

**HENDRINA POWER STATION MONTHLY EMISSIONS REPORT**

Atmospheric Emission License 17/4/AEL/MP313/11/16



| Raw Materials and Products | Raw Material Type | Units | Max. Permitted Consumption Rate | Consumption Rate Mar-2020 |
|----------------------------|-------------------|-------|---------------------------------|---------------------------|
|                            | Coal              | Tons  | 820 000                         | 244 140.0                 |
|                            | Fuel Oil          | Tons  | 3 200                           | 576.87                    |

| Production Rates | Product / By-Product Name | Units  | Max. Production Capacity Permitted | Production Rate Mar-2020 |
|------------------|---------------------------|--------|------------------------------------|--------------------------|
|                  | Energy                    | GWh    | 1488                               | 384.30                   |
|                  | Ash                       | Tons   | 290 000                            | 65 185                   |
|                  | RE PM                     | kg/MWh | not specified                      | 0.048                    |

**2 ENERGY SOURCE CHARACTERISTICS**

| Coal Characteristics | Units | Stipulated Range | Monthly Average Content |
|----------------------|-------|------------------|-------------------------|
| CV Content           | MJ/kg | 16-24            | 20.47                   |
| Sulphur Content      | %     | 0.6 to < 1       | 5.94                    |
| Ash Content          | %     | 31 to < 35       | 26.70                   |

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

| Associated Unit/Stack | PM | SOx  | NOx  |
|-----------------------|----|------|------|
| North                 | 75 | 3200 | 1200 |
| South                 | 75 | 3200 | 1200 |

**4 ABATEMENT TECHNOLOGY (%)**

| Associated Unit/Stack | Technology Type           | Efficiency Mar-2020 |
|-----------------------|---------------------------|---------------------|
| Unit 1                | Fabric Filter Plant (FFP) | Unit Off-line       |
| Unit 2                | Fabric Filter Plant (FFP) | 99.961%             |
| Unit 3                | Fabric Filter Plant (FFP) | Unit Off-line       |
| Unit 4                | Fabric Filter Plant (FFP) | 99.964%             |
| Unit 5                | Fabric Filter Plant (FFP) | 99.965%             |
| Unit 6                | Fabric Filter Plant (FFP) | Unit Off-line       |
| Unit 7                | Fabric Filter Plant (FFP) | Unit Off-line       |
| Unit 8                | Fabric Filter Plant (FFP) | Unit Off-line       |

|         |                           |               |
|---------|---------------------------|---------------|
| Unit 9  | Fabric Filter Plant (FFP) | Unit Off-line |
| Unit 10 | Fabric Filter Plant (FFP) | 100.000%      |

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> |
|-----------------------|-------|-----------------|-------|----------------|
| North                 | 100.0 | 100.0           | 100.0 | 100.0          |
| South                 | 60.3  | 18.7            | 55.8  | 36.3           |

#### 6 EMISSION PERFORMANCE

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

| Associated Unit/Stack | PM (tons) | SO <sub>2</sub> (tons) | NO <sub>2</sub> (tons) |
|-----------------------|-----------|------------------------|------------------------|
| North                 | 18.2      | 3 664.1                | 1 486.6                |
| South                 | 0.3       | 483.6                  | 173.5                  |
| SUM                   | 18.5      | 4 147.7                | 1 660.1                |

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

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average PM (mg/Nm <sup>3</sup> ) |
|-----------------------|--------|-------|------------|---------------|------------------|----------------------------------|
| North                 | 31     | 0     | 0          | 0             | 0                | 9.3                              |
| South                 | 17     | 0     | 0          | 0             | 0                | 0.8                              |
| SUM                   | 48     | 0     | 0          | 0             | 0                |                                  |

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

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average SOx (mg/Nm <sup>3</sup> ) |
|-----------------------|--------|-------|------------|---------------|------------------|-----------------------------------|
| North                 | 31     | 0     | 0          | 0             | 0                | 1 818.1                           |
| South                 | 21     | 0     | 0          | 0             | 0                | 1 058.8                           |
| SUM                   | 52     | 0     | 0          | 0             | 0                |                                   |

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

| Associated Unit/Stack | Normal | Grace | Section 30 | Contravention | Total Exceedance | Average NOx (mg/Nm <sup>3</sup> ) |
|-----------------------|--------|-------|------------|---------------|------------------|-----------------------------------|
| North                 | 31     | 0     | 0          | 0             | 0                | 735.0                             |
| South                 | 21     | 0     | 0          | 0             | 0                | 355.9                             |
| SUM                   | 52     | 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: Hendrina North Stack PM Emissions - March 2020

