

MATLA POWER STATION MONTHLY EMISSIONS REPORT

Atmospheric Emission License 17/4/AEL/MP312/11/14



1 RAW MATERIALS AND PRODUCTS

| Raw Materials and Products | Raw Material Type | Units | Maximum Permitted Consumption Rate | Consumption Rate Aug-2020 |
|----------------------------|-------------------|-------|------------------------------------|---------------------------|
| | Coal | Tons | 1 475 000 | 934 729 |
| Fuel Oil | Tons | 2 500 | 645 | |

| Production Rates | Product / By-Product Name | Units | Maximum Production Capacity Permitted | Production Rate Aug-2020 |
|------------------|---------------------------|---------------|---------------------------------------|--------------------------|
| | Energy | GWh | 2 567 | 1 741 |
| Ash | Tons | 471 000 | 258 453 | |
| RE PM | kg/MWh | not specified | 0,320 | |

2 ENERGY SOURCE CHARACTERISTICS

| Coal Characteristic | Units | Stipulated Range | Monthly Average Content |
|---------------------|-------|------------------|-------------------------|
| Sulphur Content | % | 0.8-1.1 | 1,00 |
| Ash Content | % | 21-40 | 27,65 |

3 EMISSION LIMITS (mg/Nm³)

| Associated Unit/Stack | PM | SO ₂ | NO |
|-----------------------|-----|-----------------|------|
| South | 200 | 3500 | 1200 |
| Unit 4 | 200 | 3500 | 1200 |
| Unit 5 | 100 | 3500 | 1200 |
| Unit 6 | 100 | 3500 | 1200 |

4 ABATEMENT TECHNOLOGY (%)

| Associated Unit/Stack | Technology Type | Efficiency Aug-2020 |
|-----------------------|---|---------------------|
| South | <i>Electro Static Precipators (ESP)</i> | <i>99,767%</i> |
| Unit 4 | <i>Electro Static Precipators (ESP)</i> | <i>99,784%</i> |
| Unit 5 | <i>Electro Static Precipators (ESP)</i> | <i>99,753%</i> |
| Unit 6 | <i>Electro Static Precipators (ESP)</i> | <i>99,731%</i> |

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

5 ABATEMENT TECHNOLOGY (%)

| Associated Unit/Stack | PM | SO ₂ | NO | CO | O ₂ |
|-----------------------|--------------|-----------------|--------------|----|----------------|
| South | <i>99,1</i> | <i>99,7</i> | <i>100,0</i> | | <i>100,0</i> |
| Unit 4 | <i>81,0</i> | <i>99,5</i> | <i>99,6</i> | | <i>99,8</i> |
| Unit 5 | <i>100,0</i> | <i>99,2</i> | <i>98,8</i> | | <i>100,0</i> |
| Unit 6 | <i>99,1</i> | <i>99,7</i> | <i>99,7</i> | | <i>99,9</i> |

6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of August-2020

| Associated Unit/Stack | PM | SO _x | NO _x | CO |
|-----------------------|--------------|-----------------|-----------------|--------------|
| Unit 1 | 100,3 | 3 119,4 | 918,7 | 20,3 |
| Unit 2 | 64,4 | 1 705,9 | 467,7 | 10,2 |
| Unit 3 | 102,2 | 3 205,1 | 945,6 | 20,0 |
| Unit 4 | 69,9 | 2 948,8 | 1 020,5 | 10,0 |
| Unit 5 | 105,1 | 3 718,5 | 1 337,8 | 20,0 |
| Unit 6 | 116,0 | 3 016,0 | 1 197,9 | 20,0 |
| SUM | 557,8 | 17 713,7 | 5 888,2 | 100,5 |

Table 6.2: Operating days in compliance to PM AEL Limit - August 2020

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average PM (mg/Nm ³) |
|-----------------------|------------|----------|------------|---------------|------------------|----------------------------------|
| South | 30 | 1 | 0 | 0 | 1 | 64,8 |
| Unit 4 | 22 | 0 | 0 | 0 | 0 | 52,8 |
| Unit 5 | 30 | 1 | 0 | 0 | 1 | 52,8 |
| Unit 6 | 28 | 2 | 1 | 0 | 3 | 76,6 |
| SUM | 110 | 4 | 1 | 0 | 5 | |

