



Ms. Mpho Nembilwi  
Nkangala District Municipality

Address: PO Box 437  
Middleburg  
1050

Date:  
May 2022

Enquiries: Lesiba Kgobe  
Tel: +27 13 699 7817

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

Dear Ms. Nembilwi

**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 2021 until March 2022 for particulate emission, SO<sub>2</sub>, NO<sub>x</sub> as NO<sub>2</sub>, and calculated figures for CO<sub>2</sub> and N<sub>2</sub>O. Please note that, the emissions reported are for Unit 01, 02 and 3, Unit 5 – 06 are still under construction or being commissioned.

Hoping the above will meet your satisfaction.

Yours sincerely

Bongumusa A Mashazi  
**GENERAL MANAGER**  
DATE: 25/05/2022

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

1. Name, description and reference number of plant 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. Emission tonnages

The emissions in table 1 below are of the period April 2021 until March 2022. Fig 1 – 3 indicates the pollutant tonnage trends.

Month	PM (tons)	SO <sub>2</sub> (tons)	NO <sub>2</sub> (tons)
Apr 2021	13,6	345	1450
May 2021	23,8	758	2430
June 2021	12	428	976
July 2021	44,4	1084	1316
Aug 2021	23,9	700	1303
Sep 2021	37,9	1037	2151
Oct 2021	53,6	1802	1869
Nov 2021	43,9	1145	1740
Dec 2021	16,1	807	1113
Jan 2022	39,1	755	1345
Feb 2022	20,9	572	1055
Mar 2022	31,7	663	1332
<b>Total</b>	<b>360,9</b>	<b>10096</b>	<b>18080</b>

Table 1: Unit 01, 02 and 03 Emission tonnages

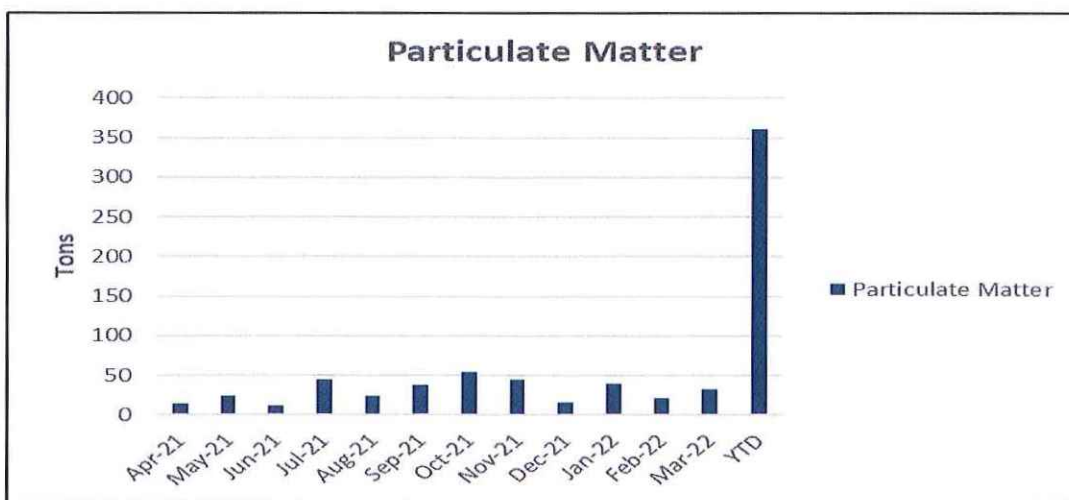


Fig 1: Unit 01,02 and 03 monthly particulate matter emission in tons from Apr 2021 until March 2022

