BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI

ORIGINAL APPLICATION No. 73 OF 2021 (SZ)

In The Matter of:-

Visakha Pawan Praja Karmika Sangham, Andhra Pradesh .....Applicant (s)

Verses

Union of India and others. ....Respondent (s)

Index

S. No.	Particulars	Page Nos.
1	Report of the Joint Committee in the matter of O. A. No. 73 of 2021 on "Violations committed by M/s. Hindustan Petroleum Corporation Ltd. – Visakha Refinery in operating their unit in Visakhapatnam which resulted in serious environmental degradation" in compliance to Hon'ble NGT order, dated 25.02.2021.	1 to 26
2	**Annexure – 1:** A copy of the Hon'ble NGT Order, dated 25.02.2021.	27 to 32
3	**Annexure – 2:** MoEF, GoI Environmental Clearance Order, dated 30.05.1995.	33 to 36
4	**Annexure – 3:** MoEF, GoI Environmental Clearance Order, dated 10.04.1997.	37 to 38
5	**Annexure – 4:** MoEF, GoI Environmental Clearance Order, dated 03.02.2004.	39 to 41
6	**Annexure – 5:** MoEF, GoI Environmental Clearance Order, dated 07.03.2008.	42 to 46
7	**Annexure – 6:** MoEF, GoI Environmental Clearance Order, dated 02.09.2009.	47 to 52
8	**Annexure – 7:** MoEF & CC, GoI Environmental Clearance Order, dated 11.02.2016.	53 to 60
9	**Annexure – 8:** APPCB CFE Order, dated 06.07.2016.	61 to 70
10	**Annexure – 9:** APPCB CFO Order, dated 24.03.2016.	71 to 79
11	**Annexure – 10:** APPCB CFO Order, dated 18.12.2019.	80 to 89
12	**Annexure – 11:** APPCB CFO Order, dated 09.03.2021.	90 to 101
13	**Annexure – 12:** Compliance status of EC conditions.	102 to 182
14	**Annexure – 13:** Compliance status of APPCB CFO conditions.	183 to 195
15	**Annexure – 14:** Task Force Directions of APPCB, dated 19.03.2020.	196 to 198
16	**Annexure – 15:** Compliance status of the directions of APPCB.	199 to 201
17	**Annexure – 16:** Analysis reports of ambient air quality monitoring carried out during inspection of the Joint Committee.	202 to 217
18	**Annexure – 17:** Ambient air quality monitoring data obtained from the three CAAQM Stations of the refinery for the period from 01.01.2020 to 30.04.2021.	218 to 271
19	**Annexure – 18:** Analysis reports of stack monitoring carried out during the inspection of Joint Committee.	272
20	**Annexure – 19:** Stack monitoring data obtained from the Continuous Emission Monitoring Systems (CEMSs) connected to 32 stacks for the period from 01.01.2020 to 30.04.2021.	273 to 391
21	**Annexure – 20:** Analysis reports of treated effluent samples collected during inspection of Joint Committee.	392 to 394
22	**Annexure – 21:** Analysis report of ground water samples collected within the premises of refinery during inspection of Joint Committee.	395

Date-17-6-2021

Dr. B. V. Prasad
Senior Environmental Scientist
Andhra Pradesh Pollution Control Board
Vijayawada

REPORT OF THE JOINT COMMITTEE IN THE MATTER OF O A. NO. 73/2021 TITLED: VISAKHA PAWAN PRAJA KARMIKA SANGHAM Vs UNION OF INDIA AND OTHERS, SUBMITTED TO HON'BLE NATIONAL GREEN TRIBUNAL, SOUTHERN ZONE, CHENNAI IN COMPLIANCE TO HON'BLE NGT ORDER DATED FEBRUARY 25, 2021

1.0 Preamble:

The Hon'ble National Green Tribunal (NGT), Southern Zone, Chennai in the matter of O. A. No. 73 of 2021 has passed an order dated February 25, 2021 and the operative portion of the order is reproduced as under and the copy of the Hon'ble NGT order is annexed as **Annexure - 1**:

"11... In order to ascertain the genuineness of the allegations made in the application and its impact and the remedial measures if any to be taken, we feel it appropriate to appoint a Joint Committee comprising of (1) a Senior Officer from Ministry of Environment, Forests and Climate Change (MoEF & CC) Integrated, Regional Office, Chennai, (2) a Senior Scientist from Central Pollution Control Board (CPCB), Regional Office, Chennai , (3) a Senior Scientist having some experience in Petroleum Pollution from Andhra Pradesh State Pollution Control Board (APPCB) and (4) a Scientist having experience in Petro-Chemical activities from Indian Institute of Chemical Technology (IICT) under the Council of Scientific & Industrial Research (CSIR), Hyderabad to inspect the unit in question and submit a factual as well as action taken report, if there is any violation found....."

2.0 Constitution of the Joint Committee:

In compliance with the order dated February 25, 2021; as a nodal agency, Andhra Pradesh Pollution Control Board (APPCB), based on the nominations received from the concerned organizations, constituted a Joint Committee on March 20, 2021 comprising the following members:

i. Dr. Suresh Babu Pasupuleti, Scientist-C, Ministry of Environment, Forest and Climate Change, Integrated Regional Office (IRO), Vijayawada.
ii. Smt. Poornima B M, Scientist D, Central Pollution Control Board, Regional Directorate – Chennai.
iii. Dr. B.V. Prasad, Senior Environmental Scientist, APPCB, Vijayawada.
iv. Dr. N. Lingaiah, Sr. Principal Scientist, Catalysis & Fine Chemicals Division, CSIR-IICT, Hyderabad.

The Joint Committee had its first meeting on March 22, 2021 through video conference (VC) and discussed Terms of Reference (ToR) to proceed further over the case. The committee finalized the dates for the site visit during March 25-27, 2021.

2.1 Terms of Reference (ToR) of the Joint Committee:

As per the Hon'ble NGT order dated February 25, 2021; the committee is entrusted to visit and inspect the site in question and following ToR:

a. To inspect the unit in question and submit a factual as well as action taken report, if there is any violation found.
b. To ascertain whether there is any violations of environmental clearance, consent conditions and safety measures provided are sufficient to meet the pollution that is likely to be caused on account of the operating of the unit.
c. To verify the compliance to the recommendations made by the Indian Institute of Science in 2016 which was directed to be implemented by the Andhra Pradesh State Pollution Control Board (APPCB) during 2016.
d. To assess environmental compensation if any violation found causing environmental degradation.
e. To provide the remedial measures for the purpose of mitigating the situation and improve the condition of air quality in that area.
f. To ascertain the source of pollution and the remedial measures to mitigate the same.

2.2 Site visit by the Joint Committee:

The committee as decided in its first meeting visited the unit M/s. Hindustan Petroleum Corporation Limited (HPCL), Malkapuram, Visakhapatnam, Andhra Pradesh known as Visakha Refinery during March 25-27, 2021. Sh. A. Tirupathi Naidu, GM (I/C), Sri Bhagavan, Deputy General Manager, Sh. Shaik Sardar, Senior Manager Environment and other Technical & Environment Department officials representing the refinery were present during the time of inspection. The committee inspected the unit and verified the compliance status of Environmental Clearance (EC), Consent conditions of both Air & Water, Conditions of Hazardous waste authorization and the directions issued by APPCB. The committee monitored the source emissions & ambient air quality in and around the refinery and collected samples from the Effluent Treatment Plants (ETP) and Sewage Treatment Plant (STP).

3.0 About M/s. Hindustan Petroleum Corporation Limited (HPCL), Malkapuram, Visakhapatnam, AP:

3.1 General Information: M/s Hindustan Petroleum Corporation Limited was commissioned in the year 1957 with an installed capacity of 0.65 Million Metric Tons per Annum (MMTPA) by Caltex Oil Refining (India) Ltd. In the year, 1976 Govt. of India taken over the refinery and subsequently merged with HPCL in 1978. HPCL increased the production capacity phase wise from 0.65 MMTPA to 8.3 MMTPA by installing various types of process units to manufacture various products. The total area of the industry is 723 acres, and is located at $17^0$14'41.51" N; $83^0$14'54.42" E at an elevation of 5.5m. The unit has 1194 permanent employees and 3500 contract workers.

The unit is surrounded by

North: M/s. Andhra Petro Chemicals Limited.

South: 80 Ft. Road (Scindia to Gajuwaka), Sriharipuram, Malkapauram

East: M/s. IOCL Terminal

West: M/s. Coromandel Fertilizer Ltd., M/s. HZL, M/s. Alufluoride etc.