Table 6.3: Operating days in compliance to SOx AEL Limit - August 2020

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average SOx (mg/Nm ³) |
|-----------------------|------------|----------|------------|---------------|------------------|-----------------------------------|
| South | 31 | 0 | 0 | 0 | 0 | 2 063,6 |
| Unit 4 | 24 | 0 | 0 | 0 | 0 | 2 353,9 |
| Unit 5 | 31 | 0 | 0 | 0 | 0 | 1 898,0 |
| Unit 6 | 31 | 0 | 0 | 0 | 0 | 2 046,2 |
| SUM | 117 | 0 | 0 | 0 | 0 | |

Table 6.4: Operating days in compliance to NOx AEL Limit - August 2020

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average NOx (mg/Nm ³) |
|-----------------------|------------|----------|------------|---------------|------------------|-----------------------------------|
| South | 31 | 0 | 0 | 0 | 0 | 610,7 |
| Unit 4 | 24 | 0 | 0 | 0 | 0 | 795,2 |
| Unit 5 | 31 | 0 | 0 | 0 | 0 | 682,9 |
| Unit 6 | 31 | 0 | 0 | 0 | 0 | 815,1 |
| SUM | 117 | 0 | 0 | 0 | 0 | |

Table 6.5: Legend Description





| Condition | Colour | Description |
|---------------|---|--|
| Normal |  | Emissions below Emission Limit Value (ELV) |
| Grace |  | Emissions above the ELV during grace period |
| Section 30 |  | Emissions above ELV during a NEMA S30 incident |
| Contravention |  | Emissions above ELV but outside grace or S30 incident conditions |

