

HENDRINA POWER STATION MONTHLY EMISSIONS REPORT

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



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1 RAW MATERIALS AND PRODUCTS

Raw Materials and Products	Raw Material Type	Units	Max. Permitted Consumption Rate	Consumption Rate Dec-2020
	Coal	Tons	820 000	308 840.0
	Fuel Oil	Tons	3 200	448.78

Production Rates	Product / By-Product Name	Units	Max. Production Capacity Permitted	Production Rate Dec-2020
	Energy	GWh	1488	507.97
	Ash	Tons	290 000	80 638
	RE PM	kg/MWh	not specified	0.033

2 ENERGY SOURCE CHARACTERISTICS

Coal Characteristics	Units	Stipulated Range	Monthly Average Content
Sulphur Content	%	0.6 to < 1	0.50
Ash Content	%	31 to < 35	26.11

 3 EMISSION LIMITS (mg/Nm³)

Associated Unit/Stack	PM	SO _x	NO _x
North	75	3200	1200
South	75	3200	1200

4 ABATEMENT TECHNOLOGY (%)

Associated Unit/Stack	Technology Type	Efficiency Dec-2020
Unit 1	Fabric Filter Plant (FFP)	Unit Off-line
Unit 2	Fabric Filter Plant (FFP)	99.973%
Unit 3	Fabric Filter Plant (FFP)	Unit Off-line
Unit 4	Fabric Filter Plant (FFP)	99.983%
Unit 5	Fabric Filter Plant (FFP)	99.973%
Unit 6	Fabric Filter Plant (FFP)	99.979%
Unit 7	Fabric Filter Plant (FFP)	99.978%
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 ₂	NO	O ₂	CO ₂
North	97.8	95.4	97.6	91.5	90.7
South	99.9	100.0	100.0	72.4	78.9

6 EMISSION PERFORMANCE

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

Associated Unit/Stack	PM (tons)	SOx (tons)	NOx (tons)	CO ₂ (tons)
North	7.5	1 561.9	698.9	152 092.7
South	9.5	3 968.4	2 350.7	451 328.5
SUM	17.0	5 530.3	3 049.6	603 421.3

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average PM (mg/Nm ³)
North	29	0	0	0	0	8.6
South	31	0	0	0	0	4.3
SUM	60	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average SOx (mg/Nm ³)
North	29	0	0	0	0	1 506.7
South	31	0	0	0	0	1 744.0
SUM	60	0	0	0	0	

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

Associated Unit/Stack	Normal	Grace	Section 30	Contravention	Total Exceedance	Average NOx (mg/Nm ³)
North	29	0	0	0	0	680.7
South	31	0	0	0	0	1 031.4
SUM	60	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 - December 2020