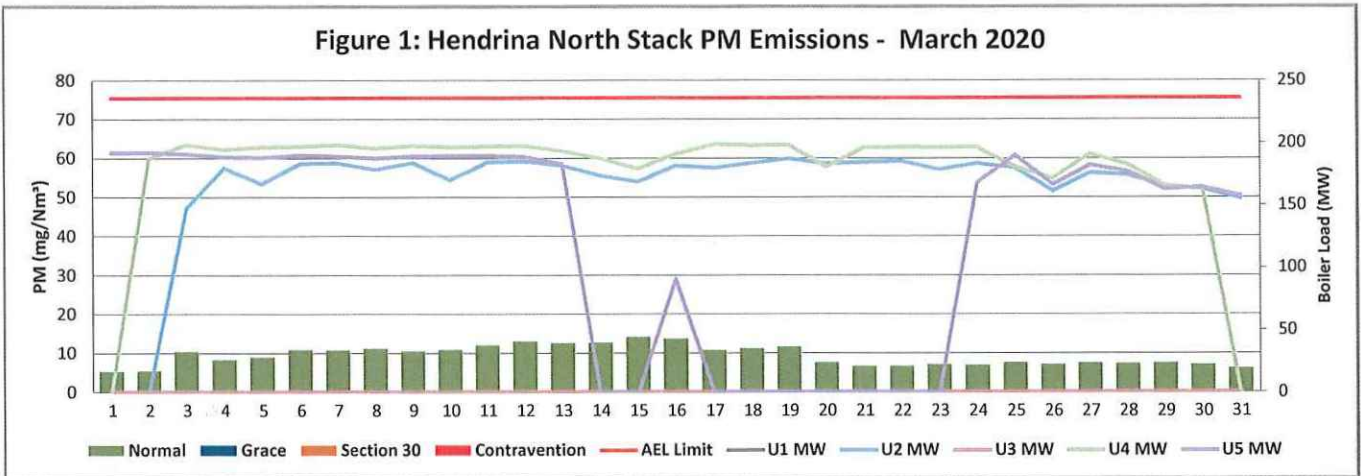


Figure 2: Hendrina South Stack PM Emissions - March 2020

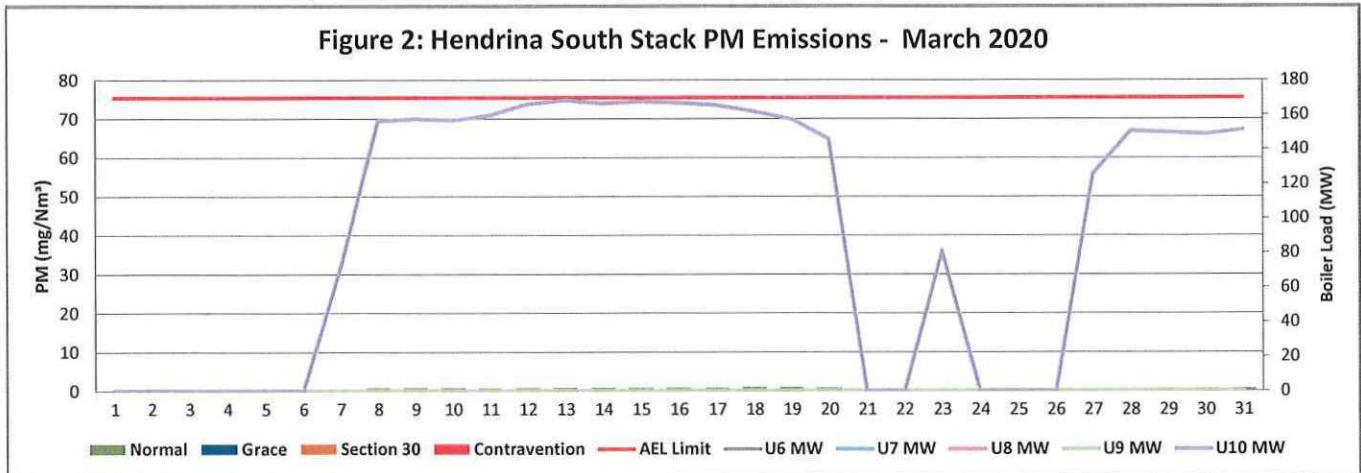