Figure 1: Matla South Stack PM Emissions - August 2020

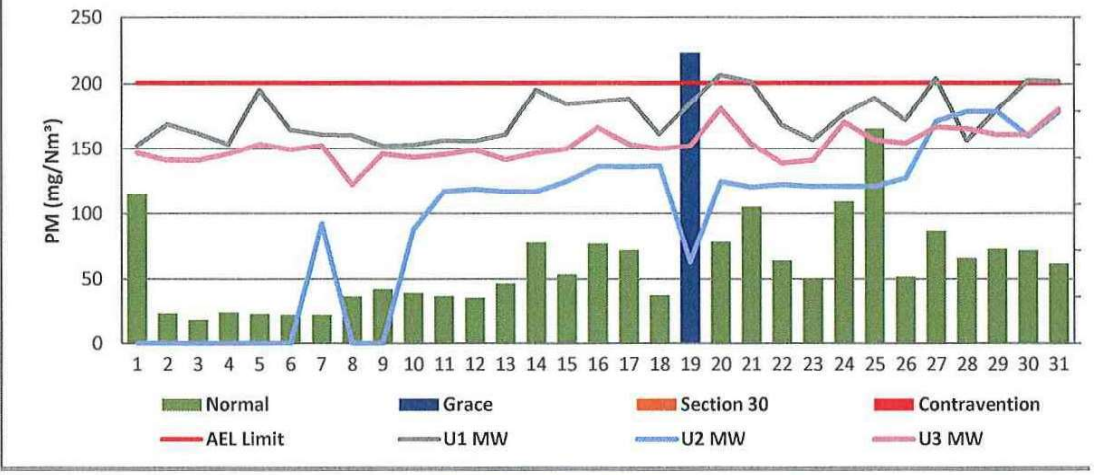


Figure 2: Matla Unit 4 PM Emissions - August 2020

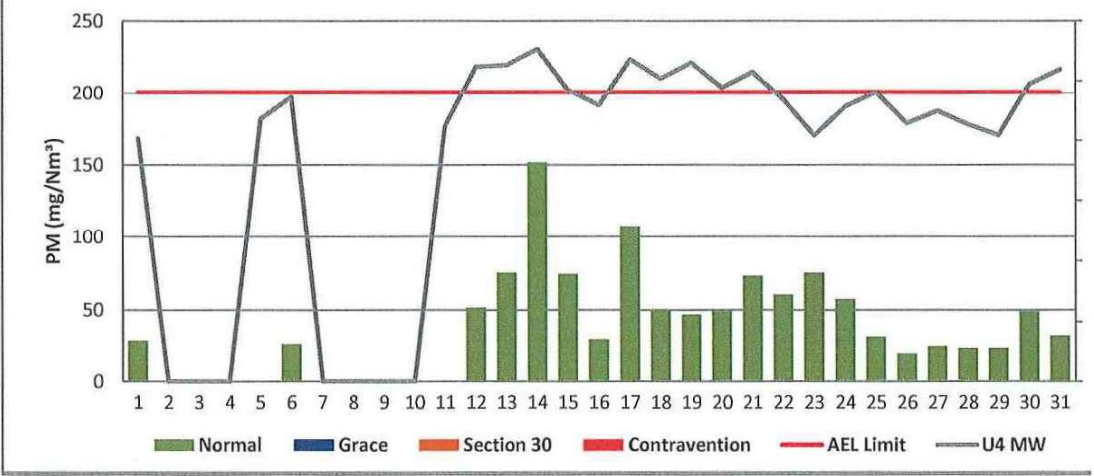


Figure 3: Matla Unit 5 PM Emissions - August 2020

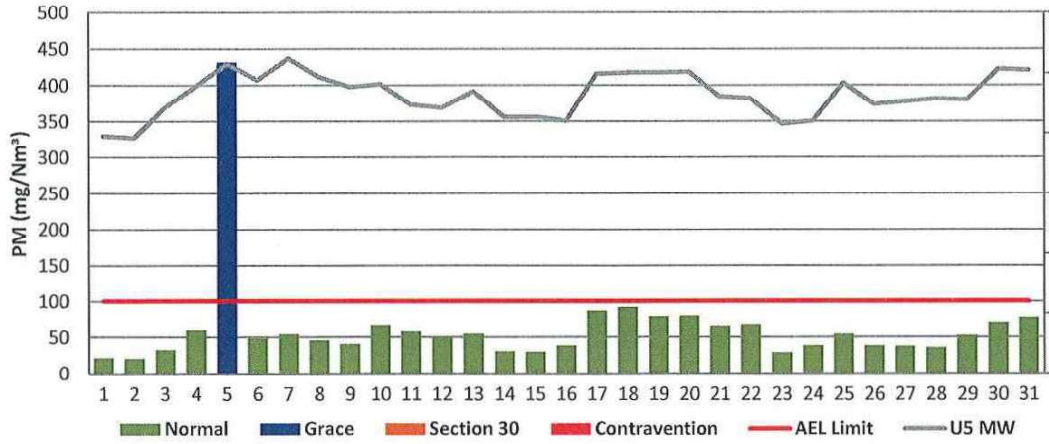