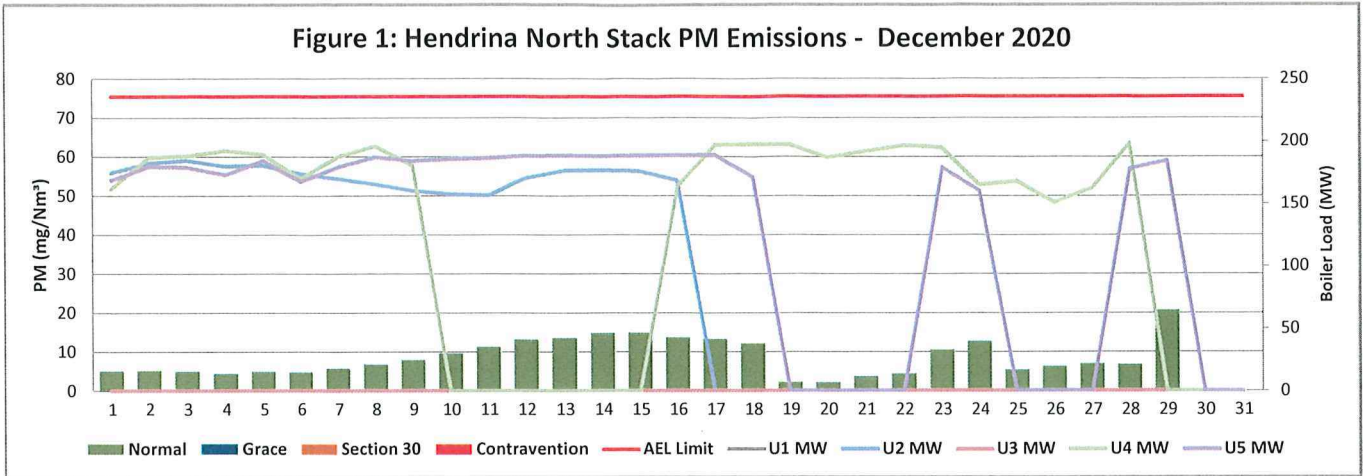


Figure 2: Hendrina South Stack PM Emissions - December 2020

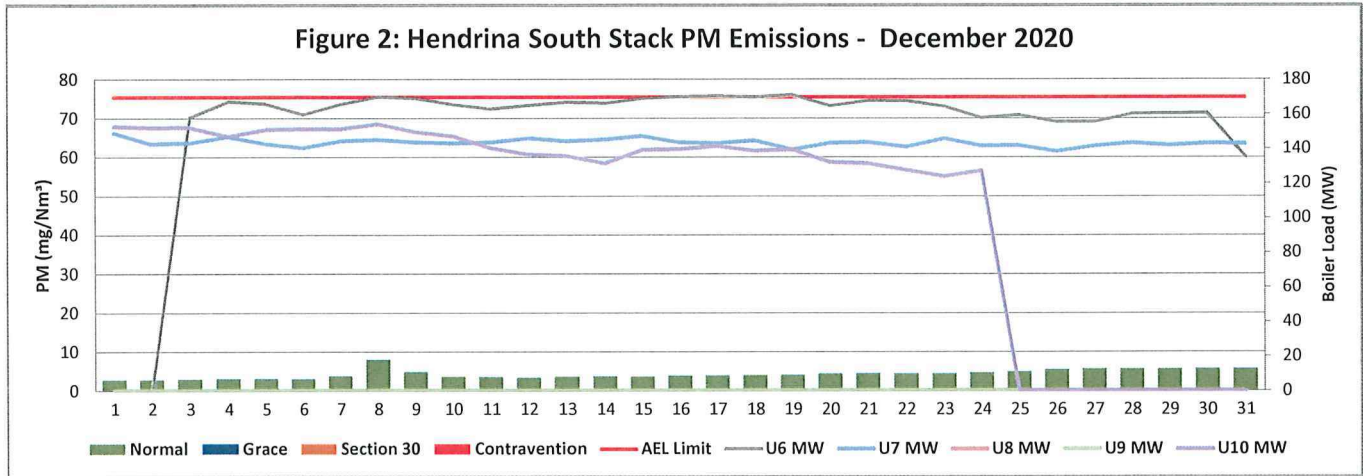


Figure 3: Hendrina North Stack SOx Emissions - December 2020

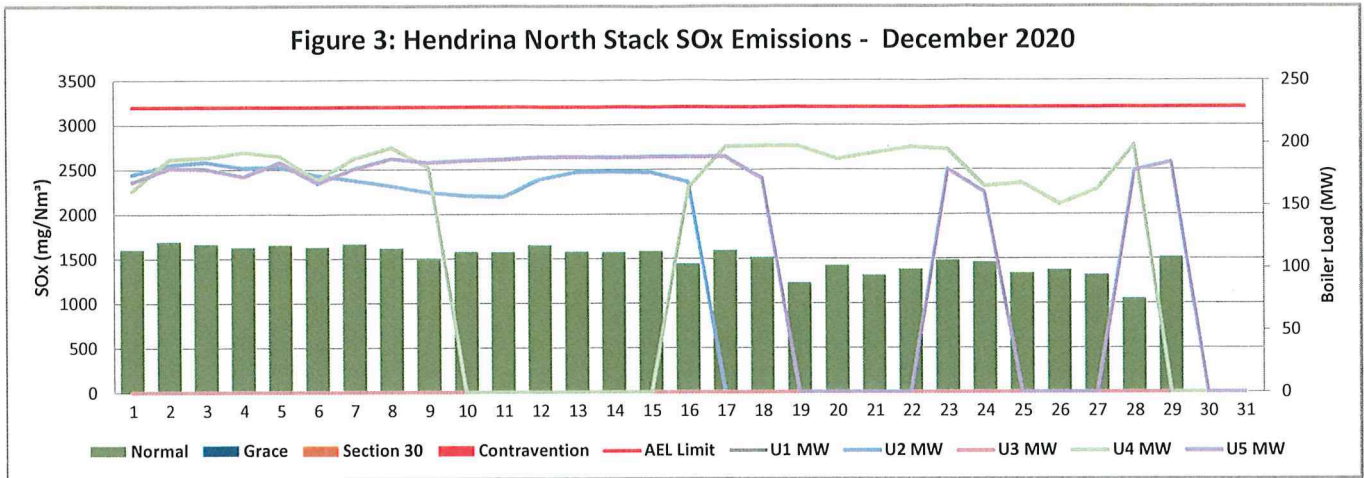


