



1 RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Max. Permitted Consumption Rate	Consumption Rate Aug-2023
	Coal	Tons	820 000	162 942.0
Fuel Oil	Tons	3 200	403.44	

Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Aug-2023
	Energy	GWh	1488	279.67
	Ash	Tons	290 000	39 188
RE PM	kg/MWh	not specified	0.162	

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 to < 1	0.55
Ash Content	%	20 to < 35	24.05

3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO ₂	NO _x
North	75	3500	1200
South	75	3500	1200

4 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Aug-2023
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)	99.981%
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)	Unit Off-line

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

5 MONITOR RELIABILITY (%)

Associated Unit/Stack	PM	SO ₂	NO	O ₂	CO ₂
North	100.0	89.8	89.5	88.1	91.39808257
South	96.9	31.2	16.8	53.1	49.32795699

Note: NO_x emissions is measured as NO in PPM. Final NO_x value is expressed as total NO₂

6 EMISSION PERFORMANCE

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

Associated Unit/Stack	PM (tons)	SOx (tons)	NOx (tons)
North	1.9	1 222.1	613.3
South	43.3	2 401.8	889.5
SUM	45.3	3 623.9	1 502.8

Units were online for 22 days on the North Stack and the entire month on the South Stack. There were no PM exceedances

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
North	22	0	0	0	0	4.9
South	31	0	0	0	0	38.9
SUM	53	0	0	0	0	

North Stack SO₂ emissions were detected for a total of 24 days. 10 days were above AEL limit; faulty gaseous emissions monitor

Table 6.3: Operating days in compliance to SO₂ AEL Limit - August 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SO ₂ (mg/Nm ³)
North	14	0	0	10	10	2 907.9
South	31	0	0	0	0	2 089.8
SUM	45	0	0	10	10	

North Stack gaseous NO₂ emissions were detected for a total of 24 days. 14 days were above AEL limit; faulty gaseous emissions monitor

Table 6.4: Operating days in compliance to NO_x AEL Limit - August 2023

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NO _x (mg/Nm ³)
North	10	0	0	14	14	1 443.4
South	31	0	0	0	0	772.7
SUM	41	0	0	14	14	