3.2 Statutory Requirements:

The Environmental Clearances (EC), Consents for Establishment (CFE) and Consents for Operation (CFO) obtained from the Ministry of Environment, Forests & Climate Change, Govt. of India and Andhra Pradesh Pollution Control Board (APPCB) are as follows:

S. No.	EC / CFE / CFO	Capacity (MMTPA)	Order No., dated
1	MoEF & CC EC	4.5 to 7.5	J-11011/22/94-A II (I), dated 30.05.1995 (Annexure – 2)
2		Installation of Diesel Hydro-desulphurization	J-11011/88/96-IA-II(I), dated 10.04.1997 (Annexure – 3)
3		7.5 to 10.0	Lr. No. J-11013/55/2003-1A II (I), 03.02.2004 (Annexure – 4)
4		Mounded storage for Propylene/LPG	J-11011/66/2007-IA II (I), dated 07.03.2008 (Annexure – 5)
5		Expansion from 7.5 to 10.0 MMTPA	J-11011/408/2009-IA-II(I), dated 02.09.2009 (Annexure – 6)
6		8.33 to 15.0	F-No. J-11011/63/2013-IA II (I), 11.02.2016 (Annexure – 7)
7	APPCB CFE	10.0 to 15.0	Order No. 72/APPCB/CFE/RO-VSP/HO/2006, dated 06.07.2016 (Annexure – 8)
8	APPCB CFO & Hazardous waste authorization	10.0 & 121.20 MW captive power plant	Order No. APPCB/VSP/VSP/72/CFO/HO/2016, 24.03.2016 (Annexure – 9)
9		10.0 & 121.20 MW captive power plant	Order No. APPCB/VSP/VSP/72/CFO/HO/2019, 18.12.2019 (Annexure – 10)
10		10.0 & 121.20 MW captive power plant	Order No. APPCB/VSP/VSP/72/CFO/HO/2021, 09.03.2021 (Annexure – 11)
MMTPA: Million Metric Tons Per Annum.			

After obtaining the EC dated 10.02.2016 from MoEF & CC for expansion upto 15 MMTPA, M/s. HPCL applied consent for establishment (CFE) to APPCB for Expansion on June 11, 2016 & June 21, 2016. APPCB issued CFE on July 6, 2016 valid up to seven years from the date of issue of CFE. During the committee inspection, the construction works for expansion project are under progress.

3.3 Process Description:

The series of processes by which products are manufactured from crude oil is collectively known as refining. Crude oil is a mixture of different hydrocarbon compounds and a source of various products like LPG, Naphtha, Gasoline, ATF/SKO, Diesel, Fuel Oil/LSHS and other petroleum speciality products. HPCL sources crude oil containing both high & low sulphur from indigenous

sources viz., Ravva, Mumbai High etc., and imported crude from Middle –East, African countries etc. Crude oil from the tankers is received at the Off-Shore Tanker Terminal (OSTT) and transported to the Visakha Refinery through 9.2 Km underground pipeline. The crude oil is stored in the 12 large tanks.

HPCL has three Crude Distillation Units namely CDU-I, II & III, the secondary units of two Fluid Catalytic Cracking Units, one Vis Breaking Unit (VBU), and one Bitumen Blowing unit (BBU). Product Quality Treating Units like Diesel Hydro Desulphurization unit (DHDS), Hydrogen Generation unit (GHU), Sulphur Recovery unit (SRU), Merox Units (LPG, CRN, ATF), LPG Amine Treating unit & Propylene Recovery Unit (PRU), Fluid Catalytic Cracking Unit (FCCU), Naphtha Hydro Treating Unit (NHTU- (Prime G+) Continuous Catalytic Reforming Unit(CCRU) and Naphtha Isomerizing Unit (NIU).

Crude oil is first subjected to physical separation into various components in crude distillation unit (CDU) by employing a process called fractional distillation. In CDU, the crude is preheated in a battery of heat exchangers utilizing the heat of the various streams from the distillation columns and finally heated in a furnace to a temperature required for effective separation. It is fed to a distillation column wherein it is separated to various streams, viz., Un-stabilized Naphtha, Heavy Naphtha, Kerosene, Straight Run Diesel and Reduced Crude Oil. Un-stabilized Naphtha is further separated in another distillation column called Stabilizer into Liquefied Petroleum Gas (LPG) and Straight Run Naphtha.

The Reduced Crude Oil is subjected to further separation under vacuum conditions in another distillation column. There, it gets separated to Vacuum Diesel, Vacuum Gas Oil and Short Residue. The Short Residue from this column goes for production of either Bitumen or Fuel Oil. The Vacuum Gas Oil from crude distillation unit is further processed in a Fluidized Catalytic Cracking Unit (FCCU) wherein it is converted to value added streams in the presence of a circulating catalyst. The streams that are so generated are Liquefied Petroleum Gas (LPG), Cracked Run Naphtha, Cycle Oils and residue. Clarified oil from FCCUs is also routed to Fuel oil pool for FO production.

LPG from CDUs and FCCUs is treated in Amine Treatment Unit / Merox Unit for removal of Hydrogen Sulphide and Mercaptans. Propylene (> 95% Purity) is recovered from Cracked LPG in Propylene Recovery Unit (PRU).

The Straight Run Naphtha & Cracked Run Naphtha are routed to MS block (NHT/CCR/NIU/FCCNHT) for Desulphurizing / Reforming / Isomerization, thus producing Motor Spirit (Petrol) meeting required statutory specifications. Excess Naphtha if any that could not be converted to Motor Spirit is sold as Naphtha Product.

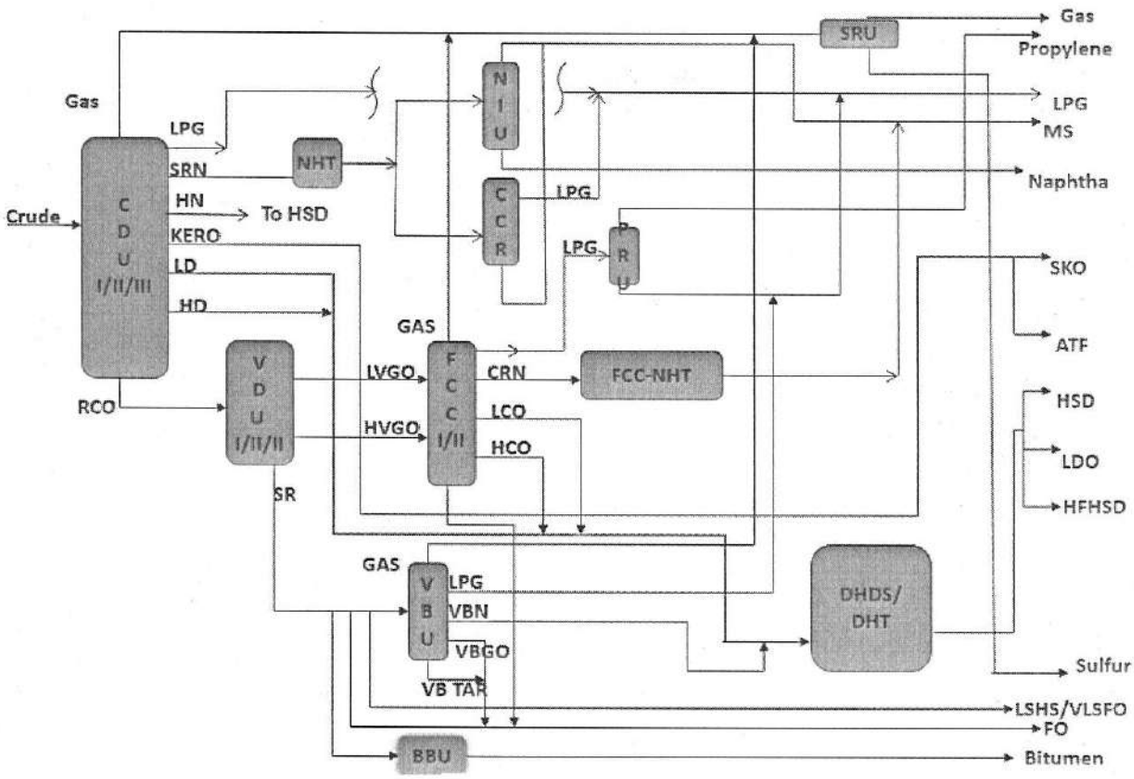


Figure 1: M/s. HPCL process flow diagram

Kerosene from CDUs and Diesel streams viz., Straight Run Diesel, Vacuum Diesel & Cycle Oils are routed to Diesel Hydro Desulphurisation (DHDS) / Diesel Hydrotreater (DHT) units for removal of Sulphur thus producing Diesel meeting required statutory specifications.

In the sulphur removal process of Motor Spirit / Diesel, the sulphur compounds present in the streams are removed by reaction with Hydrogen in presence of Catalyst in Reactor at high temperature and pressure to form Hydrogen Sulphide. Hydrogen required in the process is generated in Hydrogen Plant by cracking Naphtha in presence of steam in a Reformer. Hydrogen Sulphide rich gases generated during Desulphurization processes is treated in Sulphur Recovery Units for recovery of the Sulphur.

Short residue from the CDUs is routed to:

- Low Sulphur Heavy Stock (LSHS) / Very Low Sulphur Fuel Oil (VLSFO) (during low sulphur crude processing)
- Bitumen Blowing Unit: For manufacturing Bitumen (During bituminous crude processing)
- Fuel Oil (high sulphur crude processing)

.

3.3.1 Status of crude oil processed & products produced during the year 2020 (January to December, 2020):

The refinery has processed 90,71,100 MT of crude oil during the year 2020 (January – December) and produced the following consented petroleum products:

Table 1: Products produced during the year 2020

S. No.	Product	Permitted quantity as per CFO Order dated 09.03.2021 in TPA	Products Produced during 2020 (Jan. to Dec.) in TPA
1	Propylene	36,000	46,000
2	LPG	6,43,000	4,18,000
3	Naphtha	1,73,000	3,68,700
4	Motor spirit	16,55,000	16,72,900
5	ATF	1,20,000	59,100
6	SKO	5,21,330	1,42,200
7	Diesel	37,86,670	39,31,500
8	FO 3.5 % S	16,62,000	9,36,100
9	FO 1.0% S	2,37,670	1,68,500
10	Bitumen	2,20,660	5,15,400
11	Sulphur	56,370	34,800
12	Refinery Fuel	7,41,670	7,27,300
13	Intermediate Stream Build up	--	50,500
	Total:	**1,00,00,000**	**90,71,100**
Crude processed during the year, 2020 (January to December)			**90,71,100**

From the above table, it is observed that the quantities of crude oil processed and the sum of various products produced during the year 2020 is same. This shows that the entire crude oil is converted into useful petroleum products without any loss or leaving any hydrocarbon fraction into the atmosphere, which is practically impossible in any refinery. There will always be good amount of non-recoverable volatile aromatic and aliphatic hydrocarbons emanated during crude processing, which will be vented through flare stacks and subjected to continuous burning throughout the year. The crude will also be having measurable concentrations of water soluble salts, which are removed through water treatment before subjected to distillation.

