Eskom

Ms. Nompumelelo Simelane
Nkangala District Municipality

Address: PO Box 437
Middleburg
1050

Date:
May 2025

Enquiries: Lesiba Kgobe
Tel: +27 13 699 7817

Ref: *Kusile Power Station AEL (17/4/AEL/MP311/12/01)*

Dear Ms. Simelane

KUSILE POWER STATION'S ANNUAL EMISSIONS REPORT

This serves as annual report required in terms of Section 7.6 in Kusile Power Station's Atmospheric Emission License: 17/4/AEL/MP311/12/01. The report covers the period from April 2024 until March 2025. Please note that, the emissions reported are for Unit 01, 02, 03, 04 and 05. Unit 05 came into commercial operation in October 2025 and Unit 06 is still under construction or being commissioned. Please take note that Unit 02 and 03 were re-connected back into the main the stack with FGD in February and march 2025 respectively while Unit 1 has since been disconnected from the temporary stack on the 31st of March 2025 and will be to connected to the main stack with FGD on the completion of the Outage.

Hoping the above will meet your satisfaction.

Yours sincerely

Christopher Nani
GENERAL MANAGER
DATE: 29/05/2025

Generation Division – Coal New Build Unit
Management Department (Kusile Power Station)
R545 Kendal/Balmoral Road, Haartebeesfontein Farm, Witbank
Postnet Suite 283 Private Bag X 7297 Witbank 1035 SA
Tel+27 13 693 4320 Fax +27 86 768 3030 www.eskom.co.za
Eskom Holdings SOC Ltd Reg No 2002/015527/30

1. Name, description and reference number of plants as specified in the Atmospheric Emission Licence

Name of facility	Kusile Power Station
Description of facility	Power Generation
Reference number of the plant	17/4/AEL/MP311/12/01

2. Pollutants Emission Trends

The emissions in table 1 below are of the period April 2024 until March 2025. Fig 1 – 3 indicates the pollutant tonnage trends.

Month	PM (tons)	SO_2 (tons)	NO_2 (tons)
Apr 2024	158.1	8276	2553
May 2024	106.8	8260	2750
June 2024	103.3	8522	2934
July 2024	131.2	9178	3087
Aug 2024	137.4	7924	2573
Sep 2024	231.1	10388	2953
Oct 2024	170.9	8102	3463
Nov 2024	175.4	7745	3175
Dec 2024	222.8	7638	3350
Jan 2025	232.2	5339	5537
Feb 2025	77.3	3649	2949
Mar 2025	19.1	2870	2900

Table 1: Unit 1, 2, 3, 4 and 5 Emission tonnages.

