

**HENDRINA POWER STATION MONTHLY EMISSIONS REPORT**

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



**Facts about Hendrina Power Station:**

Hendrina Power Station came into operation between June 1970 and December 1976.  
 Hendrina Power Station is one of Eskom's oldest continuously running power stations  
 Hendrina has had many notable achievements since its inception. In 1999, it received a Gold Award from the National Productivity Institute  
 Hendrina was the first Eskom coal-fired power station to receive certification on all three of the following standards: ISO9001, ISO14001, and OHSAS 18001

**1 RAW MATERIALS AND PRODUCTS**

Raw Materials and Products	Raw Material Type	Units	Max. Permitted Consumption Rate	Consumption Rate Mar-2023
	Coal	Tons	820 000	85 526.0
	Fuel Oil	Tons	3 200	125.3

Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Mar-2023
	Energy	GWh	1488	118.27
	Ash	Tons	290 000	21 390
	RE PM	kg/MWh	not specified	0.103

**2 ENERGY SOURCE CHARACTERISTICS**

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 to < 1	0.71
Ash Content	%	31 to < 35	25.01

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

Associated Unit/Stack	PM	SO <sub>2</sub>	NO <sub>x</sub>
North	75	3500	1200
South	75	3500	1200

**4 ABATEMENT TECHNOLOGY (%)**

Associated Unit/Stack	Technology Type	Efficiency Mar-2023
Unit 1	Fabric Filter Plant (FFP)	Unit Off-line
Unit 2	Fabric Filter Plant (FFP)	100.000%
Unit 3	Fabric Filter Plant (FFP)	Unit Off-line
Unit 4	Fabric Filter Plant (FFP)	Unit Off-line
Unit 5	Fabric Filter Plant (FFP)	Unit Off-line
Unit 6	Fabric Filter Plant (FFP)	100.000%
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.

There were not notable readings as unit tripped during cold start-up process.

#### 5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO <sub>2</sub>	NO	O <sub>2</sub>	CO <sub>2</sub>
North		90.1	53.4	0.0	0.0
South	100.0	0.0	0.0	0.0	70.0

Note: NO<sub>x</sub> emissions is measured as NO in PPM. Final NO<sub>x</sub> value is expressed as total NO<sub>2</sub>

#### 6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of March-2023

Associated Unit/Stack	PM (tons)	SO <sub>x</sub> (tons)	NO <sub>x</sub> (tons)
North	0.0	0.0	0.0
South	12.1	0.0	0.0
<b>SUM</b>	12.1	0.0	0.0

Table 6.2: Operating days in compliance to PM AEL Limit - March 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm <sup>3</sup> )
North	0	0	0	0	0	
South	29	0	0	0	0	18.3
<b>SUM</b>	<b>29</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

Table 6.3: Operating days in compliance to SO<sub>2</sub> AEL Limit - March 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO <sub>2</sub> (mg/Nm <sup>3</sup> )
North	0	0	0	0	0	
South	0	0	0	0	0	
<b>SUM</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

Table 6.4: Operating days in compliance to NO<sub>x</sub> AEL Limit - March 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO <sub>x</sub> (mg/Nm <sup>3</sup> )
North	0	0	0	0	0	
South	0	0	0	0	0	
<b>SUM</b>	<b>0</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
Contravention		Emissions above ELV but outside grace or S30 incident conditions