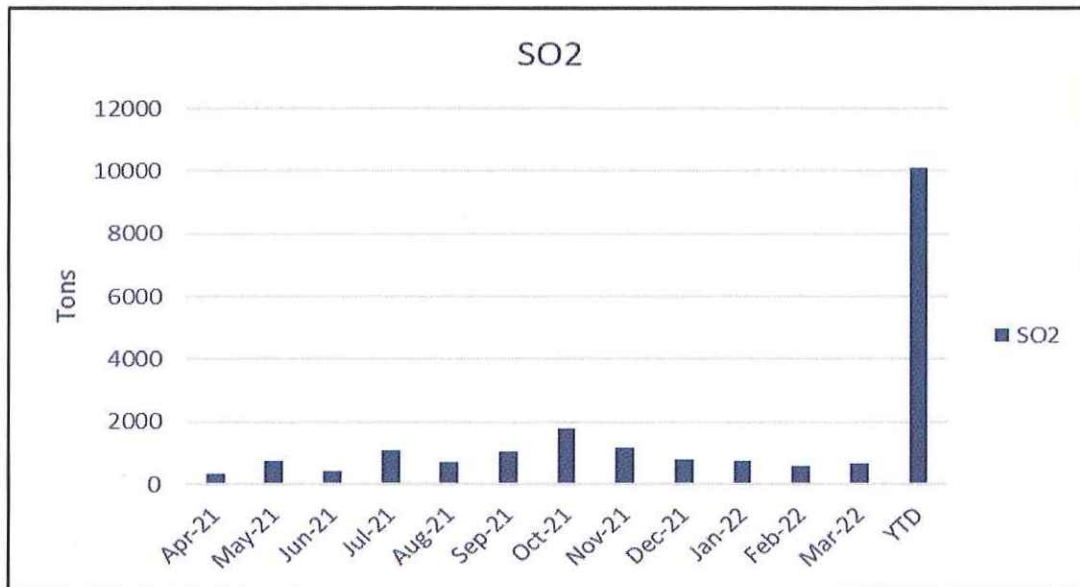


Fig 2: Unit 01, 02 and 03 monthly SO<sub>2</sub> emission in tons from Apr 2021 until March 2022

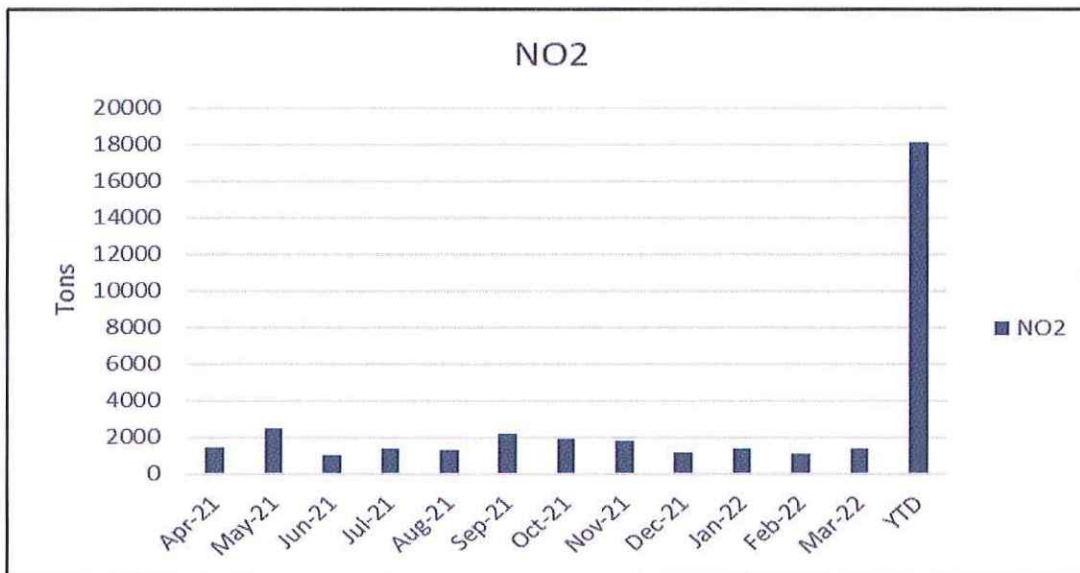


Fig 3: Unit 01,02 and 03 monthly NO<sub>x</sub> emission in tons from April 2021 until March 2022

3. Monitoring reliability in %

Months	PM Monitor Reliability %		
	Uni1 01	Unit 02	Unit 03
April 2021	84,3	99,7	Unit still under commissioning
May 2021	30,3	99,8	
June 2021	0	100	
July 2021	IR	99,9	98,3
Aug 2021	IR	100	57,9
Sep 2021	8,8	100	72,3
Oct 2021	52,6	100	50,8
Nov 2021	64,0	IR	78,4
Dec 2021	90,2	IR	100
Jan 2022	27,2	IR	91,9
Feb 2022	100	54,2	100
March 2022	0	56,6	GI

