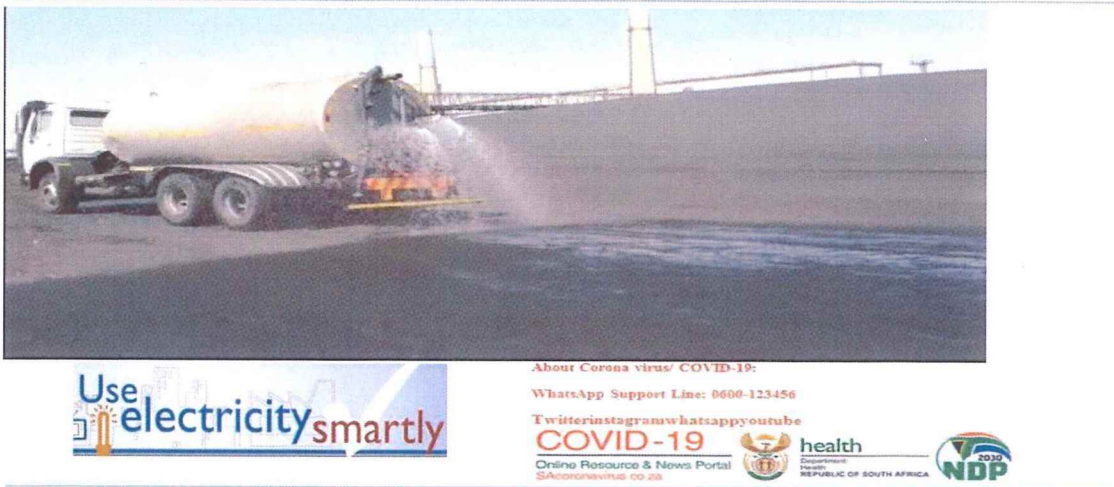


**HENDRINA POWER STATION MONTHLY EMISSIONS REPORT**  
 Atmospheric Emission License 17/4/AEL/MP313/11/16

**1 RAW MATERIALS AND PRODUCTS**

Raw Materials and Products	Raw Material Type	Units	Max. Permitted Consumption Rate	Consumption Rate Nov-2022
	Coal	Tons	820 000	134 174.0
	Fuel Oil	Tons	3 200	933 782

Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Nov-2022
	Energy	GWh	1440	90.42
	Ash	Tons	290 000	31 450
	RE PM	kg/MWh	not specified	0.187

**2 ENERGY SOURCE CHARACTERISTICS**

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 to < 1	0.94
Ash Content	%	31 to < 35	23.44

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

Associated Unit/Stack	PM	SO <sub>2</sub>	NO <sub>x</sub>
North	75	3200	1200
South	75	3200	1200

**4 ABATEMENT TECHNOLOGY (%)**

Associated Unit/Stack	Technology Type	Efficiency Nov-2022
Unit 1	Fabric Filter Plant (FFP)	Unit Off-line
Unit 2	Fabric Filter Plant (FFP)	Unit Off-line
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)	100.000%
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	97.2	100.0	98.4	99.9
South	100.0	68.8	67.5	94.5

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

## 6 EMISSION PERFORMANCE

Table 6.1: Monthly tonnages for the month of November-2022

Associated Unit/Stack	PM (tons)	SOx (tons)	NOx (tons)
North	6.9	264.9	121.1
South	10.0	560.6	300.4
SUM	16.9	825.5	421.6

Table 6.2: Operating days in compliance to PM AEL Limit - November 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm <sup>3</sup> )
North	3	3	0	0	3	72.7
South	23	0	0	0	0	29.8
SUM	26	3	0	0	3	

Comments: North Stack Units were not available for 25 days. Emissions were above the limit for 47 hours within three days.  
South Stack Units were not available for 8 days.

Table 6.3: Operating days in compliance to SO<sub>2</sub> AEL Limit - November 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO <sub>2</sub> (mg/Nm <sup>3</sup> )
North	7	0	0	0	0	2 075.1
South	26	0	0	0	0	1 349.9
SUM	33	0	0	0	0	

Comments: North Stack gaseous monitor detected gasses for total of 7 days and 25 days was not accounted for as units were offline.  
South Stack gaseous monitor detected gasses for total of 26 days and 5 days was not accounted for as units were offline.