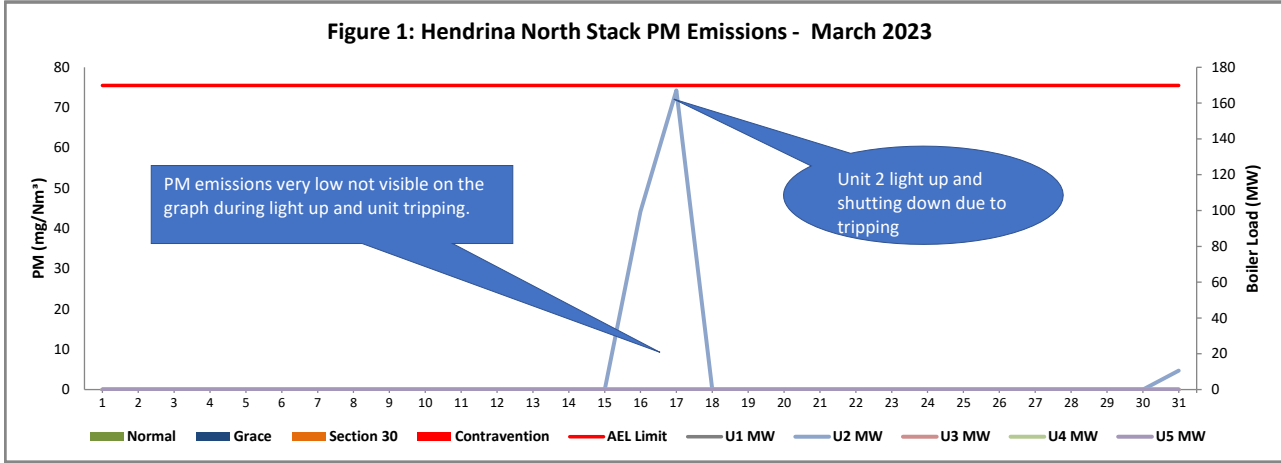


Figure 1: PM Emissions for month of March 2023 against a limit of 75 mg/Nm3 for North Stack. The average was 0.0mg/Nm3 for the month.

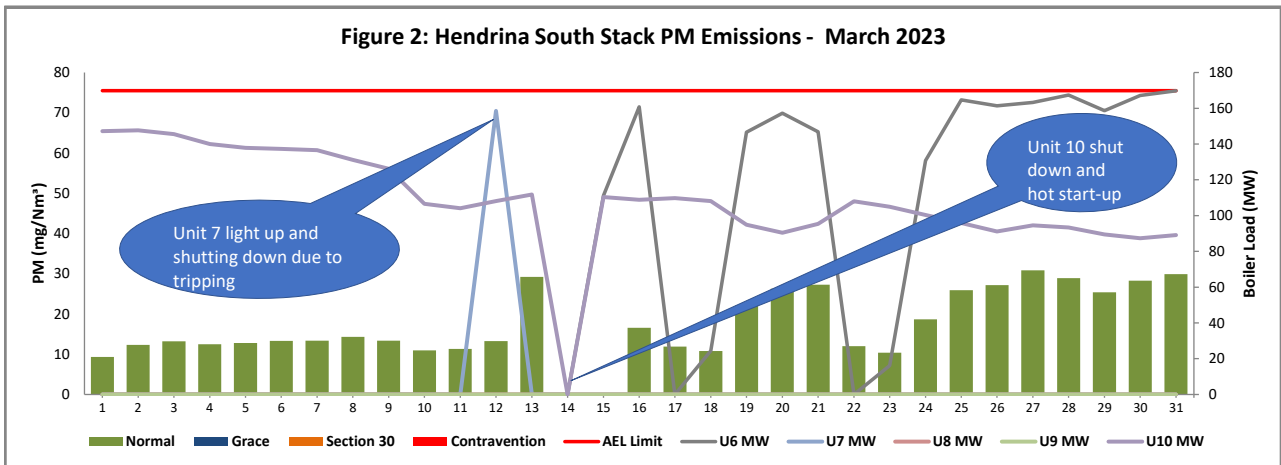


Figure 2: PM Emissions for month of March 2023 against a limit of 75 mg/Nm3 for South Stack. The average was 12.1mg/Nm3 for the month.

