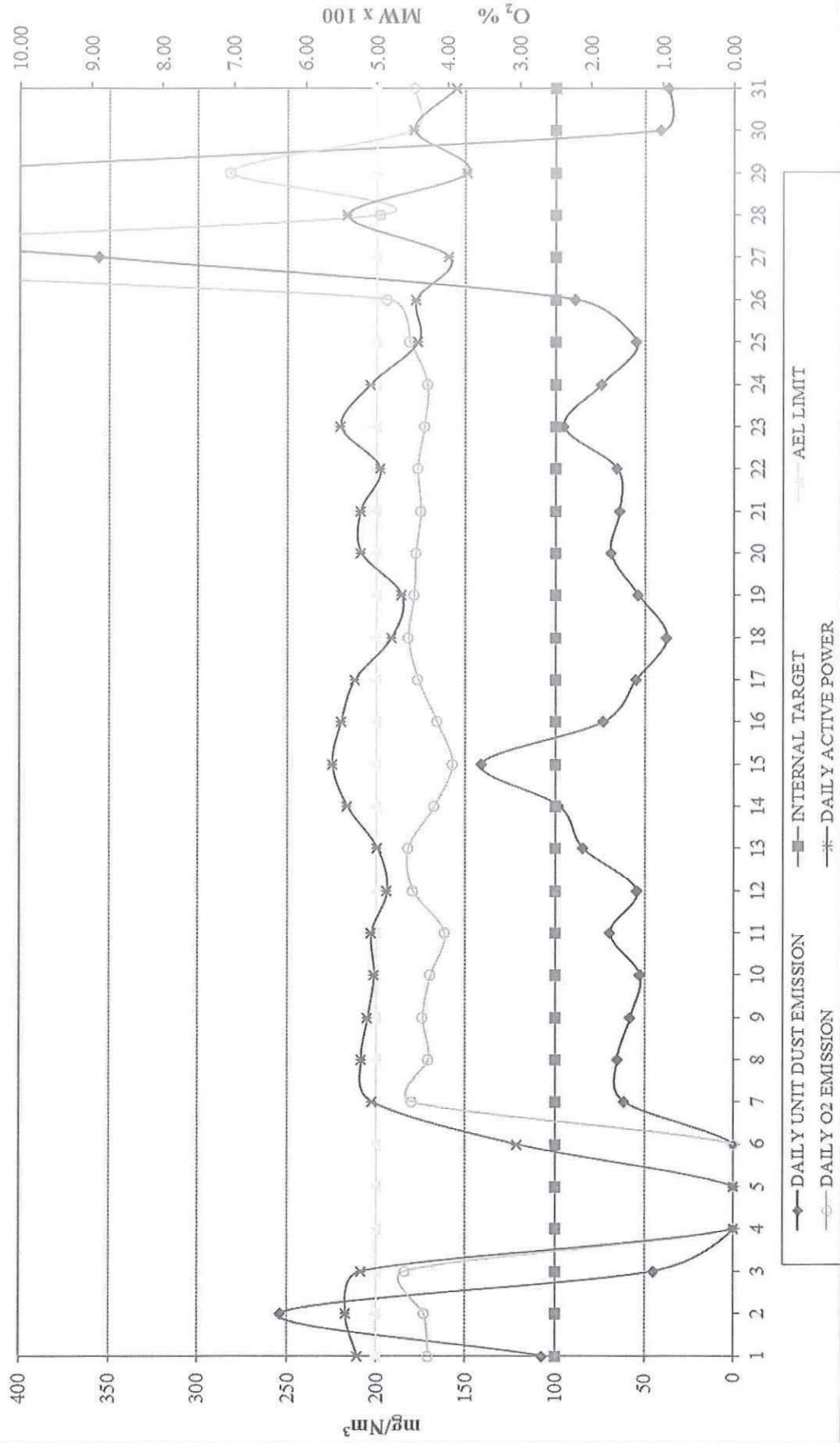
**MATLA POWER STATION  
UNIT 2 DUST EMISSION REPORT  
MARCH 2018**



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