Figure 4: Matla Unit 6 PM Emissions - August 2020

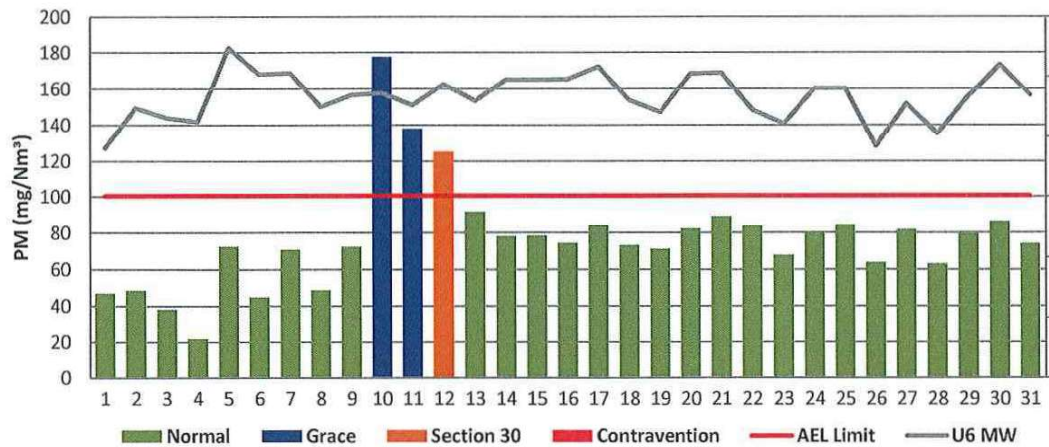


Figure 5: Matla South Stack SOx Emissions - August 2020

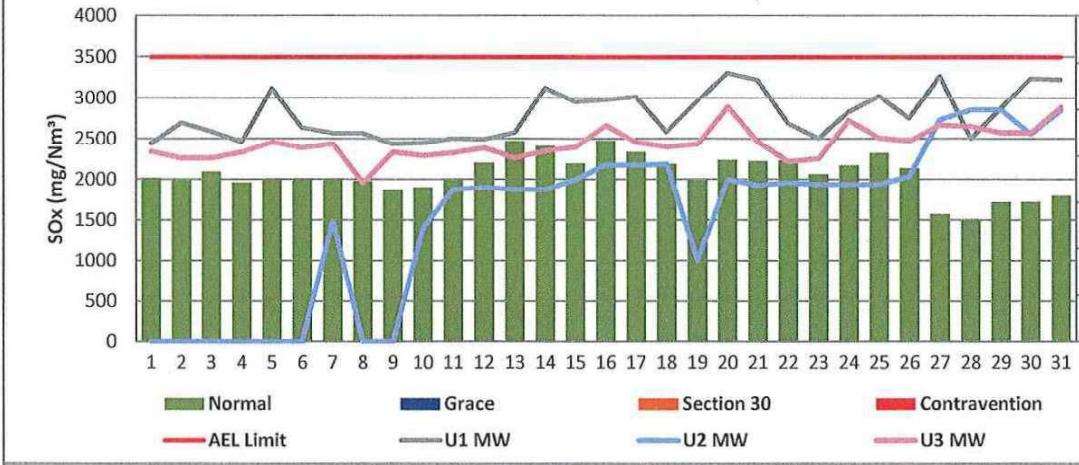


Figure 6: Matla Unit 4 SOx Emissions - August 2020