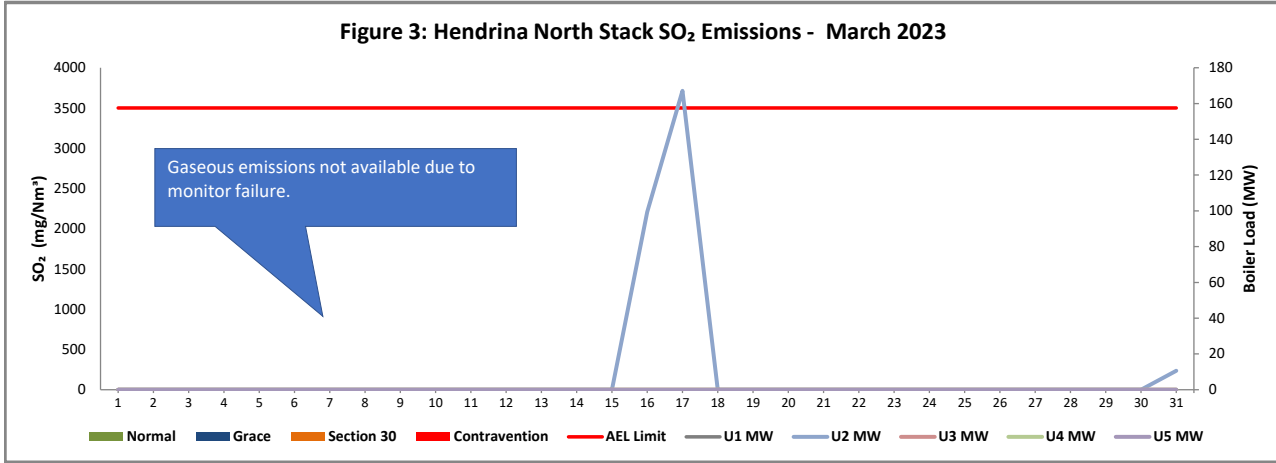


Figure 3: SO<sub>2</sub> Emissions for March 2023 against a limit of 3500 mg/Nm<sup>3</sup> for North Stack. The average emissions 0.00 mg/Nm<sup>3</sup> for the month.

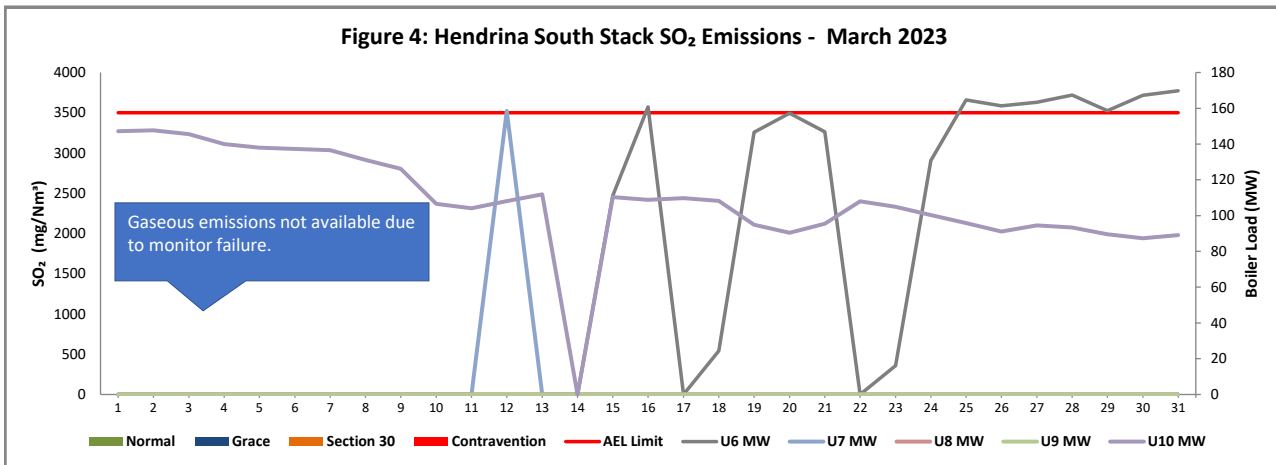


Figure 4: SO<sub>2</sub> Emissions for March 2023 against a limit of 3500 mg/Nm<sup>3</sup> for South Stack. The average emissions 0.00 mg/Nm<sup>3</sup> for the month.