4.0 Compliance status of Environmental Clearance conditions

The detailed compliance status of conditions stipulated in the environmental clearance letter no. J-11011/22/94-A II (I) dated 30.05.1995, J-11011/88/96- IA II (I) dated 10.04. 1997, J-11013/55/2003-IA II (I) dated 03.02.2004, J-11011/66/2007-1A II (I) dated 07.03.2008, J-11011/408/2009-IA II (I) dated 02.09.2009 and J-11011/63/2013-IA II (I) dated 11.02.2016 along with non-compliances observed are enclosed (Annexure - 12).

4.1 Compliance status of consent conditions issued by APPCB

APPCB renewed combined consent for operation on March 9, 2021 under Water Act, 1974 and Air Act, 1981 and Authorisation under Hazardous & Other Wastes Rules, 2016 up to December 31, 2025. In compliance to Hon'ble NGT order dated February 25, 2021; the committee verified the compliance of the consent conditions. The compliance status of CFO conditions is enclosed (Annexure – 13).

4.2 Compliance status of the recommendations made by the Indian Institute of Science, Bengaluru:

APPCB and District Administration received many public complaints of odour problems from several parts of the Visakhapatnam city during October-November, 2011. APPCB and District Administration of Visakhapatnam engaged Indian Institute of Science (IISc), Bengaluru in the year 2012 to carry out the study for identifying the root cause for odour nuisance in Visakhapatnam city. IISc, Bengaluru carried out the study and submitted the report along with the recommendations in the year 2016. The major observation of the IISc is that the compounds responsible for the odour problem in Visakhapatnam City, particularly Malkapuram, Gajuvaka, Gopalapuram, etc., residential areas could be the cumulative effect of odorous organic and inorganic like, unburnt hydrocarbons, BTX solvents, Sulphides (Hydrogen Sulphide, Mercaptans, Mono & Di methyl sulphides), Amino compounds, etc. from the industrial establishment, domestic sewage, municipal solid waste and vehicular exhausts, and hence, it is difficult to pin point any individual industry.

The important task in mitigating the pollution from the industries is to maintain stack emissions within the stipulated limits. As far as the HPCL Refinery is concerned, the scrubbers of FGDS in FCCU-I & II shall be maintained at its best operating condition.

The recommendations made by the IISC, Bengaluru are:

i. Even if industries follow good practices and maintain emission within the limits, there are possibilities of episodic odour issues. In such cases, it is the responsibility of each and every industry in the region towards community to cooperate and participate in taking the odour problem in Visakhapatnam area.
ii. APPCB being the nodal agency, should form an odour squad comprising members from APPCB, each stakeholder industry, prominent community members and experts in environmental field. The task of the squad should include:
    - In case of any episode, the APPCB nominee to inform all members about the compliant and location.
    - The squad to visit the site and take ambient air samples in Tedler bags which should be stored under appropriate conditions and transported immediately (for GC-MC analysis) to recognized laboratory.
    - Upon receiving the complaints from the squad, each industry should check for abnormal emissions or operating conditions if any, in their industry and report to APPCB and take necessary actions.
iii. APPCB should initiate a community medical study to correlate the mortality rate before and after the odour episode for compare the data during non-episodal to evaluate the hazard.
iv. Use of respiratory masks must be encouraged whenever odour is experienced.
v. Public education is an important concept in odour management. The odour squad should strive to impress upon people of Visakhapatnam that the common odour one might smell from the industries or any other sources will not have serious impact on average person's health if released in small amounts. It is important to maintain public decorum and take steps to mitigate the panic among the general public through proper education.

4.3 Compliance status of the directions issued by APPCB dated March 19, 2020:

Based on the recommendations made by IISC, Bengaluru report in 2016; APPCB did not issue any directions to HPCL as there were no specific directions to HPCL. APPCB inspected the industry on February 25, 2020 and based on the observations, legal hearing was conducted before the External Advisory Committee (Task Force) on March 4, 2020. The representative of the industry attended the legal hearing and submitted their views. The committee after detailed discussions issued the directions on March 19, 2020. The copy of the directions issued by APPCB on March 19, 2020 is attached as ***Annexure - 14***. During inspection, the committee verified the compliance status of the directions and is enclosed (Annexure - 15).

5.0 Monitoring of ambient air quality and stack emission in HPCL:

To ascertain the source of pollution, committee along with scientist of APPCB, Zonal Laboratory carried out ambient air quality monitoring at 5 locations (Manual monitoring at 3 locations & Mobile van with CAAQMS at 2 locations) in and around the industry premises.

Table 4: Details of ambient air quality monitoring locations

S. No.	Location	Latitude	Longitude	Date of monitoring	Parameters
I	**Manual Stations**				
1	North-east side of the industry (near industry CAAQM stations at HLPH)	17.696921	83.251094	25.03.2021 and 26.03.2021	PM 10, PM 2.5, SO2, NO2 & NH3.
2	South-west to industry (Yarada park housing colony – S10 building)	17.688231	83.240756		
3	South-east side of the industry (near industry CAAQM station)	17.688419	83.250038		
II	**Mobile Continuous Ambient Air Quality Monitoring Station (CAAQMS)**				
1	North-west corner of the industry near ETP – 4	17.700329	83.237126	25.03.2021 and 26.03.2021	PM10, PM2.5, SO2, NO2, NH3, O3, CO, Benzene and VOCs.
2	South-east side of the industry (near industry CAAQM station)	17.688419	83.250038	26.03.2021 and 27.03.2021	

The parameters monitored are PM_{10}, $PM_{2.5}$, SO2, NO2, NH3, O3, CO, Benzene and VOCs between 25.03.2021 and 27.03.2021. The monitoring results are depicted in table 5 below:

Table 5: Ambient air quality monitoring results

S. No.	Location	PM_{10}	$PM_{2.5}$	SO_2	NO_x	NH_3	O_3	CO	Benzene
I	**Manual Stations**								
1	North-east side of the industry (near industry CAAQM stations at HLPH)	**267**	**92**	44	33	29	-	-	-
2	South-west to industry (Yarada park housing colony – S10 building)	**115**	**69**	19	17	27	-	-	-
3	South-east side of the industry (near industry CAAQM station)	**248**	**83**	48	36	30	-	-	-
II	**Mobile Continuous Ambient Air Quality Monitoring Station (CAAQMS)**								
1	North-west corner of the industry near ETP – 4	**320**	**89**	**84**	39	40	57.7	1.4	2.7
2	South-east side of the industry (near industry CAAQM station)	**298**	**94**	52	42	35	66.2	1.7	3.3
24 Hour average standard		100	60	80	80	400	100 (8 hours)	4 (1 hour)	-
Annual average standard		60	40	50	40	100	180 (1 hour)	2 (8 hours)	5
All values are expressed in $\mu g/m^3$, except CO. CO values are expressed in mg/m^3.									
Analysis result of other 49 VOCs is annexed (Annexure – 16).									

The results show that the values of PM_{10} & $PM_{2.5}$ values are exceeding the 24 hour average standards. The SO_2 value at the North-west corner of the industry near ETP – 4 is exceeding the standard. The values of SO_2 & NOx, though not exceeding the standard limits found far higher than the values obtained at the locations elsewhere in Visakhapatnam city. This indicates that there are leaks in the process systems through which, PM_{10}, $PM_{2.5}$, SO_2, NOx, etc. are find their way into the ambient air as fugitive emissions. Higher values of PM_{10} & $PM_{2.5}$ in the ambient air could also be attributed due to the expansion works going on within the premises of the refinery.

M/s. HPCL Refinery has installed three CAAQM stations within the periphery of the industry for continuously monitoring the ambient air quality on real-time basis. The data from these stations is transferred to APPCB & CPCB servers. Data pertaining to the monitoring for the period from January, 2020 to March, 2021 is enclosed (***Annexure – 17***). From the results it is observed that the value of PM_{10} and $PM_{2.5}$ are exceeding the standard. During February 15 to March 15, 2021 in the CAAQMS station at the southern side of the industry, there is a spike in the SO_2 value.

The Joint Committee requested Zonal Laboratory, APPCB, Visakhapatnam to carry out ambient air quality monitoring using mobile CAAQM Station for three days during May 3-6, 2021 and 06.05.2021 in the residential area of Malkapuram at Ajanta colony which lies south-east

direction of M/s. HPCL Refinery to verify the impact of emissions from the refinery. The results obtained are tabulated as below:

Table 6: results of the ambient air quality monitored at Malkapuram in Ajanta colony

S. No.	Date	PM_{10}	$PM_{2.5}$	SO_2	NO_2	NH_3	O_3	CO	Benzene
1	03.05.2021 to 04.05.2021	91	25	33	25	16	41.2	0.9	1.5
2	04.05.2021 to 05.05.2021	72	17	25	22	15	29.7	1.0	0.6
3	05.05.2021 to 06.05.2021	67	16	37	24	23	55.1	0.9	0.7
24 Hour average standard		100	60	80	80	400	100 (8 hours)	4 (1 hour)	-
Annual average standard		60	40	50	40	100	180 (1 hour)	2 (8 hours)	5
All values are expressed in $\mu g/m^3$, except CO. CO values are expressed in mg/m^3.									
Analysis result of other 49 VOCs is enclosed (Annexure – 16).									