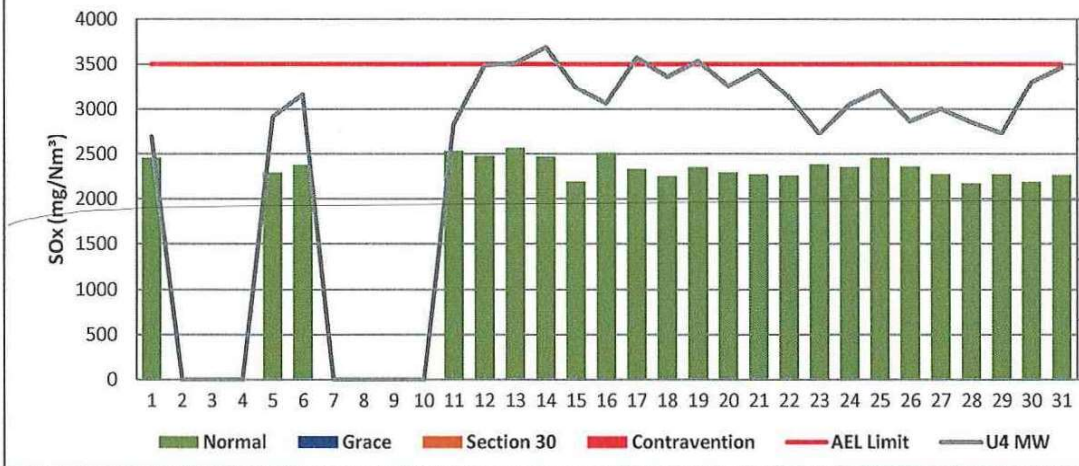


Figure 7: Matla Unit 5 SOx Emissions - August 2020

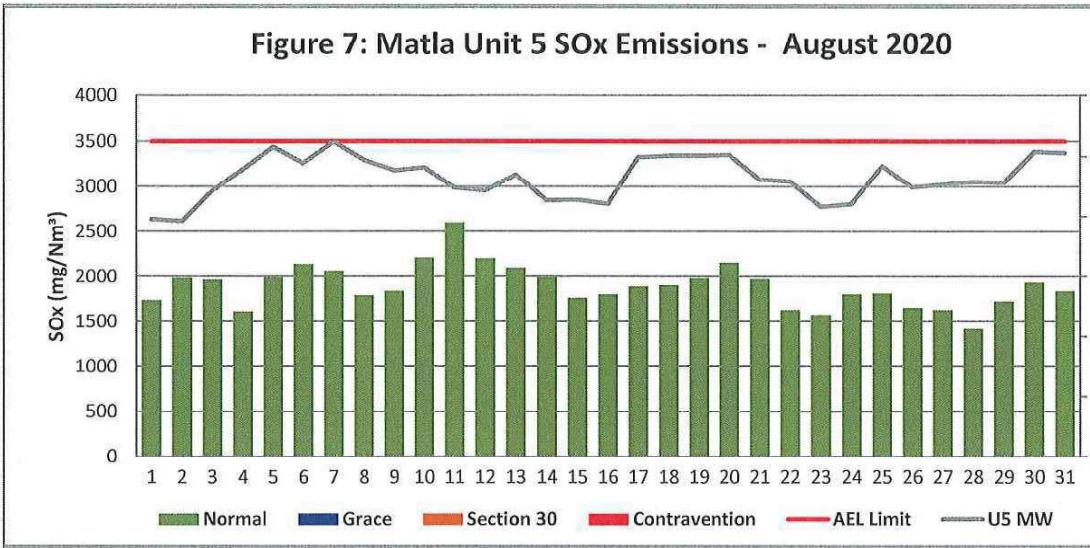


Figure 8: Matla Unit 6 SOx Emissions - August 2020

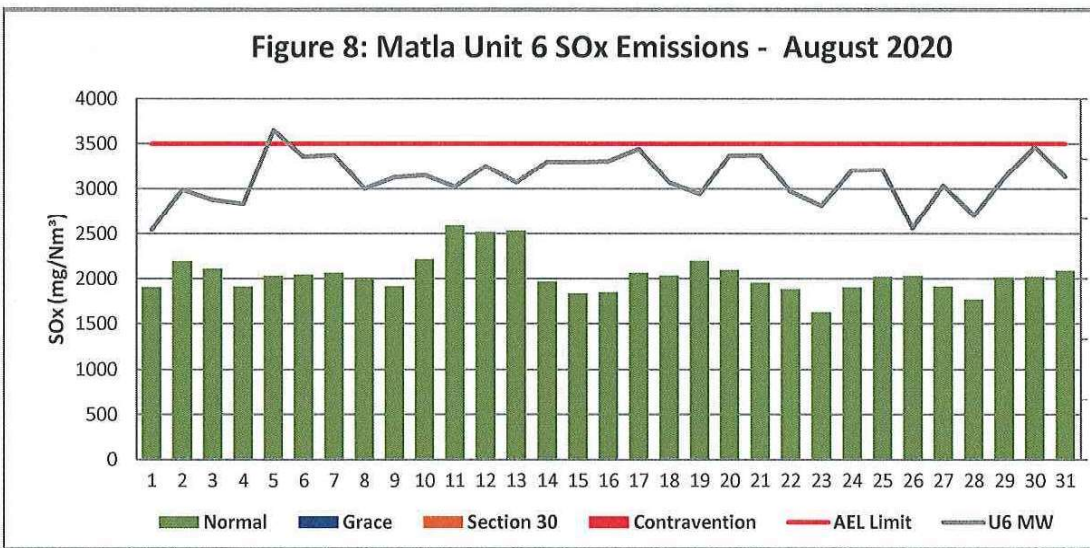


Figure 9: Matla South Stack NOx Emissions - August 2020