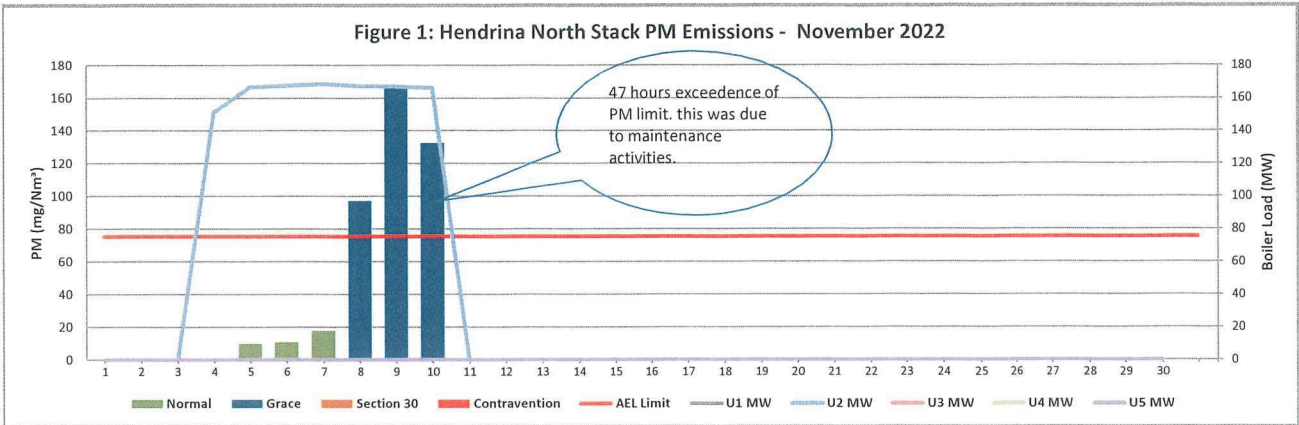
Table 6.4: Operating days in compliance to NO<sub>x</sub> AEL Limit - November 2022

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO <sub>x</sub> (mg/Nm <sup>3</sup> )
North	7	0	0	0	0	933.7
South	26	0	0	0	0	722.1
SUM	33	0	0	0	0	

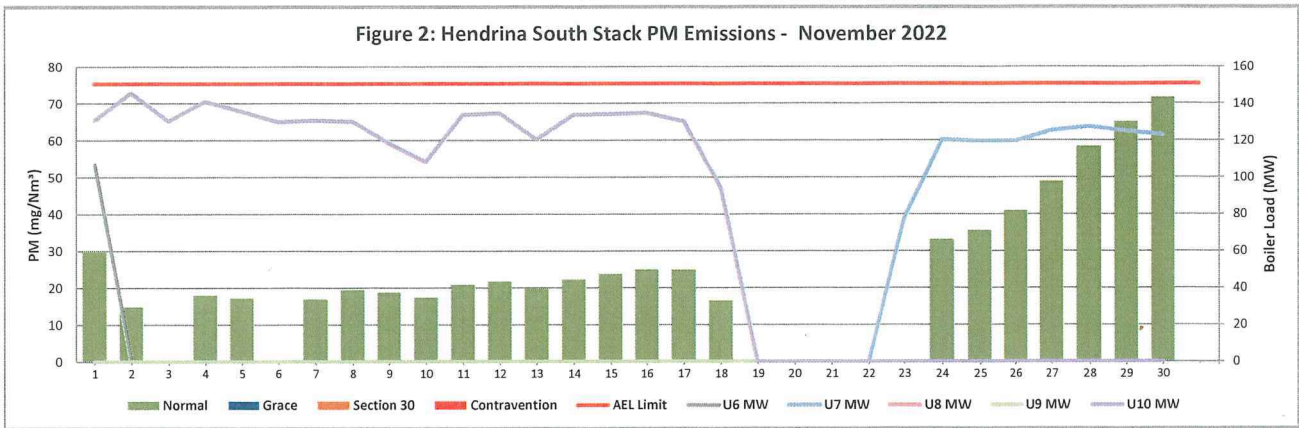
Comments: North Stack gaseous monitor detected gasses for total of 7 days and 25 days was not accounted for as units were offline.  
South Stack gaseous monitor detected gasses for total of 26 days and 5 days was not accounted for as units were offline.

