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Dear Mr Hlanyane

MAJUBA POWER STATION ANNUAL EMISSIONS REPORT FOR THE 2020/2021 FINANCIAL YEAR

This serves as the annual report which is required in terms of Section 7.6 of Majuba Power Station's Atmospheric Emission License (AEL License No. Dr PKI Seme/Eskom H SOC Ltd/ MPS/0014/2020/F03). The emissions data reported is for Majuba's (hereafter referred to as "the station") 2020/2021 Financial Year (FY), from 1 April 2020 to 31 March 2021 and includes verified emissions figures (in tons) of particulate matter (PM), SO₂ and NO_x (as NO₂). CO₂ and N₂O are excluded as per the agreement between Eskom and DEFF.

Table 1: Listed activities as per the station's AEL

Category of Listed Activity	Sub-category of the Listed Activity	Listed Activity Name	Description of the Listed Activity
Category 1	Sub-category 1.1	Solid Fuel Combustion Installations	Solid fuel combustion installations used primarily for steam raising or electricity generation
Category 1	Sub-category 1.4	Gas Combustion Installation	Gas combustion (including gas turbines burning natural gas) used primarily for steam raising or electricity generation

Category 2	Sub-category 2.4	Storage of Petroleum Products	Petroleum products storage tanks and product transfer facilities, except those used for liquefied petroleum gas
Category 5	Sub-category 5.1	Storage and handling of ore and coal	Storage and handling of ore and coal not situated on a premises of a mine or works as defined in the Mines Health and Safety Act 29/1996.

A. NEM: AQA SECTION 21 POLLUTANT EMISSION TREND FOR LISTED ACTIVITY

The emissions in the table below are that of the 2020/2021 FY.

Table 2: Summary of total emissions at Majuba Power Station 2020/2021 FY

Power Station	Coal-fired emissions (tons/annum)	Fuel-oil emissions (tons/annum)	Total (tons/annum)
Majuba Power Station	PM: 2115.7 SO ₂ : 245 409 NO ₂ : 123 980	PM: - SO ₂ : 2 844.9 NO ₂ : -	PM: 2115.7 SO ₂ : 248 254 NO ₂ : 123 980

Table 3: Pollutant Emission Trends for 2020/2021 FY

Month	PM (tons)	SO ₂ (Tons)	NO _x (Tons)
April 2020	120.8	16 074	7 488
May 2020	181.3	18 859	9 510
June 2020	229.2	24 916	12 382
July 2020	211.3	23 385	11 842
August 2020	184.1	20 413	10 259
September 2020	184.8	21 508	10 590
October 2020	193.1	24 313	12 386
November 2020	138.9	20 285	9 923
December 2020	184.0	18 369	10 176
January 2021	165.3	19 574	10 291
February 2021	145.5	18 047	9 497
March 2021	177.4	19 666	9 636