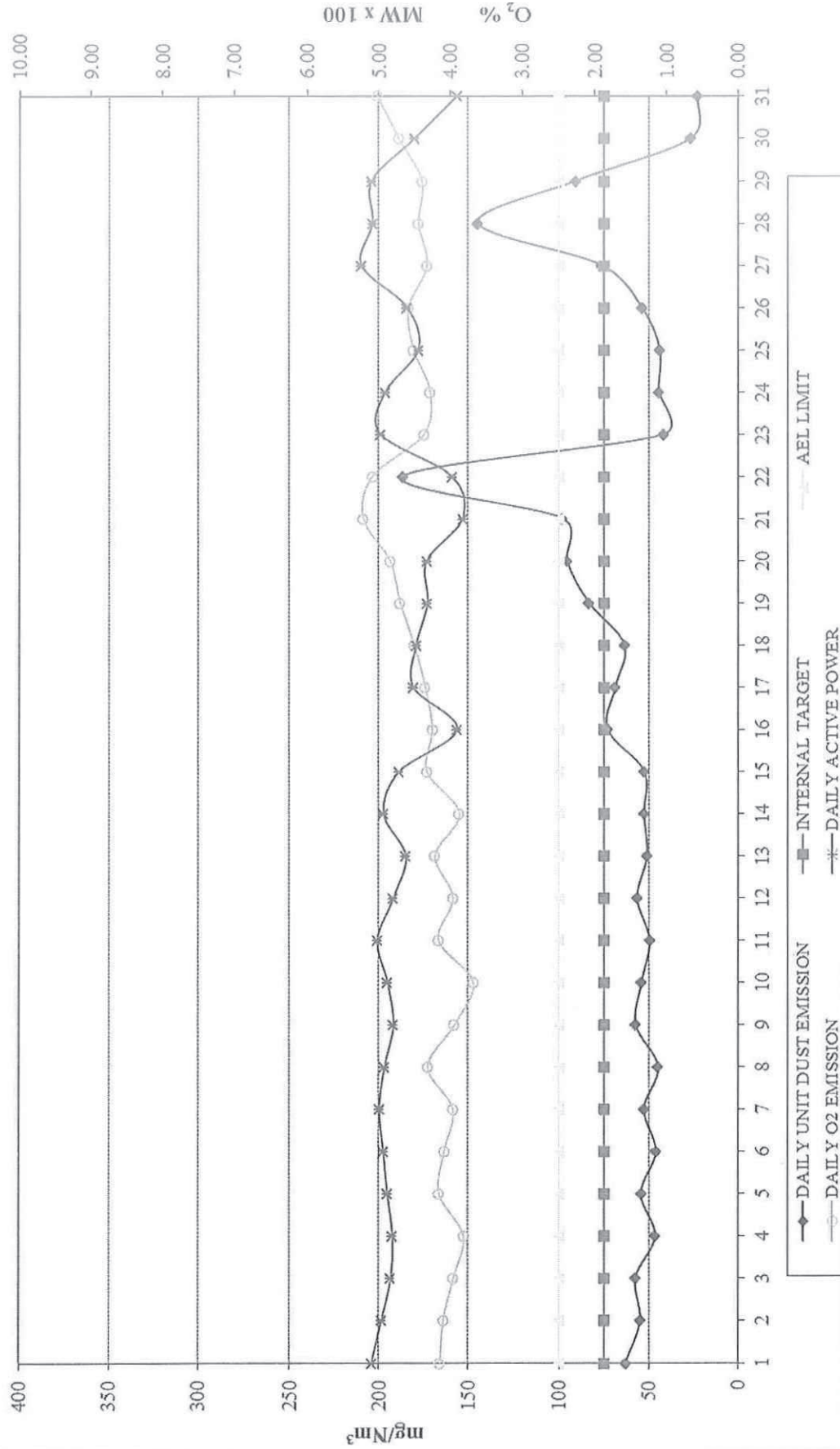


**MATLA POWER STATION  
UNIT 4 DUST EMISSION REPORT  
MARCH 2018**