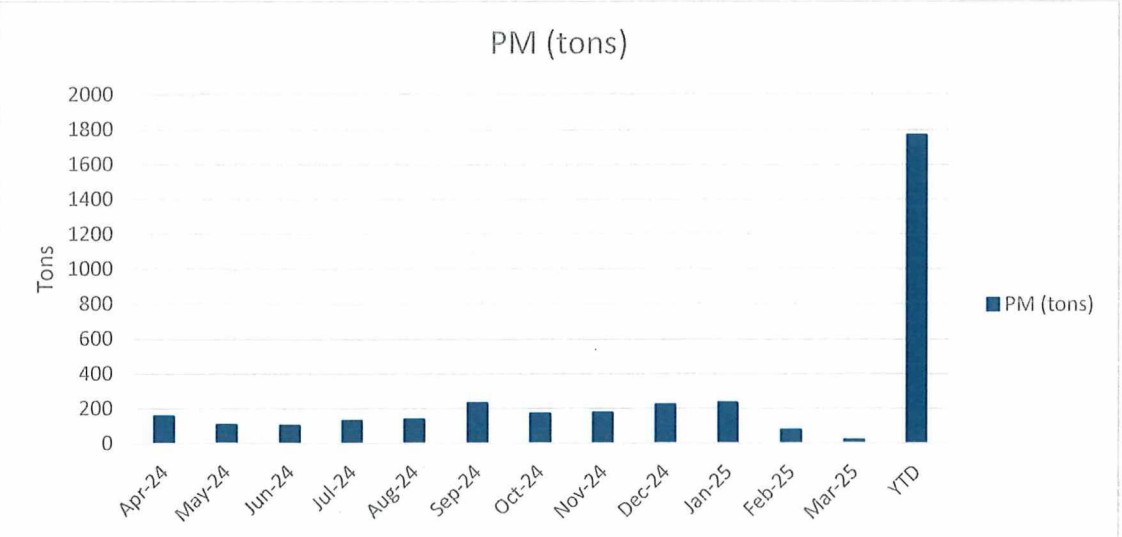

Fig 1: Monthly PM emission in tons from April 2024 until March 2025

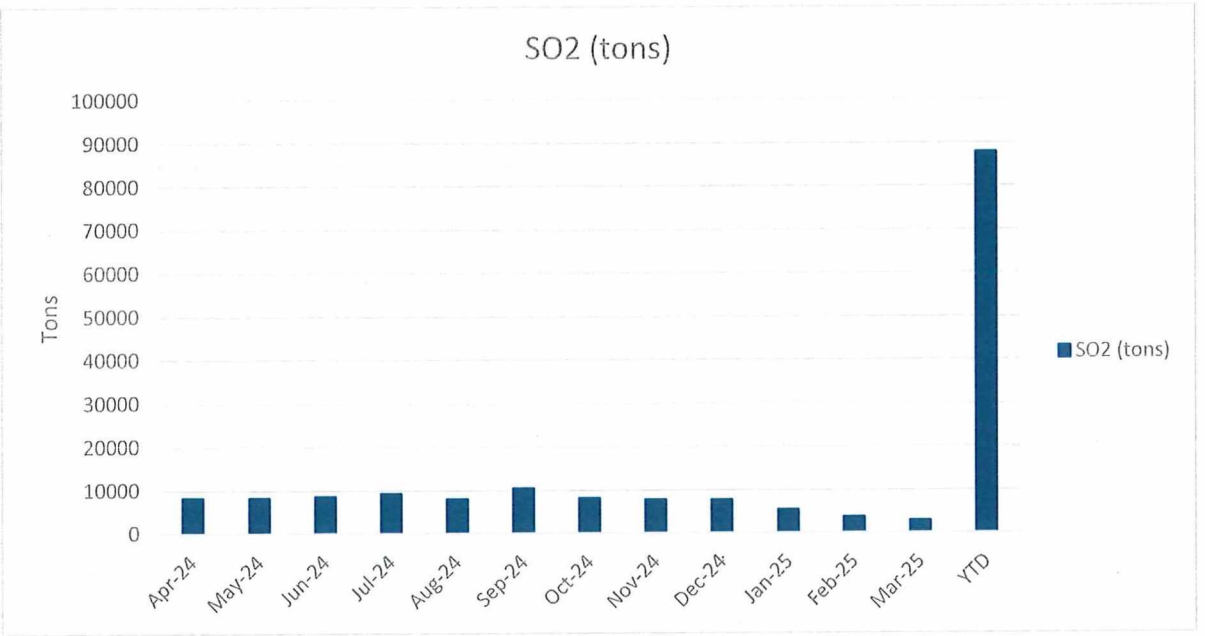

Fig 2: Monthly SO2 emission in tons from Apr 2024 until March 2025

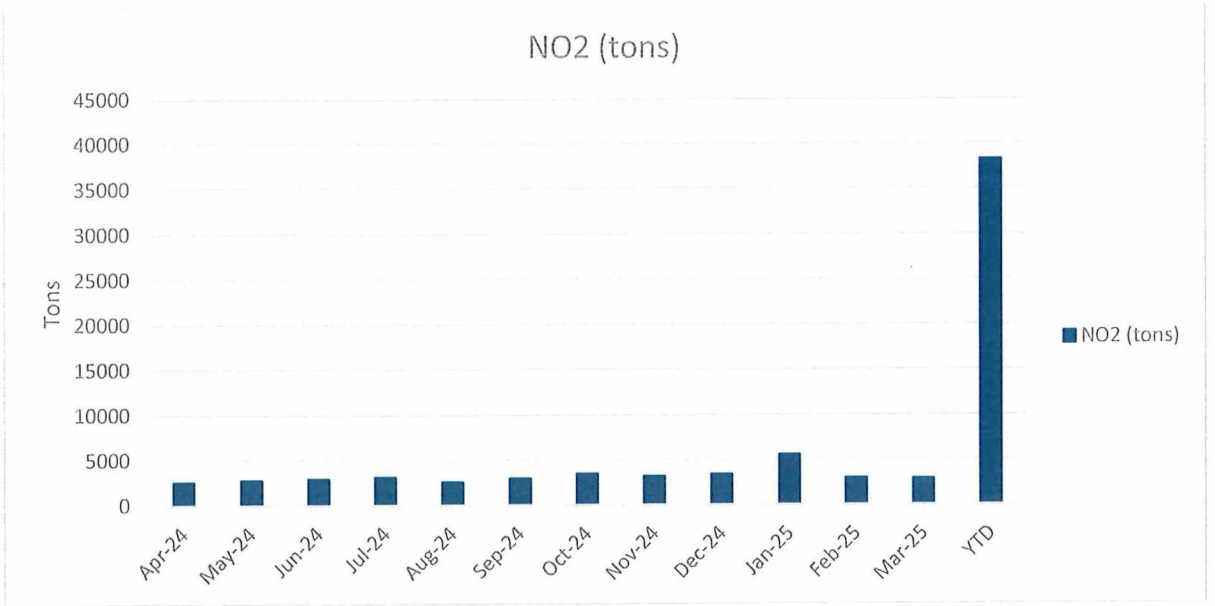

Fig 3: Monthly NO_x emission in tons from April 2024 until March 2025

3. Monitoring reliability in %

Months	PM Monitor Reliability %				
	Unit 01	Unit 02	Unit 03	Unit 04	Unit 05
April 2024	100.0	100.0	100.0	86.7	Commissioning
May 2024	0	100.0	100.0	100.0	Commissioning
June 2024	65.8	100.0	77.3	88.5	Commissioning
July 2024	100.0	100.0	100.0	100.0	Commissioning
Aug 2024	100.0	100.0	100.0	100.0	Commissioning
Sep 2024	100.0	100.0	100.0	100.0	Commissioning
Oct 2024	100.0	100.0	100.0	100.0	100.0
Nov 2024	100.0	100.0	100.0	100.0	100.0
Dec 2024	100.0	96.7	100.0	100.0	100.0
Jan 2025	98.0	100.0	off	100.0	100.0
Feb 2025	100.0	100.0	100.0	100.0	100.0
Mar 2025	100.0	off	100.0	100.0	100.0

