



Department of Agriculture, Rural Development, Land and Environmental
Affairs
 The Director Pollution and Waste Management
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Date
 15th November 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 OCTOBER 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).

I. PARTICULATE EMISSIONS: MONTHLY TONNAGES.

	BLR	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
		2017	2017	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018
Monthly Tonnage	1	108 77	90 10	46 69	Off	Off	Off	Off	Off	Off	95 58	41 79	83 20
	2	99 27	84 35	165 43	57 98	60 80	28 57	44 25	74 24	74 20	69 81	61 67	77 79
	3	97 34	82 94	172 35	55 05	62 50	29 56	35 97	86 14	79 36	173 07	71 28	60 47
	4	165 67	173 61	188 43	166 34	132 22	87 07	123 63	67 06	56 07	45 66	106 44	131 91
	5	74 42	49 59	82 97	68 06	97 63	61 14	83 25	90 26	45 00	73 61	43 41	63 55
	6	5 37	22 74	53 43	62 15	50 91	52 66	44 17	47 93	46 24	74 64	15 76	96 98
	Station	550 84	503 33	709 30	409 57	404 02	258 99	331 28	365 62	300 89	532 34	340 36	513 89
GWhSO		1802 7	1998 5	1783 6	1562 9	1733 7	1594 2	1627 7	1491 5	1398 1	1368 0	1550 7	1890 6

Generation Division (Operating Unit Coal 2)
 Matla Power Station SA
 DeLmas Road
 Private Bag X 5012, Kriel, 2271 SA
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2. COAL AND LOAD FACTOR:

STATION		NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018	MAY 2018	JUN 2018	JUL 2018	AUG 2018	SEP 2018	OCT 2018
Load Factor		83.88	85.33	82.96	88.34	86.45	78.39	89.58	76.24	72.31	71.04	78.96	82.42
Ash Content	%	24.11	29.57	27.15	23.3	26.41	25.3	27.70	27.92	27.6	30.93	31.33	25.43
Sulphur Content	%	1.0	1.0	1.0	0.95	0.90	0.99	1.2	1.00	1.00	1.00	1.00	1.00
Total Moisture	%	10.69	9.64	9.43	9.60	9.57	9.21	9.7	9.47	9.43	7.91	8.03	6.69

3. GASEOUS EMISSIONS:

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

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

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

	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018	MAY 2018	JUN 2018	JUL 2018	AUG 2018	SEP 2018	OCT 2018
Units 1-3	10.46	10.31	8.25	6.95	7.84	6.62	7.68	6.18	6.34	6.02	8.74	9.30
Unit 4	3.38	3.71	2.89	2.85	3.16	3.29	3.94	3.18	3.22	2.07	2.81	2.95
Unit 5	3.15	3.50	3.31	3.02	3.51	3.07	3.95	2.77	1.67	2.77	2.82	3.33
Unit 6	0.44	2.80	3.70	2.46	3.13	3.15	3.93	2.99	2.89	2.75	1.03	3.74
All Units	17.43	20.32	18.15	15.28	17.64	16.12	19.50	15.12	14.13	13.61	15.40	19.32

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

	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018	MAY 2018	JUN 2018	JUL 2018	AUG 2018	SEP 2018	OCT 2018
Units 1-3	3.28	3.23	2.59	2.18	2.46	2.07	2.01	1.94	1.99	1.88	2.74	2.91
Unit 4	1.06	1.16	0.91	0.89	0.99	1.03	1.03	1.00	1.01	0.65	0.88	0.92
Unit 5	0.99	1.10	1.04	0.95	1.10	0.96	1.03	0.87	0.52	0.87	0.88	1.04
Unit 6	0.14	0.88	1.16	0.77	0.98	0.99	1.03	0.94	0.91	0.86	0.32	1.17
All Units	5.46	6.37	5.69	4.79	5.53	5.05	5.09	4.74	4.43	4.26	4.82	6.05

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

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

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

	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018	MAY 2018	JUN 2018	JUL 2018	AUG 2018	SEP 2018	OCT 2018
Units 1-3	12 65	9 94	7 15	5 55	8 31	6 73	6 64	6 72	6 43	6 26	8 84	9 70
Unit 4	2 51	2 43	1 61	1 81	2 28	2 18	1 96	1 86	1 84	1 15	1 83	2 13
Unit 5	3 05	2 89	2 54	2 57	2 74	2 61	2 58	2 12	1 13	2 26	2 58	2 77
Unit 6	0 14	1 06	1 44	1 03	1 22	2 73	2 65	2 40	2 38	2 18	0 80	2 81
All Units	18 36	16 33	12 74	10 96	14 55	14 26	13 83	13 10	11 79	11 85	14 06	17 41

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

	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018	MAY 2018	JUN 2018	JUL 2018	AUG 2018	SEP 2018	OCT 2018
Units 1-3	5 98	5 03	3 26	2 98	3 78	2 82	2 47	2 61	2 48	2 27	3 48	4 40
Unit 4	1 53	1 52	0 98	1 30	1 26	1 01	0 84	0 87	0 81	0 53	0 79	1 00
Unit 5	1 41	1 35	1 43	1 32	1 28	1 06	1 02	0 90	0 37	0 70	0 91	0 95
Unit 6	0 07	0 54	0 79	0 55	0 63	1 25	1 10	1 19	1 11	0 89	0 33	1 27
All Units	8 99	8 44	6 46	6 15	6 95	6 15	5 43	5 57	4 77	4 40	5 52	7 62

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

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

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	NOV 2017	DEC 2017	JAN 2018	FEB 2018	MAR 2018	APR 2018	MAY 2018	JUN 2018	JUL 2018	AUG 2018	SEP 2018	OCT 2018
4000	2017	2017	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018
Units 1-3	2390	2127	1883	1587	2246	2036	2153	2203	2116	2129	2096	2232
Unit 4	1513	1447	1476	1350	1626	1628	1685	1590	1761	1614	1791	1697
Unit 5	2046	1906	1751	1827	1856	1850	1797	1656	1533	1658	2033	1995
Unit 6	1421	1385	1353	1406	1425	1540	1620	1529	1554	1572	1361	1552

