



**Generation**

Nkangala District Municipality  
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Middleburg  
1050

**Date:** 2021/03/05

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16

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**MATLA POWER STATION**

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

BOILER ENGINEERING MANAGER

10/03/2021  
DATE

ENVIRONMENTAL MANAGER

2021-03-09  
DATE

ENGINEERING MANAGER

2021/03/10  
DATE

**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 Jan-2021 |
|----------------------------|-------------------|-------|------------------------------------|---------------------------|
|                            | Coal              | Tons  | 1 475 000                          | 917 310                   |
| Fuel Oil                   | Tons              | 2 500 | 712                                |                           |

| Production Rates | Product / By-Product Name | Units         | Maximum Production Capacity Permitted | Production Rate Jan-2021 |
|------------------|---------------------------|---------------|---------------------------------------|--------------------------|
|                  | Energy                    | GWh           | 2 567                                 | 1 602                    |
| Ash              | Tons                      | 471 000       | 278 770                               |                          |
| RE PM            | kg/MWh                    | not specified | 1,214                                 |                          |

**2 ENERGY SOURCE CHARACTERISTICS**

| Coal Characteristic | Units | Stipulated Range | Monthly Average Content |
|---------------------|-------|------------------|-------------------------|
| Sulphur Content     | %     | 0.8-1.1          | 1,00                    |
| Ash Content         | %     | 21-40            | 30,39                   |

### 3 EMISSION LIMITS (mg/Nm<sup>3</sup>)

| Associated Unit/Stack | PM  | SO <sub>2</sub> | 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 Jan-2021 |
|-----------------------|---|---------------------|
| South                 | <i>Electro Static Precipators (ESP)</i> | <i>99,441%</i>      |
| Unit 4                | <i>Electro Static Precipators (ESP)</i> | <i>99,316%</i>      |
| Unit 5                | <i>Electro Static Precipators (ESP)</i> | <i>98,271%</i>      |
| Unit 6                | <i>Electro Static Precipators (ESP)</i> | <i>99,491%</i>      |

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

### 5 MONITOR RELIABILITY (%)

| Associated Unit/Stack | PM          | SO <sub>2</sub> | NO           | O <sub>2</sub> |
|-----------------------|-------------|-----------------|--------------|----------------|
| South                 | <i>88,4</i> | <i>53,2</i>     | <i>53,4</i>  | <i>100,0</i>   |
| Unit 4                | <i>86,3</i> | <i>99,9</i>     | <i>100,0</i> | <i>100,0</i>   |
| Unit 5                | <i>37,9</i> | <i>99,5</i>     | <i>75,1</i>  | <i>99,5</i>    |
| Unit 6                | <i>92,7</i> | <i>99,6</i>     | <i>99,6</i>  | <i>99,6</i>    |

### 6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of January-2021

| Associated Unit/Stack | PM             | SO <sub>x</sub> | NO <sub>x</sub> |
|-----------------------|----------------|-----------------|-----------------|
| Unit 1                | 213,0          | 2 682,9         | 1 246,2         |
| Unit 2                | 231,4          | 2 646,4         | 1 236,7         |
| Unit 3                | 202,3          | 1 388,1         | 621,7           |
| Unit 4                | 320,5          | 4 075,7         | 1 405,7         |
| Unit 5                | 747,7          | 2 990,3         | 1 191,3         |
| Unit 6                | 230,0          | 3 072,8         | 1 326,0         |
| <b>SUM</b>            | <b>1 945,0</b> | <b>16 856,2</b> | <b>7 027,6</b>  |

Table 6.2: Operating days in compliance to PM AEL Limit - January 2021

| Associated Unit/Stack | Normal    | Grace     | Section 30 | Contra-vention | Total Exceedance | Average PM (mg/Nm³) |
|-----------------------|-----------|-----------|------------|----------------|------------------|---------------------|
| South                 | 21        | 0         | 10         | 0              | 10               | 162,0               |
| Unit 4                | 20        | 2         | 9          | 0              | 11               | 175,1               |
| Unit 5                | 0         | 2         | 19         | 6              | 27               | 484,9               |
| Unit 6                | 12        | 7         | 11         | 0              | 18               | 154,8               |
| <b>SUM</b>            | <b>53</b> | <b>11</b> | <b>49</b>  | <b>6</b>       | <b>66</b>        |                     |


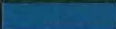

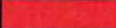
Table 6.3: Operating days in compliance to SOx AEL Limit - January 2021

| Associated Unit/Stack | Normal     | Grace    | Section 30 | Contra-vention | Total Exceedance | Average SOx (mg/Nm³) |
|-----------------------|------------|----------|------------|----------------|------------------|----------------------|
| South                 | 31         | 0        | 0          | 0              | 0                | 1 868,4              |
| Unit 4                | 31         | 0        | 0          | 0              | 0                | 2 198,6              |
| Unit 5                | 28         | 0        | 0          | 0              | 0                | 1 949,9              |
| Unit 6                | 31         | 0        | 0          | 0              | 0                | 2 156,6              |
| <b>SUM</b>            | <b>121</b> | <b>0</b> | <b>0</b>   | <b>0</b>       | <b>0</b>         |                      |

