Eskom
Generation

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

Attention:
Mr. M Mahlalela

Nkangala District Municipality
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Attention:
Mr. V Mahlangu

Date:
16th May 2018
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MATLA POWER STATION
AIR QUALITY REPORT FOR APRIL 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	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018
Monthly Tonnage	1	59.33	70.23	34.95	61.36	65.19	71.68	108.77	90.10	46.69	Off	Off	Off
	2	Off	36.73	31.62	47.40	56.79	51.66	99.27	84.35	165.43	57.98	60.80	28.57
	3	44.69	39.75	30.24	48.85	61.23	47.64	97.34	82.94	172.35	55.05	62.50	29.56
	4	71.47	31.23	22.41	165.94	148.80	183.23	165.67	173.61	188.43	166.34	132.22	87.07
	5	27.69	25.52	17.14	30.95	45.36	147.51	74.42	49.59	82.97	68.06	97.63	61.14
	6	63.43	44.15	39.51	Off	Off	Off	5.37	22.74	53.43	62.15	50.91	52.66
	Station	266.62	247.61	175.85	354.51	377.37	501.73	550.84	503.33	709.30	409.57	404.02	258.99
GWhSO		1768.5	1357.6	1977.7	1557.1	1703.4	1580.5	1802.7	1998.5	1783.6	1562.9	1733.7	1594.2

Generation Division (Operating Unit Coal 2)
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2. COAL AND LOAD FACTOR:

STATION		MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018
Load Factor		77.79	77.44	73.03	75.25	78.05	80.55	83.88	85.33	82.96	88.34	86.45	78.39
Ash Content	%	28.43	26.01	26.24	28.42	28.70	24.34	24.11	29.57	27.15	23.3	26.41	25.3
Sulphur Content	%	1.00	0.79	0.94	1.00	1.00	1.00	1.0	1.0	1.0	0.95	0.90	1.00
Total Moisture	%	8.54	9.46	9.33	9.54	7.10	8.11	10.69	9.64	9.43	9.60	9.57	9.21

3. GASEOUS EMISSIONS:

CO_2 emissions: kilotons emitted per month, calculated from coal analysis and emission factors.

	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018
Units 1-3	685.71	1034.15	960.58	972.55	880.37	950.46	1098.05	1060.43	845.56	754.62	815.02	672.98
Unit 4	347.30	284.66	318.14	355.20	319.93	365.65	354.99	381.89	296.65	308.98	328.15	334.70
Unit 5	338.16	370.82	341.70	302.26	306.49	328.49	330.43	360.01	339.44	327.41	364.38	311.74
Unit 6	372.34	347.03	347.74	Off	Off	Off	45.96	288.59	378.79	267.47	325.75	320.10
All Units	1743.52	2036.67	1968.17	1630.01	1506.78	1644.60	1829.43	2090.92	1860.43	1658.39	1833.30	1639.52

SO_2 emissions: kilotons emitted per month, calculated from coal analysis and emission factors.

	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018
Units 1-3	6.46	9.97	6.53	9.64	8.66	9.40	10.46	10.31	8.25	6.95	7.84	6.62
Unit 4	3.27	2.74	2.16	3.52	3.15	3.62	3.38	3.71	2.89	2.85	3.16	3.29
Unit 5	3.18	3.57	2.32	2.99	3.02	3.25	3.15	3.50	3.31	3.02	3.51	3.07
Unit 6	3.51	3.34	2.36	Off	Off	Off	0.44	2.80	3.70	2.46	3.13	3.15
All Units	16.42	19.63	13.37	16.15	14.83	16.27	17.43	20.32	18.15	15.28	17.64	16.12

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

	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018
Units 1-3	2.02	3.12	2.96	3.02	2.71	2.95	3.28	3.23	2.59	2.18	2.46	2.07
Unit 4	1.02	0.86	0.98	1.10	0.99	1.13	1.06	1.16	0.91	0.89	0.99	1.03
Unit 5	1.00	1.12	1.05	0.94	0.95	1.02	0.99	1.10	1.04	0.95	1.10	0.96
Unit 6	1.10	1.05	1.07	Off	Off	Off	0.14	0.88	1.16	0.77	0.98	0.99
All Units	5.14	6.15	6.07	5.06	4.65	5.10	5.46	6.37	5.69	4.79	5.53	5.05

CO_2 emissions: kilotons emitted per month, measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only.

	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018
Units 1-3	767.1	721.5	831.2	860.28	787.10	693.99	1098.30	927.16	785.03	725.2	790.5	700.24
Unit 4	393.9	181.5	157.0	317.0	163.1	343.4	284.98	292.14	194.99	264.7	275.2	241.9
Unit 5	459.4	283.1	285.5	577.5	176.9	320.7	349.97	334.91	321.41	311.0	325.4	313.2
Unit 6	359.3	379.4	279.6	Off	Off	Off	19.67	144.65	198.16	138.9	160.3	346.9
All Units	1979.6	1565.5	1553.2	1754.8	1127.0	1358.1	1752.92	1698.85	1499.59	1439.8	1551.5	1602.2

SO_2 emissions: kilotons emitted per month, measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only.

	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018
Units 1-3	7.32	8.91	6.29	7.60	7.82	7.59	12.65	9.94	7.15	5.55	8.31	6.73
Unit 4	3.64	1.49	1.27	2.89	1.54	2.91	2.51	2.43	1.61	1.81	2.28	2.18
Unit 5	4.04	2.34	2.25	4.66	1.55	2.84	3.05	2.89	2.54	2.57	2.74	2.61
Unit 6	2.99	2.81	2.05	Off	Off	Off	0.14	1.06	1.44	1.03	1.22	2.73
All Units	17.99	15.55	11.85	15.15	10.91	13.35	18.36	16.33	12.74	10.96	14.55	14.26