SO₂ daily average emissions: AEL limit exceedances

Limit	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
3500	2017	2017	2018	2018	2018	2018	2018	2018	2018	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_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	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1700	2017	2017	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018
Units 1-3	1128	1074	858	851	1017	852	797	853	806	770	823	1028
Unit 4	914	894	896	970	872	752	713	735	773	745	772	799
Unit 5	949	892	982	936	859	753	708	703	493	519	719	675
Unit 6	682	705	751	751	740	711	674	757	717	646	564	702

NO_x daily average emissions: AEL limit exceedances

Limit	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT
1200	2017	2017	2018	2018	2018	2018	2018	2018	2018	2018	2018	2018
Units 1-3	2	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

4. PARTICULATE EMISSION PERFORMANCE

UNIT	MONTH AVERAGE EMISSIONS	AEL LIMIT(DAILY AVERAGE)	HIGHEST DAILY AVERAGE
	mg/Nm ³	mg/Nm ³	mg/Nm ³
1, 2 & 3	49 88	200	102 05
4	97 04	200	195 22
5	42 94	100	97 46
6	53 67	100	176 22
Station	60 88		
YTD	52 96		

ABATEMENT APPARATUS AVAILABILITY

Unit		1	2	3	4	5	6	Station
Precipitator efficiency	%	99 81	99 84	99 86	99 65	99 85	99 79	99 80
Precipitator availability	%	100 00	99 27	99 20	95 58	98 40	99 27	98 49
SO ₃ plant utilisation	%	99 56	99 58	98 54	98 92	99 63	99 89	99 35

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	0	0	0	0	0
5	0	0	0	0	0
6	3	1	2	0	0
Station	3	1	2	0	0
YTD	26	5	14	4	3

5. DISCUSSION

Unit 1:

The flue gas cleaning plant performed well with emissions well below the AEL limit recorded for the month

Minor incidents with the SO₃ flue gas conditioning plant was experienced with little impact on the particulate emissions

Unit 2:

The unit was taken off load on the 27th September 2018 at 12 14 for boiler tube leak repairs. The unit returned to service on the 4th October 2018 at 14 58. The opportunity was utilised to carry out minor precipitator repairs

Some precipitator field failures were experienced during the month. Particulate emissions well below the AEL limit was recorded for the month

Unit 3:

A few incidents of SO₃ flue gas conditioning plant failures were reported during the month but in general these incidents were of a short duration with limited impact on the particulate emissions

The unit was taken off load on the 20th October 2018 at 21:58 for boiler tube leak repairs. The unit remained off load for a planned outage

Emissions well below the AEL limit was recorded for the month

Unit 4:

The unit was taken off load on the 6th October 2018 at 04 22 for boiler tube leak repairs. The unit returned to service on the 9th October 2018 at 06:27

The unit experienced a substantial number of precipitator field failures due to full dust hoppers during the month. This had a negative impact on the particulate emissions and as a result elevated emissions were recorded for the month

The SO₃ flue gas conditioning plant failed several times during the month adding to the elevated emission

Unit 5:

The flue gas conditioning plant performed well during the first half of the month, but deteriorated towards the end of the month. A gradual increase in particulate emissions as from the 22nd October was noted, attributed to high dust hopper levels. The SO₃ flue gas conditioning plant failed a few times during the month adding to the emission.

Unit 6:

The unit returned to service on the 1st October 2018 at 04:45 following boiler tube leak repairs. The unit experienced dust line blockages as from the 12th October 2018 resulting in an increase in dust hopper levels. This caused several field failures resulting in AEL exceedances on the 15th and 16th October 2018. The left hand draught group tripped on the 17th October 2018 at 10:50 followed by a unit tripped on the 17th October 2018 at 14:56. The unit returned to service on the 17th October 2018 at 18:28. The reduced burden of dust presented the opportunity to lower the dust hopper levels resulting in reduced emission as from the 18th October 2018.

SO₃ common Plant:

The SO₃ common plant tripped on the 30th October 2018 at 13:35 when the power supply to the de-superheater was lost. The power supply was restored and all plants were back in service by 14:10.

Gas Emissions:

The south stack O₂ analyser reading remained high. The OEM established that the sensor is faulty. The procurement process to replace the sensor has commenced. The O₂ reading is thus calculated based on the O₂/CO₂ balance. The availability of the CEMS was good for the month of October 2018. The gas emissions measured by the CEMS was well below the AEL limit for the duration of the month.

General:

The coal quality supplied to the station remained poor during the month, impacting negatively on the particulate emissions. The change in coal quality negatively impacted on the dust handling plant due to the change in dust particle size and density.

6. LIGHT UP:

Unit	6	
Fires in	17.15	30 September 2018
Synchronisation	04 45	1 October 2018
Emissions below Limit.	17 16	1 October 2018
Fires in to synchronisation	11.30	Hours
Synchronisation to < Limit.	12 31	Hours

Unit	2	
Fires in.	09 00	4 October 2018
Synchronisation	14 58	4 October 2018
Emissions below Limit.	19 24	4 October 2018
Fires in to synchronisation	5.58	Hours
Synchronisation to < Limit	4 26	Hours

Unit.	4	
Fires in	00:30	9 October 2018
Synchronisation	06.51	9 October 2018
Emissions below Limit	10:48	9 October 2018
Fires in to synchronisation	6.21	Hours
Synchronisation to < Limit.	3 57	Hours

Unit	6	
Fires in	16.15	17 October 2018
Synchronisation	18.28	17 October 2018
Emissions below Limit	20 37	17 October 2018
Fires in to synchronisation	2 13	Hours
Synchronisation to < Limit	2 09	Hours