Table 2: PM Monitor reliability in percentages

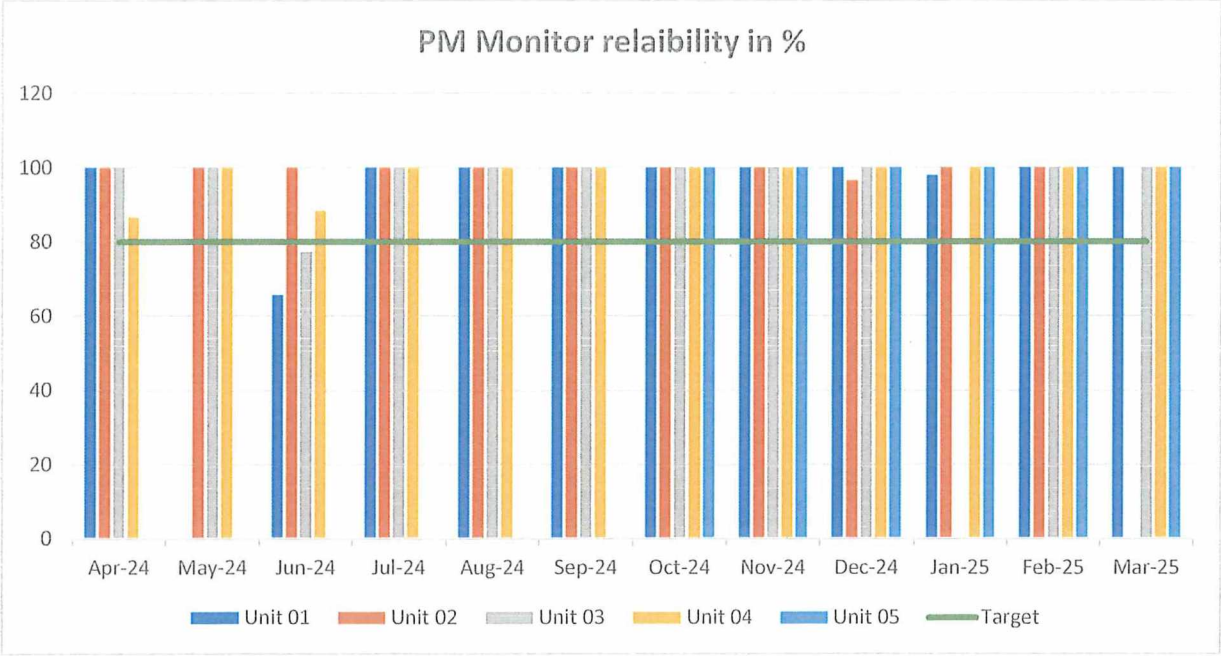

Fig 4: PM Monitor reliability in percentages.

Months	SO2 Monitor Reliability %				
	Unit 01	Unit 02	Unit 03	Unit 04	Unit 05
April 2024	100.0	100.0	100.0	99.4	Commissioning
May 2024	100.0	99.3	100.0	98.6	Commissioning
June 2024	100.0	100.0	100.0	94.6	Commissioning
July 2024	100.0	100.0	100.0	62.3	Commissioning
Aug 2024	100.0	100.0	99.0	53.4	Commissioning
Sep 2024	100.0	100.0	100.0	95.4	Commissioning
Oct 2024	100.0	100.0	99.5	96.9	99.9
Nov 2024	100.0	100.0	100.0	99.1	99.0
Dec 2024	100.0	99.6	100.0	96.5	100.0
Jan 2025	100.0	100.0	off	96.5	99.7
Feb 2025	100.0	100.0	97.3	88.7	100.0
Mar 2025	100.0	off	100.0	99.7	99.7

Table 3:SO_2 Monitor reliability in percentages

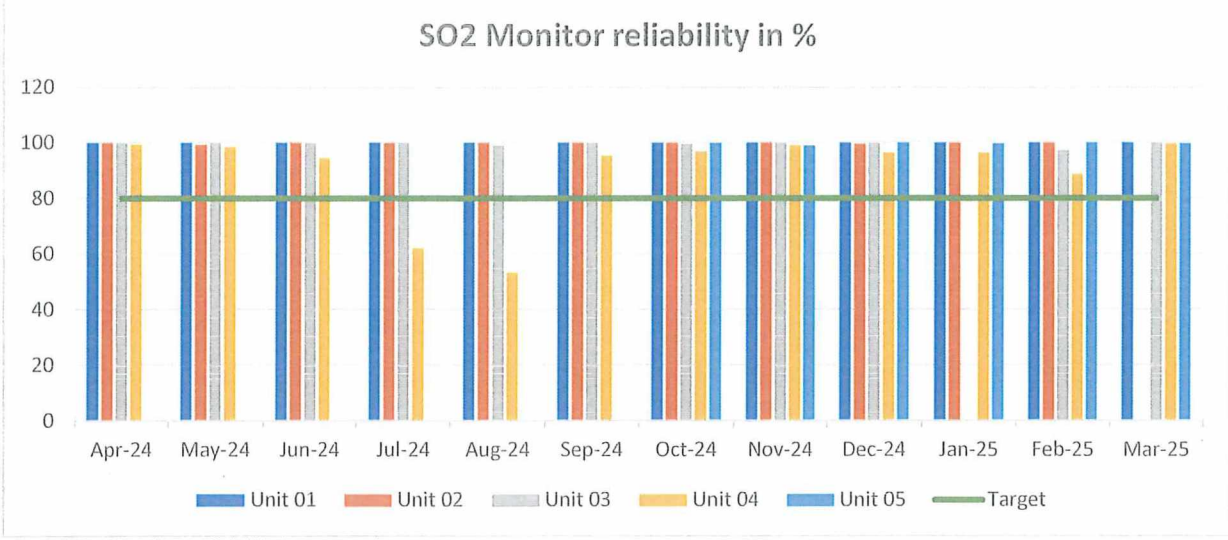

Fig 5:SO_2 Monitor reliability in percentages

Months	NO_2 Monitor Reliability %				
	Unit 01	Unit 02	Unit 03	Unit 04	Unit 05
April 2024	100.0	99.9	100.0	99.9	Commissioning
May 2024	100.0	99.3	100.0	89.1	Commissioning
June 2024	100.0	100.0	100.0	90.0	Commissioning
July 2024	100.0	100.0	100.0	86.8	Commissioning
Aug 2024	100.0	100.0	98.8	96.1	Commissioning
Sep 2024	100.0	100.0	100.0	100.0	Commissioning
Oct 2024	100.0	100.0	100.0	99.7	96.1
Nov 2024	100.0	100.0	100.0	99.8	100.0
Dec 2024	100.0	99.6	100.0	97.9	100.0
Jan 2025	100.0	100.0	off	99.3	100.0
Feb 2025	100.0	100.0	97.1	100.0	100.0
March 2025	100.0	off	100.0	100.0	99.9