Table 2: PM Monitor reliability in percentages

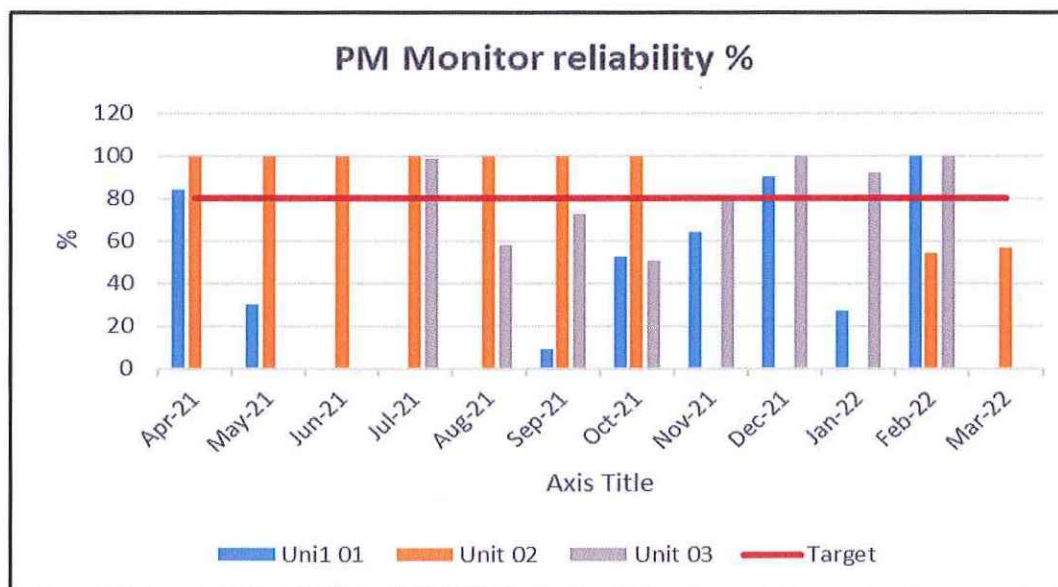


Fig 4: PM Monitor reliability in percentages

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

Months	SO <sub>2</sub> Monitor Reliability %		
	Uni1 01	Unit 02	Unit 03
April 2021	96,4	97,5	Unit still under commissioning
May 2021	54,6	99,5	
June 2021	0	94,9	
July 2021	IR	96,8	94,0
Aug 2021	IR	99,2	98,4
Sep 2021	81,3	79,7	94,2
Oct 2021	100	99,3	97,9
Nov 2021	88,4	IR	99,5
Dec 2021	83,5	IR	95,3
Jan 2022	99,7	IR	91,9
Feb 2022	16,7	92,8	85,1
March 2022	100	89,8	GI