7. GRAPHS:

See attached graphs

8. COMPLAINTS

Name of complainant	Date	Description of complaint	Action taken
No Complaints			

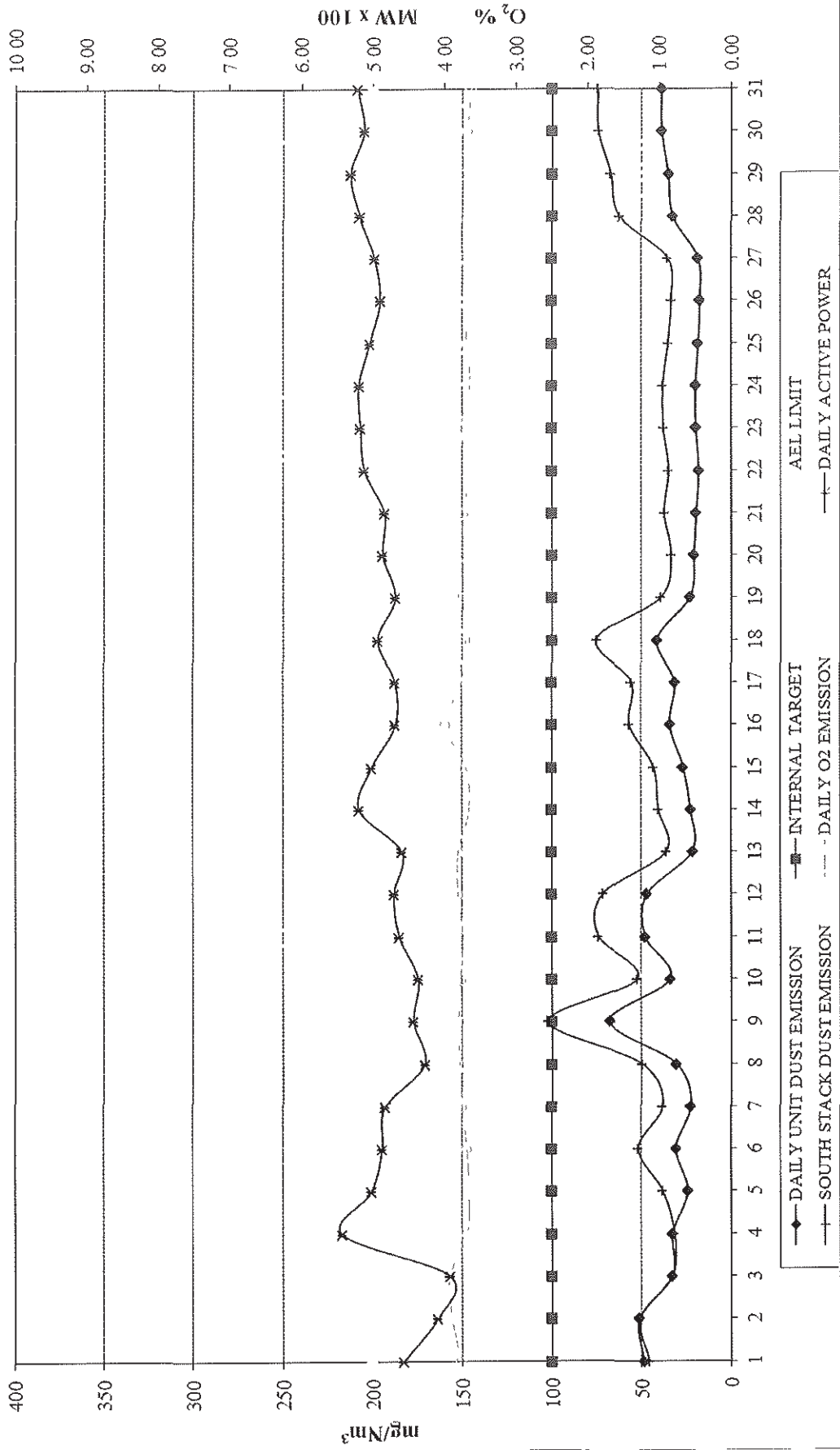
9. NOTIFICATION OF CONTRAVENTION OF EMISSION LICENCE CONDITIONS

<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:

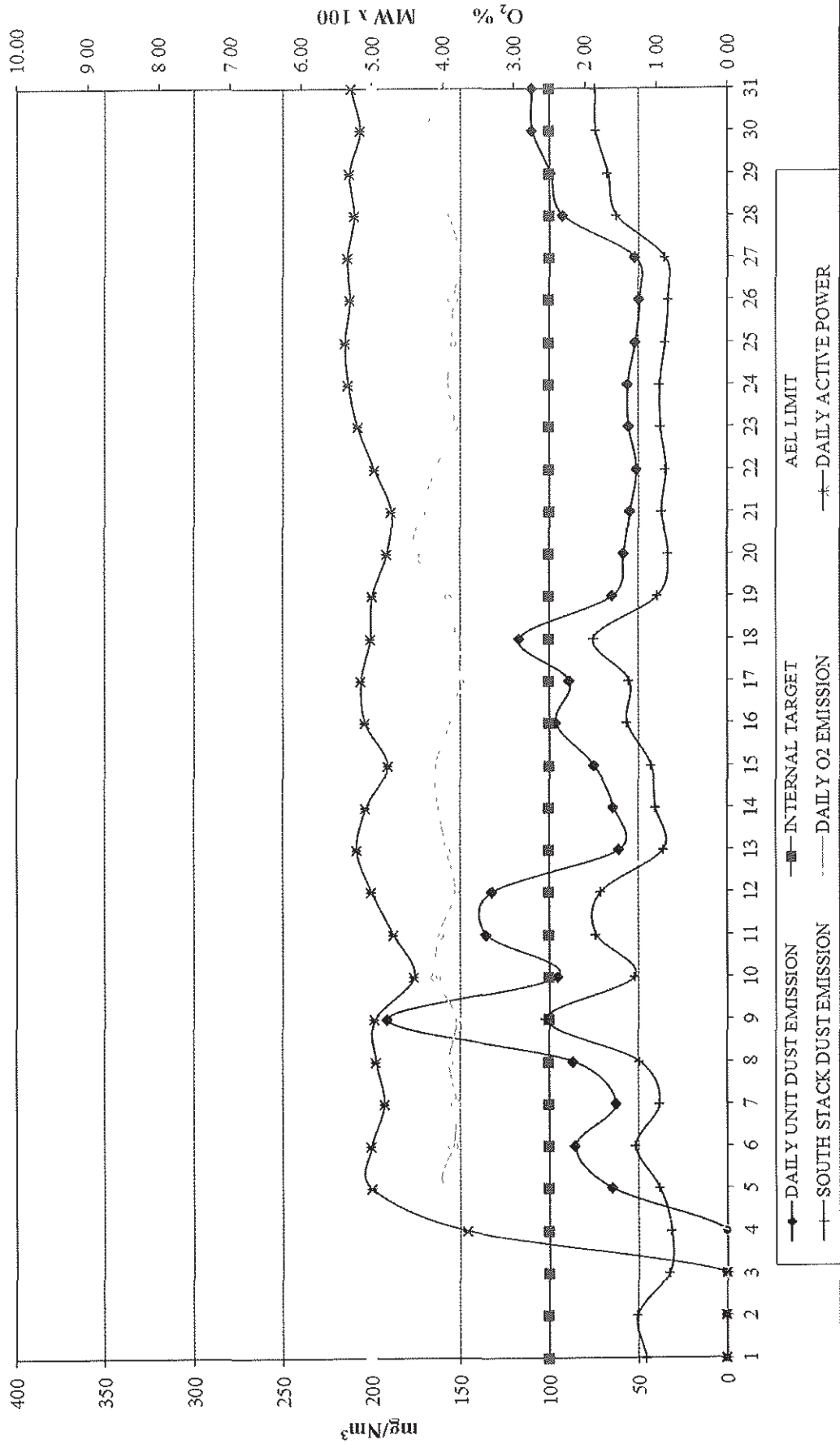
BOILER PLANT ENGINEERING

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

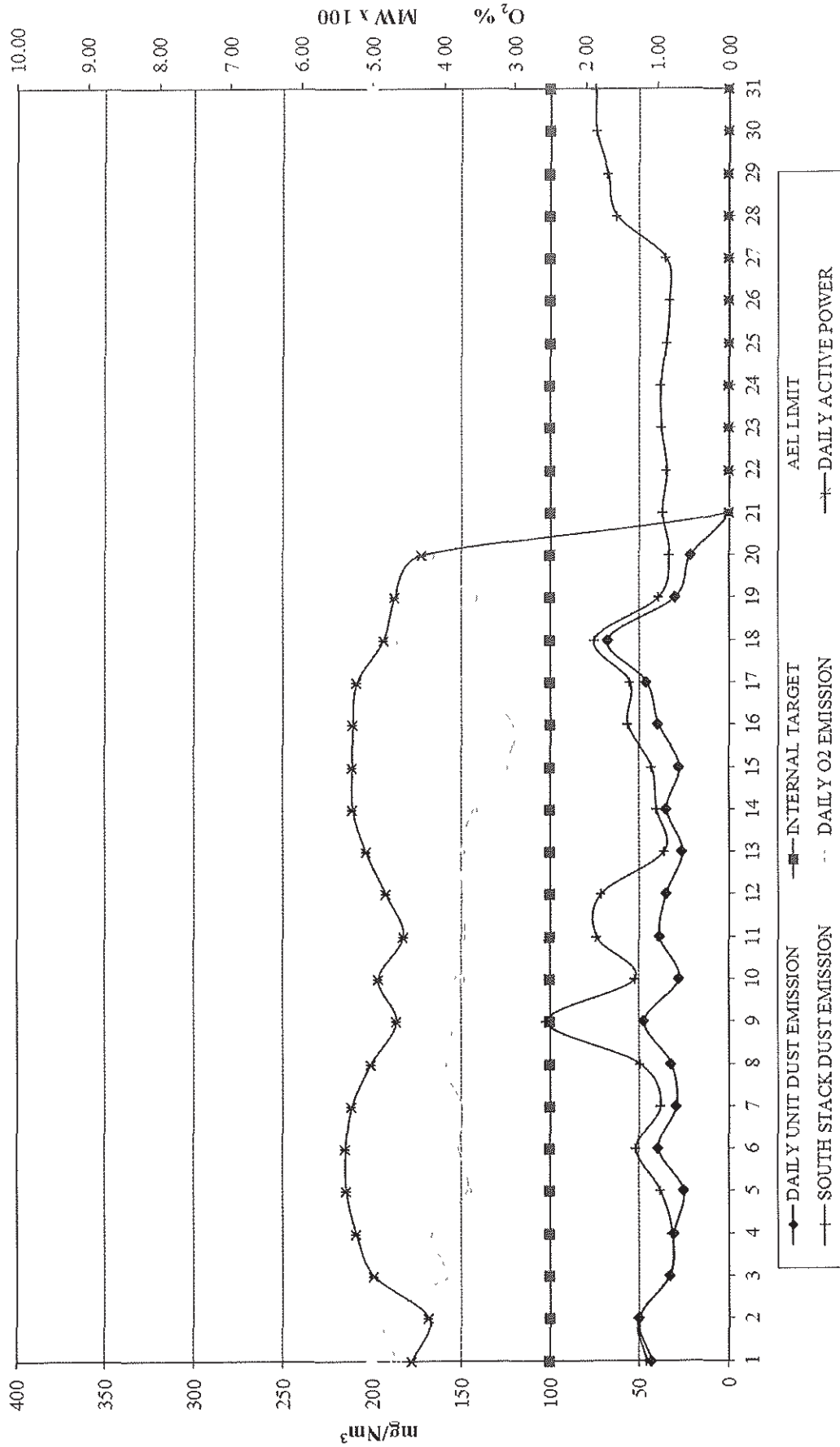
**MATLA POWER STATION
UNIT 1 DUST EMISSION REPORT