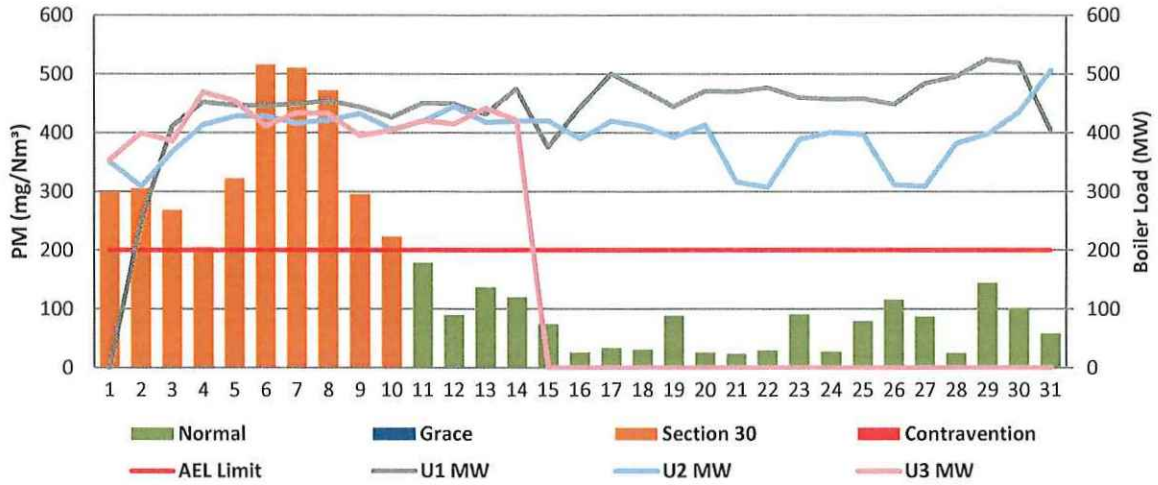
Table 6.4: Operating days in compliance to NOx AEL Limit - January 2021

| Associated Unit/Stack | Normal     | Grace    | Section 30 | Contra-vention | Total Exceedance | Average NOx (mg/Nm³) |
|-----------------------|------------|----------|------------|----------------|------------------|----------------------|
| South                 | 31         | 0        | 0          | 0              | 0                | 875,6                |
| Unit 4                | 31         | 0        | 0          | 0              | 0                | 756,5                |
| Unit 5                | 28         | 0        | 0          | 0              | 0                | 757,2                |
| Unit 6                | 31         | 0        | 0          | 0              | 0                | 924,7                |
| <b>SUM</b>            | <b>121</b> | <b>0</b> | <b>0</b>   | <b>0</b>       | <b>0</b>         |                      |

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                   |
| Contra-vention |  | Emissions above ELV but outside grace or S30 incident conditions |