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

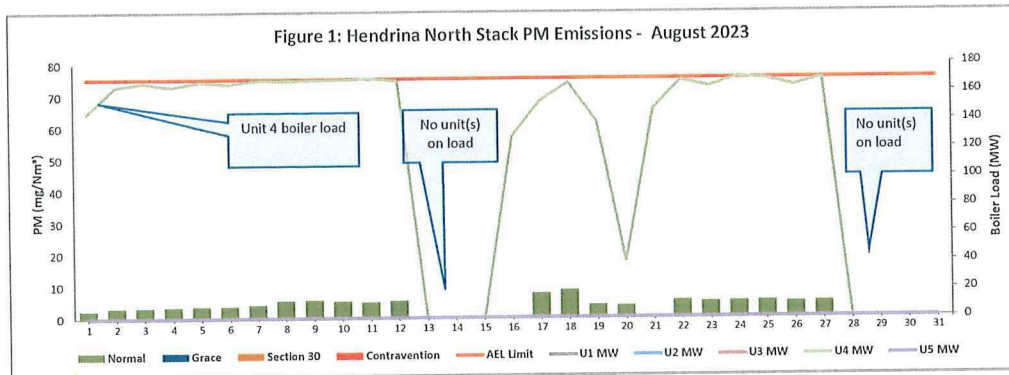


Figure 1: PM Emissions trends for North Stack- August 2023

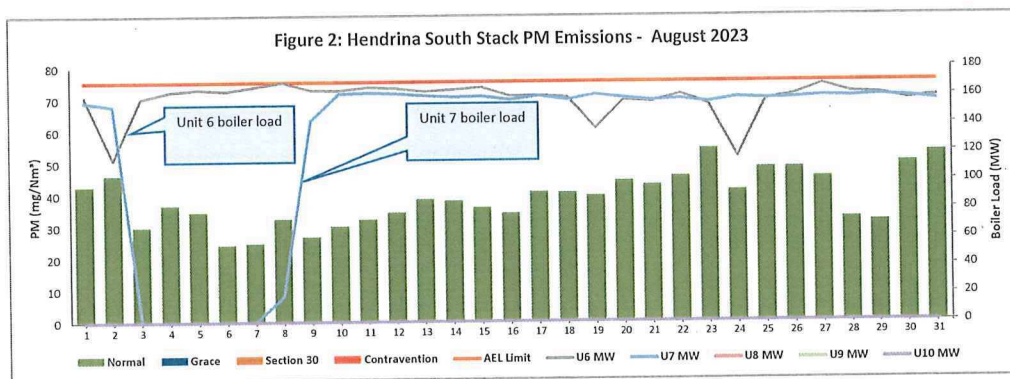


Figure 2: PM Emissions trends for South Stack- August 2023

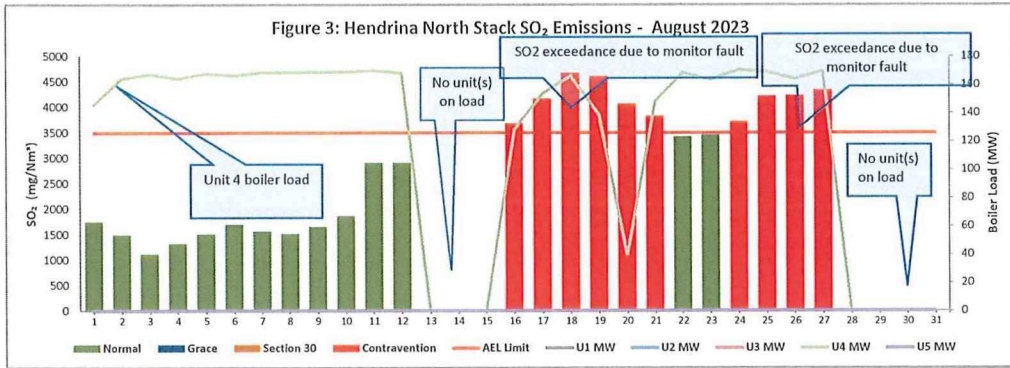


Figure 3: Sulphur dioxide Emissions trends for North Stack- August 2023

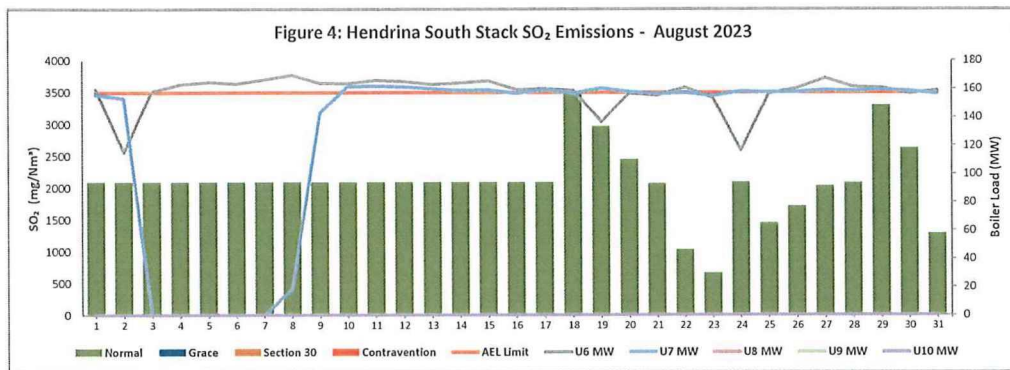


Figure 4: Sulphur dioxide Emissions trends for South Stack- August 2023

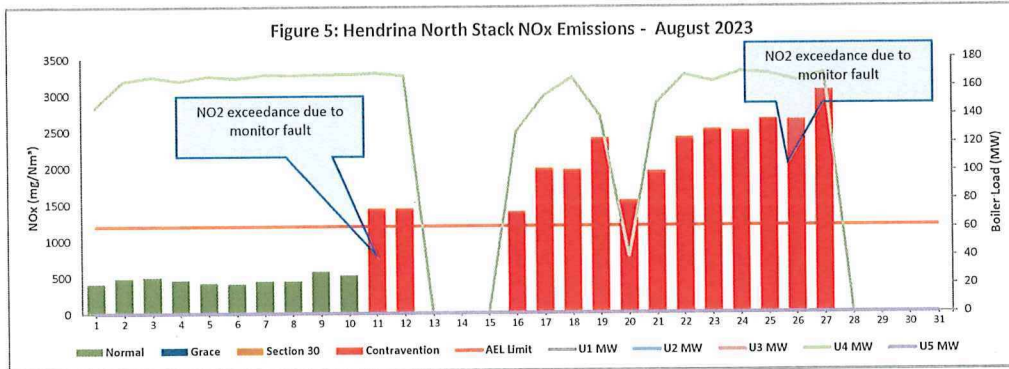


Figure 5: Nitrogen dioxide Emissions trends for North Stack- August 2023

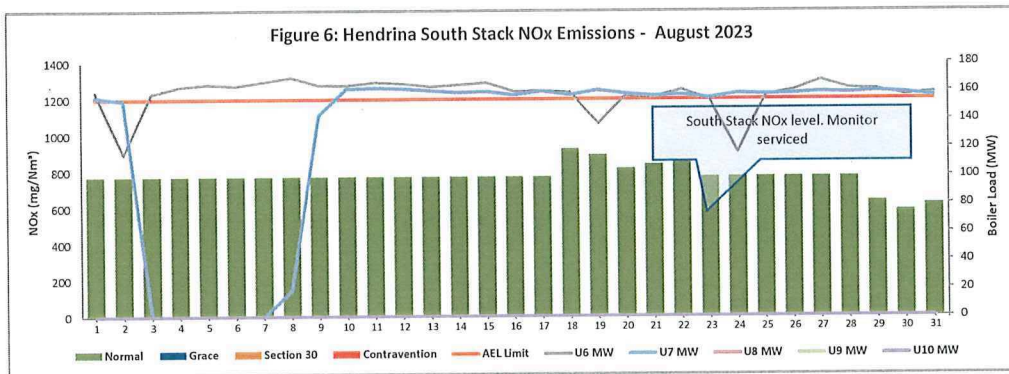


Figure 6: Nitrogen dioxide Emissions trends for South Stack- August 2023

7 SHUT DOWN AND LIGHT UP INFORMATION

Table 7.1 PM Start-up information for the month of August-2023

North Stack	Event 1		Event 2	
Unit No.	Unit 4		Unit 4	
Breaker Open (BO)	11.55 pm	2023/08/12	3.35 pm	2023/08/27
Draught Group (DG) Shut Down (SD)	1.05 am	2023/08/13	DG did not trip or SD	DG did not trip or SD
BO to DG SD (duration)	00.01.10	DD.HH.MM	n/a	DD.HH.MM
Fires in time	1.00 am	2023/08/16		
Synch. to Grid (or BC)	1.00 pm	2023/08/16		
Fires in to BC (duration)	00.12.00	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

South Stack	Event 1		Event 2		Event 3	
Unit No.	Unit 6		Unit 6		Unit 7	
Breaker Open (BO)	3:45 pm	2023/08/01	7:15 am	2023/08/24	11:05 pm	2023/08/02
Draught Group (DG) Shut Down (SD)	3:45 pm	2023/08/01	7:15 am	2023/08/24	11:05 pm	2023/08/02
BO to DG SD (duration)		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	11:10 pm	2023/08/01	2023/08/24	2023/08/24	08:18:30	2023/08/08
Synch. to Grid (or BC)	5:10 am	2023/08/02	1:10 pm	2023/08/24	11:30 pm	2023/08/08