OCTOBER 2018**



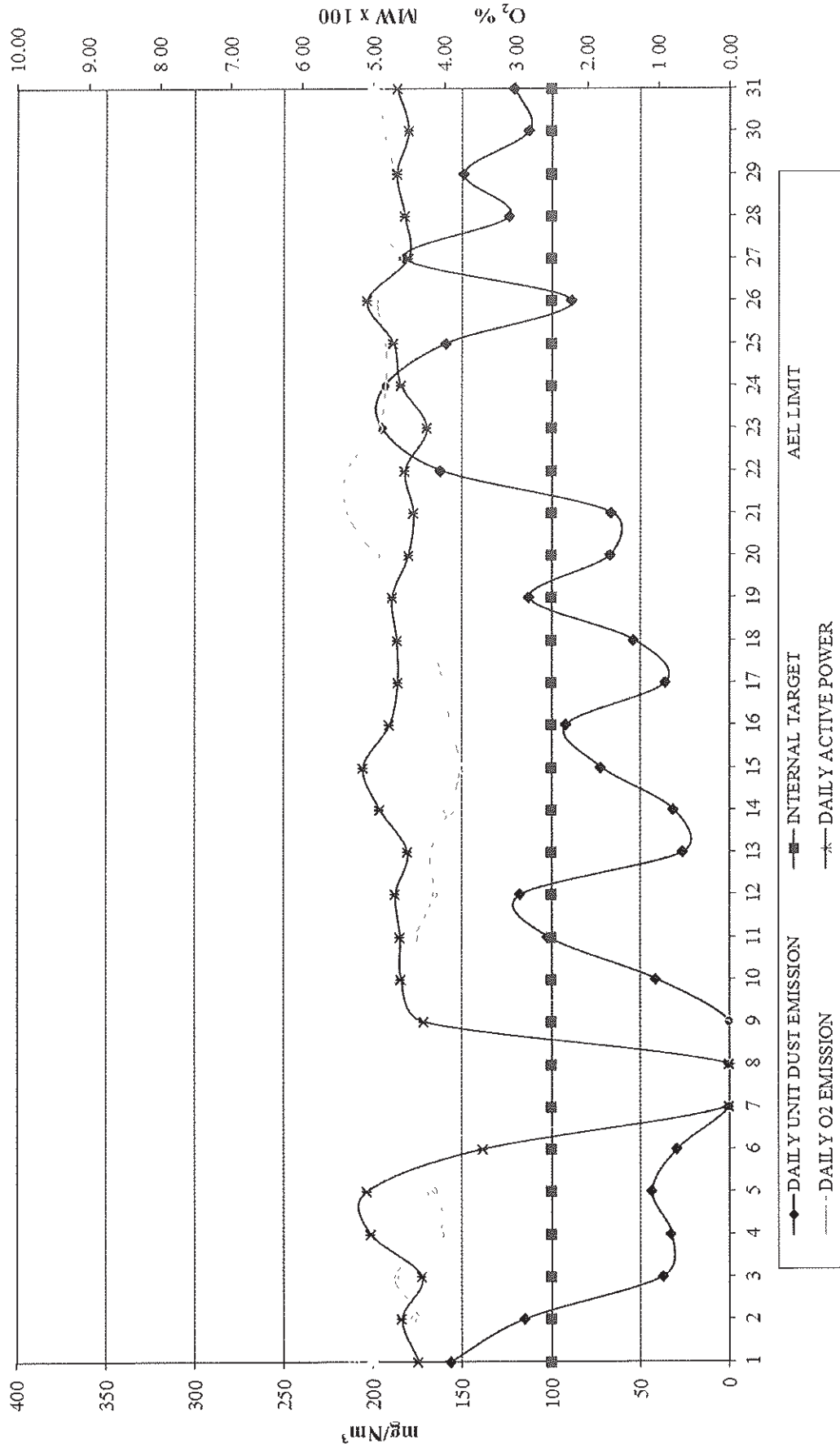
**MATLA POWER STATION
UNIT 2 DUST EMISSION REPORT
OCTOBER 2018**



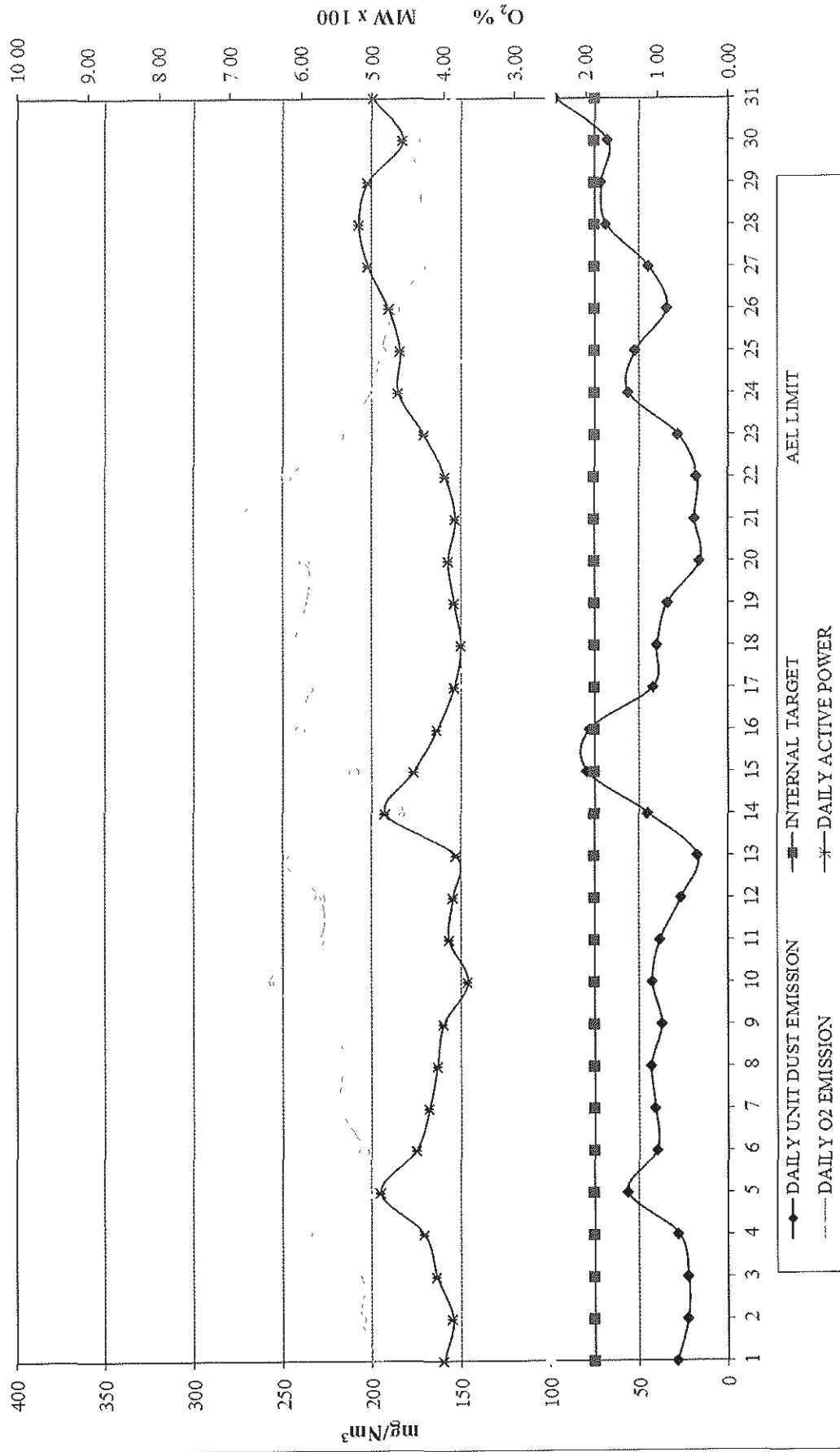
**MATLA POWER STATION
UNIT 3 DUST EMISSION REPORT