**Figure 1: Matla South Stack PM Emissions - January 2021**



**Figure 2: Matla Unit 4 PM Emissions - January 2021**

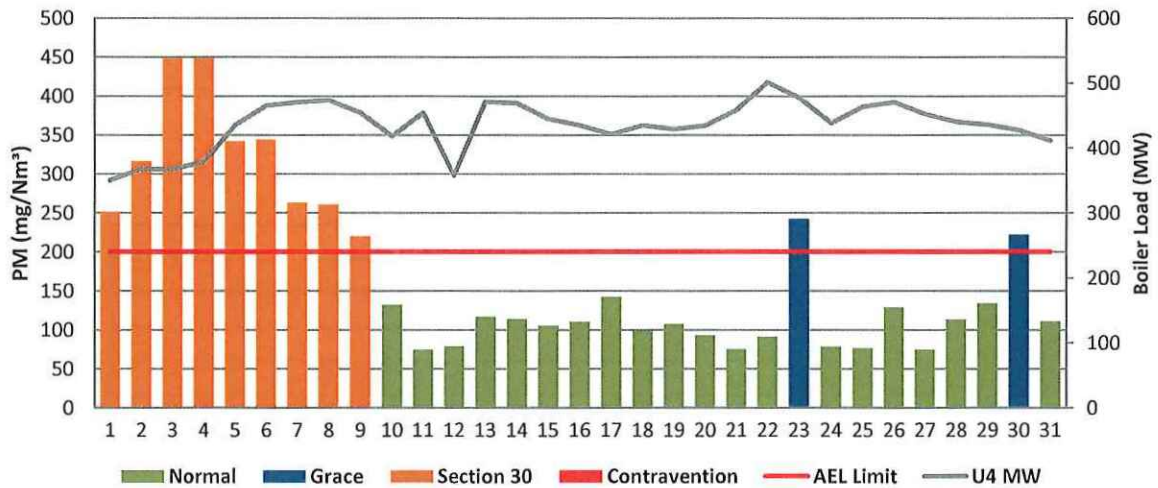


Figure 3: Matla Unit 5 PM Emissions - January 2021

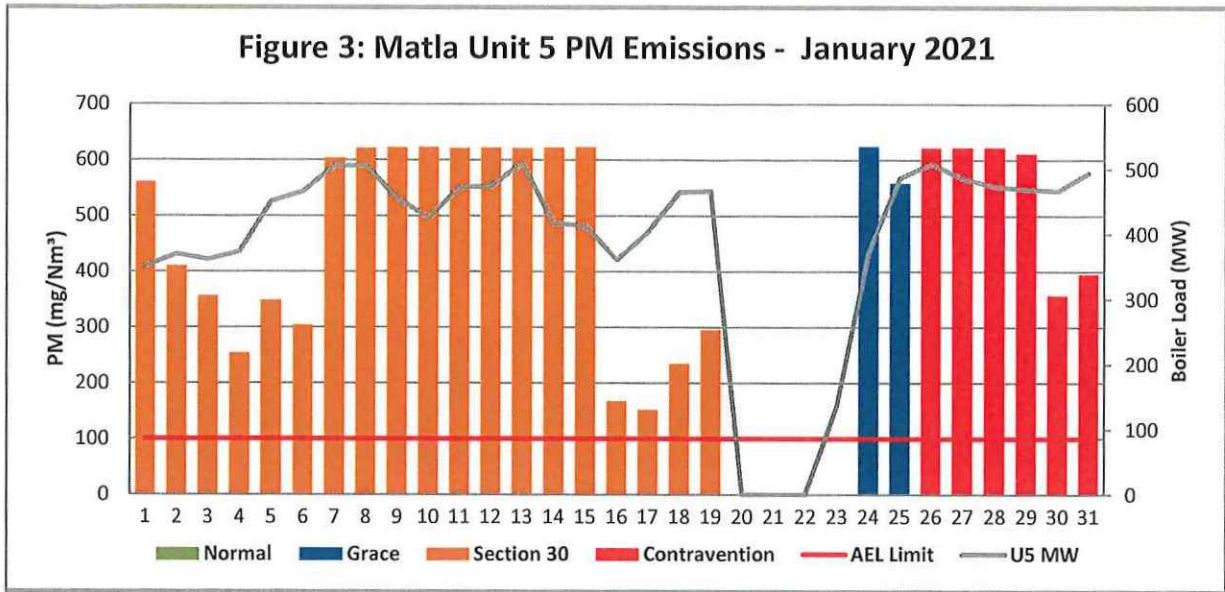
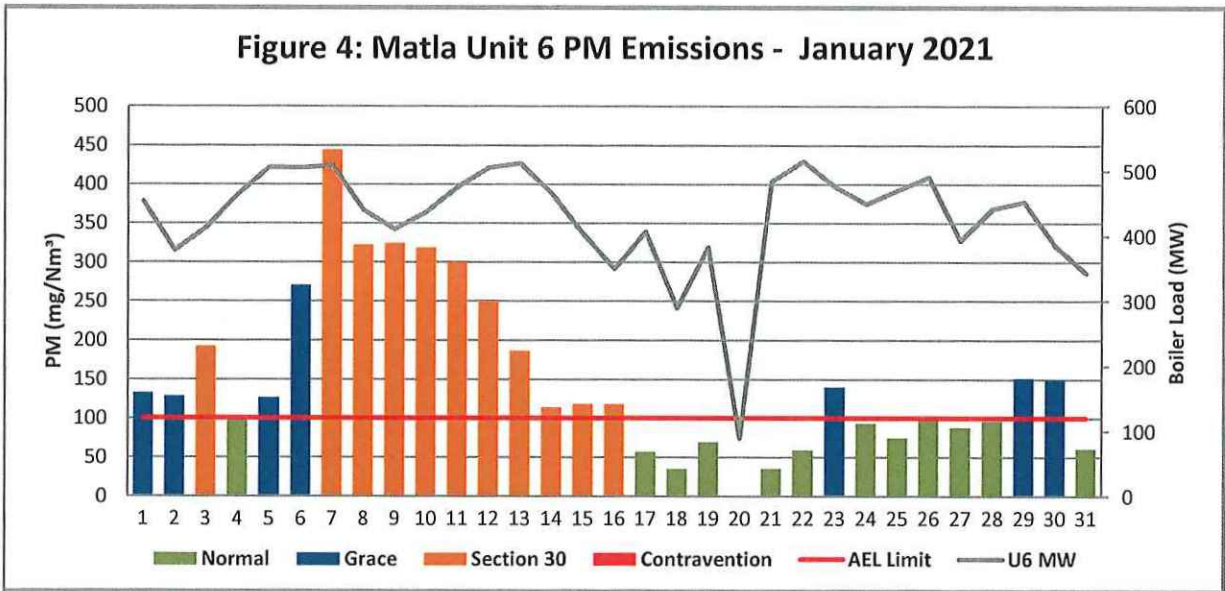
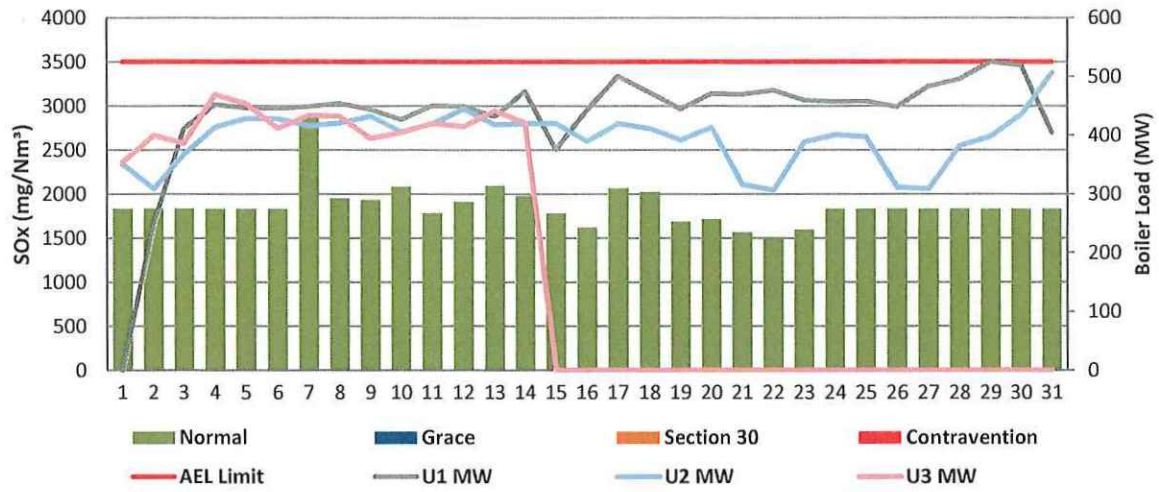