Fires in to BC (duration)	00:06:00	DD:HH:MM	00:07:00	DD:HH:MM	00:05:00	DD:HH:MM
Emissions below limit from BC (end date)	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

8. Complaints register


Source Code / Name	Root Cause Analysis	Calculation of Impacts / emissions associated with the incident	Dispersion modelling 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 August 2023.					

9. S30 INCIDENT OR LEGAL CONTRAVENTION REGISTER

Unit no	Incident Start Date	Incident End Date	Incident Cause	Remedial action	Date S30 initial notification sent	Date S30 investigation report sent	Date DEA Acknowledgment	Date DEA Acceptable	Comments / Reference No.
4	11/08/2023	12/08/2023	Defective gaseous emissions monitor	Unit off					
4	16/08/2023	27/08/2023	Defective gaseous emissions monitor	Unit off					

11 General


The gaseous emissions monitors were calibrated by the Original Equipment Manufacturer (OEM) - SICK Automation Southern Africa on 11 August 2023 and subsequently a spike was observed on the gaseous emissions on the North Stack.
 The station undertook an investigative process to determine the cause for the exceedances; to which the OEM indicated:
 i. The age of the monitors is a concern
 ii. Power failures that have a catastrophic effect on the analyser resulting in the analyser not reading
 SICK Germany have recommended that the instruments be sent for factory calibration. Hendrina Power Station is conducting a feasibility study to replace the monitors

 04/10/2023

 Date

Compiled: Environmental Officer

B. Madipe

 09/10/2023

 Date

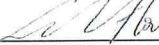
Authorised by: GM
T. Lekalakala

 05/10/2023

 Date

Engineer Boiler/ FFP

Akani Hlungwani

 05/10/2023

 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