OCTOBER 2018**



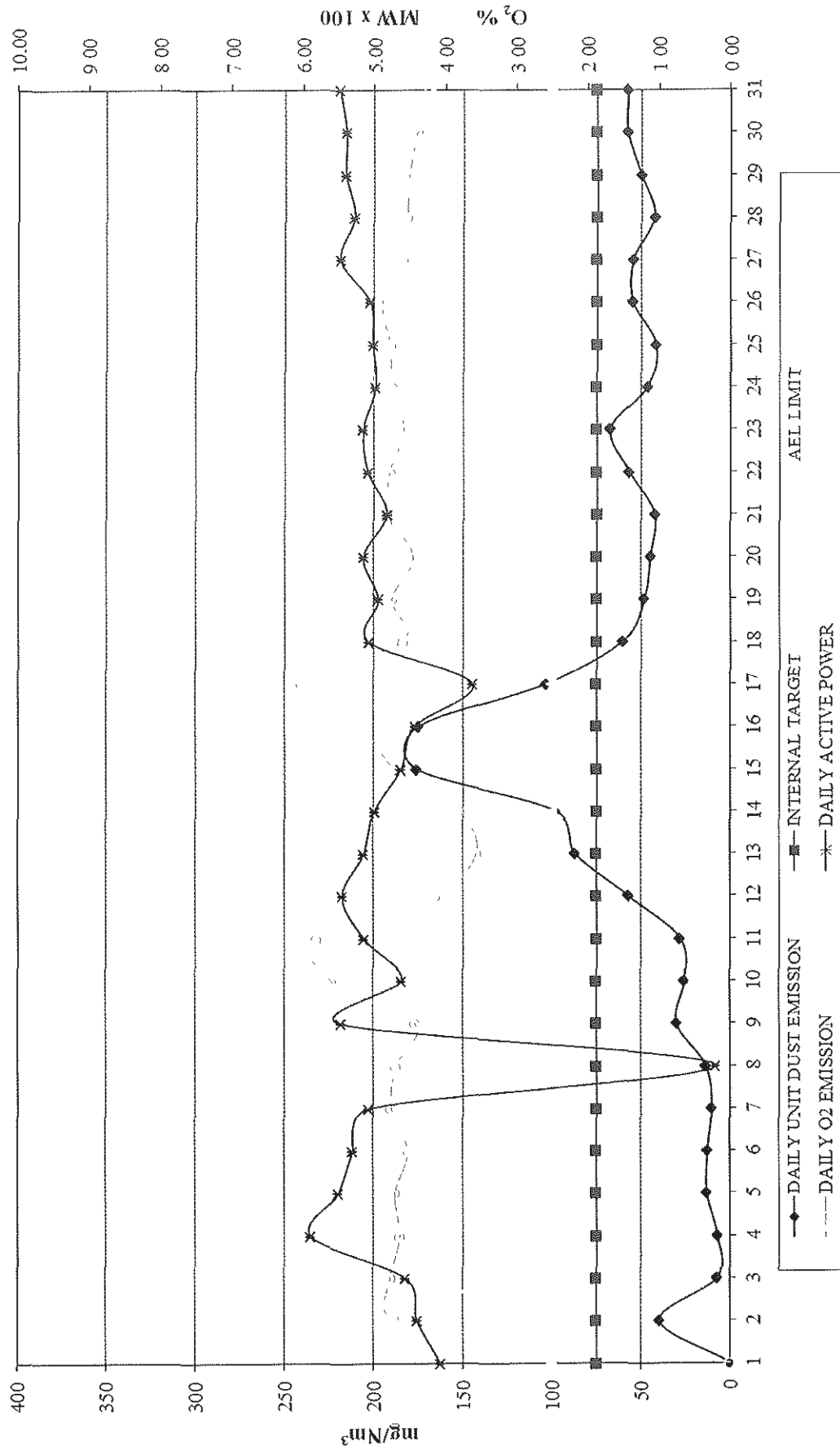
**MATLA POWER STATION
UNIT 4 DUST EMISSION REPORT
OCTOBER 2018**



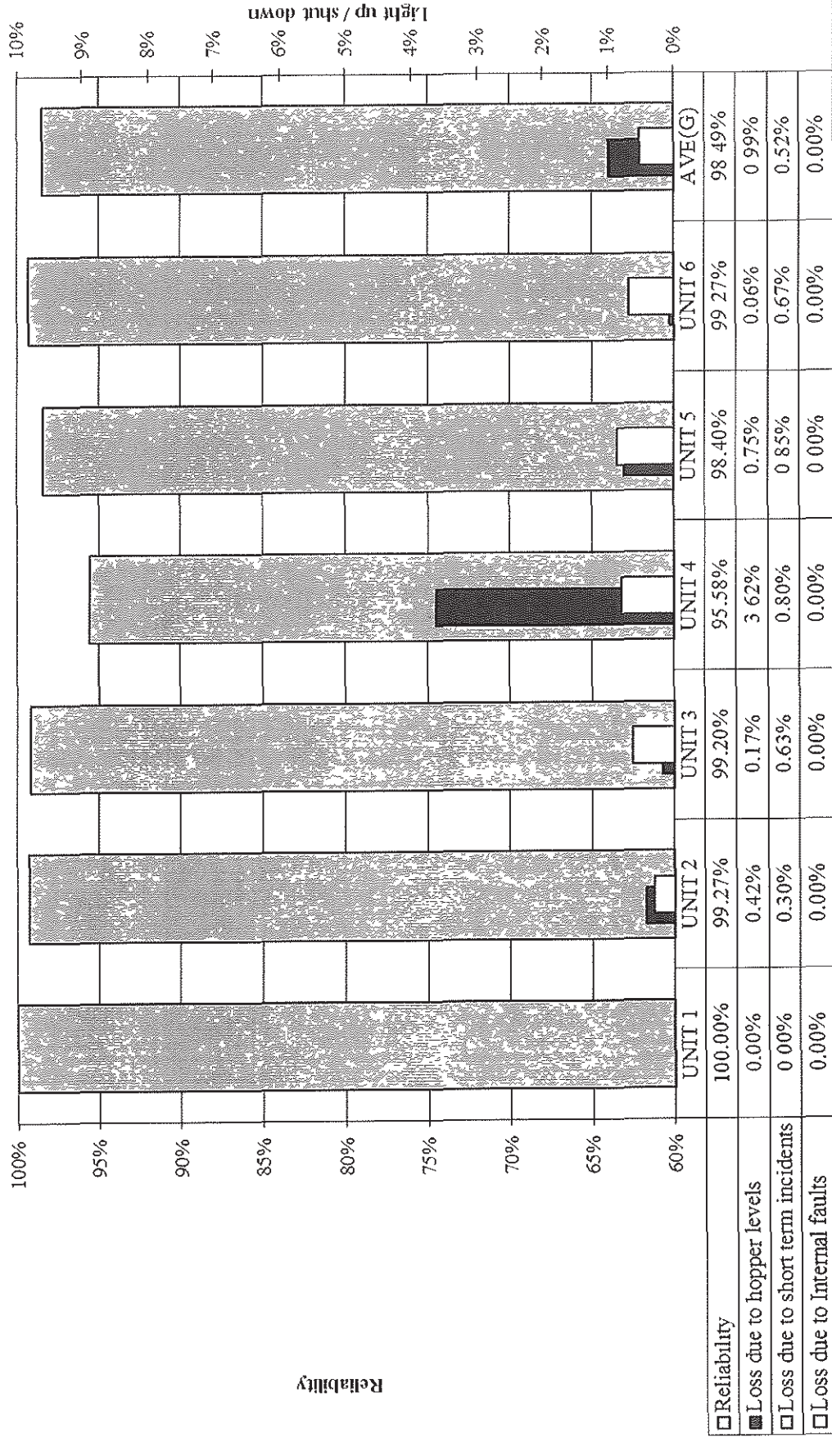
**MATLA POWER STATION
UNIT 5 DUST EMISSION REPORT