From the table above, it is observed that the all the parameters are well within the standards for all the three days.

5.1 Monitoring of emission in stacks

Committee carried out monitoring of flue gas emissions from five important stacks for PM, SO_2 and NOx during the period of inspection during March 25-27, 2021. Details of stacks monitored and the results are tabulated below:

Table 7: Analysis results of stacks monitored

S. No.	Stack identity	Date of monitoring	Parameter	Value (mg/NM 3)	Standard
1	Stack attached to DHDS Reformer-61F11	25.03.2021	PM	39.0	100
			SO_2	63.5	--
			NOx	35.7	--
2	Stack attached to combined feed heater and product fractionators reboilers-90F01, 90F02	26.03.2021	PM	24.9	100
			SO_2	184.7	--
			NOx	204.9	--
3	Stack attached to Flue gas desulphurization unit FGD-II	26.03.2021	PM	36.0	50
			SO_2	147.5	--
			NOx	112.8	--
4	Stack attached to continuous catalytic reforming unit (CCR) 74F1, F2, F3, F4	26.03.2021	PM	22.0	100
			SO_2	25.1	--
			NOx	117.4	--
5	Stack attached SRU Train – III Incinerator 79F302	27.03.2021	PM	23.0	100
			SO_2	32.5	--
			NOx	35.7	--
Analysis reports enclosed (Annexure -18).					

From the results, all the parameters are meeting the prescribed standard by APPCB for all the five stacks monitored.

The Visakha Refinery has installed Online Continuous Emission Monitoring Systems (OCEMS) to 32 stacks to monitor the flue gas emissions for Particulate Matter (PM), Sulfur dioxide (SO2), Nitrogen dioxide (NO2) and Carbon monoxide (CO) on real-time basis and connected to APPCB & CPCB server. Analysis data obtained from these stacks for the period from 01.01.2020 to 30.04.2021 has been collected and enclosed (Annexure – 18). There are few exceedances noticed during March, 2021

According to the CFO conditions issued by APPCB has prescribed stipulated standards for pollutant emission loads from the stacks for PM, SO2, NOx & hydrocarbons. The Joint Committee calculated pollutant emission load for compliance verification as tabulated below.

Table 8: Emission Load calculation statement for PM, SO2 and NOx as per the data obtained from the CEMS connected to stacks - From 01.01.2020 to 30.04.2021

S. No.	Stack ID		SPM (TPD)	NOx (TPD)	SO2 (TPD)
	S. No. as per CFO order	As per CEMS	Actual as per CEMS	Actual as per CEMS	Actual as per CEMS
1	Stack 4	Stack 01_CDU_I_2F1	0.028	0.058	0.283
2	Stack 6	Stack02_CDU_I_2F2-	0.008	0.043	0.182
3	Stack 5	Stack03_CDU_I_2F4-	0.016	0.055	0.275
4	Stack 1	Stack04_CDU_II_11F1-	0.068	0.173	0.543
5	Stack 2	Stack05_CDU_II_12F1-	0.015	0.066	0.166
6	Stack 12	Stack06_CDU_III_42F1-	0.057	0.133	0.552
7	Stack 13	Stack07_CDU_III_42F2-	0.01	0.04	0.15
8	Stack 14	Stack08_VBU_46F1-	0.006	0.062	0.137
9	Stack 15	Stack09_FCCU_I_4F51-	0.015	0.02	0.116
10	Stack 16	Stack10_FCCU_I_4F52-	0.094	0.045	0.146
11	Stack 35	Stack11_FCCU_I_FGD1-	0.063	0.42	0.184
12	Stack 3	Stack12_FCCU_II_14F1-	0.012	0.023	0.139
13	Stack 9	Stack13_FCCU_II_14F3-	NA	0.029	0.093
14	Stack 34	Stack14_FCCU_II_FGD2-	0.111	0.31	0.098
15	Stack 8	Stack15_PP_I_WIL8-	NA	NA	NA
16	Stack 27	Stack16_PP_1_IBH-	0.01	0.203	0.273
17	Stack 21	Stack17_DHDS_60F1-	0.002	0.045	0.108
18	Stack 19	Stack_18_DHDS_REFORMER-	NA	0.042	0.054
19	Stack 20	Stack19_DHDS_HGU_61F1	NA	NA	NA
20	Stack 22	Stack20_DHDS_SRU_65F001-	NA	0.02	0.042
21	Stack 26	Stack21_DHDS_SRU_79F302-	NA	0.008	0.176
22	Stack 24	Stack22_CCR_74_F1toF4-	0.021	0.135	0.042
23	Stack 23	Stack23_NHT_72_F1F2-	0.003	0.017	0.02
24	Stack 25	Stack24_FCCNHT_75F1-	0.001	0.004	0.006
25	Stack 17	Stack25_CPP_HRSGIII-	0.083	0.978	0.047
26	Stack 18	Stack26_CPP_HRSGIV-	0.103	0.575	0.06
27	Stack 28	Stack27_CPP_HRSGV-	0.058	0.648	0.192
28	Stack 29	Stack28_CPP_HRSGVI-	0.064	0.74	0.176
29	Stack 30	Stack_29_DHT_FEED_90F01_02-	0.054	0.092	0.138
30	Stack 32	Stack_30_DHT_HGU_NAPTHA_HEATER_91F01-	0	0.002	0.001
31	Stack 31	Stack_31_DHT_HGU_91M20-	0.063	0.079	0.071
32	Stack 33	Stack_32_DHT_SRU_92M22-	0.004	0.018	0.051
Total (as calculated from the results obtained from			**0.969**	**5.083**	**4.521**

CEMS connected to 32 stacks)			
Total emission load (as stipulated to each stack in the CFO Order against the 32 stacks)	**5.609**	---	---
Total emission load (as stipulated to each stack in the CFO Order against all the 36 stacks)	**6.72**	---	---
Total emission load prescribed as per CFO Order	**1.11**	**6.5**	**11.5**
Stack monitoring data obtained from the Continuous Emission Monitoring Systems (CEMS) connected to 32 stacks for the period from 01.01.2020 to 30.04.2021. (Annexure – 19).			

From the above calculations, the parameters PM, SO_2 and NO_2 are meeting the prescribed standard for pollution emission loads.

5.2 Water consumption and wastewater generation & treatment details

Domestic and process & washings requirements of the refinery are met from the Greater Visakhapatnam Municipal Corporation supply. Cooling water requirements are met from the water drawn from sea. The refinery has provided the data of water consumption & wastewater generation during the year 2020 (January to December) and treatment facilities available to the Joint Committee during inspection. Details are tabulated below:

Table 9: Water consumption details

S. No.	Purpose	Permitted quantity as per the CFO order dated 18.12.2019 (KLD)	Actual consumption (KLD)
1	Process & washings	10,176	9,250
2	Boiler feed	1,680	7,718
3	Industrial cooling (make up) / humidification / water spraying	5,03,305	2,13,035
4	Industrial water	6,900	---
5	Domestic	732	732
Total:		**5,22,793**	**2,30,735**
Remarks: Water consumption for boiler feed was exceeded the permitted quantity.			

a. Waste water generation and treatment:

Wastewater is generated mostly during desalting of crude oil (striped Water), spent caustic solutions, floor washings, crude & product tank washings, boiler blow downs, etc.

Table 10: Wastewater generation

S. No.	Outlet description	Max. daily discharge as per CFO order dated 18.12.2019 (KLD)	Point of disposal	Actual quantity of wastewater discharge during the year 2020 (KLD)
1	Process & Washings	11,820	Shall be discharged into Meghadrigedda surplus course joining Bay of Bengal sea after	5,272

			treatment in ETPs – I, II & IV.	
2	Cooling blow down	2,18,286	Shall be discharged into Meghadrigedda surplus course joining Bay of Bengal sea after treatment	2,18,286
3	Domestic effluents	636	Shall be used for onland for irrigation within the industry premises after treatment in STP.	636
Total:		**2,30,742**	**---**	**2,24,194**

There are three effluent treatment plants in HPCL. The status of operation and its operating capacities are as below:

Table 11: ETP status details

Name of ETP	**Designed Capacity, (KL/hr)**	**Inlet Sources to ETP**	**Status of Operation**	**Treatment units**
ETP-I	135 KL/Hour (3,240 KLD)	CDUs, FCC-I, QC & Product tank	In Operation.	API, TPIs for free oil removal, dissolved air floatation, flocculation tank, equalisation tank, aeration tank & duel media filters (carbon & sand).
ETP-II	325 KL/Hour (7,800 KLD)	Desalter, Oily water & spent caustic effluents	Partially operation and routed to ETP-IV for further treatment.	API, TPIs for free oil removal, neutralisation tank, ammonia stripper, dissolved air floatation tank, equalization tank, two-stage biological treatment, duel media & activated carbon filters.
ETP-IV	180 KL/Hour (4,320 KLD)	Effluents from MS block	In Operation.	API, TPIs, flash mixing tanks, flocculation tank, dissolved air floatation tank, sequential batch reactor for removal of organics, duel media filters, activated carbon filters followed by disinfection through bromination.