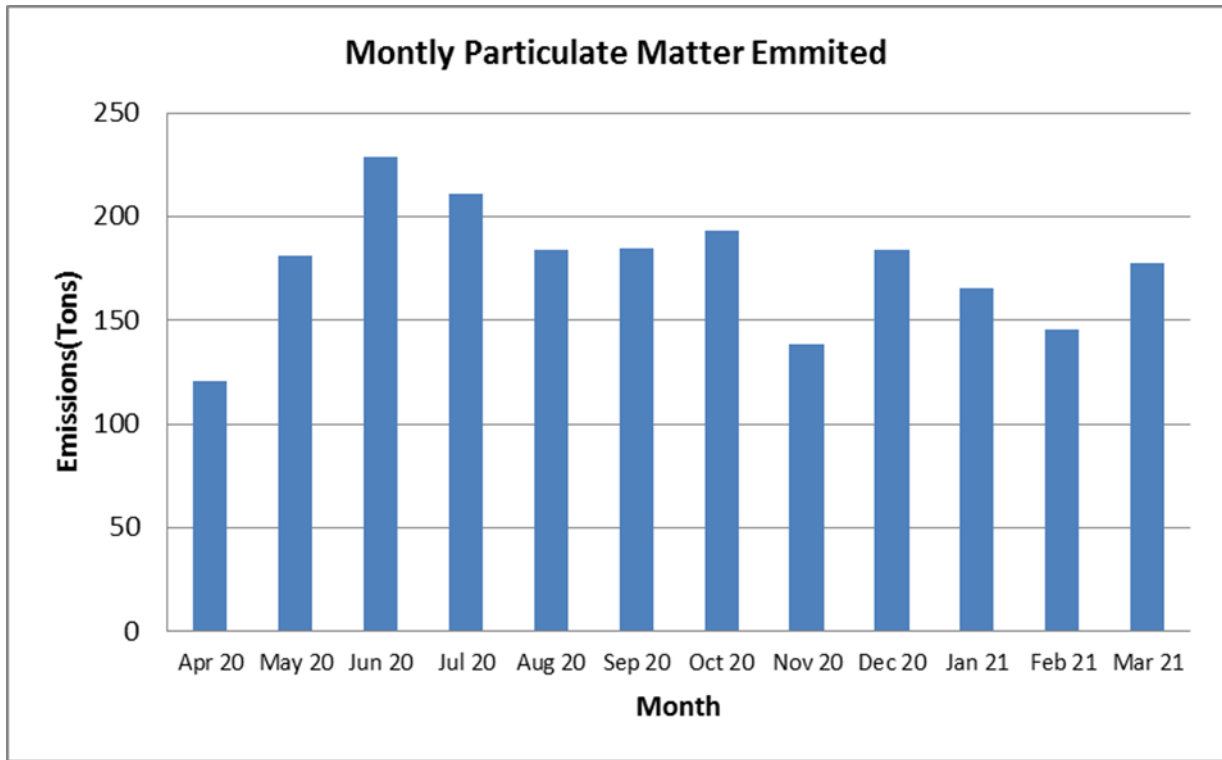


Figure 1: Monthly Particulate Emissions in tons from Majuba Power Station Financial Year 2020/2021

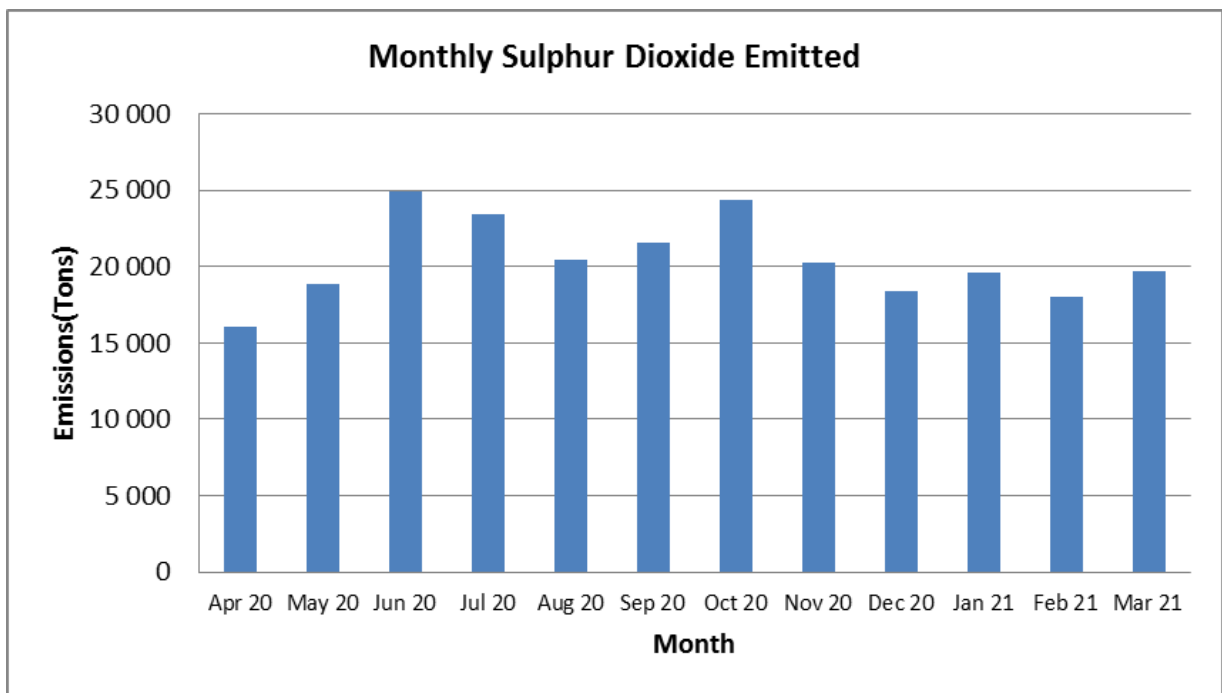


Figure 2: Monthly SO₂ Emissions in tons from Majuba Power Station Financial Year 2020/2021