Table 6.5: Legend Description

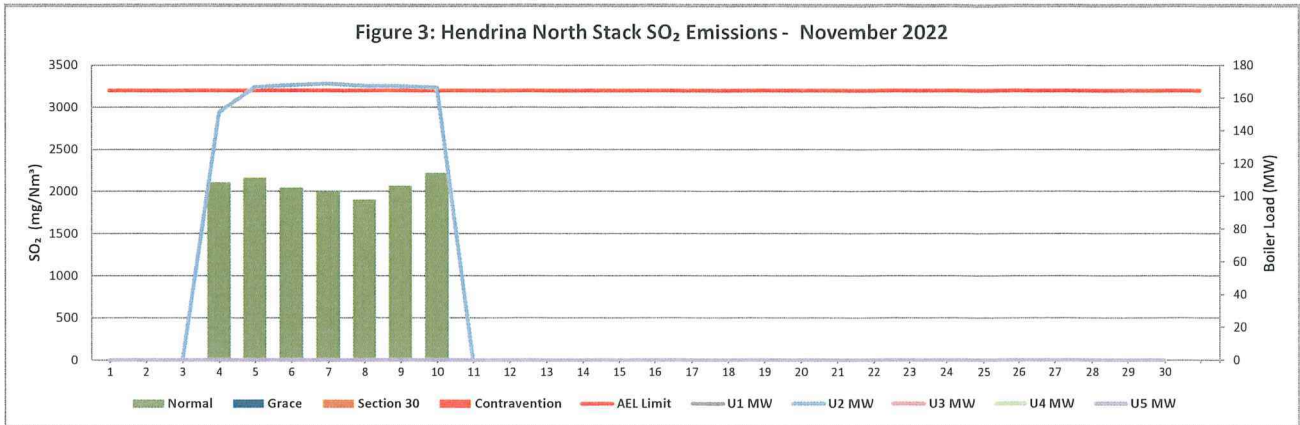
Condition	Colour	Description
Normal		Emissions below Emission Limit Value (ELV)
Grace		Emissions above the ELV during grace period
Section 30		Emissions above ELV during a NEMA S30 incident
Contravention		Emissions above ELV but outside grace or S30 incident conditions



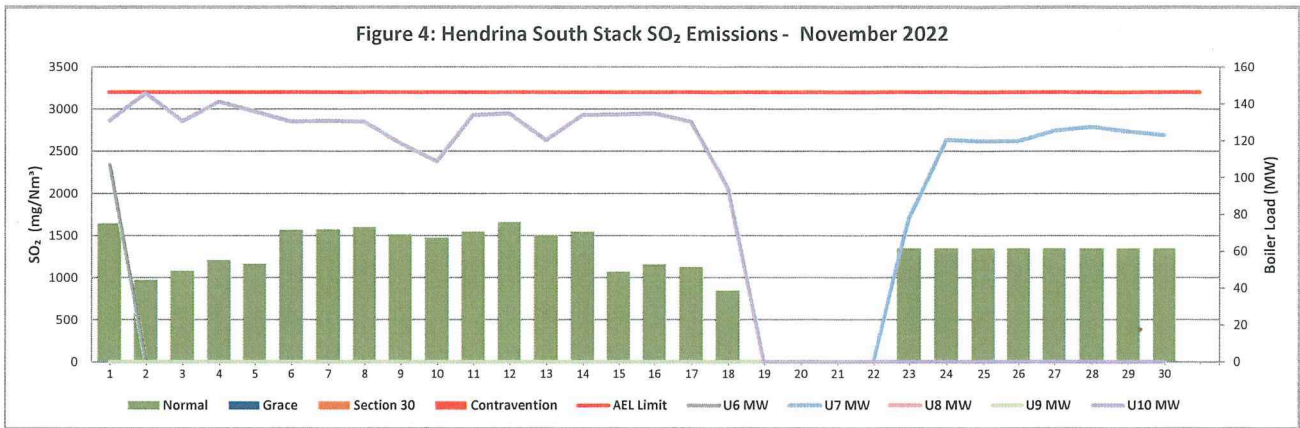
North Stack PM Emissions for the Month of November 2022 against the Limit of 75mg/Nm3