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

	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018
Units 1-3	3.73	2.65	3.04	3.78	3.57	3.48	5.98	5.03	3.26	2.98	3.78	2.82
Unit 4	2.24	1.03	0.85	1.81	0.87	1.84	1.53	1.52	0.98	1.30	1.26	1.01
Unit 5	1.96	1.30	1.16	2.41	0.68	1.35	1.41	1.35	1.43	1.32	1.28	1.06
Unit 6	1.36	1.38	0.99	Off	Off	Off	0.07	0.54	0.79	0.55	0.63	1.25
All Units	9.29	6.35	6.04	8.01	5.12	6.66	8.99	8.44	6.46	6.15	6.95	6.15

CO_2 emissions (mg/Nm^3): Average concentration per month (at 273 K, 101.3 kPa and 10% O_2), measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only

	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018
Units 1-3	212766	208197	209366	211616	211833	166737	207352	198044	206891	207335	214000	212027
Unit 4	269683	235512	195673	229751	171640	237475	171643	173230	180096	197971	194958	181169
Unit 5	229567	242284	223021	312309	196668	222066	234834	221440	221288	220760	219888	222411
Unit 6	197864	204034	185755	Off	Off	Off	193197	189016	186582	188992	186853	195820

SO_2 emissions (mg/Nm^3): Average concentration per month (at 273 K, 101.3 kPa and 10% O_2), measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only

Limit 4000	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018
Units 1-3	2021	1671	1582	1875	2094	1831	2390	2127	1883	1587	2246	2036
Unit 4	2492	1938	1589	2112	1627	2023	1513	1447	1476	1350	1626	1628
Unit 5	2025	2003	1749	2562	1731	1966	2046	1906	1751	1827	1856	1850
Unit 6	1658	1508	1395	Off	Off	Off	1421	1385	1353	1406	1425	1540

SO_2 daily average emissions: AEL limit exceedances

Limit 3500	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 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_x emissions (mg/Nm^3): Average concentration per month (at 273 K, 101.3 kPa and 10% O_2), measured with the continuous emission monitoring system. NOTE: These are unverified values for information purposes only

Limit 1700	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018
Units 1-3	1030	763	760	932	956	838	1128	1074	858	851	1017	852
Unit 4	1539	1326	1042	1313	914	1269	914	894	896	970	872	752
Unit 5	975	1109	915	1291	759	938	949	892	982	936	859	753
Unit 6	746	741	657	Off	Off	Off	682	705	751	751	740	711

NO_x daily average emissions: AEL limit exceedances

Limit 1200	MAY 2017	JUN 2017	JUL 2017	AUG 2017	SEP 2017	OCT 2017	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018
Units 1-3	0	1	0	0	0	0	2	0	0	0	0	0
Unit 4	14	15	0	17	0	20	0	0	0	0	0	0
Unit 5	0	1	0	21	0	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/Nm3**	**mg/Nm3**	**mg/Nm3**
1, 2 & 3	17.23	200	29.50
4	60.23	200	121.08
5	42.98	100	92.10
6	28.94	100	58.39
Station	37.34		
YTD	37.34		

ABATEMENT APPARATUS AVAILABILITY

Unit		1	2	3	4	5	6	Station
Precipitator efficiency	%	Off	99.91	99.93	99.78	99.82	99.86	99.86
Precipitator availability	%	Off	99.92	99.87	99.40	99.35	99.65	99.64
SO_3 plant utilisation	%	Off	98.64	99.74	99.85	99.70	99.82	99.56

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	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
Station	0	0	0	0	0
YTD	0	0	0	0	0

5. DISCUSSION

Unit 1:

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

Unit 2:

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

Unit 3:

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

Unit 4:

The flue gas conditioning plant performed well during the month and emissions well below the AEL limit was recorded for the month.
The unit experienced a few precipitator field failures during the month which resulted in an increase in particulate emissions. The coal quality deteriorated during this period resulting in hopper levels.

Unit 5:

The flue gas conditioning plant performed well during the month and emissions well below the AEL limit was recorded for the month.
The unit experienced a few precipitator field failures during the month which resulted in an increase in particulate emissions. The coal quality deteriorated during this period resulting in hopper levels.
The unit also experienced a few SO3 flue gas conditioning plant failures but these were of a short duration and the impact on the particulate emissions was limited.

Unit 6:

The flue gas conditioning plant performed well during the month and emissions well below the AEL limit was recorded for the month.
The unit experienced a few precipitator field failures during the month which resulted in an increase in particulate emissions. The coal quality deteriorated during this period resulting in hopper levels.
The unit was taken off load on the 30th April 2017 at 22:30 for maintenance to repair a leaking Spraywater valve.

SO_3 common Plant:

The SO_3 flue gas conditioning plant tripped on the 1st April 2018 at 12:55. All of the SO_3 plants were back in service by 15:00 on the same day.

Gas Emissions:

The south stack O_2 analyser reading remained high. The OEM established that the sensor is faulty. The procurement process to replace the sensor has commenced. The O_2 reading is thus calculated based on the O_2/CO_2 balance.
The availability of the CEMS was good for the month of April 2018.

General:

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

6. LIGHT UP:

Unit:		
Fires in:		
Synchronisation:		
Emissions below Limit:		
Fires in to synchronisation:		Hours
Synchronisation to < Limit:		Hours