Table 4: NOx Monitor reliability in percentages

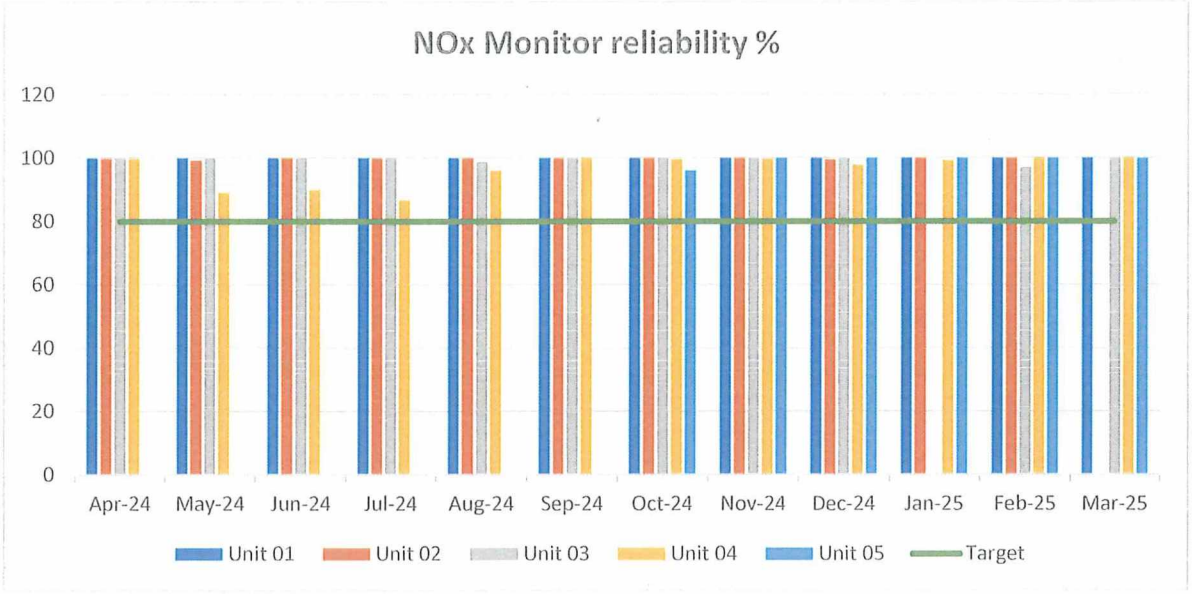

Fig 6: NO_2 Monitor reliability in percentages

4. Raw Materials

The AEL limits the consumption of raw materials and allowable production capacity of products. Table 5 below indicated material consumption for April 2024 until March 2025 and fig 7 – 9 indicates the trends thereof.

Month	*Coal (tons)	*Fuel oil (tons)	Limestone (tons)
April 2024	774 902	613.517	7889
May 2024	713 464	2 164.74	8772
June 2024	676 280	2289.85	12033
July 2024	744 712	2816.31	10436
Aug 2024	698 575	3309.99	13184
Sep 2024	800 470	3551.18	14722
Oct 2024	914 581	6686.32	14255
Nov 2024	897 088	3389.92	12644
Dec 2024	872 731	2833.43	12445
Jan 2025	794 735	2161.4	14031
Feb 2025	854 649	2234.86	20642
Mar 2025	896 361	2007.20	23226
Total	9 638 548	34058.72	164279

Table 5: Raw material consumption for Unit 1,2,3,4 and 5 from April 24 until March 25