Table 3:SO<sub>2</sub> Monitor reliability in percentages

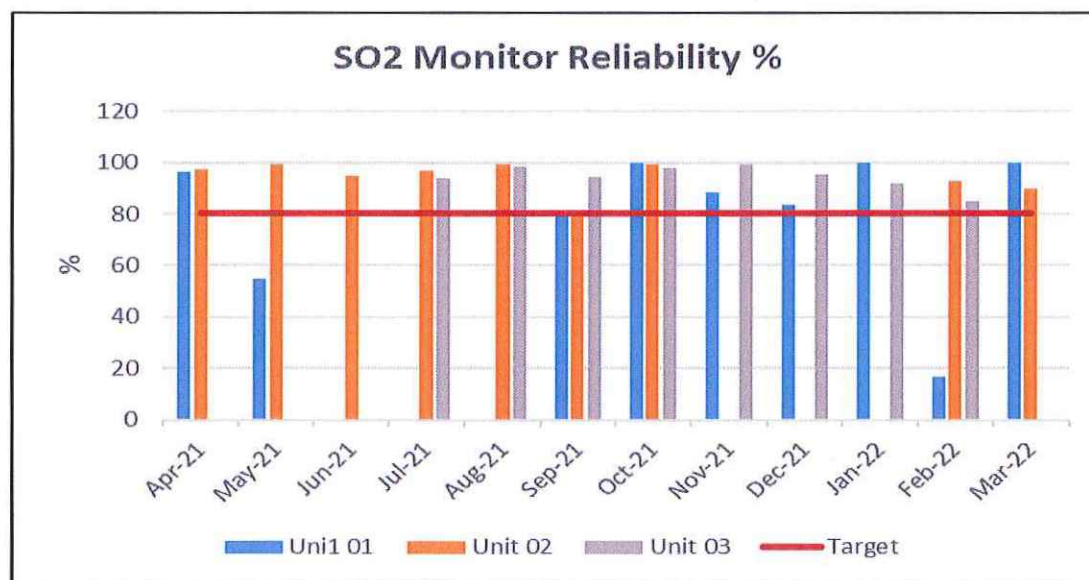


Fig 5:SO<sub>2</sub> Monitor reliability in percentages

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

Months	NO <sub>2</sub> Monitor Reliability %		
	Uni1 01	Unit 02	Unit 03
April 2021	99,9	97,0	Unit still under commissioning
May 2021	53,9	99,5	
June 2021	0	99,7	
July 2021	IR	96,7	90,5
Aug 2021	IR	100	99,5
Sep 2021	79,3	81,3	89,1
Oct 2021	99,8	99,3	99,9
Nov 2021	88,5	IR	94,7
Dec 2021	80,9	IR	96,7
Jan 2022	98,9	IR	84,4
Feb 2022	0	85,1	82,2
March 2022	100	89,1	GI

Table 4: NO<sub>x</sub> Monitor reliability in percentages

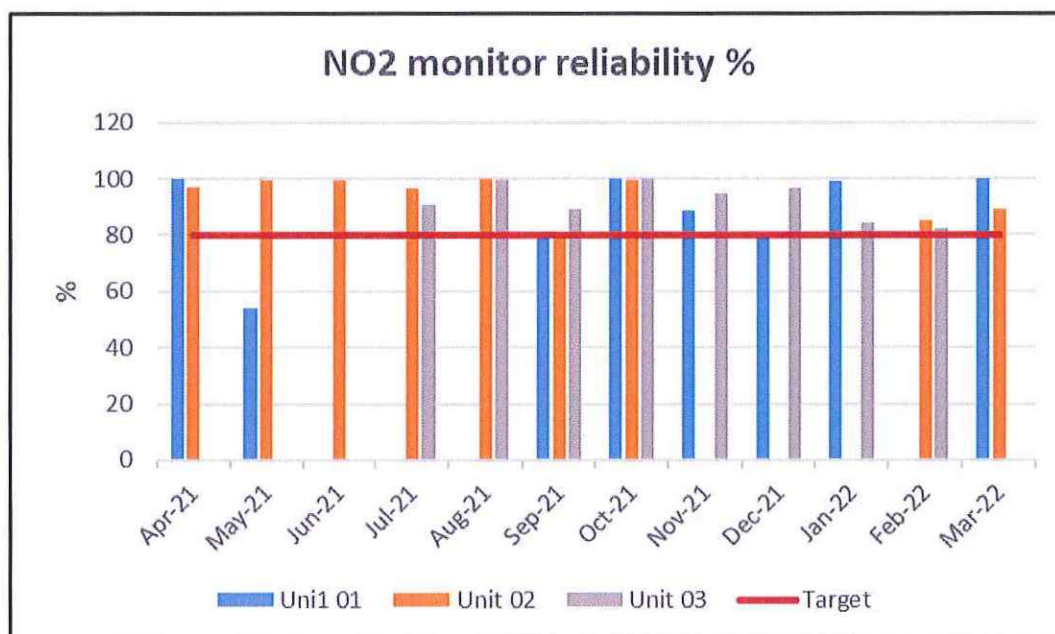


Fig 6: NO<sub>2</sub> Monitor reliability in percentages

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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 2021 until March 2022 and fig 7 – 9 indicates the trends thereof.

Month	*Coal (tons)	*Fuel oil (tons)	Limestone (tons)
April 2021	503131,46	2210,70	17629
May 2021	635093,66	4246,34	22334
June 2021	471001,17	2130,59	16667
July 2021	712874,60	1313,20	19673
Aug 2021	406663,96	1857,87	12494
Sep 2021	517692,88	4872,82	15447
Oct 2021	567431,32	5248,07	17678
Nov 2021	425430,01	1177,31	17721
Dec 2021	224584,99	2394,6	10297
Jan 2022	426798,34	2058,18	11750
Feb 2022	309863,39	3951,85	10954
Mar 2022	278241,20	2670,97	16605
<b>Total</b>	<b>5478807,98</b>	<b>34132,54</b>	<b>189249</b>