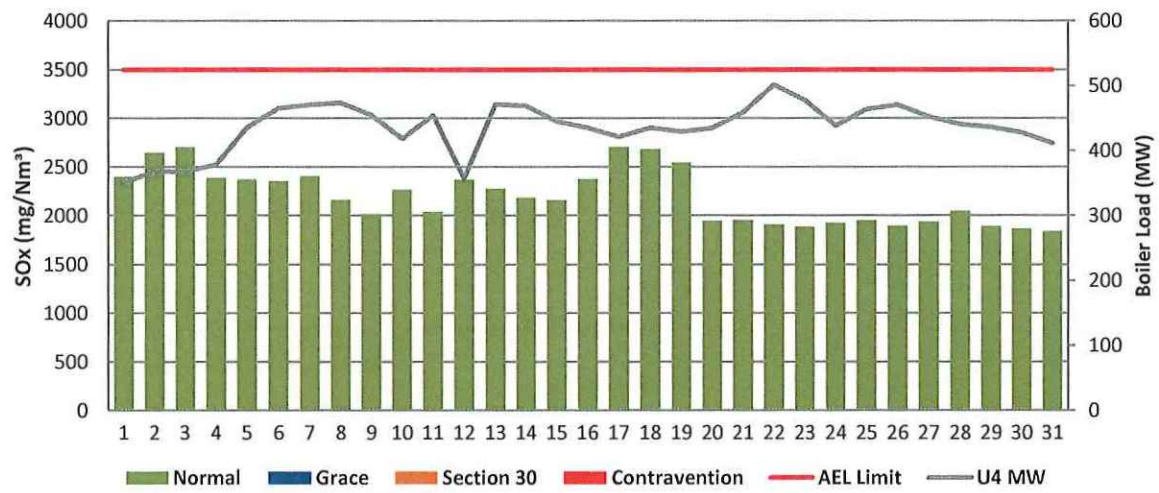
Figure 4: Matla Unit 6 PM Emissions - January 2021



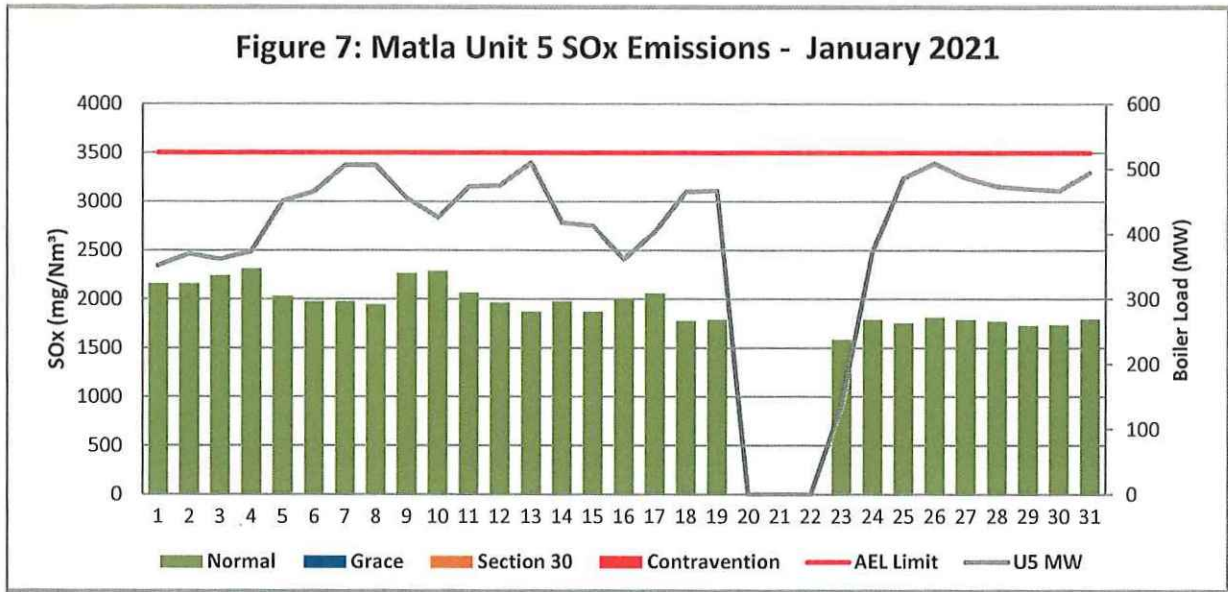
**Figure 5: Matla South Stack SOx Emissions - January 2021**