Treated effluent along with the ones-through cooling water is discharged into Megadrigedda surplus overflow channel through two numbers of Main Hay Filters, which finally joins the sea Bay of Bengal.

During inspection, Joint Committee collected treated effluents from three outlets of Effluent Treatment Plants and the two final outlets discharged into Megadrigedda surplus overflow

channel for compliance verification on March 26, 2021 The samples collected were analyzed in the Zonal Laboratory, APPCB, Visakhapatnam. Details of samples collected and analysis results are tabulated below:

Table 12: Analysis results of Final outlet

S. No.	Parameters	MHF-II outlet (E-332)	MHF-I outlet (E-333)	CFO Order stipulated standards
1	pH	7.16	7.28	6.50 – 8.50
2	Oil & grease	< 1.0	< 1.0	1.0
3	Hexavalent chromium (as Cr)	0.01	BDL	0.10
All values are expressed in mg/L except pH.				

Table 13: Analysis results of ETPs outlet

S. No.	Parameter	ETP – I – DMF outlet (E-334)	ETP – IV ACF outlet (E-335)	CFO Order stipulated standards
1	pH	7.64	8.33	6.5-8.5
2	Total Suspended Solids at 105^0 C	**23**	**57**	20
3	Chemical Oxygen Demand	44	96	125
4	Biochemical Oxygen Demand	10.5	**23.0**	15
5	Oil & Grease	<1	2.0	5.0
6	Sulphides (as S^{2-})	1.6	2.4	0.5
7	Ammonical Nitrogen (as NH_3-N)	3.9	**26.3**	15.0
8	Phenols (as C_6H_5OH)	BDL	0.02	0.35
9	Phosphates (as P)	0.08	0.07	3.0
10	Hexavalent Chromium (as Cr^{6+})	BDL	BDL	0.10
11	Total Chromium (as Cr)	0.0007	0.0010	2.0
12	Lead (as Pb)	0.0002	<0.0001	0.10
13	Zinc (as Zn)	0.0090	0.0080	5.0
14	Nickel (Ni)	0.0083	0.0024	1.0
15	Copper (as Cu)	0.0025	0.0007	1.0
16	Cyanide (as CN^-)	BDL	BDL	0.2
All values are expressed in mg/l except pH.				
Analysis reports enclosed (Annexure – 20).				

From the analysis results, it is observed that the values of Total Suspended Solids, Biochemical Oxygen Demand and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP – IV (ACF outlet) and TSS value in ETP I outlet.

APPCB in the CFO Order, stipulated standards have been prescribed for pollution loads of various effluents parameters to comply with while discharging the treated effluents outside the premises. Accordingly, the Joint Committee made pollution load calculations as tabulated below for compliance verification. As per the calculation, the pollution load of all the parameters are meeting the stipulated standard prescribed by APPCB.

Table 14: Pollution load calculation for effluent

S. No.	Pollutant	ETP / STP	Value (mg/lit)	Quantity of treated effluent (KLD)	Pollutant load (TPD)
1	TSS	ETP – I – DMF outlet	23	5,272	0.42
		ETP – IV ACF outlet	57		
		STP outlet	14	636	0.009
	Total				**0.429**
	Standard as per CFO order				**1.25**
2	COD	ETP – I – DMF outlet	44	5,272	0.74
		ETP – IV ACF outlet	96		
		STP outlet	72	636	0.046
	Total				**0.786**
	Standard as per CFO order				**17.2**
3	BOD	ETP – I – DMF outlet	10.5	5,272	0.18
		ETP – IV ACF outlet	23		
		STP outlet	18	636	0.011
	Total				**0.191**
	Standard as per CFO order				**4.6**
4	Phenol	ETP – I – DMF outlet	BDL	5,272	0.00011
		ETP – IV ACF outlet	0.02		
		STP outlet	---	636	---
	Total				**0.00011**
	Standard as per CFO order				**0.67**
5	Sulphide	ETP – I – DMF outlet	1.6	5,272	0.021
		ETP – IV ACF outlet	2.4		
		STP outlet	---	636	---
	Total				**0.021**
	Standard as per CFO order				**1.66**
6	Oil & Grease	ETP – I – DMF outlet	0.9	2,23,558 (Treated effluent: 5,272 + Cooling blow down: 2,18,286)	0.20
		ETP – IV ACF outlet			
		MHF-II outlet			
		MHF-I outlet			
	Total				**0.20**
	Standard as per CFO order				**12.26**

b. Domestic wastewater treatment details

HPCL has two STPs of 40 KLD capacity (25 & 15 KLD) to treat the sewage generated from the administration block. The wastewater is generated from rest rooms, kitchen and dining area. About 25-30 KLD of sewage is generated and is treated in the STP with Wetland Technology treatment system and the treated water is utilized for on land gardening. During inspection, the STP was monitored and collected samples from the outlet of STP and the results are depicted in the table below:

Table 15: Analysis results of treated domestic effluent

S. No.	Parameter	STP outlet Mg/L except pH	Standard prescribed by APPCB as in CFO
1	pH	8.40	6.5-8.5
2	Total Suspended Solids at 105^0 C	14	100 mg/l
3	Total Dissolved Solids at 105^0 C	**820**	----
4	Chemical Oxygen Demand	72	----
5	Biochemical Oxygen Demand	18	30 mg/l

From the analysis results, it is observed that all the parameters are meeting the standards.

6. Ground water quality monitoring:

HPCL has installed six piezometer wells inside the unit premises to regularly monitor the ground water quality. During the inspection, it was informed to the committee that four of the wells are dried up and the Joint Committee collected ground water samples from two piezometer wells located within the industry premises. The analysis results of the ground water are detailed below:

Table 16: Analysis results of bore well water samples collected within the premises of the refinery

S. No.	Parameter	Borewell near substation 8A	Borewell near tank 10A	Drinking Water Specifications: IS:10500:2012
				Requirement (Acceptable Limit)
1	pH	7.81	8.03	6.5-8.5
2	Conductivity (as µS/cm)	**10190**	**4400**	----
3	Total Dissolved Solids at 105^0 C	**7184**	**2772**	500
4	Total Organic Carbon (as TOC)	36.8	8.8	----
5	Chlorides (as CI)	**3229**	**1101**	250
6	Total Alkalinity (as $CaCO_3$)	**424**	**380**	200
7	Total Hardness (as $CaCO_3$)	**1104**	**592**	200
8	Calcium (as Ca)	**107.2**	**128.0**	75
9	Magnesium (as Mg)	**203.1**	**66.0**	30
10	Sodium (as Na)	**1938**	**652**	----
11	Potassium (as K)	32	30	----
12	Nitrites Nitrogen (as NO_2-N)	0.82	0.05	----
13	Ammonical Nitrogen (as NH_3-N)	BDL	BDL	----
14	Phosphates (as P)	0.07	1.82	----
15	Sulphates (as SO_4)	76.3	142.3	200
16	Fluorides (as F)	1.62	1.10	1.0
Heavy Metals				

17	Lead (as Pb)	0.0004	0.0016	0.01
18	Iron (as Fe)	0.6514	0.5752	0.3
19	Copper (as Cu)	0.0018	0.0056	0.05
20	Zinc (as Zn)	0.0071	0.0173	5
21	Nickel (as Ni)	0.0006	0.0013	0.02
22	Cadmium (as Cd)	<0.0001	<0.0001	0.003
23	Chromium (as Cr)	0.0010	0.0009	0.05
24	Arsenic (as As)	0.0006	0.0002	0.01
25	Manganese (as Mn)	0.0300	0.0865	0.1
All values are expressed in mg/l except pH.				
Analysis report enclosed (Annexure – 21).				

Results shows that dissolved solids content in the ground water within the premises of the refinery are very high exceeding the drinking water standard limits. This may either be attributed to the intrusion of sea water or be attributed to the seepage of sea water drawn by the refinery for cooling purpose.

7.0 Sulphur balance studies:

The Joint Committee carried out Sulphur balance studies for verification of compliance of stipulated standards. For the study, committee collected Sulphur related data of crude processed and petroleum products produced during the year 2020 (January to December).

Table 17: Quantity of crude obtained from various sources and the concentrations of Benzene and Sulphur contents as per the information provided by M/s. HPCL Refinery

S. No.	Type of crude	Crude quantity (TMT)	No. of parcels	Benzene content (wt%)	Sulfur content (%)
1	MH	416.4	8	1.8	0.124
2	Bonny light	1395.7	6	0.1	0.138
3	WTI	1059.3	4	0.1	0.169
4	Quaiboe	467.6	3	0.1	0.115
5	ERHA	127.7	1	0.3	0.169
6	AZERI	92.5	1	0.1	0.158
7	Kuwait	62.1	1	0.1	2.808
8	Arab Lt	206.2	8	0.1	1.997
9	Arab Ex Lt	698.5	7	0.2	1.007
10	Arab Hy	510.8	8	0.05	2.978
11	Murban	390.5	5	0.2	0.769
12	Basrah Hvy	39.9	1	0.1	4.2
12	Basrah Lt	1416.3	14	0.1	3.005
13	Das	1902.4	16	0.2	1.186
14	Ravva	285.0	5	0.1	0.052
Total		**9070.9**	**88**	**0.243**	**1.258**
Accordingly, an amount of about 22,042 metric tons of Benzene and 1,14,112 metric tons of sulfur will be having the 90,70,900 metric tons (9070.9 TMT) of crude obtained by the refinery during the year, 2020.					