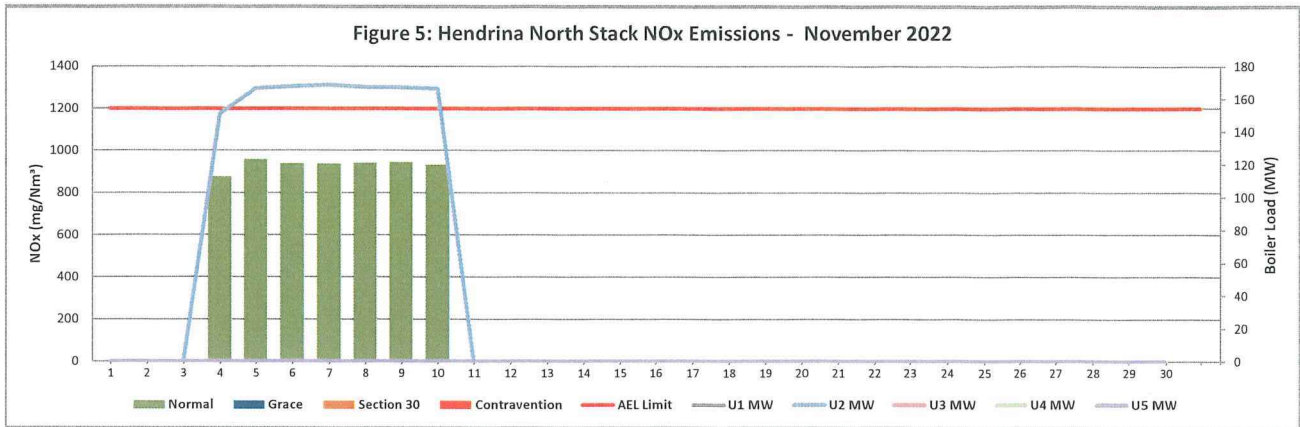
South Stack PM Emissions for the Month of November 2022 against the Limit of 75mg/Nm3



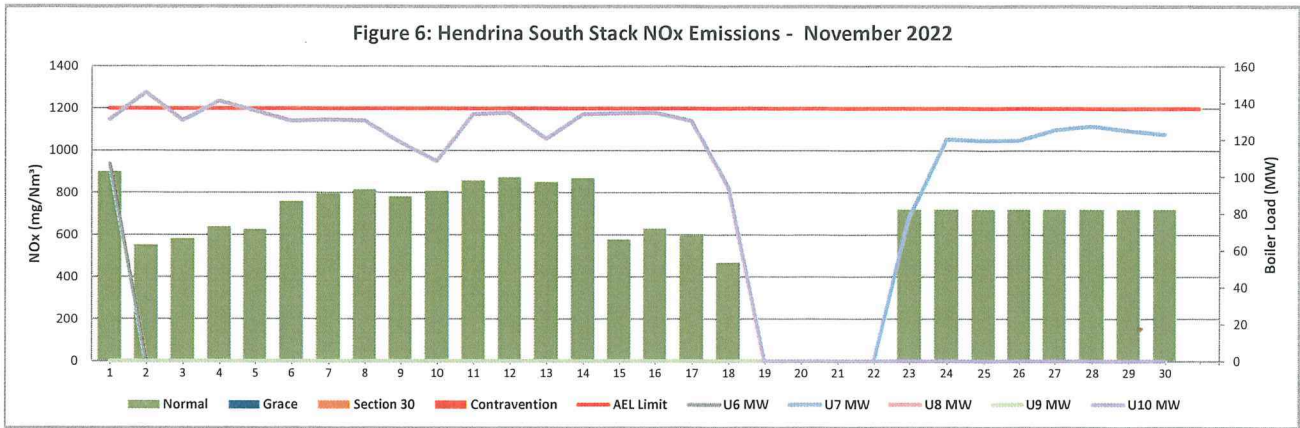
North Stack SO<sub>2</sub> Emissions for the Month of November 2022 against the Limit of 3200mg/Nm<sup>3</sup>