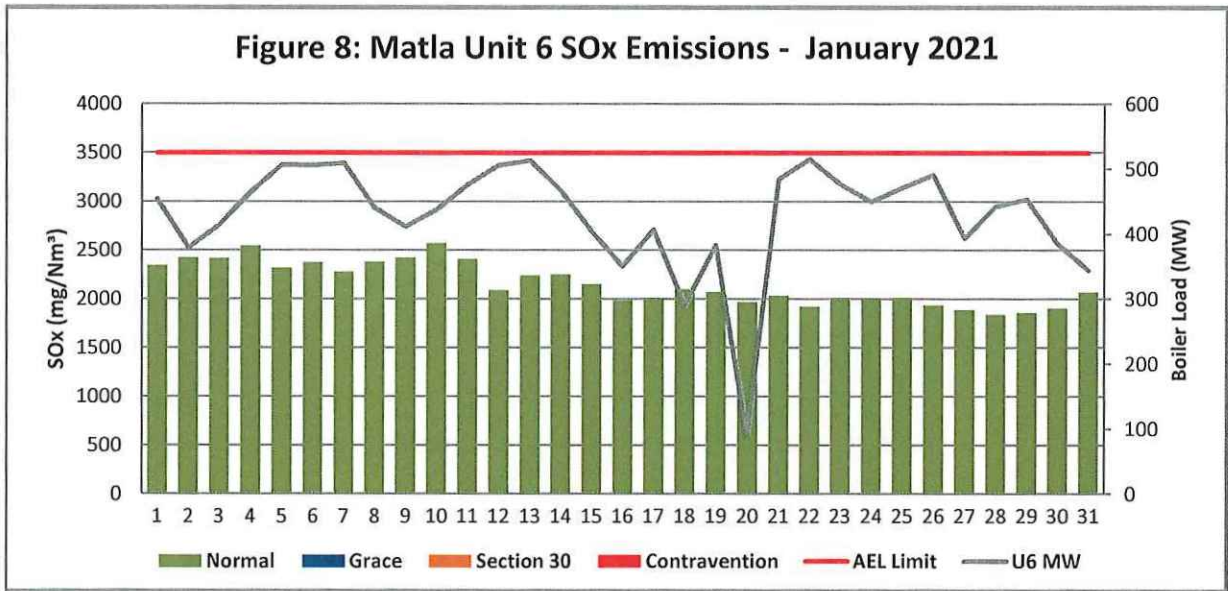
**Figure 6: Matla Unit 4 SOx Emissions - January 2021**