Figure 4: Hendrina South Stack SOx Emissions - December 2020

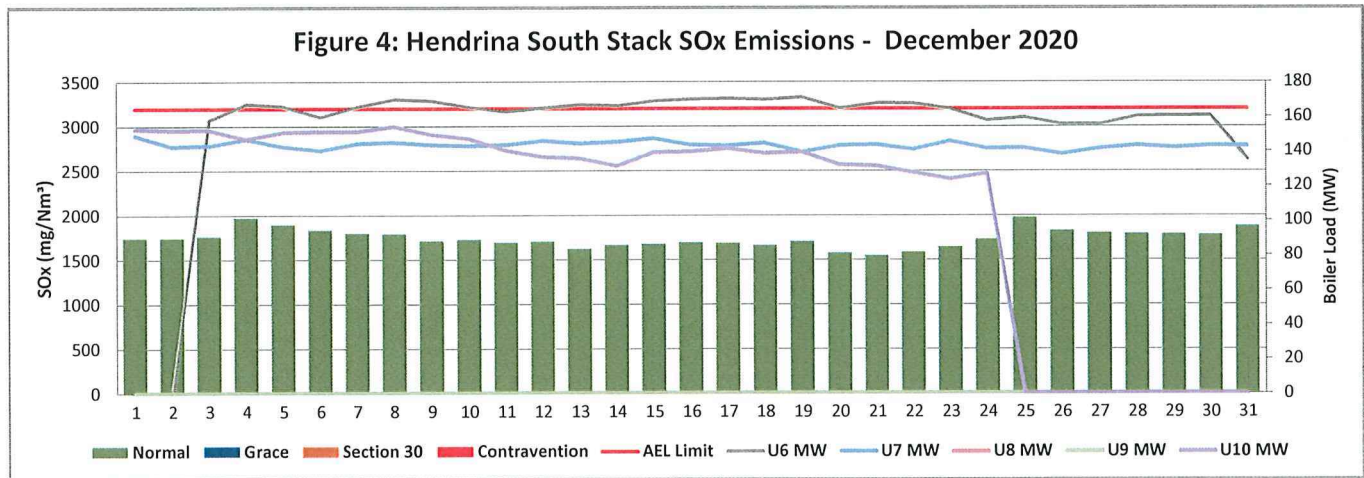


Figure 5: Hendrina North Stack NOx Emissions - December 2020

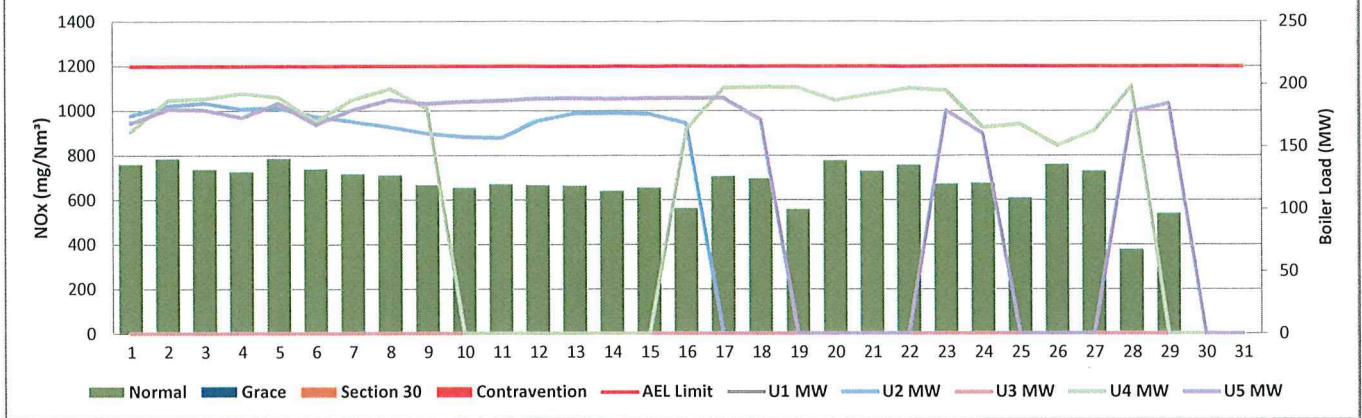
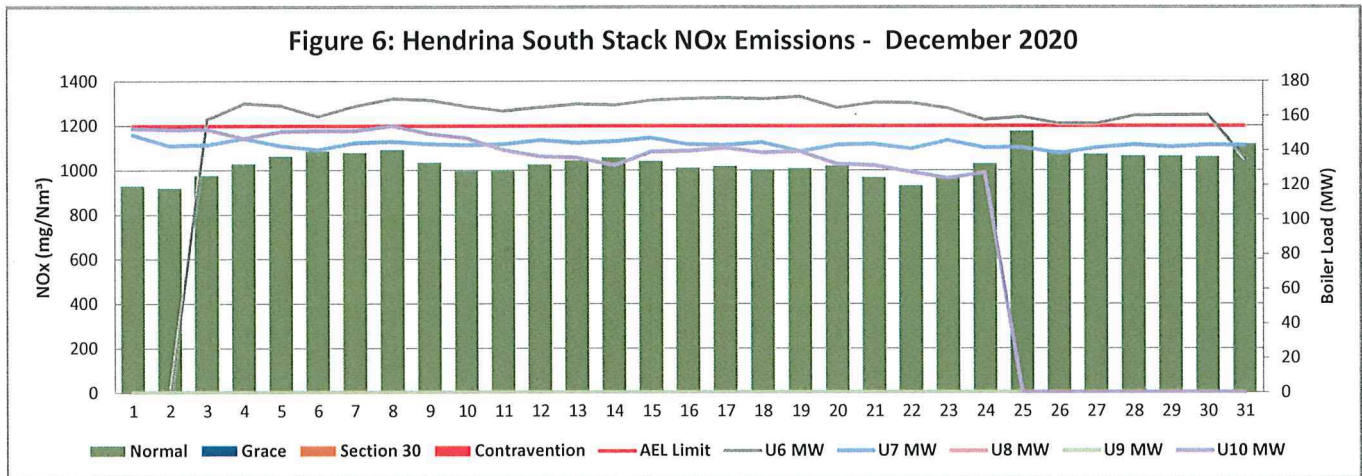