Figure 3: Hendrina North Stack SOx Emissions - March 2020

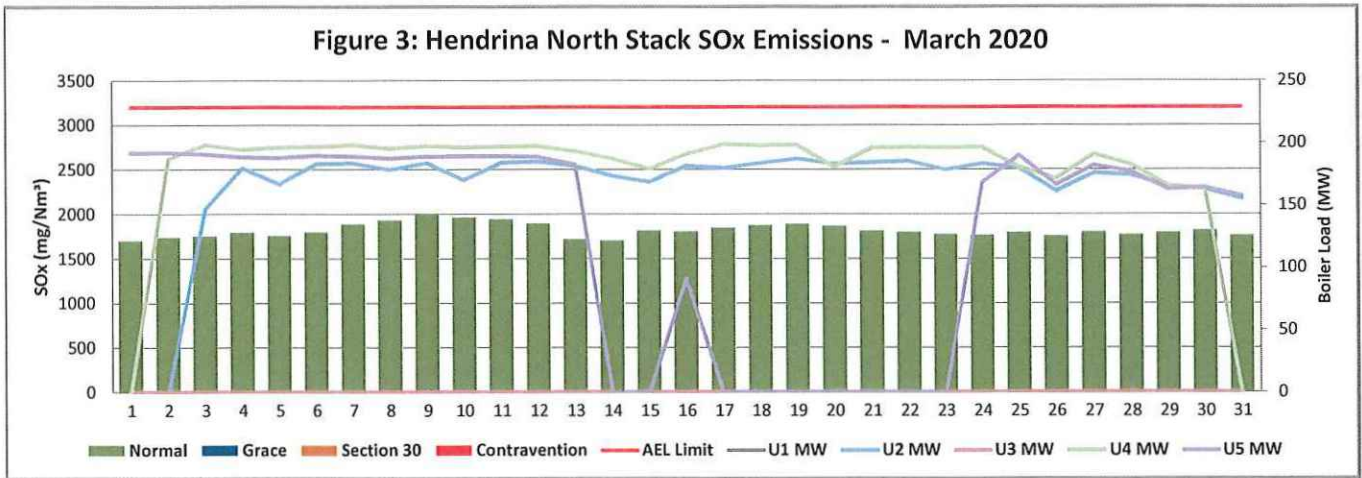


Figure 4: Hendrina South Stack SOx Emissions - March 2020

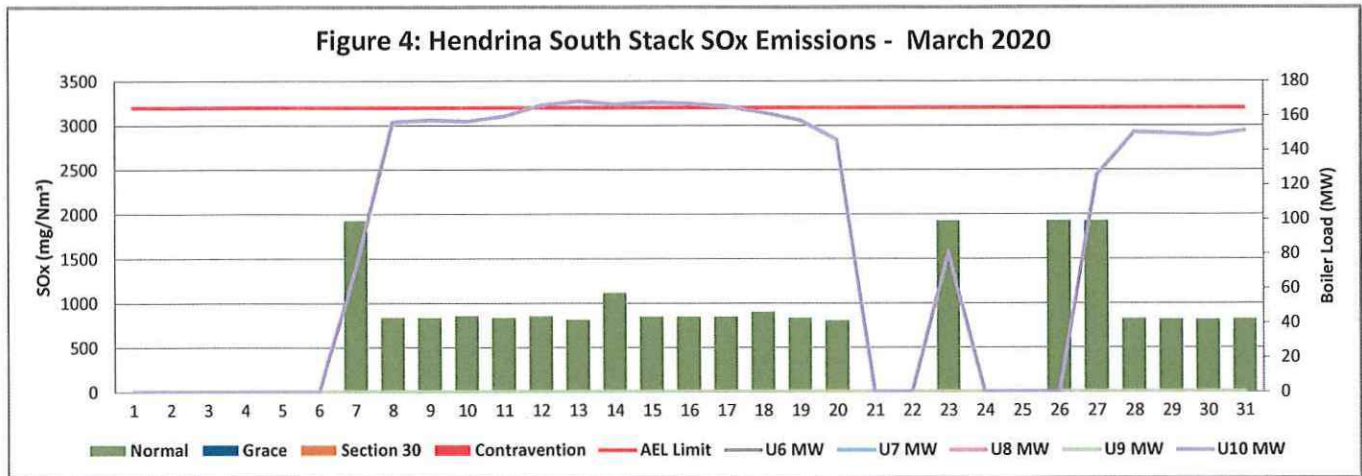