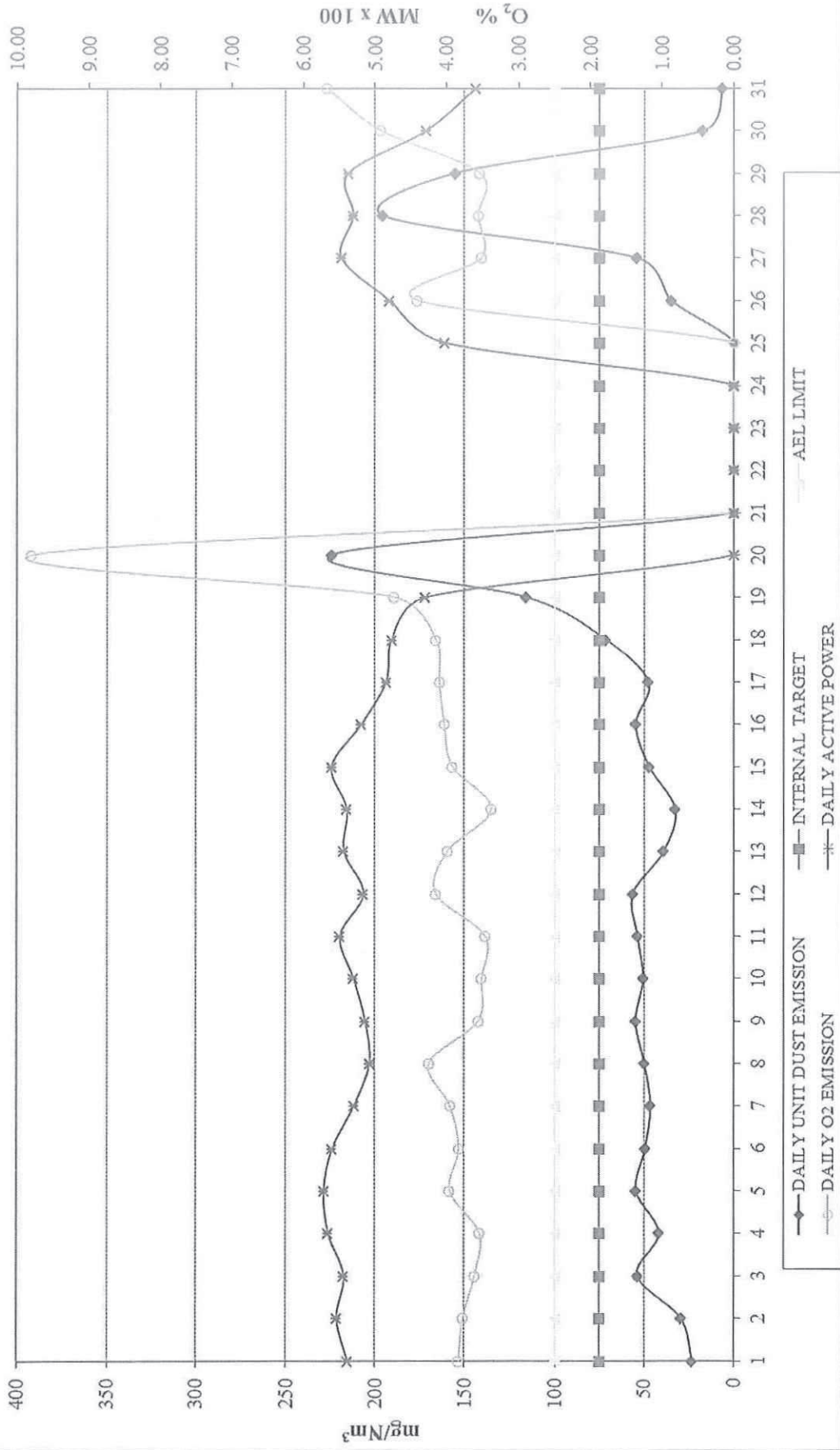




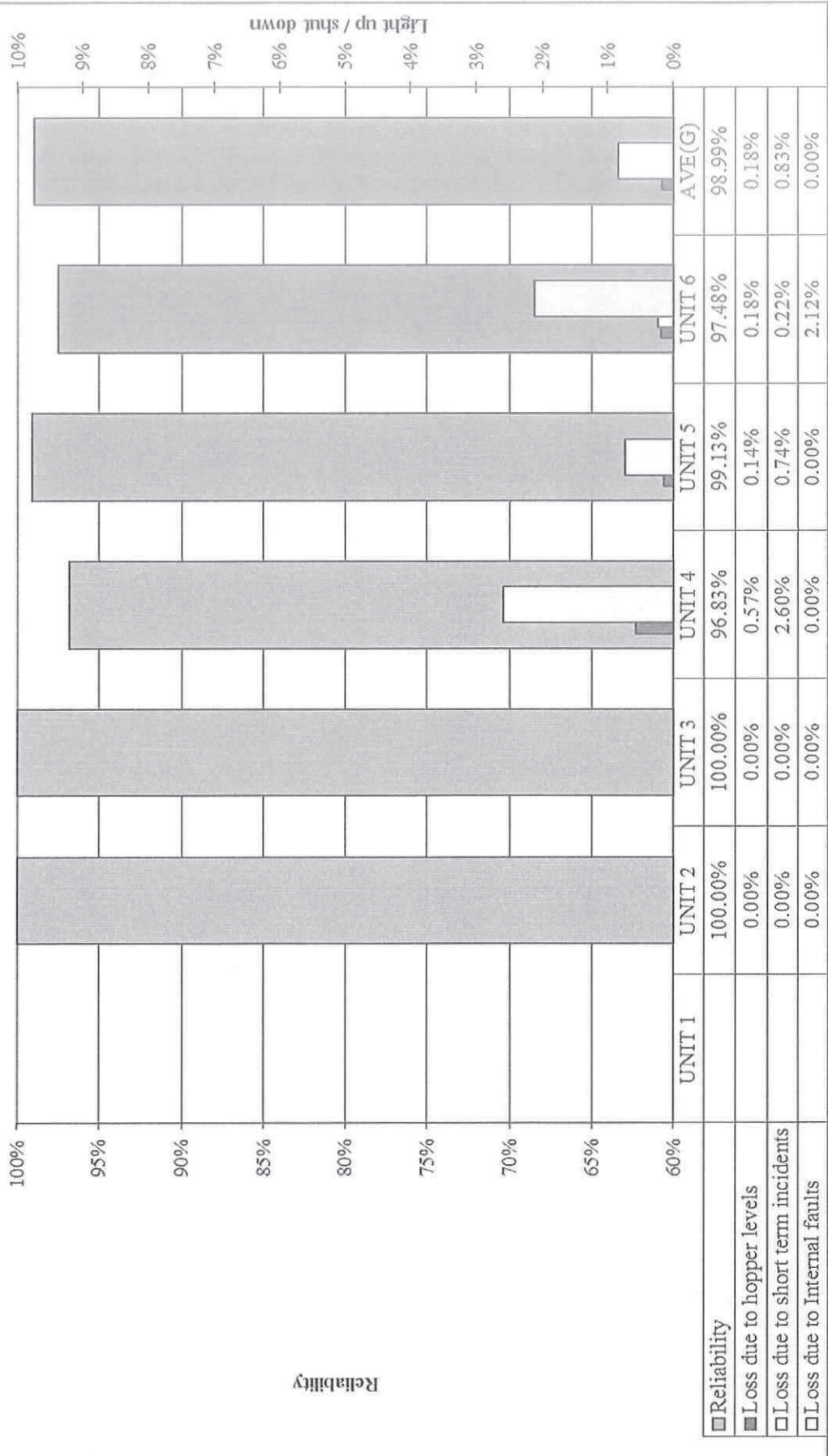
**MATLA POWER STATION  
UNIT 5 DUST EMISSION REPORT  
MARCH 2018**