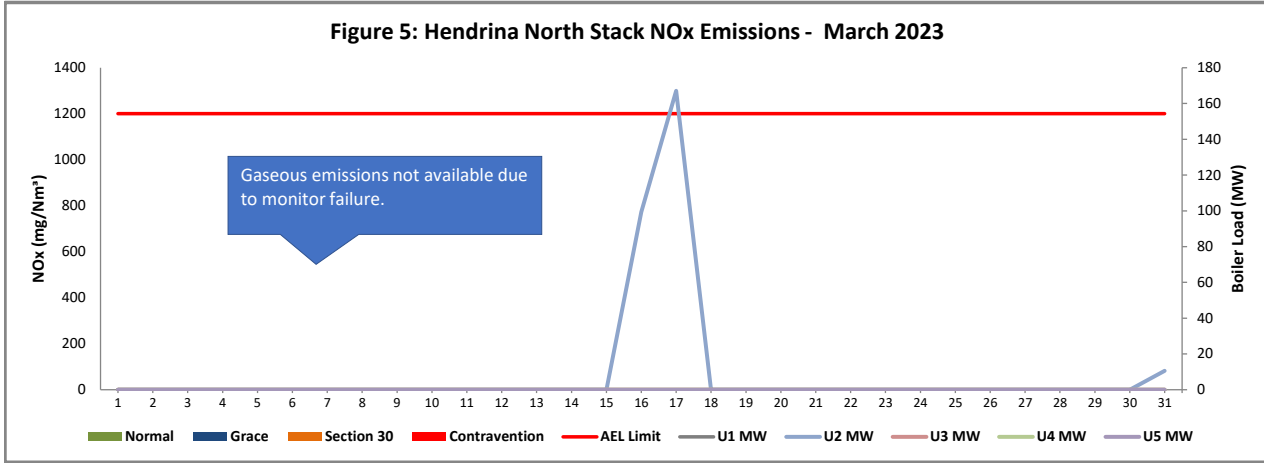


Figure 5: NO<sub>2</sub> Emissions for March 2023 against a limit of 1200 mg/Nm<sub>3</sub> for North Stack. The average emissions 0.00 mg/Nm<sub>3</sub> for the month.

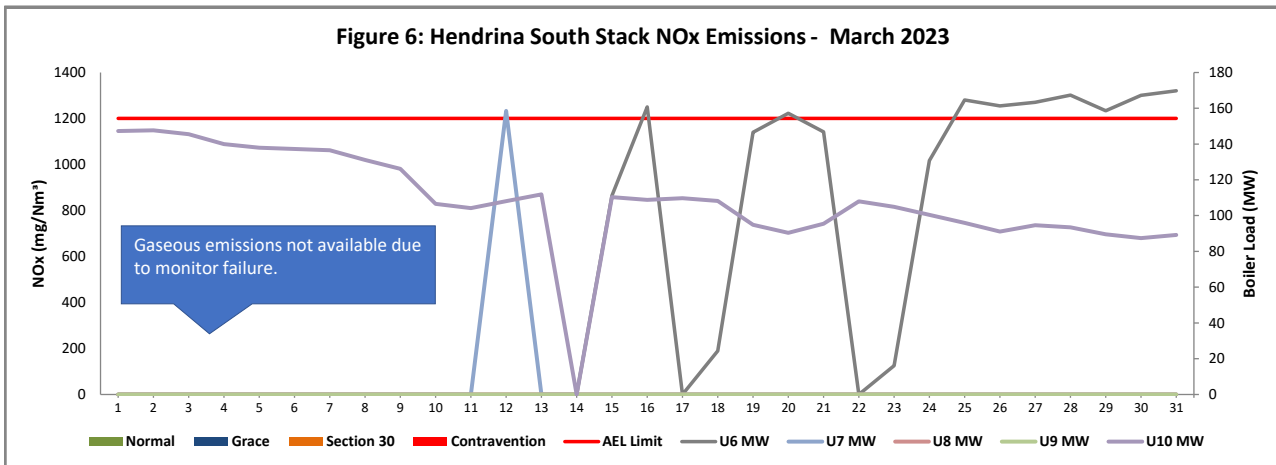


Figure 6: NO<sub>2</sub> Emissions for March 2023 against a limit of 1200 mg/Nm<sub>3</sub> for South Stack. The average emissions 0.00 mg/Nm<sub>3</sub> for the month.