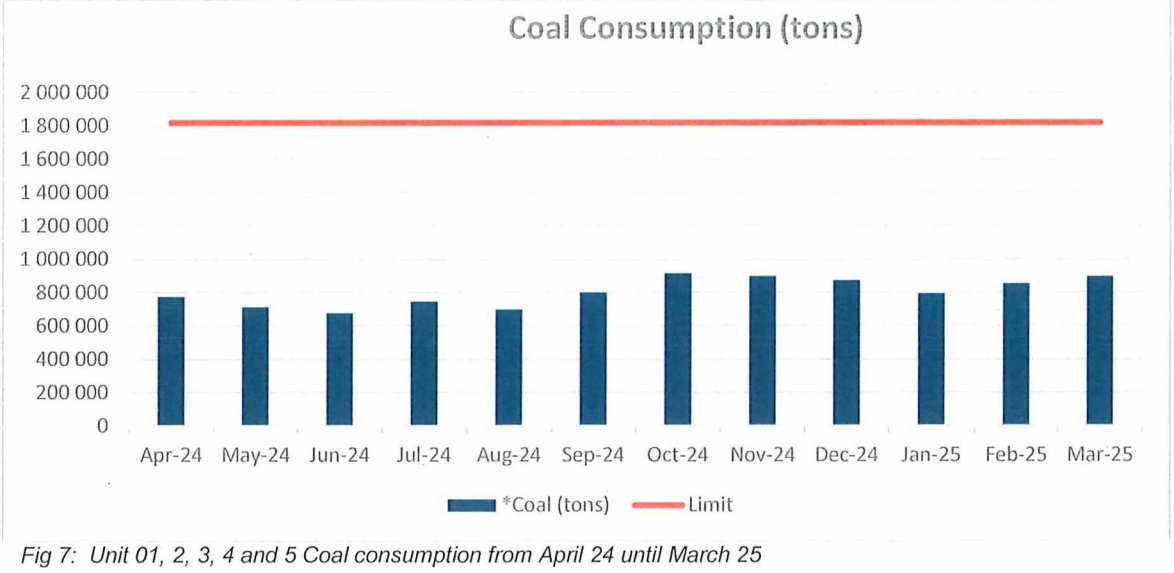

Fig 7: Unit 01, 2, 3, 4 and 5 Coal consumption from April 24 until March 25

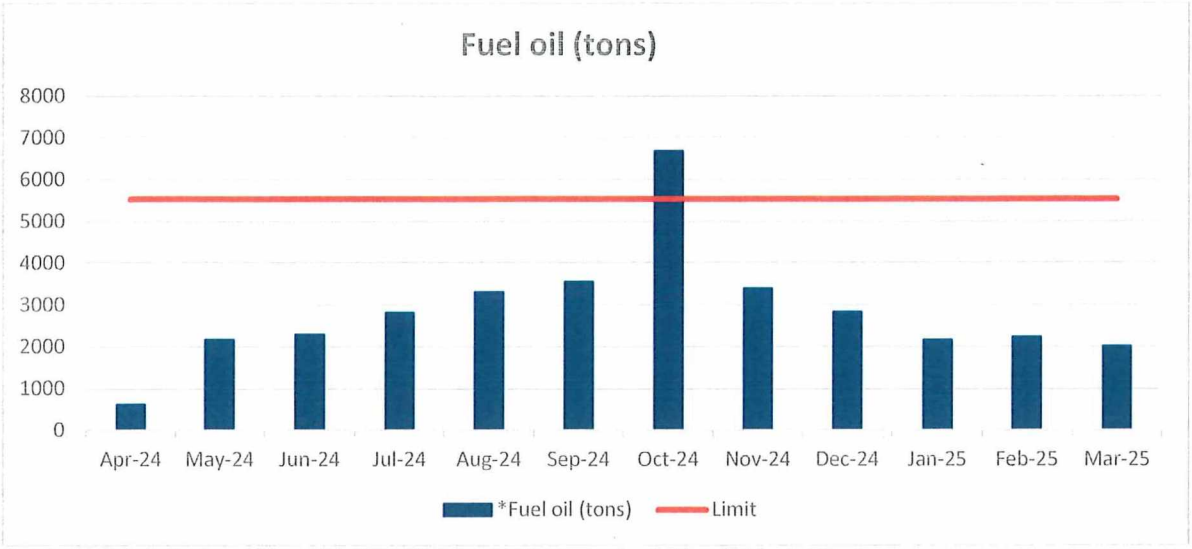

Fig 8: Unit 1, 2, 3, 4 and 5 monthly fuel oil consumption from April 24 until March 25.
The Fuel oil consumption exceeded the maximum permitted consumption rate in October 2024 due to extended combustion support on Unit 1 and Unit 4. This was as a result of unavailability of mills in both units. The Combination of mills that were available necessitated combustion fuel oil support.