Table 18: Quantity of petroleum products generated and their Sulphur content

S. No.	Product	Production	Sulphur %	Sulphur quantity

		in Tons	in product	in Tons (Actual)
1	Propylene	46,000	0.004	1.84
2	LPG	4,18,000	0.013	54.34
3	Naphtha	3,68,700	0.024	88.48
4	Motor spirit	16,72,900	0.001	16.729
5	ATF	59,100	0.036	21.276
6	SKO	1,42,200	0.019	27.018
7	Diesel	39,31,500	0.580	22802.7
8	FO 3.5 % S	9,36,100	3.5	32763.5
9	FO 1.0% S	1,68,500	1	1685
10	Bitumen	5,15,400	5.70	29377.8
11	Sulfur	34,800	--	34800
12	Refinery Fuel	7,27,300	0.22	1600.06
13	Intermediate Stream Build up	50,500		
Total:		**90,71,100**	**--**	**1,23,238.743**

Further, the refinery has used three types of fuels viz., fuel gas, low sulphur heavy stock (LSHS) fuel oil and CPP Naphtha for crude distillation, capital power generation, etc. purposes, which again is also having Sulphur concentrations. The quantities of various fuels used and their sulfur content have also been verified by the Joint Committee while carrying out sulfur balance studies as detailed below:

Table 19: Fuels, Sulphur concentrations and total Sulphur load of the fuels used during 2020:

S. No.	Month	Fuel quantity (Metric Tons)	Sulphur concentration	Total Sulphur (metric tons)
I	**Fuel gas**			
1	January	18341	82 PPM	1.50396
2	February	19105	75 PPM	1.432875
3	March	20476	69 PPM	1.412844
4	April	19341	70 PPM	1.35387
5	May	18252	63 PPM	1.149876
6	June	18618	75 PPM	1.39635
7	July	17931	66 PPM	1.183446
8	August	16456	54 PPM	0.888624
9	September	19001	53 PPM	1.007053
10	October	19264	27 PPM	0.520128
11	November	19228	21 PPM	0.403788
12	December	17667	17 PPM	0.300339
Total:		**223681**	**---**	**12.553153**
II	**LSHS (fuel oil)**			
1	January	8162	0.65 (wt%)	53.053
2	February	6252	0.51 (wt%)	31.8852
3	March	4856	0.6 (wt%)	29.136
4	April	4921	0.53 (wt%)	26.0813
5	May	7483	0.59 (wt%)	44.1497
6	June	8118	0.58 (wt%)	47.0844
7	July	7718	0.59 (wt%)	45.5362

8	August	5973	0.66 (wt%)	39. 4218
9	September	6250	0.61 (wt%)	38.125
10	October	6810	0.61 (wt%)	41.541
11	November	8595	0.52 (wt%)	44.694
12	December	8338	0.59 (wt%)	49.1942
Total:		**83477**	**---**	**489.9018**
III	**CPP Naphtha**			
1	January	17628	0.020 (wt%)	3.5256
2	February	17135	0.028 (wt%)	4.7978
3	March	18031	0.030 (wt%)	5.4093
4	April	17279	0.020 (wt%)	3.4558
5	May	17827	0.016 (wt%)	2.85232
6	June	16256	0.021(wt%)	3.41376
7	July	17721	0.019 (wt%)	3.36699
8	August	16032	0.021 (wt%)	3.36672
9	September	16651	0.022 (wt%)	3.66322
10	October	17733	0.019 (wt%)	3.36927
11	November	17389	0.016 (wt%)	2.78224
12	December	14884	0.014 (wt%)	2.08376
Total:		**204567**	**---**	**42.08678**
Total sulfur content in the fuels used (I+II+III) during the year 2020:				**544.542**
Total sulfur dioxide content that has emitted by the 544.542 tons of sulfur during the year, 2020:				**1,089.08**
Sulfur dioxide content emitted per day during the year, 2020 :				**2.98**
Standard emission load of sulfur dioxide as stipulated in the APPCB CFO order dated 18.12.2019.				**11.5**

From the above Sulphur balance studies, it appears that the refinery is not exceeding the Sulphur dioxide emission load of 11.5 tons per day stipulated in the APPCB CFO order dated 18.12.2019.

In support of the claim of the refinery that is recovering Sulphur from the crude and its products, it has provided the quantity of recovered Sulphur for past five years from 2016-17 to 2020-21 as detailed below.

Table 20: Recovered Sulphur from the crude & its products

S. No.	Financial year (April-March)	Crude processed (TMT)	Sulphur recovered (TMT)	Sulphur shipment (TMT)	Sulphur inventory at the year-end (TMT)
1	2016-17	9,303.9	45.16	47.39	0.12
2	2017-18	9,635.0	43.50	42.89	0.73
3	2018-19	9,773.1	50.80	51.18	0.35
4	2019-20	9,115.0	37.48	36.93	0.90
5	2020-21	9,050.5	34.07	34.82	0.15

8.0 Assessment of Environmental Compensation for non-compliance:

APPCB issued directions for non-compliances to HPCL on March 19, 2020; during inspection committee verified the compliance status and observed that some of the directions have not been complied. It is also observed that the refinery has not complied the EC conditions and CFO conditions. Hence, the Committee recommends to levy environmental compensation on the refinery as detailed below:

EC=PI x N x R x S x LF

Where,

EC = Environmental Compensation in INR

PI = Pollution Index of industrial sector (red-80)

N = Number of days of violation took place (date of direction issued to date of compliance verification.)

R = A factor in Rupees for EC (Rs. 100/- may be assumed)

S = Factor for scale of operation (large-1.5)

LF = Location factor (present in Visakhapatnam where population is more than 10 lakh=2)

i. Pollution Index of industrial sector (PI): Andhra Pradesh Pollution Control Board has categorized this industry into red category of industries and accordingly the Combined consent & Authorisation have been granted. For red category of industries, average pollution index is 80.

ii. Number of days of violation (N): The number of days for which violation took place is considered as the period between the day of violation observed and day of compliance verified by the CPCB/ APPCB. From the available records, APPCB issued directions to HPCL on March 19, 2020 and committee verified the compliance on March 25, 2021. Based on the criteria, 371 days (from 19.03.2020 to 25.03.2021 including both the days) is considered for calculation of period of violation for estimating EC.

iii. Scale of operation (S): The industry is considered as large as per the capital investment by the industry. Thus, scale of operation (S) for EC estimation is considered as 1.5.

iv. Location factor (LF): The industry is located in Malkapuram and the total population within municipal boundary and up to 10 km distance from the municipal boundary of the city is 10 million and above. Thus location factor (LF) is considered as 2 for EC estimation.

v. Factor in Rupees (R) (Rs): As per the environmental compensation estimation guidelines, factor of rupees may be minimum of Rs 100/- and maximum of Rs 500/-. The Committee decided to take rupee factor as Rs. 100/- for estimating environmental compensation as there was no environmental damage caused by these non-compliances.

S.N	Period of non-compliance	PI	S	LF	R (Rs)	N (days)	Environmental compensation (Rs)
1	19.03.2020 to 25.03.2021	80	1.5	2	100/-	371	89,04,000/-
	Total EC for violating					**371**	**89,04,000/-**
Rupees eighty nine lakhs and four thousand only.							

9.0 Observations of the committee:

i. Committee inspected HPCL known as Visakha Refinery during March 25-27, 2021. During inspection the unit was operational, however, FCCU-I, SRU train 1&2, Merox unit were not in operation. It was informed that FCCU-I is currently shutdown due to low catalyst circulation rate, and the unit is having four SRU Trains and total design feed rate of these SRUs is higher than the generated feed gas. Generally, two SRU trains will be in operation. Thus SRU Train-3 and DHT SRU were in operation.

ii. The unit has three ETPs for treating the different streams of effluents generated. ETP –I is of the capacity 3,240 KLD, ETP – II (7,800 KLD) and ETP – IV of 4320KLD capacity. During inspection, ETP I & ETP –IV were fully operational, but, ETP –II was partially operational and was diverted to ETP –IV for further operation. It may be noted that the design capacity of ETP-IV is smaller compared to ETP-II, hence, complete treatment cannot be achieved. This is also reflected in the analysis results of ETP-IV outlet (Table 13). The chance of bypass is highly possible, however, during inspection no by-pass of effluents was observed.

iii. In the ETP-II area, the TPI was broken down and the thick black slurry like effluent was spilled all over and was filled in the drains. The drains near ETP-II section was filled with water and white sand like material.

iv. The storm water drains near the final outlets I & II was filled with water and when enquired, it was told that rain water. The small tank is constructed near the guard pond and it was observed that about four inches oily mark was visible. The water filled in this tank is transported to the rain water harvesting tanks through tankers.

v. The unit has not provided closed collection system to handle the odours effluent streams. The oil-water separators and equalizations tanks are not covered to trap the VOCs. Hence, during inspection a strong odour of VOCs was sensed by the committee members in the ETP I & IV, near bio-remediation ponds and at guard pond.

vi. The guard pond is filled with the treated effluent of ETP-I & II and ones through cooling water. It was observed that the oil was floating on the surface of the guard pond near the inlet of ETP treated water.

vii. The hazardous waste generated by the refinery as per the authorization is stored in a separate shed under lock & key. The different types of wastes are kept separately with demarked. The wastes are disposed accordingly mentioned in the authorization.