**Figure 7: Matla Unit 5 SOx Emissions - January 2021**

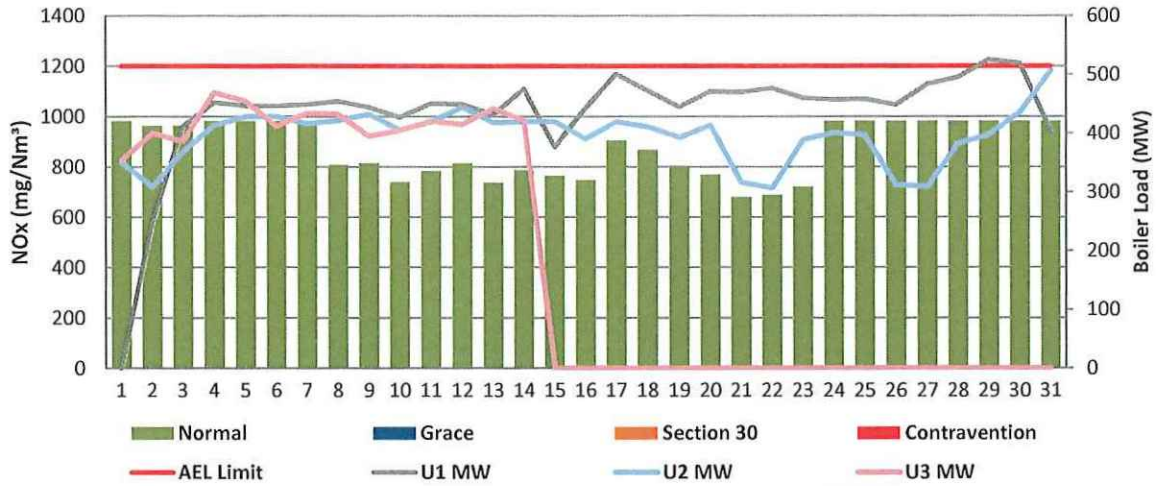


**Figure 8: Matla Unit 6 SOx Emissions - January 2021**

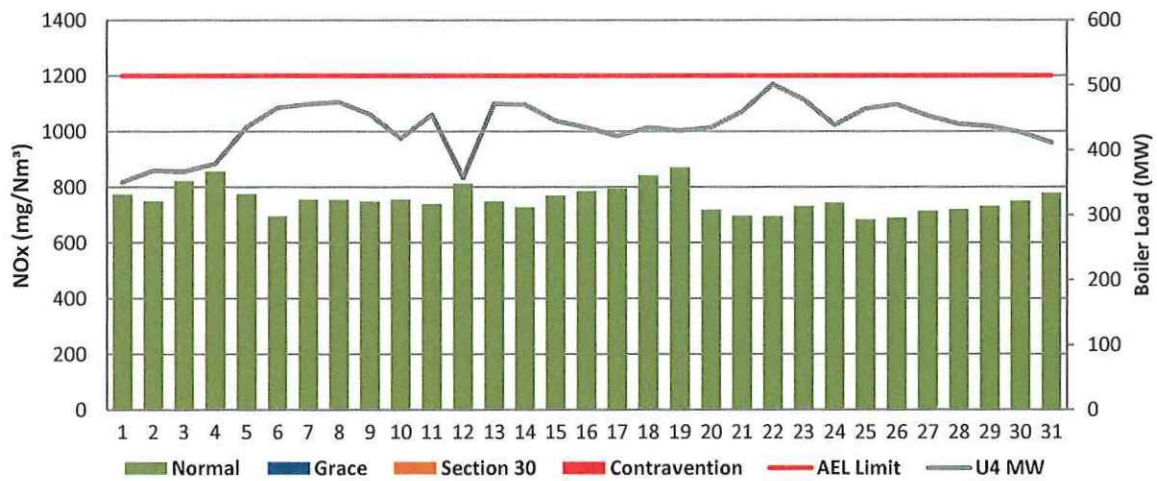




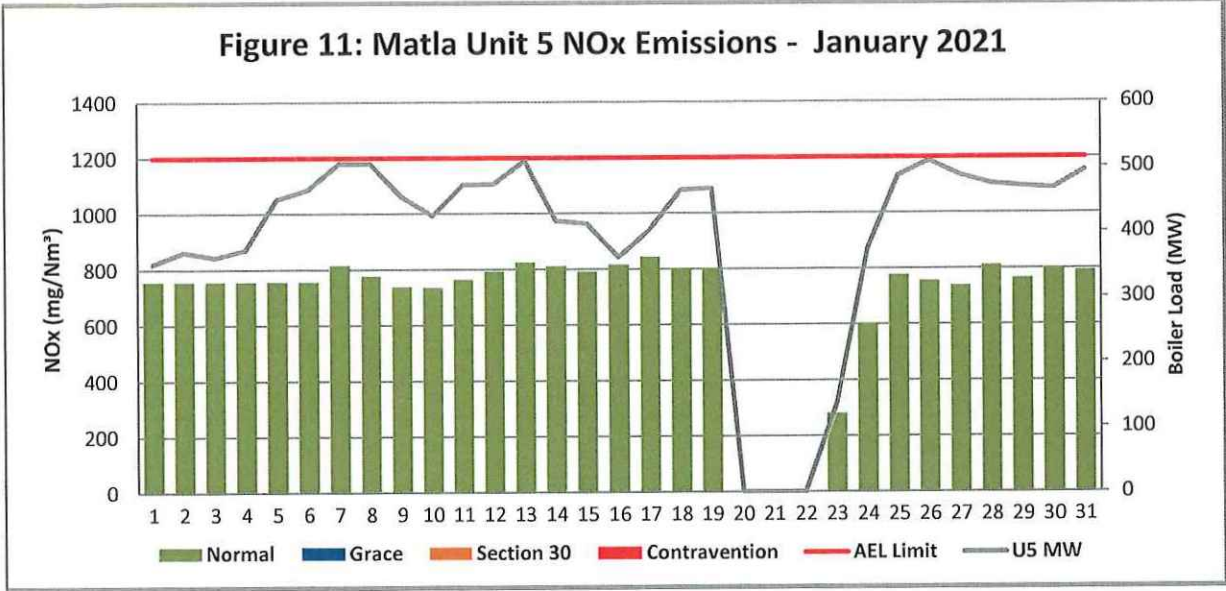
**Figure 9: Matla South Stack NOx Emissions - January 2021**