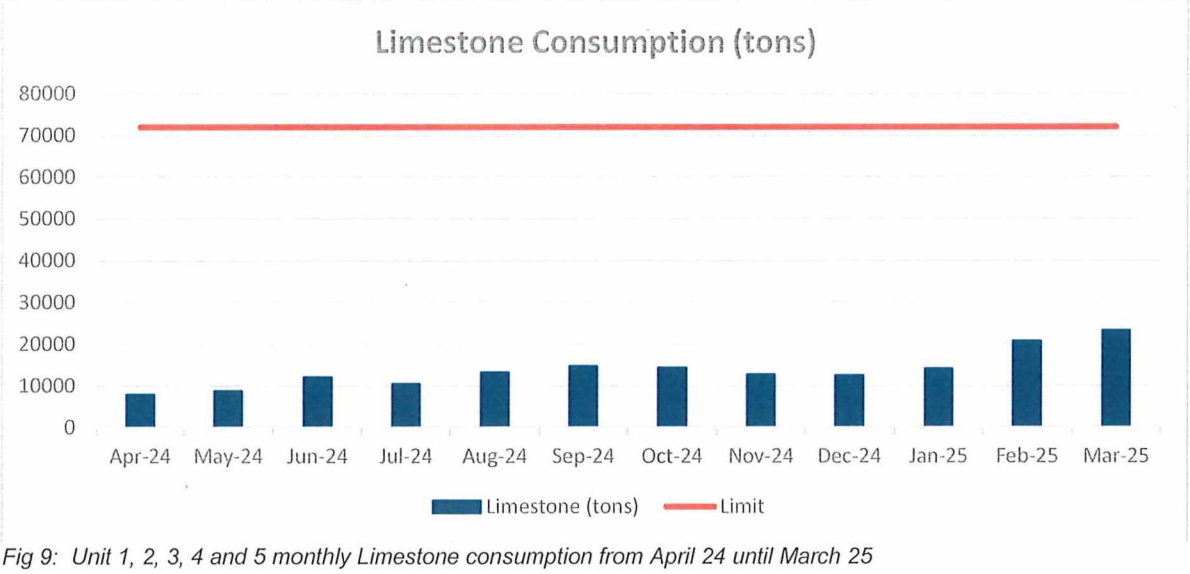

Fig 9: Unit 1, 2, 3, 4 and 5 monthly Limestone consumption from April 24 until March 25

5. Compliance Audit Report

Please refer to the attached Annexure B, Kusile Power Station AEL review report that was conducted in 19 June 2024.

6. Major Upgrades project

No major projects have been undertaken at Kusile Power Station during this period, except bag replacement during scheduled outages and online bag replacements at PJFFP.

7. Correlation Test

Attached are particulate matter and gaseous correlation test (gas stratification and parallel tests) for Unit 1, 2, 3, 4 and 5.

	PM (Correlation tests)	SO2 (Parallel tests)	NOx (Parallel tests)
Unit 1		18 December 2023	18 December 2023
Unit 2	03 August 20204	09 May 2024	09 May 2024
Unit 3	17 August 2024	26 November 2023	26 November 2023
Unit 4	07 May 2023	05 April 2024	05 April 2024
Unit 5	28 September 2024	28 September 2024	28 September 2024

Unit 1 is operated with unity curves from June 2024; the emissions will be retrofitted upon completion of the test and implementation of the curves. The emission reports for Unit 1 will be resubmitted.

8. NAEIS reporting:

Kusile Power Station annual report on the NAEIS system will be submitted to DFFE by the 30 June 2025.

9. Complaints

No complaints were received during the period of 2024/25 financial year.