viii. Sludge generated from Crude/Product tanks is shifted to Sludge lagoons and is called as high oily sludge. Processing of this sludge to recover the oil is carried out through a temporary facility (Decanter, Centrifuge, RO Tank) installed by external agency. When 3000 to 5000 m3 of sludge is accumulated, tender is placed for processing of sludge. The third party by installing temporary facility such as Decanter, Centrifuge & RO Tank. The recovered oil generated is pumped to slop oil tanks for further reprocessing in CDUs. Low oily residual sludge generated out of sludge processing is taken to Bins for Bio Remediation process.

ix. During inspection, it was noticed spillages in the sludge processing area and scatter of sludge near the sludge lagoon ponds. The sludge lagoon ponds were not covered and the VOC measured by hand held instrument showed 8 - 9 PPM. In this area strong VOC was sensed by the committee members. The industry representative informed that it is only local and is not carried to other area of the refinery.

x. In the bio-remediation process of low oily sludge, 10 bins of $100m^3$ of each is constructed and filled with low oil sludge, the oil zapper bacteria at 5 kgs/m^3 and nutrients of $250g/m^3$ is mixed along with the sludge. Periodic tilling has to be carried out. After two months the sludge has to be tested for the oil content and if required additional oil zapper bacteria and nutrients have to be added. After 10-12 months, the oil sludge will be completely degraded and can be used as manure.

xi. However, during inspection it was noticed that the 5 bins were empty and the remaining bins was filled with sludge, but on top of the sludge high oil sludge along with biofilms was dumped. The sludge was too dried and appears that it was not tilled and aerated for the growth of bacteria for the treatment.

xii. It was informed that the 1st batch was processed in bin no. 2, 5 & 6 and completed in March, 2020. The treated sludge was utilized for garden soil and road repair works in project Site.

xiii. It has been observed that project had display board at the main entrance gate. However, the critical parameters viz., stack emission, ambient air quality monitoring, water, noise, VOC, etc. data are not being displayed.

xiv. Thick black smoke emissions from the flare stacks were observed during inspection of the refinery. APPCB officials have also recorded in their reports during inspection of the refinery on 16.07.2020 and 30.11.2020, which indicate escape of incomplete and unburnt aromatic and aliphatic hydrocarbon emissions into the atmosphere.

xv. Refinery does not have the inventory of unrecoverable volatile organics venting through the flare stacks for burning.

xvi. It has been observed that, vide EC dated 03.02.2004 and 02.09.2009 project was under expansion from 7.5 to 10.0 MMTPA. As per EC dated 11.02.2016, project is under expansion from 8.33 MMTPA to 15.0 MMTPA. However, during inspection, no information has been provided for expansion of project from 7.5 to 8.33 MMTPA.

xvii. It has been observed that the PAs are submitting the six monthly compliance reports with respect to latest EC dated 11.02.2016 only. However, compliance status of earlier granted EC's and monitored data of air, water, noise, etc. are not being submitted.

xviii. Compliance of standards/norms in terms of fugitive emissions and VOC emissions monitoring at ETP area are not being implemented as per Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18th March, 2008.

xix. The project had not provided a mobile laboratory with adequate facility to monitor ambient air quality outside the refinery premises. The condition has been imposed in the EC dated 30.05.1995. However, till date mobile laboratory was not provided.

xx. As per CFO, there were 35 stacks were present in the project. However, continuous on-line stack monitoring facilities were provided for 32 stacks only.

xxi. Monitoring of process emissions viz., SO2, NOx, HC (Methane & Non-methane), VOCs and Benzene from various units is not being done.

xxii. The monthly Sulphur balance sheet of the refinery along with six monthly compliance reports.

xxiii. Facilities for monitoring of HS, mercaptan, non-methane-HC and Benzene at all CAAQ monitoring stations is not being provided.

xxiv. The comprehensive water audit reports on annual basis are not being submitted to Ministry's Integrated Regional Office.

xxv. It has been observed that the PAs are in process of developing green belt in and around the plant premises. However, it has been observed that the plantation around the project area is not satisfactory.

xxvi. Uploading of environmental statement for each financial year ending 31st March in Form-V on company's website is not being done.

10.0 Suggested remedial measures to mitigate pollution.

The committee suggests the following measures:

i. The unit should comply with the all the conditions mentioned in the CFO and hazardous waste authorisation and also the directions issued by APPCB for effective and safe operation of the refinery so as to mitigate the pollution to possible extent.

ii. The unit should take necessary steps to reduce the PM_{10} & $PM_{2.5}$ values in ambient air within the industry premises, the values in the CAAQMS in all the three locations shows the exceedances throughout the year 2020. The unit should spray water on the road and to plan the timings for the movement of vehicles inside the industry to control the fugitive emissions.

iii. The five stacks monitored are meeting the prescribed standards, however, two stacks which were not monitored due to some issue in the stack monitoring platform has to be rectified.

iv. Refinery has provided OCEMS in 32 stacks to monitor PM, SO2, NOx & CO and remaining 4 stacks has to be installed. The OCEMS data are connected to CPCB & APPCB servers. CEMS for measuring Hydrocarbons are yet to be installed. A few exceedances were observed during March, 2021. The industry should take periodic calibration and maintenance of analysers to avoid the exceedances in standards.

v. The unit should rectify and repair the ETP –II components for effective treatment, the effluent spilled near the TPI area should be cleaned. The storm water drains near the ETP-II and final outlets have to be cleared for free flowing and to avoid stagnations. The small pump has to be installed in the tank constructed to collect the rain water near the guard pond to avoid manual transportation of the rain water to the ETP.

vi. The ETPs should be operated regularly and effectively for meeting the prescribed discharge standards. The unit should install covers either floating /fixed types in the oil-water separator and equalization tanks to trap the VOCs for eliminating the odours. The trapped off-gas has to be treated to remove at least 90% of VOCs.

vii. The unit should recycle the treated water to the maximum extent to reduce the fresh water consumption instead of fully discharging into sea along with cooling water.

viii. At present the unit is monitoring the LDAR program annually through third party laboratory. According to the standards for equipment leaks and good practises it is advised to conduct the quarterly monitoring of LDAR for pump seals, compressor seals,

pressure relief devices & heat exchangers and annually monitor the process drains & components that are difficult to monitor.

ix. The high oily sludge from the crude and products tanks stored in the sludge lagoons has producing VOCs, the unit has to take necessary steps to eliminate the VOCs odour in the area.

x. The housekeeping at the sludge processing area has to be improved, the unit may take necessary action against the third party laboratory for causing spillages during sludge processing and advise to avoid spillages.

xi. The bio-remediation of the low oily sludge has to be carried out technically and avoid dumping of unwanted waste in the bins. Before using the treated sludge as manure, it is required to analyse to check that the oily sludge is completely degraded. The oil contents in terms of Total Petroleum Hydrocarbon (TPH) after bioremediation are less than 1%.

xii. To develop 33 % of total area as a green belt along the industry premises to stop the odour issues as well as to eliminate the fugitive emissions. The unit may plant the odour eliminating plants suitable for refinery industry.

xiii. Refinery shall work out mass & material balance studies and maintain the inventory of unrecoverable volatile organics venting through the flare stacks for burning. Records to this effect shall be produced before the regulatory officials as and when required.

xiv. Suggested that the refinery shall procure, install and operate one Continuous Ambient Air Quality Monitoring station (CAAQMS) with PM 10, PM2.5, CO, O3, SO2, NO2, NH3, Benzene, H2S and Mercaptans parameters at an appropriate location in the residential areas of Malkapuram to assess the impact of refinery activities.

11.0 Concluding remarks:

a. The unit is not complying the majority of condition stipulated in Environmental Clearances granted to Visakha Refinery.

b. The unit is not complying with the majority of consent & authorisation conditions issued by APPCB on March 9, 2021; these are the same conditions given by APPCB at the time of consent & authorisation renewal.

c. APPCB had issued 16 points directions for non-compliance on March 19, 2020; the unit is not complying for 6 points and partially complied for one point even after one year.

d. The committee had monitored stack emissions at five stacks, manual ambient air quality monitoring at three locations and CAAQM using mobile van at two locations. The stack emissions are meeting the prescribed standards, the ambient air quality for PM_{10}, $PM_{2.5}$

parameter is exceeding at all the five locations, at one point near the ETP – IV area the concentration value of SO_2 is exceeding the standards.

e. The effluent discharge standards for the ETP outlet of I & IV are not meeting, however due to mixing of one time cooling water with the treated effluent at the final discharge point, the prescribed discharge parameters are meeting the standards.

f. The committee calculated the prescribed pollution load for effluent & emission in CFO and are meeting the prescribed standards.

g. The committee calculated environmental compensation for violation & non-compliance of the directions issued by APPCB and levied Rs. 89,04,000/- (Rupees eighty nine lakhs and four thousand only). M/s. HPCL, Visakha Refinery has to pay Rs. 89,04,000/- to APPCB.

h. The unit have to ensure self-monitoring, self-compliance and comply with statutory guidelines, safety measures, and directions issued by MOEF & CC, CPCB, APPCB, Directorate of Factories and other Regulatory Authorities.