7 SHUT DOWN AND LIGHT UP INFORMATION

South Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 6		Unit 6		Unit 6		Unit 10	
Breaker Open (BO)	BO previously	BO previously	12:35 pm	2023/03/16	9:15 pm	2023/03/21	12:05 am	2023/03/13
Draught Group (DG) Shut Down (SD)	n/a	n/a	12:45 pm	2023/03/16	9:15 pm	2023/03/21	12:05 am	2023/03/13
BO to DG SD (duration)	n/a	DD:HH:MM	00:00:10	DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	6:00 pm	2023/03/14	2023/03/18	2023/03/18	24:00:00	2023/03/24	2023/03/14	2023/03/14
Synch. to Grid (or BC)	12:00 am	2023/03/15	11:10 pm	2023/03/18	6:00 am	2023/03/24	12:00 am	2023/03/15
Fires in to BC (duration)	00:06:00	DD:HH:MM	00:23:10	DD:HH:MM	00:06:00	DD:HH:MM	00:06:00	DD:HH:MM
Emissions below limit from BC (end date)	not > limit	not > limit	not > limit	not > limit	not > limit	not > limit	not > limit	not > limit
Emissions below limit from BC (duration)	n/a	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM	n/a	DD:HH:MM

South Stack ...Continued	Event 5	
Unit No.	Unit 10	
Breaker Open (BO)	11:35 pm	2023/03/19
Draught Group (DG) Shut Down (SD)	11:35 pm	2023/03/19
BO to DG SD (duration)		DD:HH:MM
Fires in time	3:20 am	2023/03/20
Synch. to Grid (or BC)	9:20 am	2023/03/20
Fires in to BC (duration)	00:06:00	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


#### 8 . Complaints Register

Source Code / Name	Root Cause Analysis	Calculation of Impacts / emissions associated with the incident	Dispersion modeling of pollutants where applicable	Date measure will be implemented	Measures implemented to prevent reoccurrence
There were no complaints related to air quality received during the month of March 2023.					


**11 General**

The particulate matter (PM10) emissions on the North and South Common Stack were within the monthly limit; North stack recorded PM10 average emissions figure of 0.0 mg/Nm3 while south stack recorded PM10 average figure of 12.1 mg/Nm3. Gaseous emissions monitors are faulty and maintenance in progress. There were no gaseous emissions recorded.

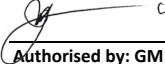
NB: The rest of the information demonstrating compliance with the emission license conditions is supplied in the annual emission reports sent to your office.

  
 \_\_\_\_\_  
 19/04/2023  
 Date

Compiled: Environmental Officer  
 B. Madiope

  
 \_\_\_\_\_  
 19/04/2023  
 Date

Boiler/ FFP  
 Marco Cossa

  
 \_\_\_\_\_  
 2023-04-19  
 Date

Authorised by: GM  
 P. Ndwandwe

  
 \_\_\_\_\_  
 19/04/2023  
 Date

Validated by Manager: Environmental  
 L. Ntila

Compiled by: Boiler Engineering Department

FFP SE/ Environmental Officer

For: Nkangala District Municipality

Air Quality Officer

Copies: Eskom Environmental Management

D Herbst  
 B Mccourt

Group Technology Engineering

R Rampiar  
 E. Patel

Hendrina Power Station:

Engineering Manager  
 Operating Manager  
 Maintenance Manager  
 Unit Production Manager  
 Boiler Engineering Manager  
 System Engineer: Boiler Engineering  
 Environmental Officer  
 C & I Engineering Manager  
 Production Manager  
 Environmental Manager  
 PSM