10. Annual Report on implementation of Highveld Priority Areas Air Quality Management Plan/Projects and/ offset programs

No.	Project	Activity	Indicators/ Reductions	AQMP Goal Addressed by Intervention	Completion date
1.	Ash dump dust suppression system improvement	• The dust suppression sprinklers specification was changed from SIME WING 18 to IBIS 4&10 sprinklers. This was done to prevent erosion and to standardize the installed sprinklers throughout the ash dump. • Sprinklers were changed from fixed type to flexible type. A lay flat pipe connecting to a sprinkler trolley have been added to the arrangement. The new arrangement enables	**Fugitive Dust**	Goal 2: Industrial emissions are equitably reduced to achieve compliance with ambient air quality standards and dust fallout limit values	**Completed**

		one sprinkler to be moved around with ease and easier installation and maintenance.			
2.	Ash Dump Construction	In addition to ash dump re-shaping efforts, the ash dump construction Method was changed to allow for progressive shaping and rehabilitation.	**Fugitive Dust**	Goal 2: Industrial emissions are equitably reduced to achieve compliance with ambient air quality standards and dust fallout limit values	**On-going**
3.	PJFFP bag replacement (In addition to routine bag replacement)	Unit 1,2,3 and 4 Online PJFFP bag replacement.	**Particulate Emissions**	Goal 2: Industrial emissions are equitably reduced to achieve compliance with ambient air quality standards and dust fallout limit values	**As and when required**
4.	PJFFP	There was an upgrade of fabric filter bags on all Units from PAN bags to PPS PI bags.	**Particulate Emissions**	Goal 2: Industrial emissions are equitably reduced to achieve compliance with ambient air quality standards and dust fallout limit values	**Completed**
5.	FGD	There was an upgrade of FGD mist eliminator from DV200 to DV210 on Unit 1 and 2.	**SO_2 Emissions**	Goal 2: Industrial emissions are equitably reduced to achieve compliance with ambient air quality standards and dust fallout limit values	**Completed**

Attached is Eskom Air Quality Offset Plans: Progress Report March 2025 indicating the status of the offset plans.

11. Conclusion

The rest of the information demonstrating compliance with the emission license conditions is supplied in the month emission reports sent to your office. This includes amongst other, daily average emissions.

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12. S30 INCIDENT OR LEGAL CONTRAVENTION REGISTER					S30 initial notification sent	Date S30 investigation report sent	Date DEA Acknowledgment	Date DEA Acceptable	Comments / Reference No.
Unit no	Incident Start Date	Incident End Date	Incident Cause	Remedial action					
Unit 2	26/04/2024, 30/04/2024	26/04/2024, 30/04/2024	**Root Cause:** • Cells operating with erosion damaged filter bags due to design deficiency **Direct Cause:** • No ops response for emissions when correlations are not implemented **Contributory Causes:** • Cells returned to service with erosion damaged bag still existing (Poor effectiveness of cell inspections) • Mechanical maintenance team reluctant to	• Info-sharing session on how the Emissions Monitoring and Reporting Standard dictates emissions should be handled when correlations have not been implemented • Condition of cells to be checked upon return to service and leak test conducted if bag leaks still exist (addition to QCP) • Mechanical maintenance to follow the issued cell priority list (Info sharing session with contractor supervisors) • Correct specification (PPS/PI fabric) of filter bags to be always installed in PJFFP • Testing of erosion resistance bags on K6 for wear prone areas	Exceedances not reported as a Section 30 incidents. The exceedances are noted after the retrofitting of the data and will be reported as a contravention incident.				N/A
Unit 3	06/09/2024, 15/09/2024, 20/09/2024 25/09/2024,	06/09/2024, 16/09/2024, 20/09/2024 27/09/2024,							N/A

			return to cell where work has been recently done (Not following cell prioritization list) • Installing 100%PPS bags on instead of PPS/PI material which provides more ash removal efficiency			

KUSILE POWER STATION'S ANNUAL EMISSIONS REPORT – 17/4/AEL/MP311/12/01

Unit no	Incident Start Date	Incident End Date	Incident Cause	Remedial action	S30 initial notification sent	Date S30 investigation report sent	Date DEA Acknowledgment	Date DEA Acceptable	Comments / Reference No.
Unit 2	31/01/2025	31/01/2025	Unit 2 outage deferred (bags exceeding their lifespan)	1. Full replacement with PPS/PI Bags during Unit 2 outage. 2. Full online bag replacement. 3. Update the monthly monitoring dashboard to include the bags running hours (to mitigate the risk of bag running beyond their life span due to outage deferrals).	03/02/2025	21/02/2025	Not received		Reference not received.