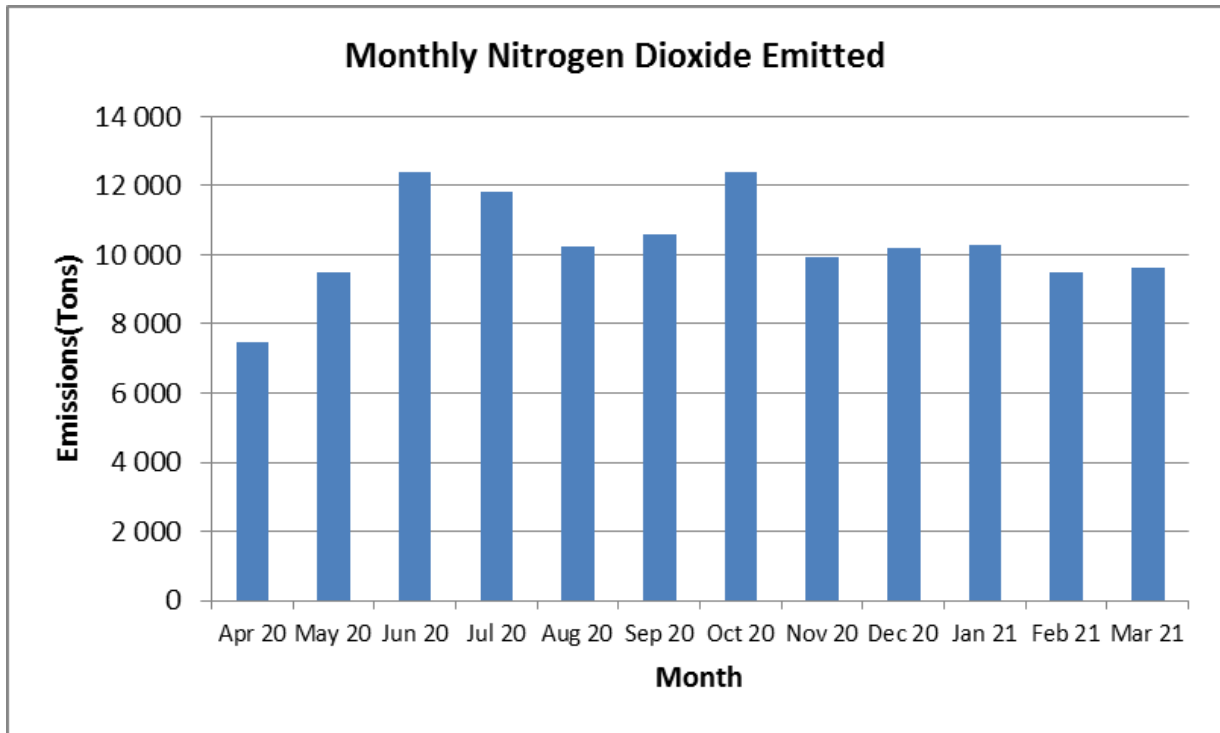


Figure 3: Monthly NO₂ Emissions in tons from Majuba Power Station Financial Year 2020/2021