Table 5: Raw material consumption for Unit 1,2 and 3 from Apr 21 until March 22

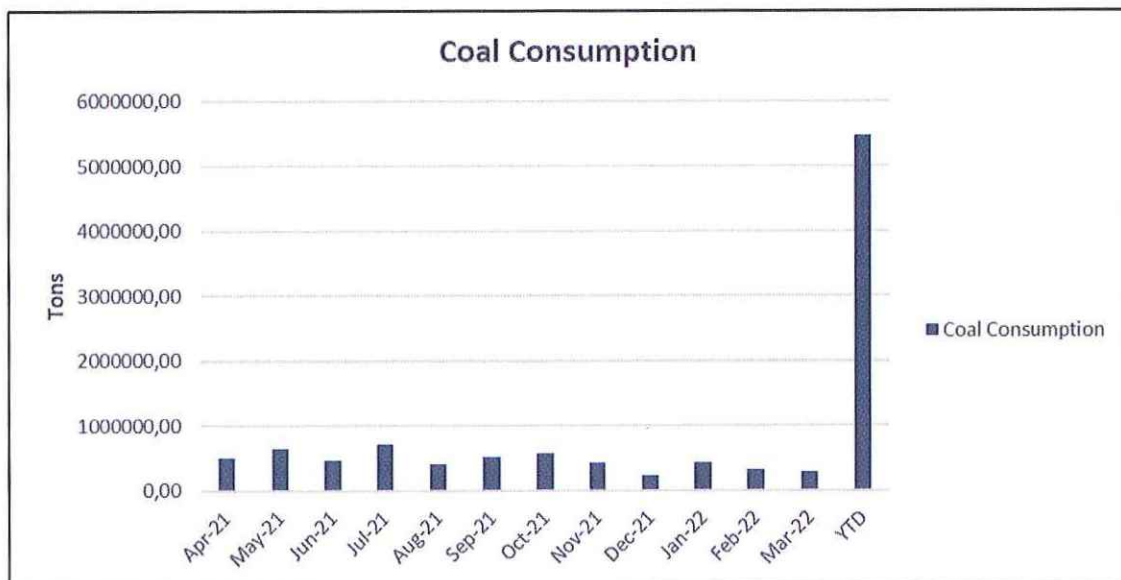


Fig 7: Unit 01 Coal consumption from Apr 21 until March 22

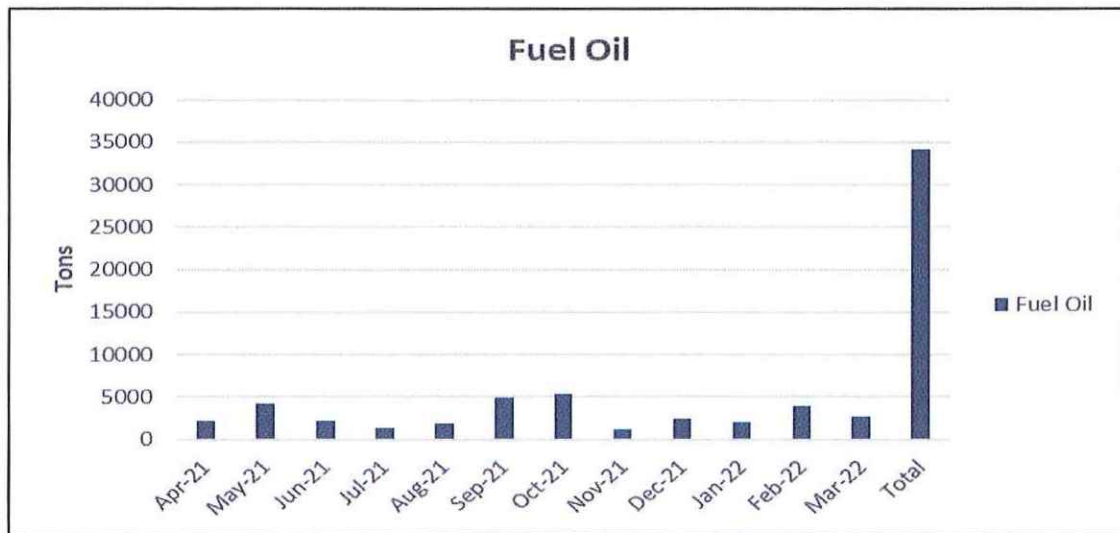


Fig 8: Unit 01 monthly fuel oil consumption from Apr 21 until March 22

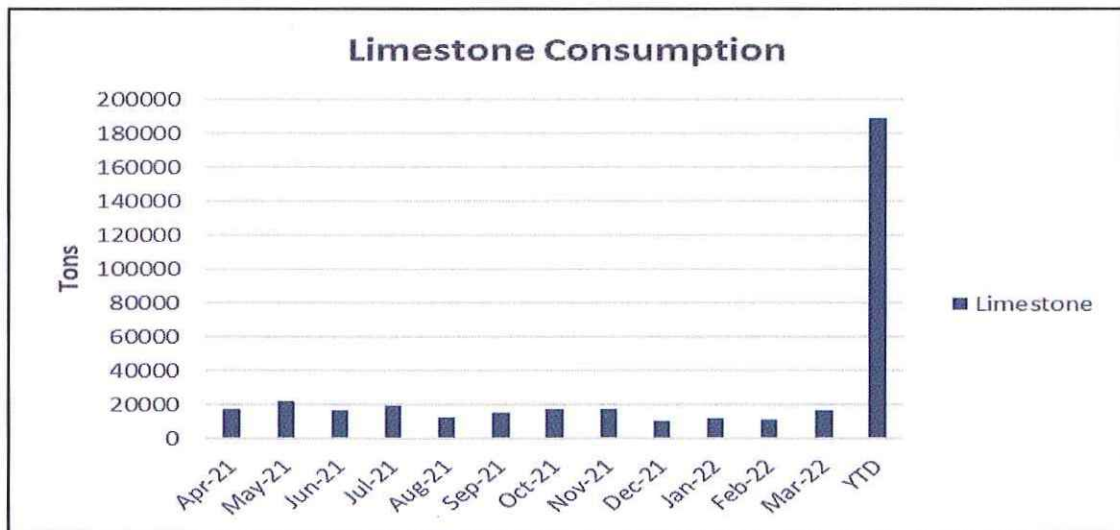


Fig 9: Monthly Limestone consumption from Apr 21 until March 22

**5. Compliance Audit Report**

Attached is the Eskom Kusile Power Station legal compliance report conducted by ARINIT Consulting Services Pty Ltd dated July 2021. Sec 14.3 of the report reflect compliance status to air quality legal requirements.

**6. Major Upgrades project**

No major projects have been undertaken at Kusile Power Station during this period, except the online replacement of Unit 01, 02 and 03 PJFFP bags that forms part of daily maintenance activities and routine bag replacement that forms part of outage activities.



**7. Correlation Test**

Particulate matter and gaseous correlation test (gas stratification and parallel tests) were conducted for Unit 1 on 24&26 June 2020, Unit 2 on 07&15 Oct 2021 and Unit 3 on 25 & 29 January 2021. Test reports are attached.

**8. Greenhouse gas emission**

The greenhouse gas emissions figures are reported in tables 6 below.

Month	CO <sub>2</sub> (tons)	N <sub>2</sub> O (tons)
Apr 2021	884958,5	4,6
May 2021	1032774,0	5,4
June 2021	462073,1	2,4
July 2021	924842,1	4,8
Aug 2021	574300,9	2,9
Sep 2021	68664,0	4,5
Oct 2021	976147,1	5,0
Nov 2021	738651,3	3,8
Dec 2021	366770,0	1,9
Jan 2022	973677,1	4,9
Feb 2022	851840,5	4,4
Mar 2022	510311,2	2,6
<b>Total</b>	<b>916510,0</b>	<b>47</b>

Table 6: Monthly greenhouse gas emissions figures from April 2021 until March 2022