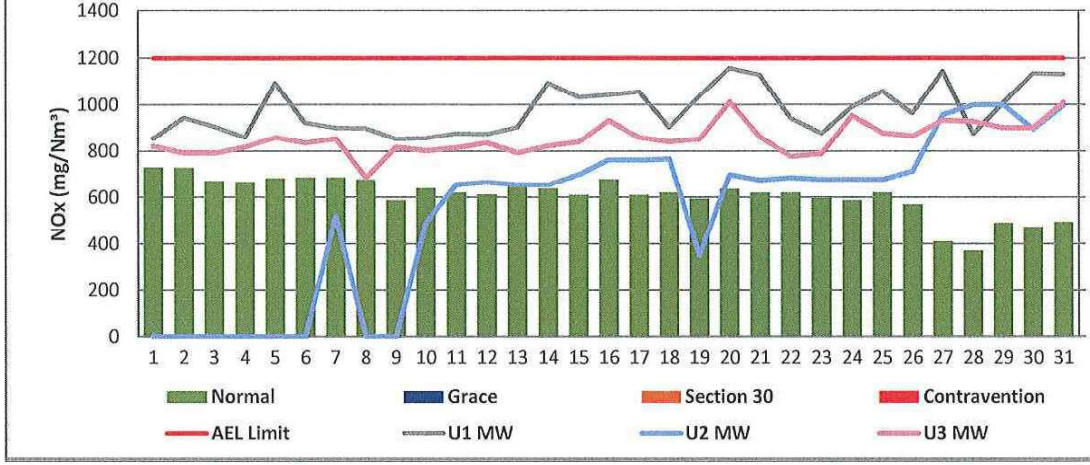


Figure 10: Matla Unit 4 NOx Emissions - August 2020

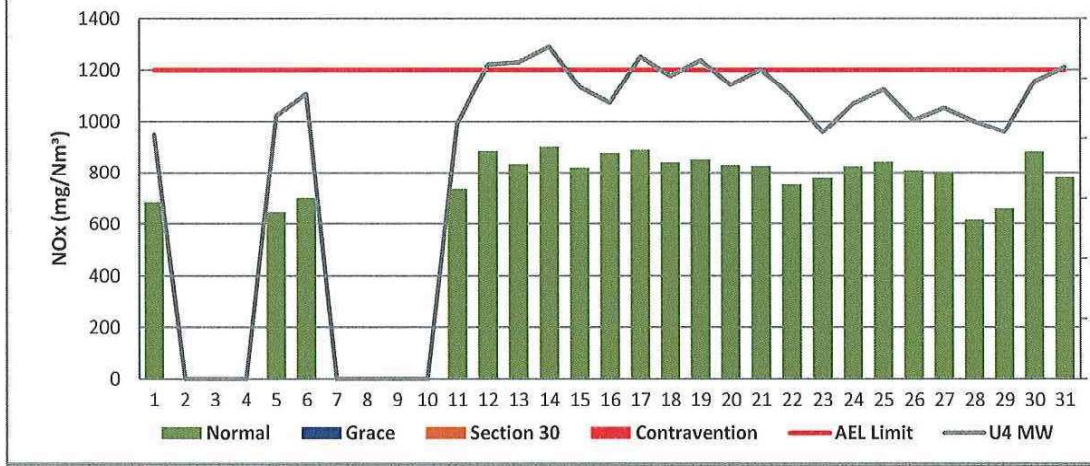


Figure 11: Matla Unit 5 NOx Emissions - August 2020

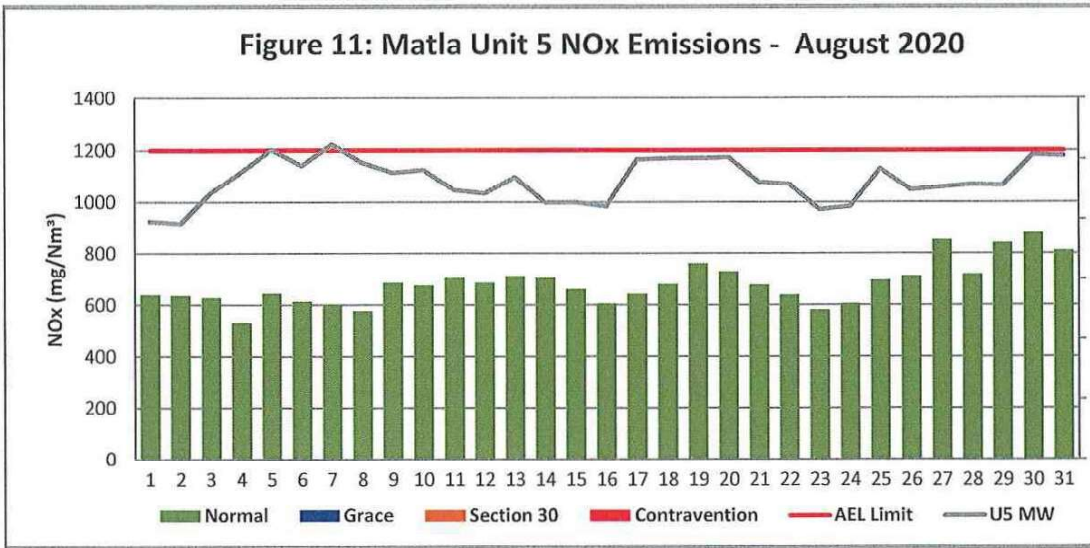
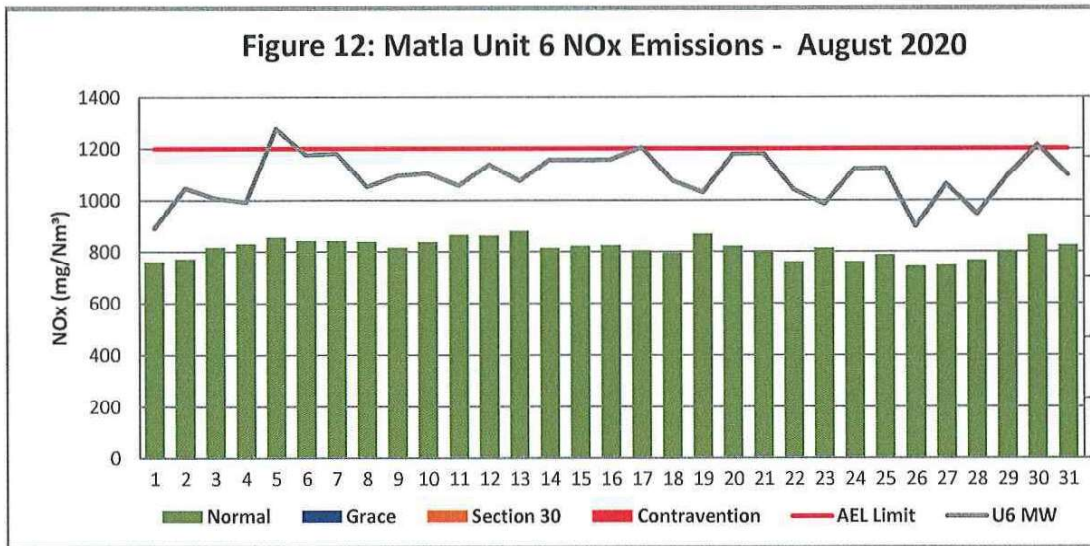