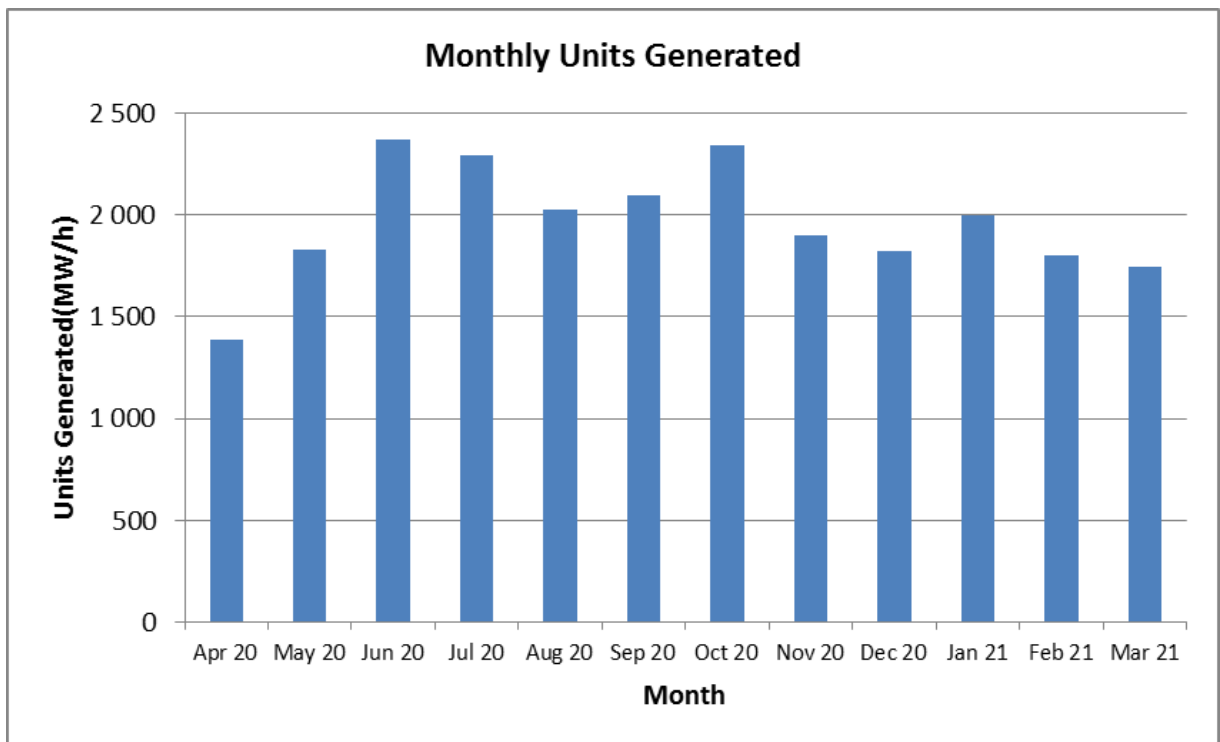


Figure 4: Monthly MWh Generated at Majuba Power Station Financial Year 2020/2021

Monitor Reliability

Table 7 indicates monitor reliability throughout the 2020/21 monitoring period. These values indicate full compliance to the requirement of a minimum of 80% valid hourly average values during the reporting period, as stipulated within the National Environmental Management: Air Quality Act, 39 of 2004 - GN 893 - Listed Activities And Associated Minimum Emission Standards Identified In Terms Of Section 21 Of The National Environmental Management: Air Quality Act, 2004 (Act No. 39 Of 2004).

Table 4: Monitor Reliability per/month

Monthly AVG	PM	SOx	NOx	CO2
18-Apr	99.30	81.25	81.31	98.36
18-May	99.60	80.89	82.34	98.83
18-Jun	94.71	74.40	74.49	92.59
18-Jul	97.56	80.44	79.31	96.82
18-Aug	91.64	80.61	81.19	90.71
18-Sep	98.73	81.61	81.35	97.15
18-Oct	99.82	87.83	87.83	90.24
18-Nov	97.90	95.82	95.82	94.40
18-Dec	99.62	99.92	99.96	99.83
18-Jan	100.00	99.58	100.00	95.81
18-Feb	100.00	97.37	97.49	96.63
18-Mar	100.00	97.31	100.00	99.38
Annual Averages	98.24	88.09	88.42	95.90

National Atmospheric Emissions Inventory System

Majuba Power Station has reported, in terms of pollutants and greenhouse emissions, on the NAEIS portal for the 2020 calendar year.