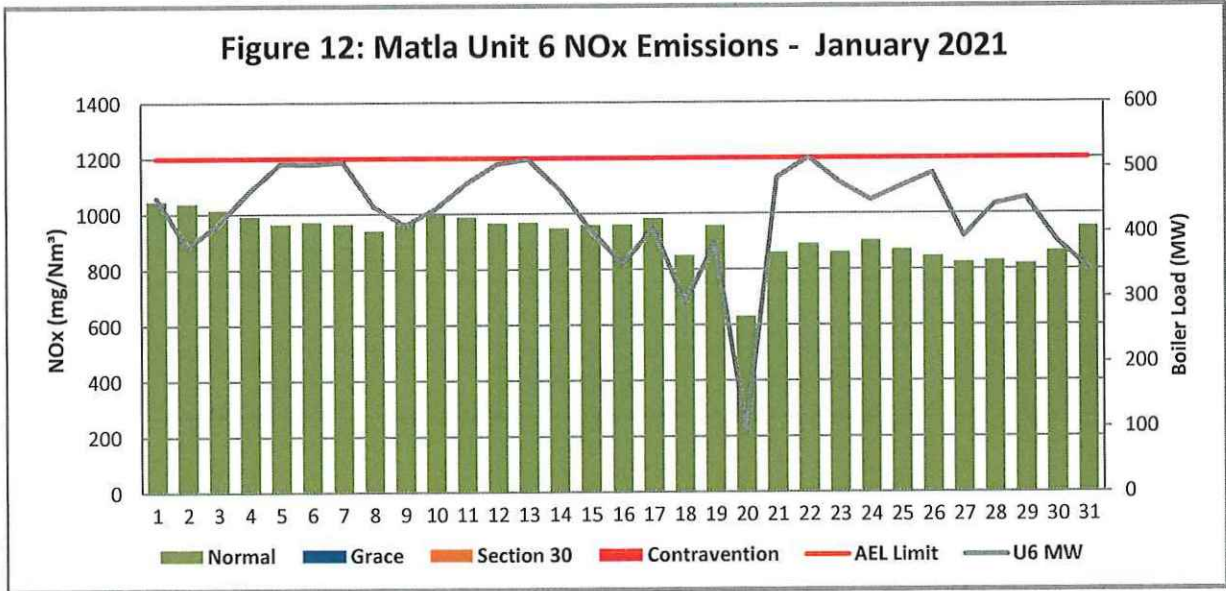
**Figure 10: Matla Unit 4 NOx Emissions - January 2021**



**Figure 11: Matla Unit 5 NOx Emissions - January 2021**



**Figure 12: Matla Unit 6 NOx Emissions - January 2021**



## 7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1. PM Start-up information for the month of January-2021

| South Stack                              | <i>Event 1</i>       |                      | <i>Event 2</i>  |                   | <i>Event 3</i>  |          | <i>Event 4</i>  |          |
|--|----------------------|----------------------|-----------------|-------------------|-----------------|----------|-----------------|----------|
| Unit No.                                 | <i>Unit 1</i>        |                      | <i>Unit 3</i>   |                   | <i>no event</i> |          | <i>no event</i> |          |
| Breaker Open (BO)                        | <i>BO previously</i> | <i>BO previously</i> | <i>2:15 AM</i>  | <i>2021/01/15</i> |                 |          |                 |          |
| Draught Group (DG) Shut Down (SD)        | <i>n/a</i>           | <i>n/a</i>           | <i>2:20 AM</i>  | <i>2021/01/16</i> |                 |          |                 |          |
| BO to DG SD (duration)                   | <i>n/a</i>           | DD:HH:MM             | <i>01:00:05</i> | DD:HH:MM          |                 | DD:HH:MM |                 | DD:HH:MM |
| Fires in time                            | <i>7:40 AM</i>       | <i>2021/01/02</i>    |                 |                   |                 |          |                 |          |
| Synch. to Grid (or BC)                   | <i>6:40 PM</i>       | <i>2021/01/02</i>    |                 |                   |                 |          |                 |          |
| Fires in to BC (duration)                | <i>00:11:00</i>      | DD:HH:MM             |                 | DD:HH:MM          |                 | DD:HH:MM |                 | DD:HH:MM |
| Emissions below limit from BC (end date) | <i>8:00 PM</i>       | <i>2021/01/11</i>    |                 |                   |                 |          |                 |          |
| Emissions below limit from BC (duration) | <i>09:01:20</i>      | DD:HH:MM             |                 | DD:HH:MM          |                 | 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 |                 | 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 |                 | 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 |                 | DD:HH:MM |

| Unit No. 4                               | Event 1 |          | Event 2 |          | Event 3 |          | Event 4 |          |
|--|---------|----------|---------|----------|---------|----------|---------|----------|
| Breaker Open (BO)                        |         |          |         |          |         |          |         |          |
| Draught Group (DG) Shut Down (SD)        |         |          |         |          |         |          |         |          |
| BO to DG SD (duration)                   |         | DD:HH:MM |         | 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 |         | 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 |         | DD:HH:MM |

| Unit No. 5                               | Event 1     |             | Event 2 |          | Event 3 |          | Event 4 |          |
|--|-------------|-------------|---------|----------|---------|----------|---------|----------|
| Breaker Open (BO)                        | 4:45 AM     | 2021/01/20  |         |          |         |          |         |          |
| Draught Group (DG) Shut Down (SD)        | 4:45 AM     | 2021/01/20  |         |          |         |          |         |          |
| BO to DG SD (duration)                   |             | DD:HH:MM    |         | DD:HH:MM |         | DD:HH:MM |         | DD:HH:MM |
| Fires in time                            | 8:00 AM     | 2021/01/24  |         |          |         |          |         |          |
| Synch. to Grid (or BC)                   | 12:05 PM    | 2021/01/24  |         |          |         |          |         |          |
| Fires in to BC (duration)                | 00:04:05    | DD:HH:MM    |         | DD:HH:MM |         | DD:HH:MM |         | DD:HH:MM |
| Emissions below limit from BC (end date) | not > limit | not > limit |         |          |         |          |         |          |
| Emissions below limit from BC (duration) | n/a         | DD:HH:MM    |         | DD:HH:MM |         | DD:HH:MM |         | DD:HH:MM |