7. GRAPHS:

See attached graphs

8. COMPLAINTS

Name of complainant	Date	Description of complaint	Action taken
No Complaints			

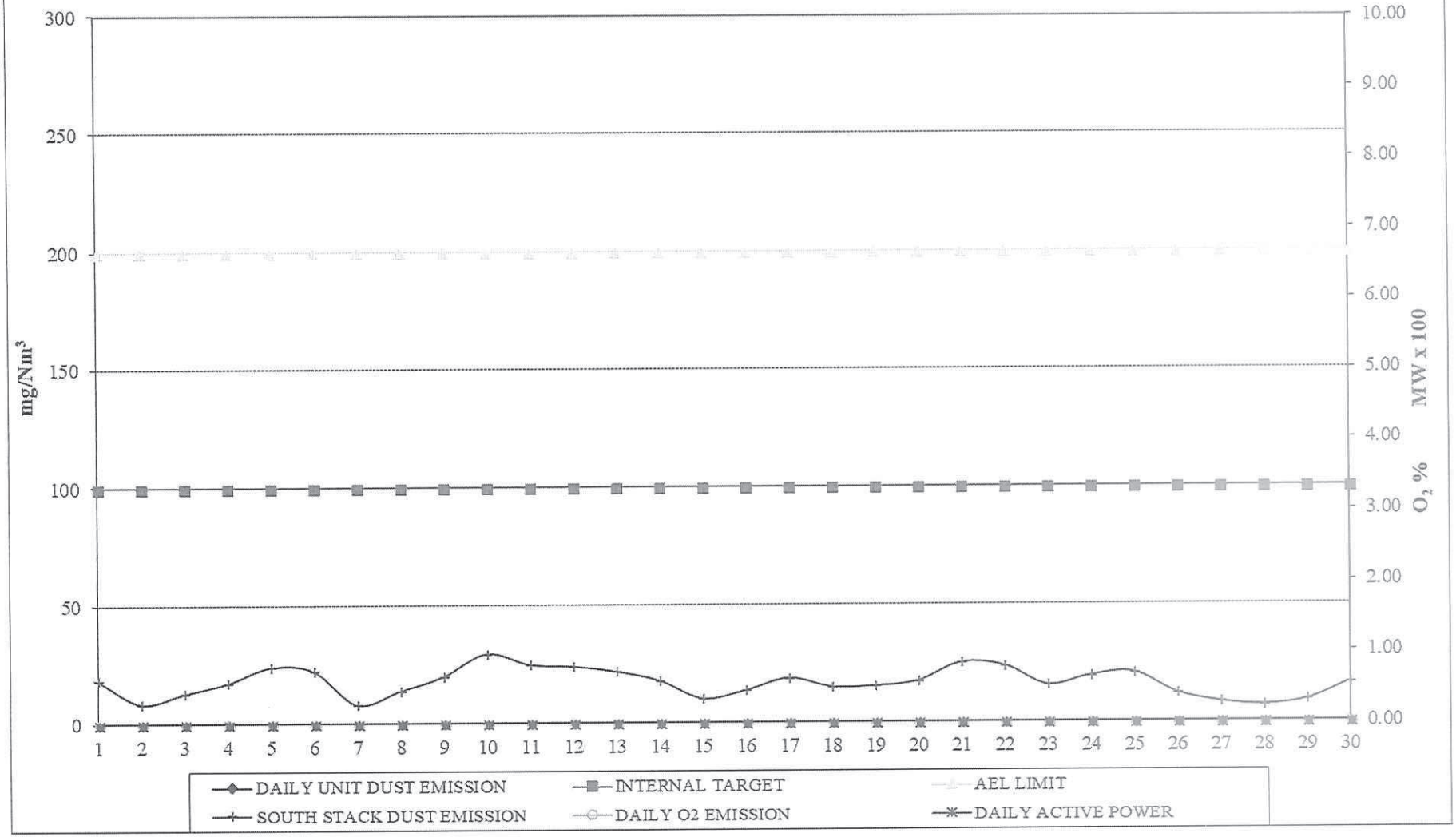
9. NOTIFICATION OF CONTRAVENTION OF EMISSION LICENCE CONDITIONS

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

FW Hofmann
BOILER PLANT ENGINEERING

Copies to: Licensing Authority
Power Station Manager (B Moyo)
Environmental Practitioner (M Mhlana) (R Mokobodi)
Engineering Manager (L Masote)
Boiler Plant Engineering Manager (J Makuleka)
Maintenance Manager (Acting)(A Mahlalela)
Unit Electrical Maintenance Manager (S Lesikara)
Operating Manager (T Gininda)
Production Manager (J Ngoepe) (J Khoza)
Outside Plant Maintenance Manager
Coal Manager (S Nkosi)
Megawatt Park, Corporate Consultant Air Pollution (E Patel, B Wernecke)
Plant Performance Units 1 to 6