Figure 12: Matla Unit 6 NOx Emissions - August 2020



7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1. PM Start-up information for the month of August-2020

| South Stack | <i>Event 1</i> | | <i>Event 2</i> | | <i>Event 3</i> | | <i>Event 4</i> |
|--|-----------------|-------------------|------------------------------|------------------------------|----------------------|----------------------|-----------------|
| Unit No. | <i>Unit 2</i> | | <i>Unit 2</i> | | <i>no event</i> | | <i>no event</i> |
| Breaker Open (BO) | <i>1:15 AM</i> | <i>2020/08/05</i> | <i>9:05 PM</i> | <i>2020/08/29</i> | <i>BO previously</i> | <i>BO previously</i> | |
| Draught Group (DG) Shut Down (SD) | <i>4:25 AM</i> | <i>2020/08/08</i> | <i>DG did not trip or SD</i> | <i>DG did not trip or SD</i> | <i>n/a</i> | <i>n/a</i> | |
| BO to DG SD (duration) | <i>03:03:10</i> | DD:HH:MM | <i>n/a</i> | DD:HH:MM | <i>n/a</i> | DD:HH:MM | |
| Fires in time | <i>10:20 AM</i> | <i>2020/08/10</i> | <i>9:05 PM</i> | <i>2020/08/29</i> | | | |
| Synch. to Grid (or BC) | <i>6:40 PM</i> | <i>2020/08/10</i> | <i>5:20 AM</i> | <i>2020/08/30</i> | | | |
| Fires in to BC (duration) | <i>00:08:20</i> | DD:HH:MM | <i>00:08:15</i> | DD:HH:MM | | DD:HH:MM | |
| Emissions below limit from BC (end date) | <i>3:00 PM</i> | <i>2020/08/11</i> | | <i>#VALUE!</i> | | | |
| Emissions below limit from BC (duration) | <i>00:20:20</i> | DD:HH:MM | <i>n/a</i> | DD:HH:MM | | DD:HH:MM | |