Figure 5: Hendrina North Stack NOx Emissions - March 2020

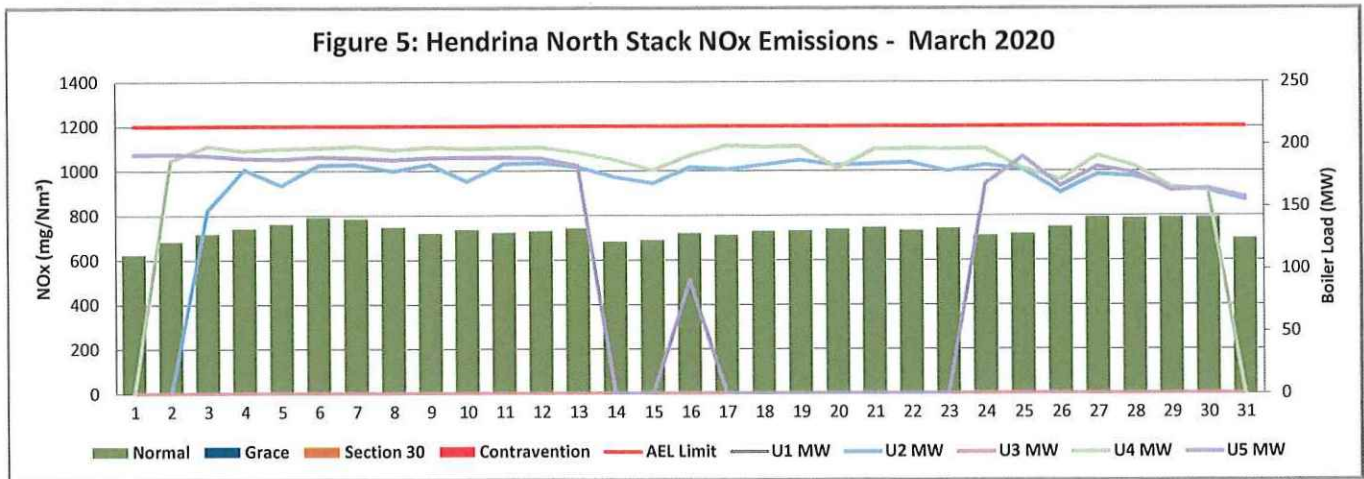
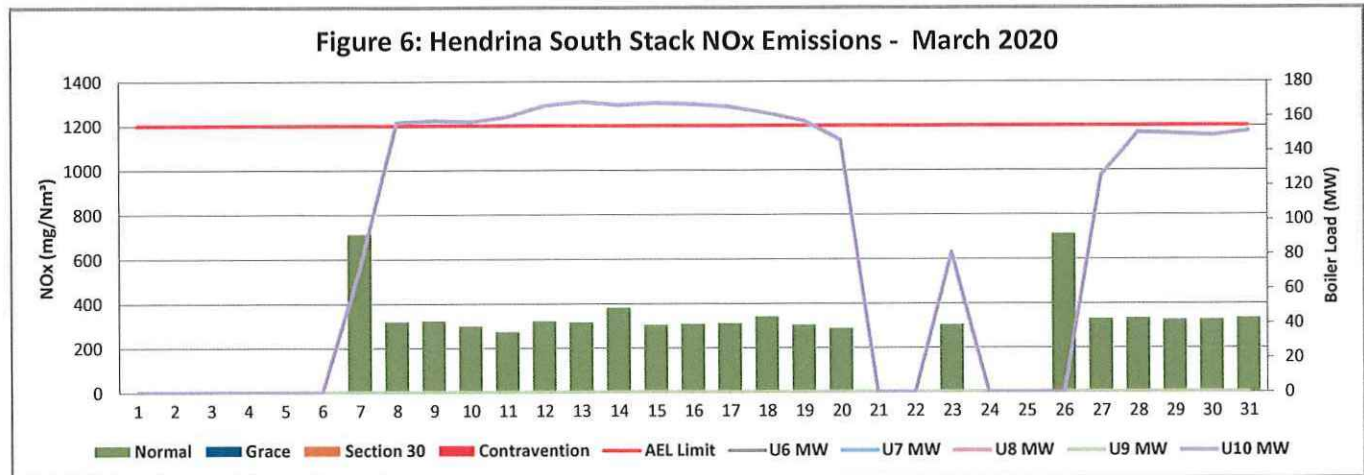