| Unit No. 6                               | Event 1       |               | Event 2     |             | Event 3 |          | Event 4 |          |
|--|---------------|---------------|-------------|-------------|---------|----------|---------|----------|
| Breaker Open (BO)                        | BO previously | BO previously | 5:05 AM     | 2021/01/20  |         |          |         |          |
| Draught Group (DG) Shut Down (SD)        | n/a           | n/a           | 5:05 AM     | 2021/01/20  |         |          |         |          |
| BO to DG SD (duration)                   | n/a           | DD:HH:MM      |             | DD:HH:MM    |         | DD:HH:MM |         | DD:HH:MM |
| Fires in time                            |               |               | 2:20 AM     | 2021/01/21  |         |          |         |          |
| Synch. to Grid (or BC)                   |               |               | 9:50 AM     | 2021/01/21  |         |          |         |          |
| Fires in to BC (duration)                |               | DD:HH:MM      | 00:07:30    | DD:HH:MM    |         | DD:HH:MM |         | DD:HH:MM |
| Emissions below limit from BC (end date) |               |               | not > limit | not > limit |         |          |         |          |
| Emissions below limit from BC (duration) |               | DD:HH:MM      | n/a         | 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 January-2021 in mg/Nm<sup>3</sup>


[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

South Stack gases defective and QUAL 2 averages used for reporting. Reliability of these South Stack gases are below 80% for the month of January 2021. Unit 5 incurred legal contravention due to oversight on reporting of section 30.

  
09-03-2021  
Boiler Engineering Date

  
2021-03-09  
Environmental Department Date

  
11/03/2021  
General Manager Date

Compiled by: Boiler Engineering Department

ESP & SO<sub>3</sub> 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

**ADDENDUM TO MONTHLY EMISSIONS REPORT**

**8 EMERGENCY GENERATION**

Emergency Generation *[This is only required for stations that are requested to report on this information]*

Table 8. Emergency Generation per unit for the month of January 2021

|   | Unit 1 | Unit 2 | Unit 3 | Unit 4 | Unit 5 | Unit 6 |
|---|--------|--------|--------|--------|--------|--------|
| Emergency Generation hours declared by national Control   |        |        |        |        |        |        |
| Emergency Hours declared including hours after stand down |        |        |        |        |        |        |
| Hours over the Limit during Emergency Generation          |        |        |        |        |        |        |

**9 COMPLAINTS REGISTER**

Table 9. Complaints for the month of January 2021

| Source Code / Name                      | Root Cause Analysis                     | Calculation of Impacts / emissions associated with the incident | Dispersion modeling of pollutants where applicable            | Measures implemented to prevent reoccurrence | Date measure will be implemented          |
|---|---|---|---|--|---|
| <i>(Insert name of affected source)</i> | <i>(Insert root cause for incident)</i> | <i>(Insert emissions associated with incident)</i>              | <i>(Insert dispersion model information where applicable)</i> | <i>(Insert mitigation measures taken)</i>    | <i>(Insert date of implementation of)</i> |
|   |   |   |   |  |   |
|   |   |   |   |  |   |

**10 S30 INCIDENT OR LEGAL CONTRAVENTION REGISTER**

To be completed in the case of a S30 incident or a legal contravention:

| Unit no     | Incident Start Date | Incident End Date | Incident Cause  | Remedial action                               | S30 initial notification sent | Date S30 investigation report sent | Date DEA Acknowledgment | Date DEA Acceptable | Comments / Reference No. |
|-------------|---------------------|-------------------|---|---|-------------------------------|------------------------------------|-------------------------|---------------------|--------------------------|
| South Stack | 2020/12/21          | 2021/01/10        | Dust hopper levels, dust plant blockages, low dust instrument air, SO3 fluctuations and coal qualities. | Load loss taken, brought more compressors.    | Yes                           |                                    |                         |                     |                          |
| 4           | 2020/12/21          | 2021/01/09        | Dust hopper levels, dust plant blockages, low dust instrument air, SO3 fluctuations and coal qualities. | Load loss taken, brought more compressors.    | Yes                           |                                    |                         |                     |                          |
| 5           | 2020/12/24          | 2021/01/19        | Dust hopper levels, dust plant blockages, low dust instrument air, SO3 fluctuations and coal qualities. | Load loss taken, brought more compressors.    | Yes                           |                                    |                         |                     |                          |
| 5           | 2021/01/24          | 2021/02/04        | SO3 blockage and k pump breakdown   | SO3 shut down, repaired steam isolating valve | Yes<br>No                     |                                    |                         |                     |                          |
| 6           | 2020/12/24          | 2021/01/09        | Dust hopper levels, dust plant blockages, low dust instrument air, SO3 fluctuations and coal qualities. | Load loss taken, brought more compressors.    | Yes                           |                                    |                         |                     |                          |