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

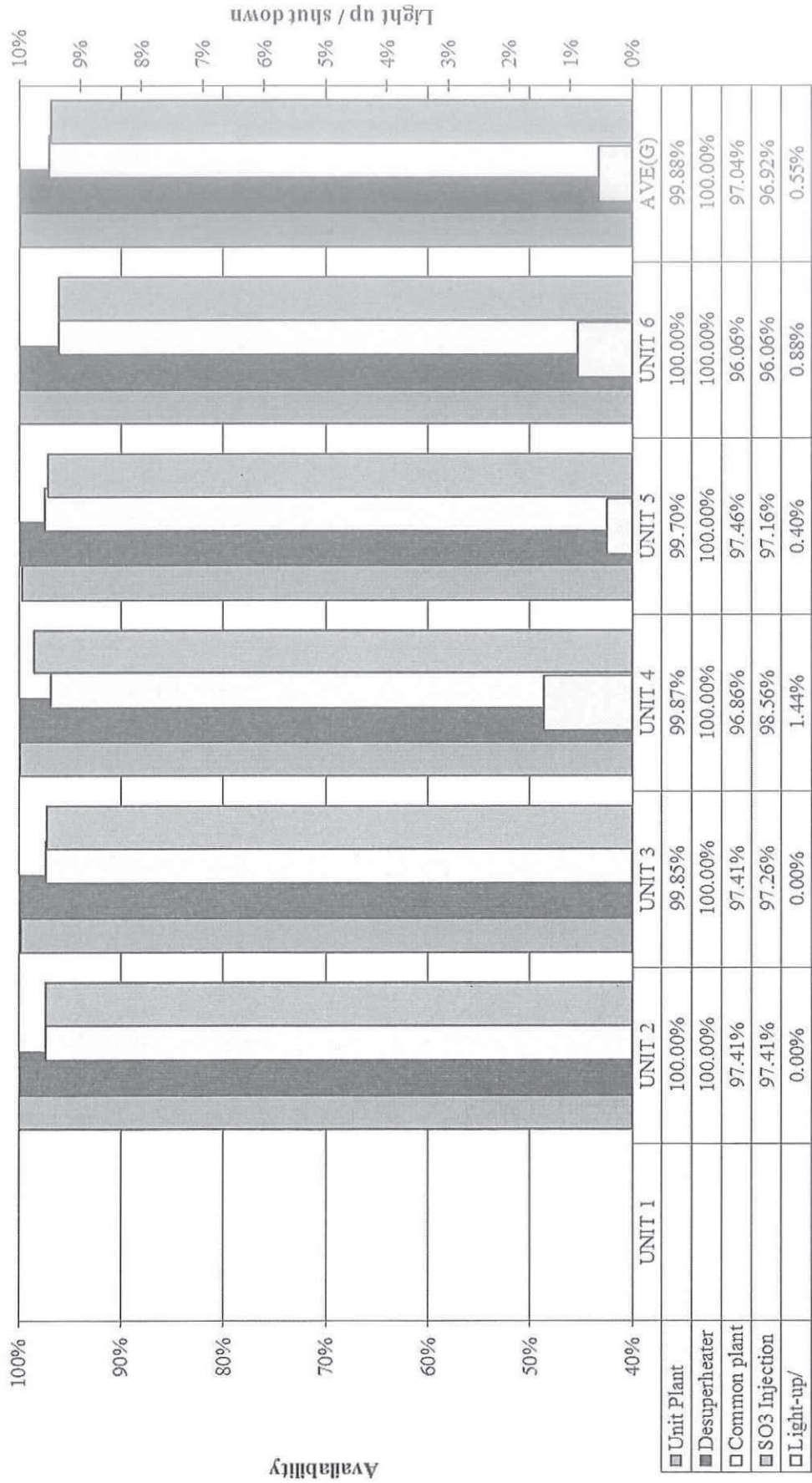


**MATLA POWER STATION  
PRECIPITATOR RELIABILITY  
MARCH 2018**