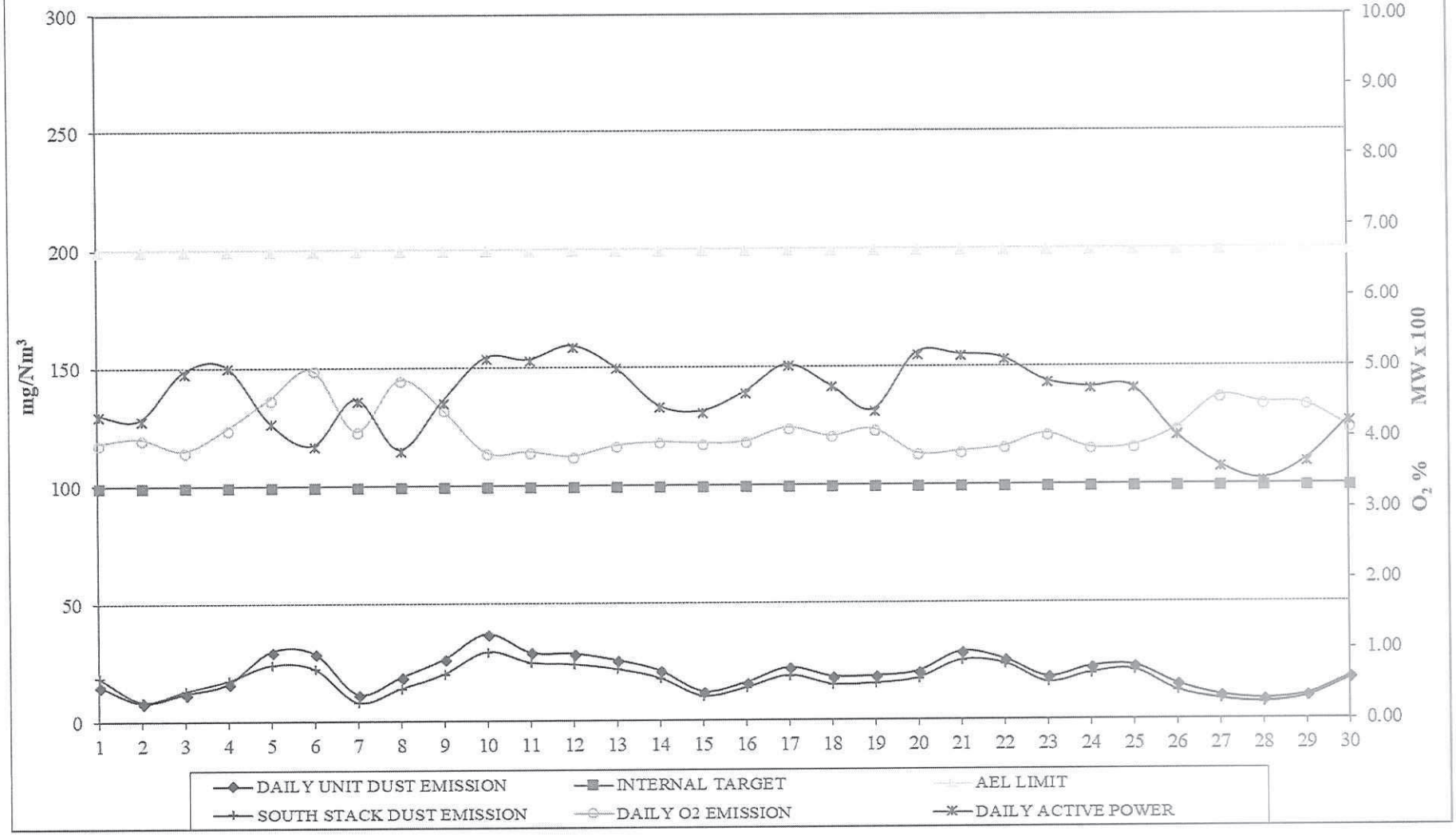
MATLA POWER STATION
UNIT 1 DUST EMISSION REPORT
APRIL 2018



MATLA POWER STATION

UNIT 2 DUST EMISSION REPORT

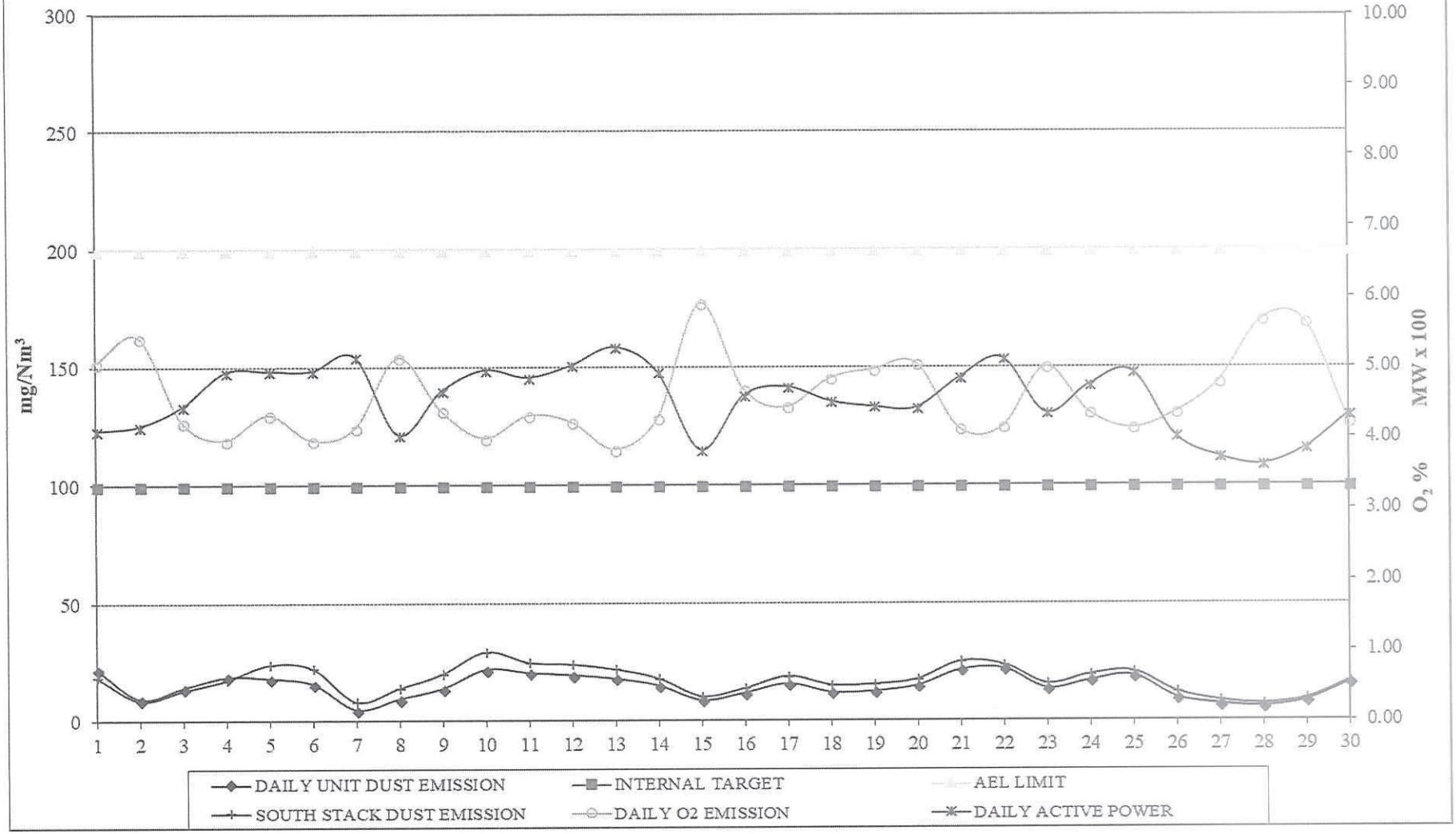
APRIL 2018



MATLA POWER STATION

UNIT 3 DUST EMISSION REPORT

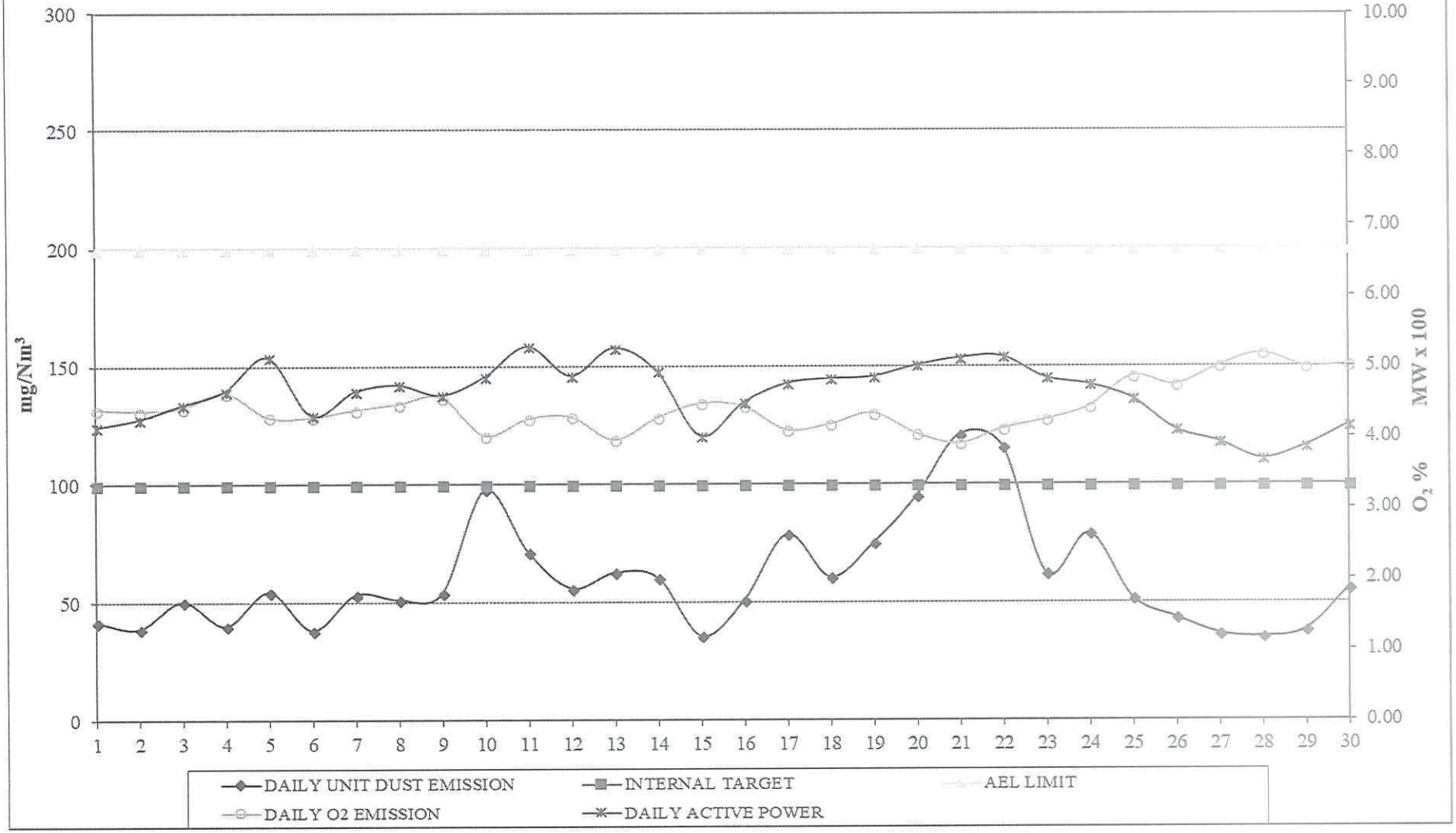
APRIL 2018