Figure 6: Hendrina South Stack NOx Emissions - March 2020



## 7 SHUT DOWN AND LIGHT UP INFORMATION

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

| North Stack                              | <i>Event 1</i>        |                       | <i>Event 2</i>        |                       | <i>Event 3</i>        |                       | <i>Event 4</i>  |                 |
|------------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------|-----------------|
| Unit No.                                 | <i>Unit</i>           |                       | <i>Unit 4</i>         |                       | <i>Unit 5</i>         |                       | <i>no event</i> |                 |
| Breaker Open (BO)                        | <i>BO previously</i>  | <i>BO previously</i>  |                       |                       | <i>10:45 PM</i>       | <i>2020/03/13</i>     |                 |                 |
| Draught Group (DG) Shut Down (SD)        | <i>n/a</i>            | <i>n/a</i>            |                       |                       | <i>10:45 PM</i>       | <i>2020/03/13</i>     |                 |                 |
| BO to DG SD (duration)                   | <i>n/a</i>            | <i>DD:HH:MM</i>       |                       | <i>DD:HH:MM</i>       |                       | <i>DD:HH:MM</i>       |                 | <i>DD:HH:MM</i> |
| Fires in time                            | <i>07:30 PM</i>       | <i>2020/03/04</i>     | <i>2020/03/02</i>     | <i>2020/03/02</i>     | <i>24:07:20</i>       | <i>2020/03/24</i>     |                 |                 |
| Synch. to Grid (or BC)                   | <i>02:30 AM</i>       | <i>2020/03/05</i>     | <i>07:30 AM</i>       | <i>2020/03/02</i>     | <i>12:20 PM</i>       | <i>2020/03/24</i>     |                 |                 |
| Fires in to BC (duration)                | <i>00:07:00</i>       | <i>DD:HH:MM</i>       | <i>00:05:00</i>       | <i>DD:HH:MM</i>       | <i>00:05:00</i>       | <i>DD:HH:MM</i>       |                 | <i>DD:HH:MM</i> |
| Emissions below limit from BC (end date) | <i>not &gt; limit</i> | <i>not &gt; limit</i> | <i>not &gt; limit</i> | <i>not &gt; limit</i> | <i>not &gt; limit</i> | <i>not &gt; limit</i> |                 |                 |
| Emissions below limit from BC (duration) | <i>n/a</i>            | <i>DD:HH:MM</i>       | <i>n/a</i>            | <i>DD:HH:MM</i>       | <i>n/a</i>            | <i>DD:HH:MM</i>       |                 | <i>DD:HH:MM</i> |

| North Stack ...Continued                 | <i>Event 1</i>  |                 | <i>Event 2</i>  |                 | <i>Event 3</i>  |                 | <i>Event 4</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)                   |                 | <i>DD:HH:MM</i> |                 | <i>DD:HH:MM</i> |                 | <i>DD:HH:MM</i> |                 | <i>DD:HH:MM</i> |
| Fires in time                            |                 |                 |                 |                 |                 |                 |                 |                 |
| Synch. to Grid (or BC)                   |                 |                 |                 |                 |                 |                 |                 |                 |
| Fires in to BC (duration)                |                 | <i>DD:HH:MM</i> |                 | <i>DD:HH:MM</i> |                 | <i>DD:HH:MM</i> |                 | <i>DD:HH:MM</i> |
| Emissions below limit from BC (end date) |                 |                 |                 |                 |                 |                 |                 |                 |
| Emissions below limit from BC (duration) |                 | <i>DD:HH:MM</i> |                 | <i>DD:HH:MM</i> |                 | <i>DD:HH:MM</i> |                 | <i>DD:HH:MM</i> |

| South Stack                              | Event 1     |             | Event 2     |             | Event 3  |          | Event 4  |          |
|------------------------------------------|-------------|-------------|-------------|-------------|----------|----------|----------|----------|
| Unit No.                                 | Unit        |             | Unit 10     |             | no event |          | no event |          |
| Breaker Open (BO)                        |             | #REF!       | 09:55 PM    | 2020/03/20  |          |          |          |          |
| Draught Group (DG) Shut Down (SD)        |             | #REF!       | 09:55 PM    | 2020/03/20  |          |          |          |          |
| BO to DG SD (duration)                   | n/a         | DD:HH:MM    |             | DD:HH:MM    |          | DD:HH:MM |          | DD:HH:MM |
| Fires in time                            | 07:30 AM    | 2020/03/07  | 2020/03/27  | 2020/03/27  |          |          |          |          |
| Synch. to Grid (or BC)                   |             |             | 02:40 PM    | 2020/03/27  |          |          |          |          |
| Fires in to BC (duration)                |             | DD:HH:MM    | 00:12:00    | DD:HH:MM    |          | 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) |             | DD:HH:MM    | n/a         | DD:HH:MM    |          | DD:HH:MM |          | DD:HH:MM |

| South Stack ...Continued                 | Event 1  |          | Event 2  |          | Event 3  |          | Event 4  |          |
|------------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Unit No.                                 | no event |          | no event |          | no event |          | no event |          |
| 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 |

7.2: Point Source emissions released during start-up (fires-in) and Shut-down (SD) for the month of March-2020 in 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