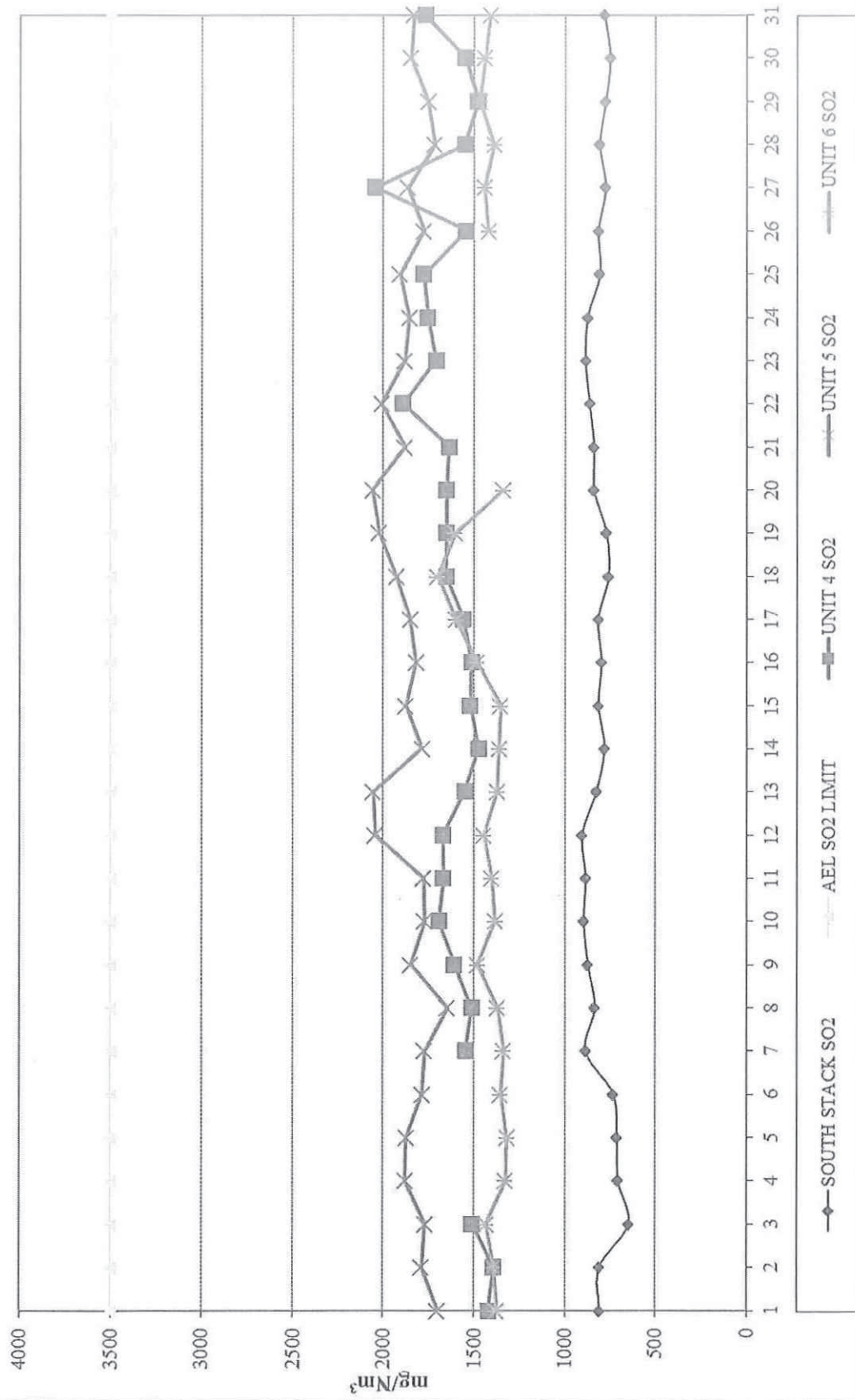




**MATLA POWER STATION  
SO<sub>3</sub> PLANT AVAILABILITY  
MARCH 2018**



**MATLA POWER STATION  
SMOKE STACK SO<sub>2</sub> GAS EMISSION REPORT  
MARCH 2018**



**MATLA POWER STATION**  
**SMOKE STACK NO GAS EMISSION REPORT**  
**MARCH 2018**