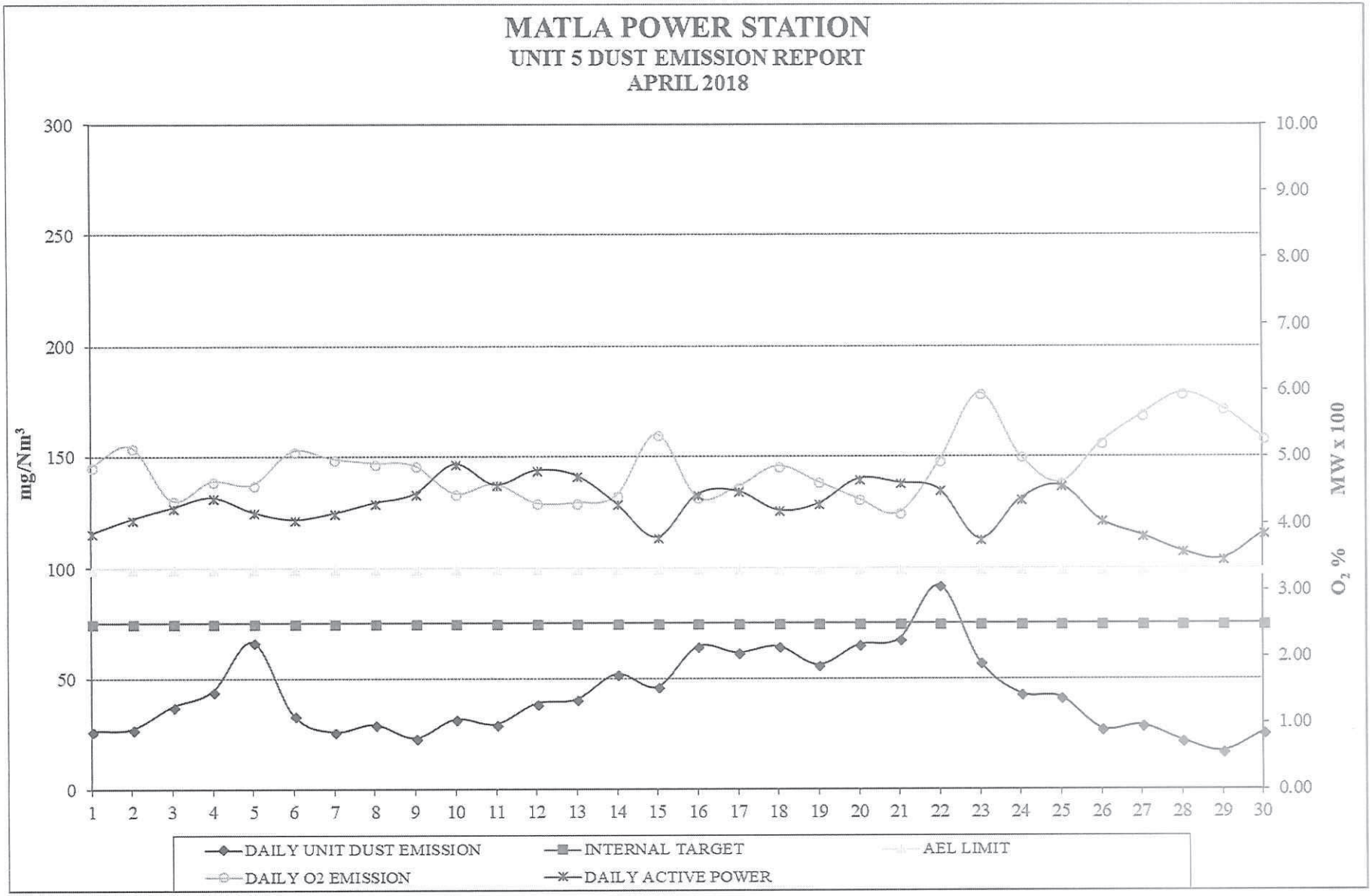
MATLA POWER STATION

UNIT 4 DUST EMISSION REPORT

APRIL 2018



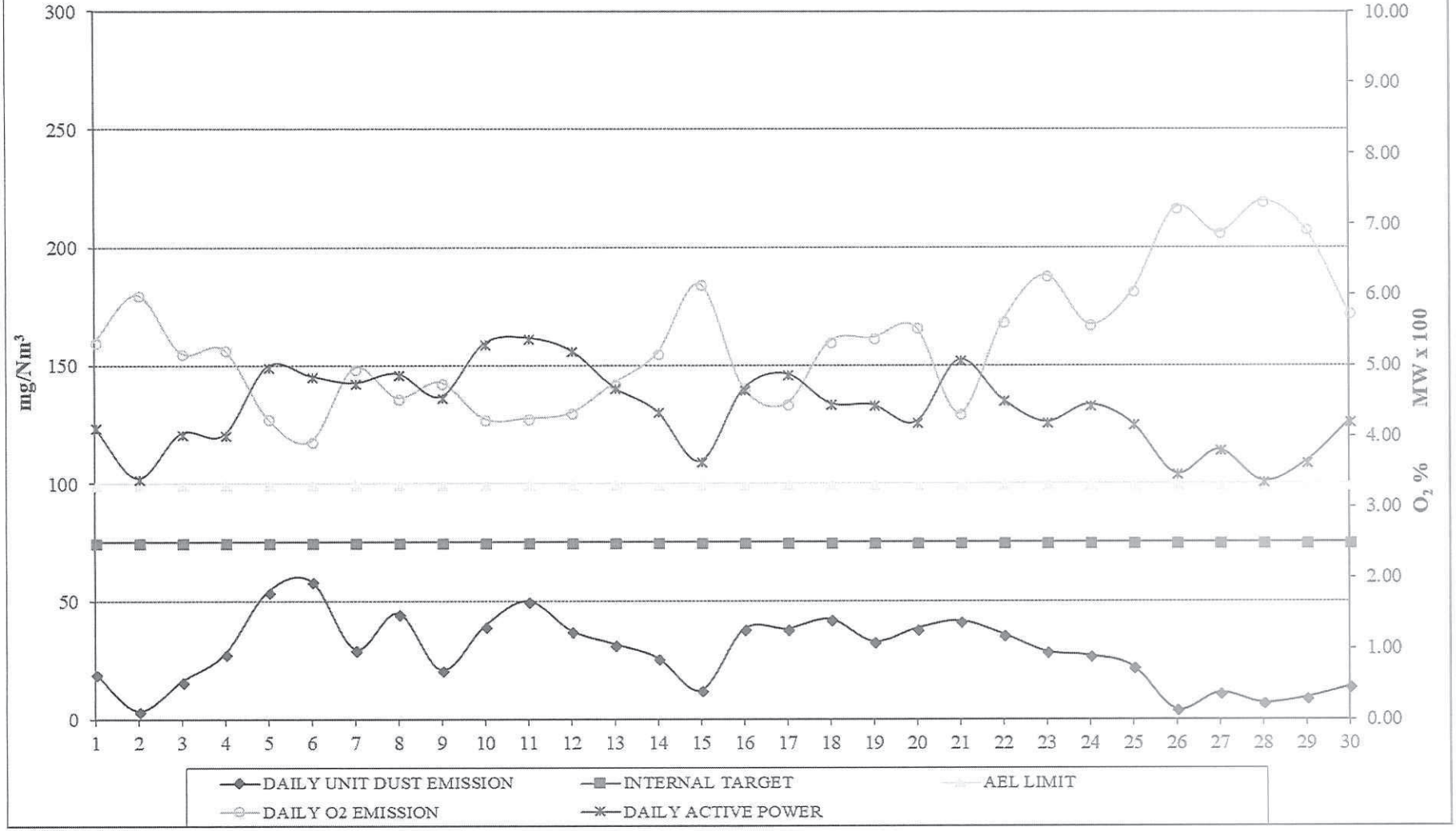
MATLA POWER STATION
UNIT 5 DUST EMISSION REPORT
APRIL 2018



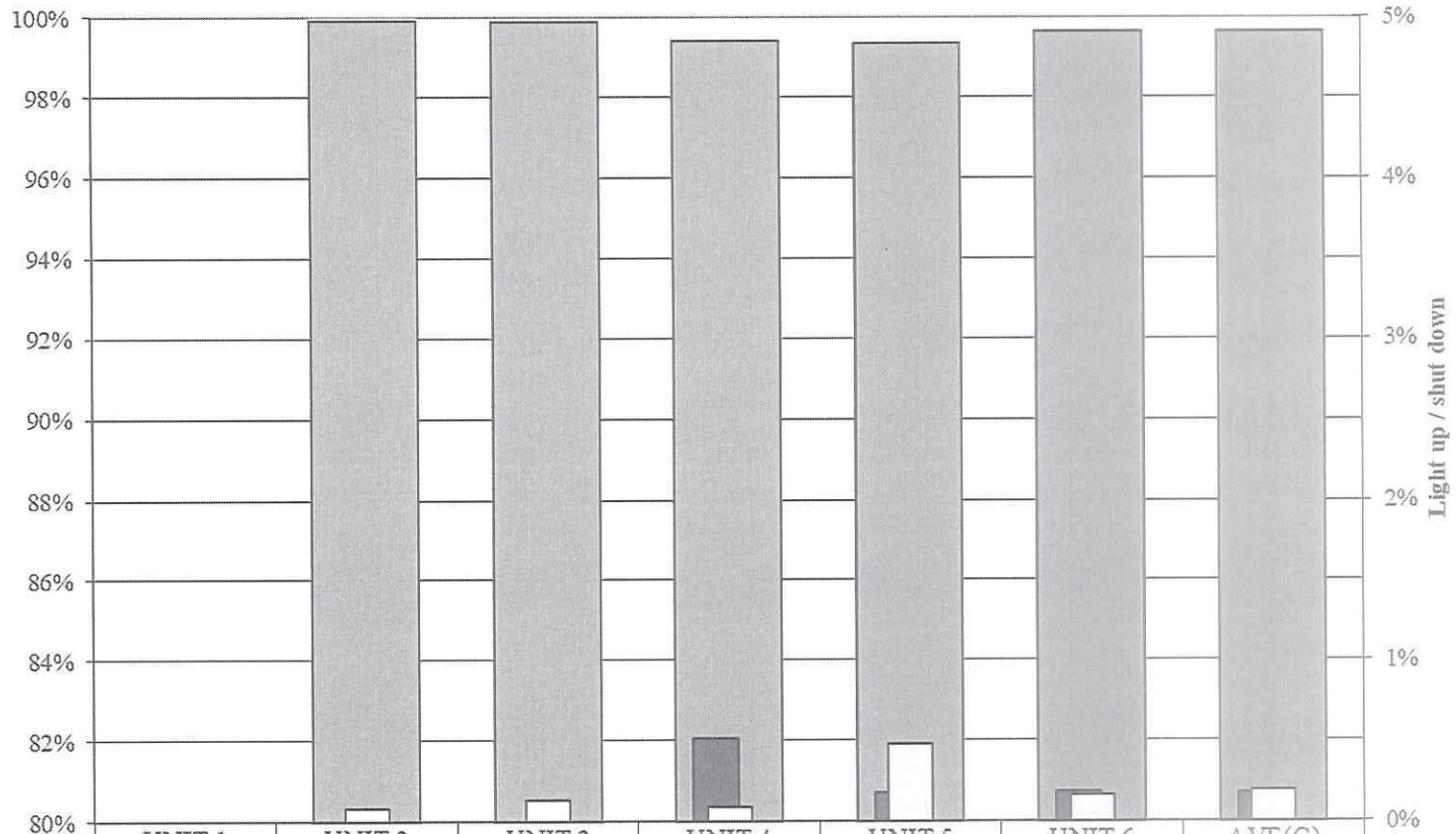
MATLA POWER STATION

UNIT 6 DUST EMISSION REPORT

APRIL 2018



MATLA POWER STATION