Status of stratification, parallel and correlation tests

The results of the most recent stratification, parallel and correlation tests will be attached with this report. The following serves as a brief summary:

- Gaseous Parallel test curves for all the units expired in March 2020 but due to lockdown the tests were only conducted in July 2020 for Unit 1, 2 and 3 and for Unit 4, 5 and 6 the test were conducted in between September 2020 to October 2020.
- Unit 1, 2 and 3 report was received in September 2020 and for Unit 4, 5 and 6 the report received in November 2020. The curves were back-fitted from March 2020 to October 2020. Revised Monthly reports were submitted to the Licensing Authority February 2021.
- Particulate Matter correlation test for all the Units are still valid and test are planned from June 2021.

Table 5: Parallel and Correlation Test Dates and Validity

Unit	Current Correlation test completion date	Correlation Curve expiry date	Future correlation test date	Current validity
1	18 April 2019	15 August 2021	15 August 2021	Valid
2	18 December 2018	28 June 2021	28 June 2021	Valid
3	26 January 2020	26 January 2022	26 October 2021	Valid
4	28 September 2019	28 September 2021	28 June 2021	Valid
5	21 January 2020	21 January 2022	21 October 2021	Valid

6	28 October 2019	28 October 2021	28 July 2021	Valid
Gaseous Parallel Test				
1-3	11 July 2020	11 July 2022	11 April 2022	Valid
4	02 September 2020	02 September 2022	02 June 2022	Valid
5	25 October 2020	25 October 2022	25 July 2022	Valid
6	05 September 2020	05 September 2022	22 June 2022	Valid

Methods used: Parallel Tests

The following sampling methods were used in accordance with Annexure 2 of the NEM: AQA Listed Activities (GN 893 of 2013):

Table 6: Sampling methods used in parallel tests

Compound	Method	Comment
<u>Combustion gases</u>	Using the Horiba PG 250 Portable gas analyzer (SRM)	
O ₂	Based on USEPA Method 3A - Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)	Zirconium cell measuring principle
CO ₂		NDIR measuring principle
CO	Based on USEPA Method 10 - Determination of Carbon Monoxide Emissions from Stationary Sources	NDIR measuring principle
SO ₂	Based on USEPA Method 6C - Determination of Sulfur Dioxide Emissions from Stationary Sources (Instrumental Analyzer Procedure)	NDIR measuring principle
NO _x	Based on USEPA Method 7E - Determination of Nitrogen Oxides Emissions from Stationary Sources (Instrumental Analyzer Procedure)	Chemiluminescence measuring principle
Moisture (H ₂ O)	Base on USEPA Method 4- Determination of moisture content in stack gases	-
Report format	BS EN 15259:2007 - Air quality. Measurement of stationary source emissions. Measurement strategy, measurement planning, reporting and design of measurement sites	-
Variability test	Based on BS EN 14181: 2014	CEMS Review Template V16.2018
Calibration functions		

Sampling Methods used: Correlation tests

The following sampling methods were used in accordance with Annexure 2 of the NEM:AQA Listed Activities (GN 893 of 2013):

Table 7: Sampling methods used in correlation tests

Compound	Method	Comment
Particulate Matter	Based on ISO 9096: 2003 Stationary source emissions - Manual Determination of mass	-

Compound	Method	Comment
	concentration of particulate matter.	
Low mass concentrations	Based on BS EN 13284-1:2002 Stationary source emissions — Determination of low range mass concentration of dust — Part 1: Manual gravimetric method	Based on ISO 9096 with additional requirements on the filter preparation and procedures before and after the tests.
Velocity	Based on USEPA Method 2 - Velocity - Pitot tube	Std-type Pitot.
Correlation function	VDI 2066, Part 4	In particular giving the 75% Tolerance and 95% Confidence bands.

B. EXTERNAL COMPLIANCE AUDIT REPORT(S):

External Legal compliance audit was conducted for the reporting period. However, the report is not yet finalised.

C. MAJOR UPGRADES PROJECTS:

No major upgrades were conducted at Majuba during the 2020/2021 financial year. However, Fabric Filter Bags were replaced at Units 1 and 2 for the past financial year. The last two replacements took place this FY is shown in Table 8 below.

Table 8: Fabric Filter Bag Replacement Start and End Dates

Unit	Start Date	End Date
1	04 December 2020	22 February 2021
2	30 September 2020	02 December 2020

The Low NO_x Burner Replacement Project is currently on hold due to funding constrains.