Figure 6: Hendrina South Stack NOx Emissions - December 2020



7 SHUT DOWN AND LIGHT UP INFORMATION

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

North Stack	<i>Event 1</i>		<i>Event 2</i>		<i>Event 3</i>		<i>Event 4</i>	
Unit No.	<i>no event</i>		<i>Unit</i>		<i>Unit 4</i>		<i>Unit 5</i>	
Breaker Open (BO)	<i>09:45 AM</i>	<i>2020/12/16</i>	<i>BO previously</i>	<i>BO previously</i>	<i>03:05 AM</i>	<i>2020/12/09</i>	<i>12:00 AM</i>	<i>2020/12/19</i>
Draught Group (DG) Shut Down (SD)	<i>11:25 PM</i>	<i>2020/12/16</i>	<i>n/a</i>	<i>n/a</i>	<i>02:25 PM</i>	<i>2020/12/09</i>	<i>12:00 AM</i>	<i>2020/12/19</i>
BO to DG SD (duration)	<i>00:13:40</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM	<i>00:11:20</i>	DD:HH:MM		DD:HH:MM
Fires in time			<i>2020/12/01</i>	<i>2020/12/01</i>	<i>16:03:10</i>	<i>2020/12/16</i>	<i>2020/12/23</i>	<i>2020/12/23</i>
Synch. to Grid (or BC)			<i>08:10 AM</i>	<i>2020/12/01</i>	<i>03:10 PM</i>	<i>2020/12/16</i>	<i>08:50 AM</i>	<i>2020/12/23</i>
Fires in to BC (duration)		DD:HH:MM	<i>00:08:00</i>	DD:HH:MM	<i>00:12:00</i>	DD:HH:MM	<i>00:08:00</i>	DD:HH:MM
Emissions below limit from BC (end date)			<i>not > limit</i>	<i>not > limit</i>	<i>not > limit</i>	<i>not > limit</i>	<i>not > limit</i>	<i>not > limit</i>
Emissions below limit from BC (duration)		DD:HH:MM	<i>n/a</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM	<i>n/a</i>	DD:HH:MM

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)	<i>12:15 PM</i>	<i>2020/12/29</i>						
Draught Group (DG) Shut Down (SD)	<i>12:15 PM</i>	<i>2020/12/29</i>						
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

South Stack	Event 1		Event 2		Event 3		Event 4	
Unit No.	Unit 6		no event		no event		no event	
Breaker Open (BO)		#REF!	10:15 PM	2020/12/24				
Draught Group (DG) Shut Down (SD)		#REF!	10:15 PM	2020/12/24				
BO to DG SD (duration)	n/a	DD:HH:MM		DD:HH:MM		DD:HH:MM		DD:HH:MM
Fires in time	12:30 AM	2020/12/03						
Synch. to Grid (or BC)	03:45 PM	2020/11/29						
Fires in to BC (duration)	#####	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

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 December-2020 in mg/Nm³


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

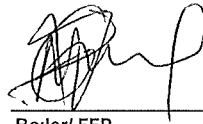
Remember to add attachments here, see ReportAddendum Tab

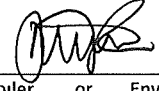
Reserved for Addendum XXXX

11 General

 26/01/2021
 Compiled Environmental Officer Date
 B Madiope

 26/01/2021
 Authorised by GM Date
 M Lesolang

 26/01/2021
 Boiler/ FFP Date
 Marco Cossa

J. Ramagoma  26/01/2021
 Validated by Manager Boiler or Environmenta Date
 R Nelwamondo J Ramagoma

Compiled by Boiler Engineering Department
 For Nkangala District Municipality
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 Group Technology Engineering
 Hendrina Power Station

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