PRECIPITATOR RELIABILITY
APRIL 2018

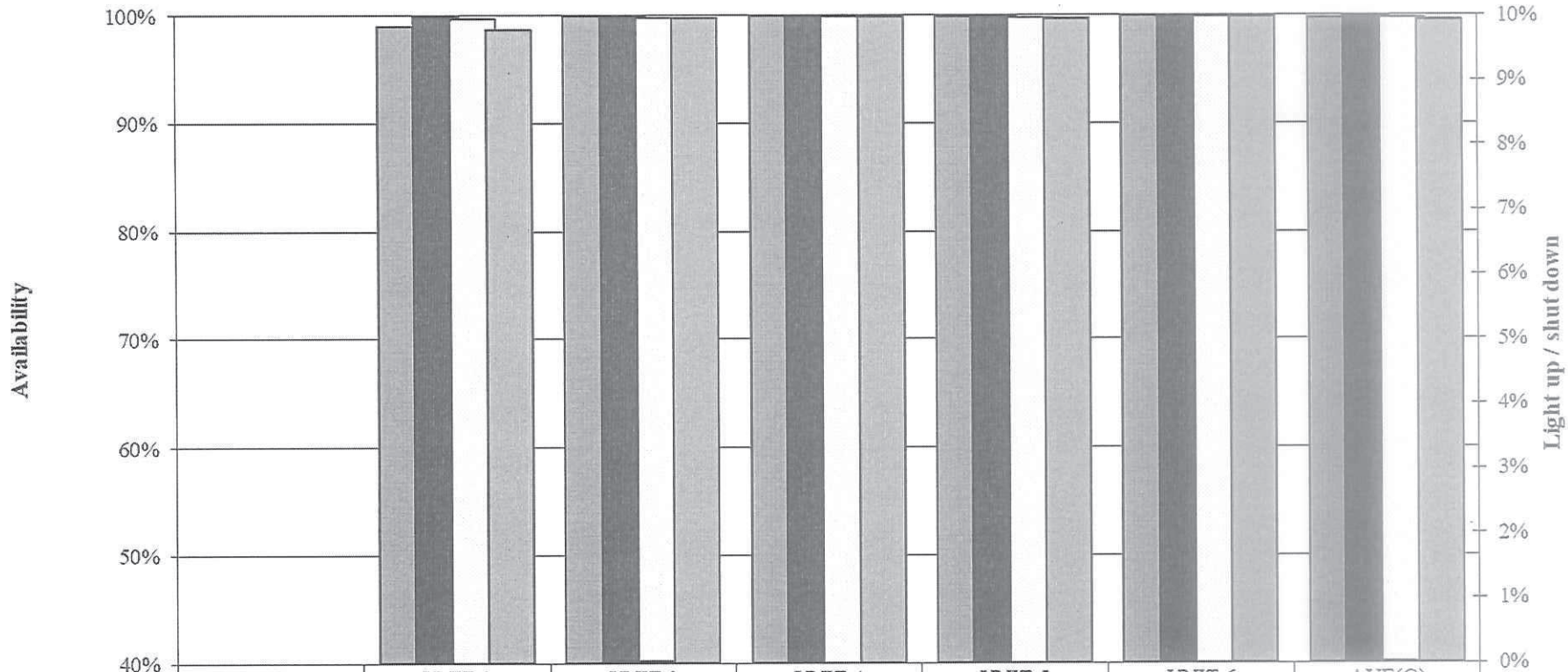


	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	UNIT 6	AVE(G)
Reliability		99.92%	99.87%	99.40%	99.35%	99.65%	99.64%
Loss due to hopper levels		0.00%	0.00%	0.51%	0.17%	0.18%	0.17%
Loss due to short term incidents		0.08%	0.13%	0.09%	0.47%	0.16%	0.19%