D. GREENHOUSE GAS EMISSIONS ANNUAL REPORT IN LINE WITH THE NATIONAL GREENHOUSE GAS EMISSION REPORTING REGULATIONS NO. 40762 GOVERNMENT GAZETTE 03 APRIL 2017

Greenhouse gases are reported as per the agreement between DEFF and Eskom, attached in Appendix A.

E. ACTIONS TAKEN TO ADDRESS COMPLAINTS RECEIVED

No air quality related complaints were received for this reporting period.

F. ANNUAL REPORT ON IMPLEMENTATION OF HIGHVELD PRIORITY AIR QUALITY MANAGEMENT PLAN AND OFFSET PROGRAM / PROJECTS

Progress on the Highveld Priority Air Quality Management Plan is contained in Section C of this report. Furthermore, an updated revision of the Fugitive Emissions Management Plan was submitted to the Licensing Authority as mentioned in Section B of this report. A progress report on the Offset Project was submitted to the Licensing Authority on 30 March 2021 detailing progress made on the project.

G. COMPLIANCE STATUS TO STATUTORY OBLIGATION INCLUDING ANY OTHER ISSUED AUTHORISATIONS

The current compliance to the statutory obligations as per Section 4.5 of the AEL is shown in Tables 10 and 11 below:

Table 10: Compliance to Statutory Obligations

Act	Act Number	Act Year	Chapters (where applicable)	Compliance Status	Comment
National Environmental Management: Air Quality Act	39	2004	5	One Non-Compliance	National Environmental Management Act 39 of 2004; National Dust Control Regulations- Details of dust exceedances are described in Table 11 below
National Health Act	61	2003	10 & 11	Compliant	
National Environmental Management Act	107	1998		Compliant	
National Water Act	36	1998		Compliant	
National Environmental Management: Waste Act	59	2008		Compliant	
Gert Sibande District Municipality: Air Quality Management By-law	n/a	2014		One Non-Compliance	Non-compliance to Section 36. Details of dust exceedances are described in Table 11 below
Gert Sibande District Municipality: Municipal Health By-law	n/a	2014		Compliant	
Gert Sibande District Municipality: Noise Control By-law	n/a	2014		Compliant	
Gert Sibande District Municipality: Waste By-laws	n/a	2016		Compliant	

Table 11: Compliance to Other Issued Authorisations

Issuing Authority	Licence Number	Date Issued	Comment	Total number of compliant conditions
Gert Sibande DM	Dr Seme/Eskom PKI HSOC Ltd/MPS/0014/2020/F03	25-Apr-19	<ul style="list-style-type: none"> The height of the Ash disposal Facility (ADF) exceeded the maximum limit of 70m as prescribed by the AEL. Majuba Power Station experienced exceedances of allowed dust fallout limits for industrial areas in terms of the NEM: AQA National Dust Control Regulations (No 827 of 2013) consecutively four times at one monitoring point (EM02), three times and on sequential 	40 of 42

			months at EM05, and five times on sequential months at EM10 and four sequential months at EM11, and once at EM21. The Fugitive Emission Management Plan was compiled as per the requirement of the National Dust Control Regulations; an updated version was submitted to the Licensing Authority on 23 January 2021. Monthly fugitive emissions reports are submitted monthly to the Licensing Authority.	
Department of Water and Sanitation	08/ C11J/ BGCI/ 9097	26-Jun-19	Majuba received its new licence in June 2019. A compliance self-assessment was undertaken and new conditions are being implemented. DWS conducted an audit in February 2021. A total of six non-compliances were identified during the audit. An action plan was compiled and submitted to the authorities.	89 of 95
Department of Environment, Forrestry and Fisheries	12/9/11/ L181015175955/6	13-Sep-19	Majuba General Waste Site Decomissioning Licence. Procurement process was finalised and a service a contractor has been appointed to execute the work.	n/a

Additional information demonstrating compliance to the station's atmospheric emissions license conditions is supplied in the monthly emission reports sent to Gert Sibande District Municipality.

Hoping the above will meet your satisfaction.

Yours sincerely



Tebogo Lekalakala

GENERAL MANAGER: MAJUBA POWER STATION