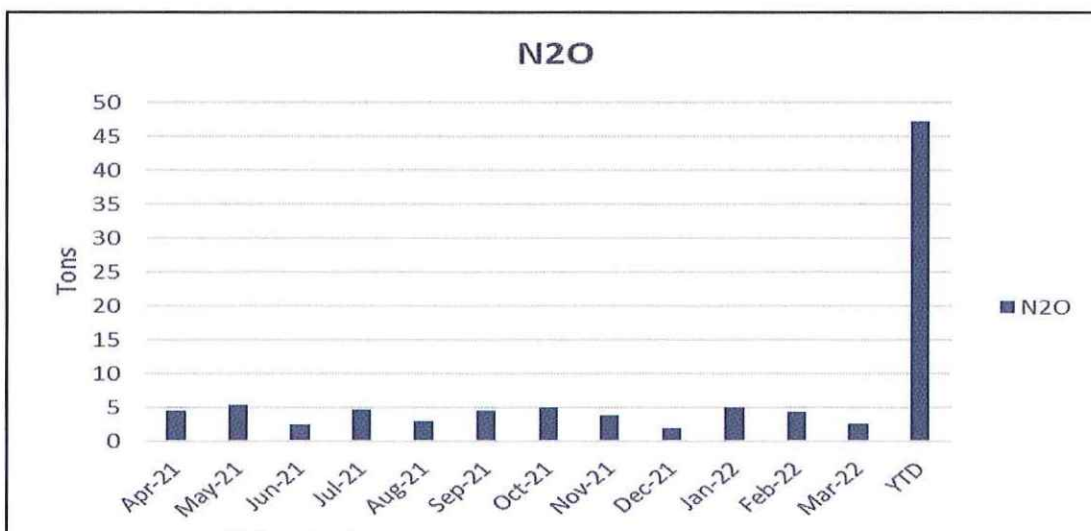


Fig 10: Monthly N<sub>2</sub>O emission in tons from Apr 2021 until March 2022

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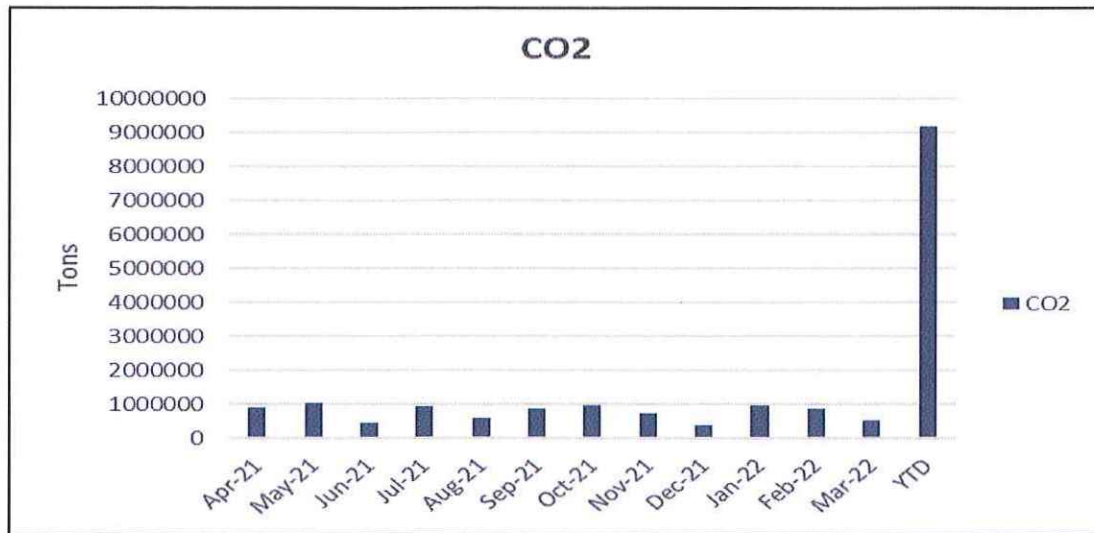


Fig 11: Monthly CO<sub>2</sub> emission in tons from Apr 2021 until March 2022

### 9. NAEIS reporting:

Kusile Power Station submitted its annual report on the NAEIS system by the 31 March 2022. Below is the feedback from NAEIS system.

—Original Message—

From: [DoNotReply@govonlinesaas.com](mailto:DoNotReply@govonlinesaas.com) <[DoNotReply@govonlinesaas.com](mailto:DoNotReply@govonlinesaas.com)>

Sent: Tuesday, 29 March 2022 20:24

To: [chloe\\_wu@enfotech.com](mailto:chloe_wu@enfotech.com); Bryan Mccourt <[McCourBA@eskom.co.za](mailto:McCourBA@eskom.co.za)>

Subject: [CAUTION-EXTERNAL EMAIL] - NAEIS Report Submission Notification (MLNK101)

Facility Name: (Eskom Kusile Power Station)

SRN No.: (MLNK101)

Your NAEIS Report has been successfully submitted and received by the NAEIS System. Your PIN authorization replaced any hard copy signature forms. Nothing else needs to be submitted for NAEIS.

If additional technical guidance is needed, please contact your Atmospheric Licensing Authority or [NAEISAdmin@environment.gov.za](mailto:NAEISAdmin@environment.gov.za), 012 359 9195/9192

Thank you,

The NAEIS Team

### 10. Complaints

No complaints received during this period.

### 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.