Loss due to Internal faults		0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

MATLA POWER STATION

SO_3 PLANT AVAILABILITY

APRIL 2018

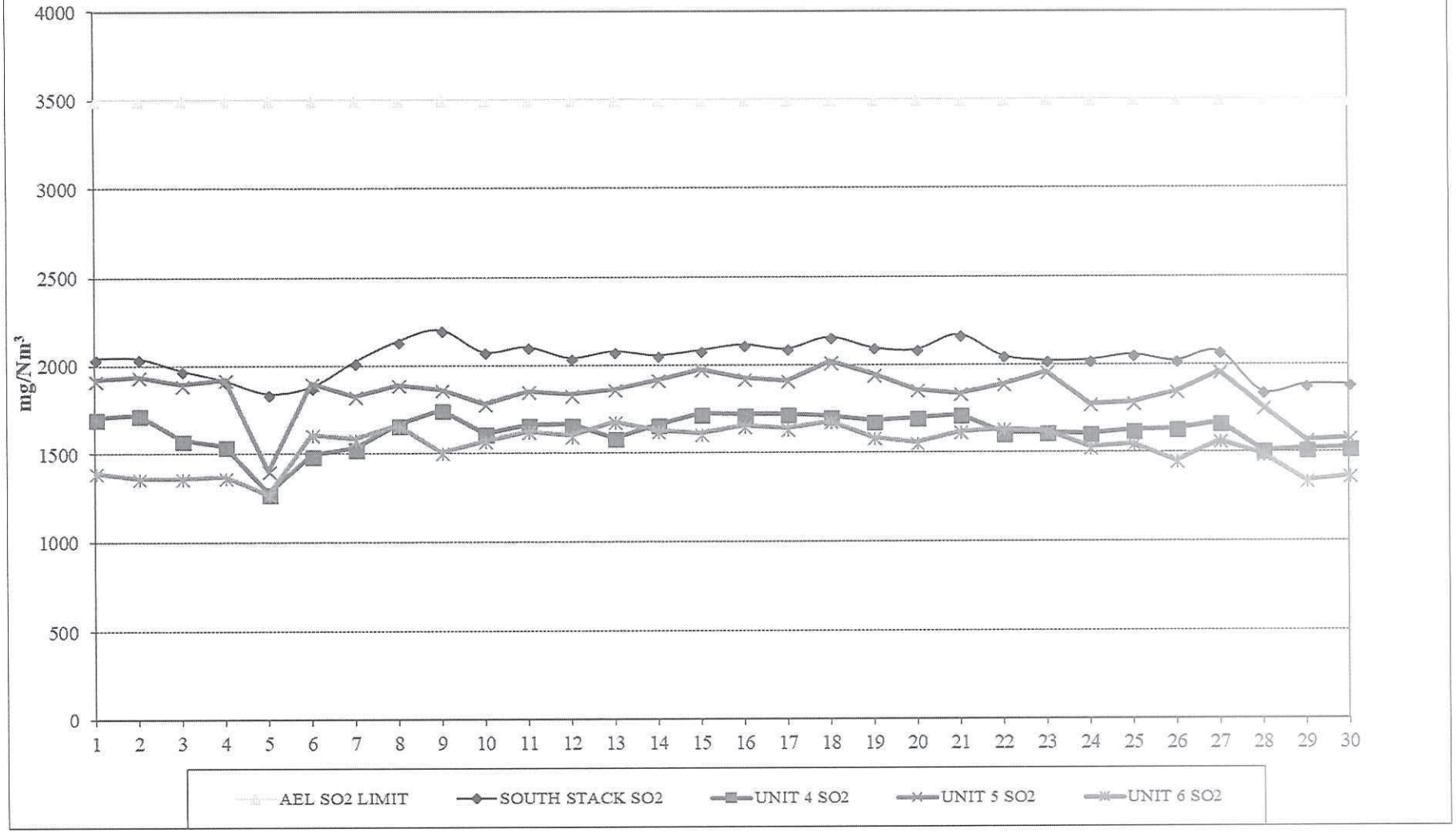


	UNIT 1	UNIT 2	UNIT 3	UNIT 4	UNIT 5	UNIT 6	AVE(G)
Unit Plant		98.96%	100.00%	100.00%	99.91%	100.00%	99.77%
Desuperheater		100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Common plant		99.72%	99.74%	99.85%	99.79%	99.82%	99.78%
SO3 Injection		98.68%	99.74%	99.85%	99.70%	99.82%	99.56%
Light-up/		0.00%	0.03%	0.00%	0.00%	0.00%	0.01%

MATLA POWER STATION

SMOKE STACK SO_2 EMISSION REPORT

APRIL 2018



MATLA POWER STATION

SMOKE STACK NO_2 EMISSION REPORT

APRIL 2018