South Stack SO<sub>2</sub> Emissions for the Month of November 2022 against the Limit of 3200mg/Nm<sup>3</sup>



North Stack NO2 Emissions for the Month of November 2022 against the Limit of 1200mg/Nm3



South Stack NO2 Emissions for the Month of November 2022 against the Limit of 1200mg/Nm3

## 7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1 PM Start-up information for the month of November-2022

North Stack	<i>Event 1</i>		<i>Event 2</i>	
Unit No.	<i>Unit 2</i>		<i>Unit 2</i>	
Breaker Open (BO)	<i>12:01 am</i>	<i>2022/11/01</i>	<i>1:15 am</i>	<i>2022/11/10</i>
Draught Group (DG) Shut Down (SD)	<i>12:01 am</i>	<i>2022/11/01</i>	<i>1:15 am</i>	<i>2022/11/10</i>
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM
Fires in time	<i>5:05 pm</i>	<i>2022/11/03</i>		
Synch. to Grid (or BC)	<i>5:50 am</i>	<i>2022/11/04</i>		
Fires in to BC (duration)	<i>00:12:45</i>	DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)	<i>not &gt; limit</i>	<i>not &gt; limit</i>		
Emissions below limit from BC (duration)	<i>n/a</i>	DD:HH:MM		DD:HH:MM

South Stack	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>	
Unit No.	<i>no event</i>		<i>Unit 6</i>		<i>Unit 10</i>	
Breaker Open (BO)			<i>10:15 pm</i>	<i>2022/11/01</i>	<i>8:05 pm</i>	<i>2022/11/02</i>
Draught Group (DG) Shut Down (SD)			<i>1:45 am</i>	<i>2022/11/02</i>	<i>8:05 pm</i>	<i>2022/11/02</i>
BO to DG SD (duration)		DD:HH:MM	<i>00:03:30</i>	DD:HH:MM		DD:HH:MM
Fires in time					<i>08:18:00</i>	<i>2022/11/08</i>
Synch. to Grid (or BC)					<i>11:00 pm</i>	<i>2022/11/07</i>
Fires in to BC (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM
Emissions below limit from BC (end date)					<i>not &gt; limit</i>	<i>not &gt; limit</i>
Emissions below limit from BC (duration)		DD:HH:MM		DD:HH:MM	<i>n/a</i>	DD:HH:MM

7.2: Point Source emissions released during start-up (fires-in) and Shut-down (SD) for the month of November-2022 in mg/Nm<sup>3</sup>

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



**8 EMERGENCY GENERATION**

There was no emergency generation for any boiler unit

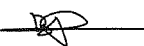
**9 COMPLAINTS REGISTER**

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
<i>There were no complaints received</i>					

**10 S30 INCIDENT OR LEGAL CONTRAVENTION REGISTER**

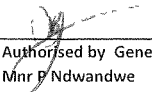
No Section 30 or legal contravention for the month of November was recorded.

11 General


11/01/2023

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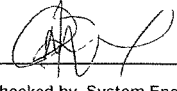
Compiled Environmental Officer Date  
 B Madipe


2023 01-11

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Authorised by General Manager (Acting) Date  
 Mnr P Ndwandwe

Compiled by Boiler Engineering Department  
 For Nkangala District Municipality  
 Copies Eskom Environmental Management  
  
 Group Technology Engineering  
  
 Hendrina Power Station


11/01/2023

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Checked by System Engineer Boiler/  
 FFP Date  
 Marco Cossa

FFP SE/ Environmental Officer  
 Air Quality Officer  
 D Herbst  
 B Mccourt  
  
 R Rampiar  
 E Patel

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