OCTOBER 2018**



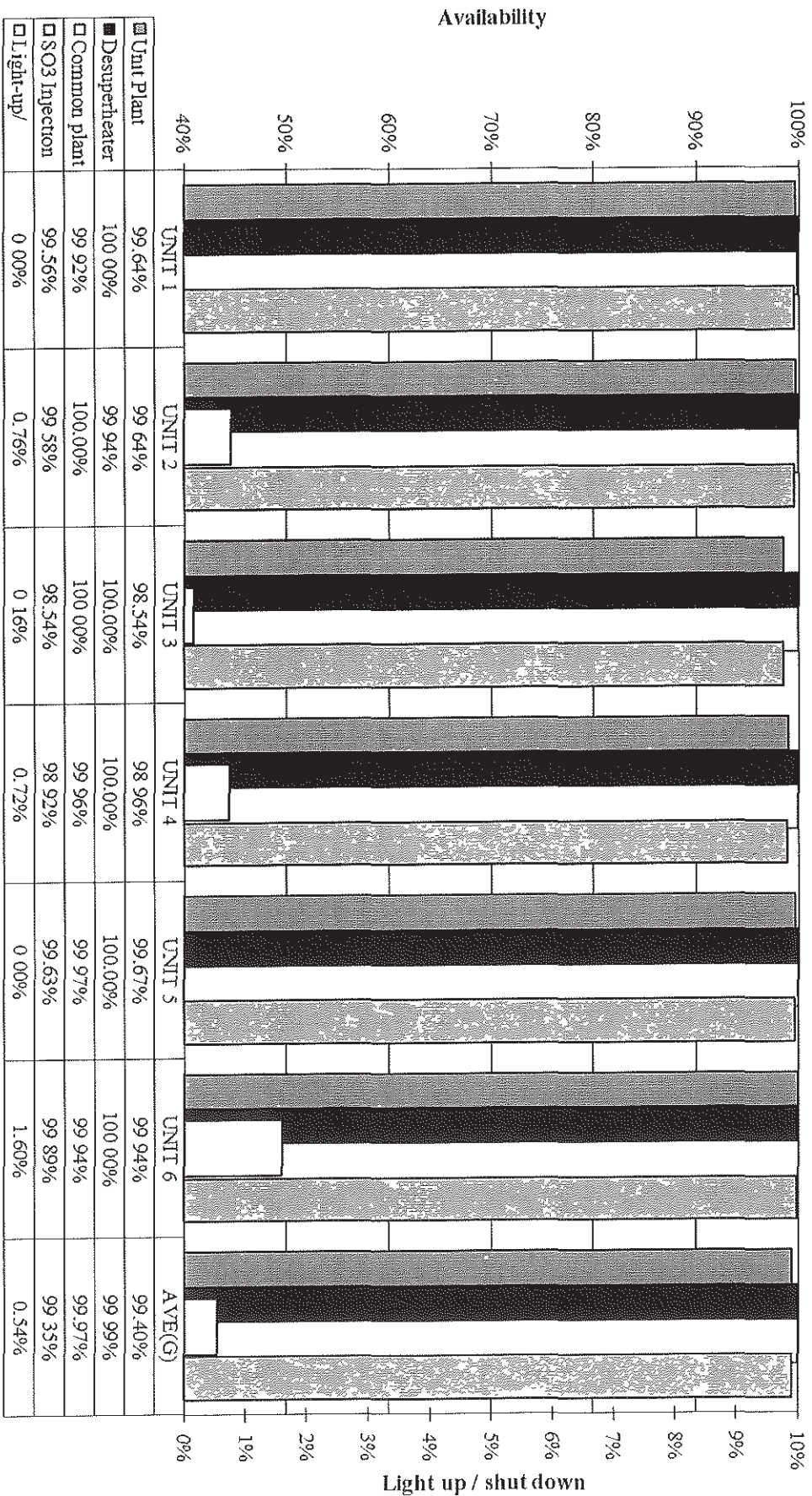
**MATLA POWER STATION
UNIT 6 DUST EMISSION REPORT
OCTOBER 2018**



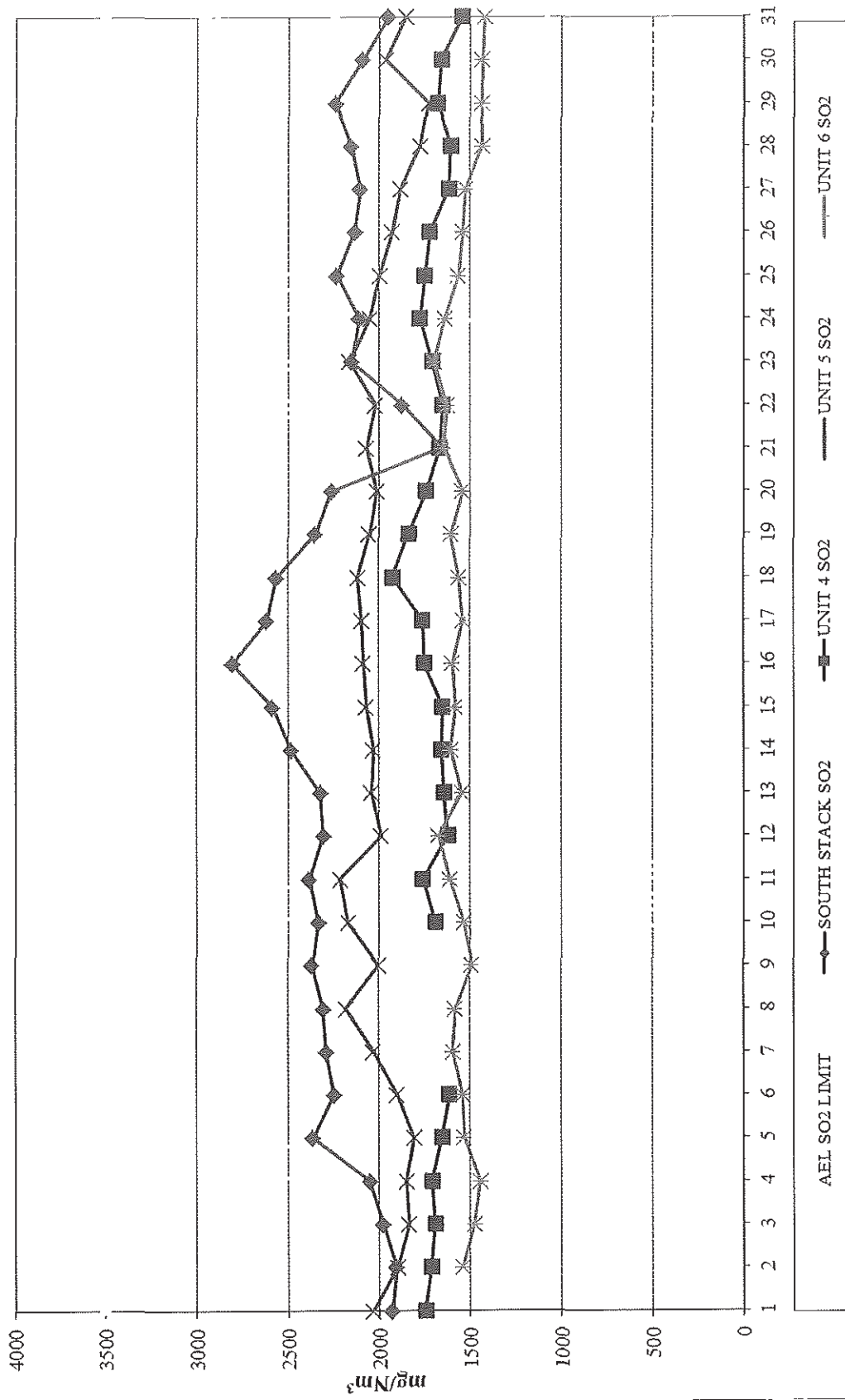
**MATLA POWER STATION
PRECIPITATOR RELIABILITY
OCTOBER 2018**



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



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



MATLA POWER STATION
SMOKE STACK NOx EMISSION REPORT
OCTOBER 2018