| South Stack ...cont. | <i>Event 5</i> | | <i>Event 6</i> | | <i>Event 7</i> | | <i>Event 8</i> |
|--|-----------------|----------|-----------------|----------|-----------------|----------|-----------------|
| Unit No. | <i>no event</i> | | <i>no event</i> | | <i>no event</i> | | <i>no event</i> |
| Breaker Open (BO) | | | | | | | |
| Draught Group (DG) Shut Down (SD) | | | | | | | |
| BO to DG SD (duration) | | DD:HH:MM | | DD:HH:MM | | DD:HH:MM | |
| Fires in time | | | | | | | |
| Synch. to Grid (or BC) | | | | | | | |
| Fires in to BC (duration) | | DD:HH:MM | | DD:HH:MM | | DD:HH:MM | |
| Emissions below limit from BC (end date) | | | | | | | |
| Emissions below limit from BC (duration) | | DD:HH:MM | | DD:HH:MM | | DD:HH:MM | |

| Unit No. 4 | Event 1 | | Event 2 | | Event 3 | | Eve |
|--|-------------|-------------|-------------|-------------|---------|----------|-----|
| Breaker Open (BO) | 9:45 PM | 2020/08/01 | 1:20 PM | 2020/08/06 | | | |
| Draught Group (DG) Shut Down (SD) | 9:45 PM | 2020/08/01 | 1:20 PM | 2020/08/06 | | | |
| BO to DG SD (duration) | | DD:HH:MM | | DD:HH:MM | | DD:HH:MM | |
| Fires in time | 1:00 AM | 2020/08/05 | 2:50 AM | 2020/08/11 | | | |
| Synch. to Grid (or BC) | 9:40 AM | 2020/08/05 | 1:00 PM | 2020/08/11 | | | |
| Fires in to BC (duration) | 00:08:40 | DD:HH:MM | 00:10:10 | DD:HH:MM | | DD:HH:MM | |
| Emissions below limit from BC (end date) | not > limit | not > limit | not > limit | not > limit | | | |
| Emissions below limit from BC (duration) | n/a | DD:HH:MM | n/a | DD:HH:MM | | DD:HH:MM | |

| Unit No. 5 | Event 1 | | Event 2 | | Event 3 | | Eve |
|--|---------|----------|---------|----------|---------|----------|-----|
| Breaker Open (BO) | | | | | | | |
| Draught Group (DG) Shut Down (SD) | | | | | | | |
| BO to DG SD (duration) | | DD:HH:MM | | DD:HH:MM | | DD:HH:MM | |
| Fires in time | | | | | | | |
| Synch. to Grid (or BC) | | | | | | | |
| Fires in to BC (duration) | | DD:HH:MM | | DD:HH:MM | | DD:HH:MM | |
| Emissions below limit from BC (end date) | | | | | | | |
| Emissions below limit from BC (duration) | | DD:HH:MM | | DD:HH:MM | | DD:HH:MM | |

| Unit No. 6 | Event 1 | | Event 2 | | Event 3 | | Eve |
|--|----------|------------|---------|------------|---------|----------|-----|
| Breaker Open (BO) | 12:15 AM | 2020/08/04 | 6:50 AM | 2020/09/01 | | | |
| Draught Group (DG) Shut Down (SD) | 12:15 AM | 2020/08/04 | 6:50 AM | 2020/09/01 | | | |
| BO to DG SD (duration) | | DD:HH:MM | | DD:HH:MM | | DD:HH:MM | |
| Fires in time | | | | | | | |
| Synch. to Grid (or BC) | | | | | | | |
| Fires in to BC (duration) | | DD:HH:MM | | DD:HH:MM | | DD:HH:MM | |
| Emissions below limit from BC (end date) | | | | | | | |
| Emissions below limit from BC (duration) | | DD:HH:MM | | DD:HH:MM | | DD:HH:MM | |

7.2: Point Source emissions released during start-up (fires-in) and Shut-down (SD) for the month of August-20 mg/Nm³

[Include reference to once off test showing typical emissions rates during fires in and SD]


Remember to add attachments here; see ReportAddendum Tab

Reserved for Addendum XXXX

11 General



Boiler Engineering 20/01/2021
Date



Environmental Department 2021-01-19



General Manager Date

Compiled by: Boiler Engineering Department

ESP & SO₃ System Engineer

For: Department of Environmental Affairs and Tourism

Chief Air Pollution Control Officer

Copies: Eskom Environmental Management

D Herbst
B Mccourt

Group Technology Engineering

R Rampiar
E. Patel

Matla Power Station:

Engineering Manager
Operating Manager
Maintenance Manager
Unit Production Manager
Boiler Engineering Manager
System Engineer
Environmental Officer
Performance and Test
Production Manager