Report dated May 26, 2021

Dr. Suresh Babu Pasupuleti
Scientist-C
Ministry of Environment, Forest & Climate Change, Vijayawada

Smt. Poornima B M
Scientist D
Central Pollution Control Board
Regional Directorate, Chennai

Dr. B. V. Prasad
Senior Environmental Scientist
Andhra Pradesh Pollution Control Board
Vijayawada

Dr. N. Lingaiah
Senior Principal Scientist
Catalysis & Fine Chemicals Division,
CSIR-IICT, Hyderabad

ANNEXURE-1

Item No.01:

BEFORE THE NATIONAL GREEN TRIBUNAL

SOUTHERN ZONE, CHENNAI

Original Application No. 73 of 2021 (SZ)

(Through Video Conference)

IN THE MATTER OF:

Visakha Pawan Praja Karmika

Sangham, Andhra Pradesh

...Applicant(s)

Verses

Union of India and Others.

....Respondent(s)

Date of hearing: 25.02.2021.

CORAM:

HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER

HON'BLE MR. SAIBAL DASGUPTA, EXPERT MEMBER

For Applicant(s): Sri Sravan Kumar

For Respondent(s): Smt. P. Jeyalakshmi for R3
Smt. Maaduri Donti Reddy for R4, 5, 6

25

27

ORDER

1. The grievance in this application is regarding the violations committed by the 9th respondent M/s. Hindustan Petroleum Corporation Limited (HPCL) in operating their unit in Vishkhapatnam which resulted in serious environmental degradation.
2. It is alleged in the application that during 1997, there was some accident occurred in which 61 persons died. Similarly in 2013, another major accident occurred in the plant in which 28 persons died. Considering the nature of violations committed and also the pollution that is being caused on account of the operation of the 9th respondent unit, the Andhra Pradesh Pollution Control Board (APPCB) had conducted a study and came to the conclusion that there are a lot of violations and directed them to carry out certain things by way of recommendation.
3. It is also mentioned in the application, that the study was conducted by the Andhra Pradesh Pollution Control Board (APPCB) engaging Indian Institute of Science, Bangalore during 2011-12 and they conducted the study for 4 years and then made certain recommendations, so as to meet the situation in an effective manner. But those recommendations were not implemented by the 9th respondent, though the Andhra Pradesh Pollution Control Board (APPCB) had directed to implement those recommendations in its letter and spirit.
4. Further, a similar issue was considered by the Principal Bench of National Green Tribunal in some other area as *O.A. No. 738 of 2018* and a committee was constituted and on the basis of the committee report, environmental

28

compensation was directed to be paid by the Indian Oil Corporation Limited, (IOCL), Panipat Refinery, Panipat.

5. The applicant has also alleged that apart from causing odour pollution, there are lot of violations committed in respect of the conditions imposed in the environmental clearance granted as well as the 'Consent to Operate' granted by the Pollution Control Board and in spite of several complaints made to the authorities, no effective remedial measures have been taken by the authorities to meet the situation. So the applicant has no other option except to file the application before this Tribunal seeking the following reliefs:-

   a. *Direct the official Respondents to stop the polluting activity by the Respondent Industry till a comprehensive solution to the odour nuisance is found,*
   b. *Direct the MoEF/APPCB to implement the recommendations of the Indian Institute of Science, Bangalore to stop Odour nuisance near Hindustan Petroleum Corporation Limited at Visakhapatnam.*

6. When the matter came up for hearing for admission today through Video Conference, Sri. Sravan Kumar appeared for the applicant. Smt. P. Jeyalakshmi represented 3rd respondent and Smt. Maduri Donti Reddy represented respondents 4, 5, & 6 (as arrayed after deletion of original respondents 6 and 7) Respondents 6 and 7 are not necessary party to the proceedings as they are nothing to do with the pollution issue and the remedial measures to be taken. So they are deleted from the party array.

7. The original respondents 8 and 9 are re-arrayed as respondents 6 and 7 after deleting the original respondents 6 and 7 from the party array. Office is directed

29.

to carry out the amendment in the cause title and the applicant is directed to produce the amended copy of the application.

8. On going through the allegations in the application, we are satisfied that there arises a substantial question of environment which requires the interference of this Tribunal for resolving the same. So, the application is admitted.

9. Issue notice to the respondents by Registered post with acknowledgement due, by e-mail and also by dusthi if possible and produce proof of service on them by filing proof of affidavit as per rules.

10. The applicant is also directed to produce necessary requisites along with postal cover and the necessary postal stamps before this Tribunal within a week, so as to enable this Tribunal to send notice to all the respondents through Tribunal, to ensure service on them, so as to enable this Tribunal to proceed against them, if they did not appear in their absence in accordance with law.

11. In order to ascertain the genuineness of the allegations made in the application and its impact and the remedial measures if any to be taken, we feel it appropriate to appoint a Joint Committee comprising of (1) a Senior Officer from Ministry of Environment, Forests and Climate Change (MoEF & CC) Integrated, egional Office, Chennai, (2) a Senior Scientist from Central Pollution Control Board (CPCB), Regional Office, Chennai , (3) a Senior Scientist having some experience in Petroleum Pollution from Andhra Pradesh State Pollution Control Board (APPCB) and (4) a Scientist having experience in Petro-Chemical activities from Indian Institute of Chemical Technology (IICT) under the Council of Scientific & Industrial Research (CSIR), Hyderabad to inspect the unit in

70

question and submit a factual as well as action taken report, if there is any violation found.

12. The committee is directed to ascertain as to whether there is any violations of environmental clearance and consent conditions, whether the safety measures that are provided are sufficient to meet the pollution that is likely to be caused on account of the operating of their unit, whether the recommendations made by the Indian Institute of Science in 2016 which was directed to be implemented as directed by the Andhra Pradesh State Pollution Control Board (APPCB) during 2016, have been complied with. If there is any violation found causing environmental degradation they are directed to assess the environmental compensation and also to provide the remedial measures for the purpose of mitigating the situation and improve the condition of air quality in that area.

13. They are also directed to ascertain the source of pollution and the remedial measures to mitigate the same. If there is any further measures to be taken by the 7th respondent (amended) suggest the things to be done to secure safety measures to the people of the locality.

14. The Andhra Pradesh State Pollution Control Board (APPCB) will be the nodal agency for co-ordination and for providing necessary logistics for this purpose.

15. The applicant is also directed to submit a set of papers to the members of the committee within a week, so as to avoid delay in submitting the report.

16. The committee is directed to submit the report to this Tribunal on or before 12.04.2021, by e-filing in the form of searchable PDF/OCR Support PDF and not

in the form of Image PDF along with necessary hard copies to be produced as per rules.

17. The Registry is directed to communicate this order to the members of the committee as well as the official respondents immediately through e-mail, so as to enable them to comply with the direction.

18. For appearance of parties and for filing of independent response and also for consideration of report, post on 12.04.2021.

.....J.M.

(Justice K. Ramakrishnan)

.....E.M.

Shri. Saibal Dasgupta)

O. A. No. 73/2021, (SZ)
25th February, 2021. Sr.

32

ANNEXURE - 2.

Telegram : PARYAVARAN,
NEW DELHI
Telephone :
Ext. 534
Telex (bi-lingual) : W-66185 DOE IN
FAX : 4360678

भारत सरकार
पर्यावरण एवं वन मंत्रालय
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS
पर्यावरण भवन, सी० जी० ओ० कॉम्प्लेक्स
PARYAVARAN BHAWAN, C.G.O. COMPLEX
लोदी रोड, नई दिल्ली - 110003
LODHI ROAD, NEW DELHI - 110003

Dated the 30th May, 1995

OFFICE MEMORANDUM

Subject: Expansion of Visakh Refinery from 4.5 to 7.5 MMTPA of HPCL-Env.Clearance.

This has reference to letter No.PROS/VREP-II/JRB/P-0353-IIA dated 17.11.94 from General Manager Hindustan Petroleum Corporation Ltd., Bombay on the above subject.

The project proposal has been examined and environmental clearance is accorded subject to implementation of the following conditions and environmental safeguards:-

1. The project authority must strictly adhere to the stipulations made by the M.P.Pollution Control Board and the State Government.

2. Any expansion of the plant, either with the existing product mix or new product(s) or storage facilities etc., can be taken up only with the prior proposal of this Ministry.

3. The total emission of SO2 from the entire refinery should be brought down from 9 TPD to 7.5 TPD in a phased manner and action plan for the same should be submitted to the Ministry. Until the SO2 limit of 7.5 TPD is achieved in the near future, the total emission of SO2 would not exceed the earlier prescribed limit of 9 TPD.

4. The gaseous emissions from various process units should conform to the standards prescribed by the concerned authorities, from time to time. At no time, the emission level should go beyond the

stipulated standards. In the event of failure of any pollution control system(s) adopted by the unit, the respective unit should be shut down immediately and should not be restarted until the control measures are rectified to achieve the desired efficiency.

5 Sulphur recovery units with more than 99% efficiency for sulphur recovery should be provided.

6. Low NOX burners to avoid excessive formulation of NOX should be provided.

7. Adequate ambient air quality monitoring stations should be set up in the refinery area in the down wind direction as well as where maximum ground level concentrations of SO2, NOX, HC and SPM are anticipated. The monitoring network should be decided based on the modelling exercise to represent the short term GLCs. A mobile van with adequate facilities to monitor ambient air quality outside the refinery premises should also be planned.

8. Fugitive emissions of HC from storage tanks, crude oil tanks etc., should be minimised by adopting necessary measures.

9. Adequate facilities for monitoring the fugitive emissions should be planned.

10. The stacks should be of appropriate design and height and should be attached to pollution control systems wherever necessary. Height of stacks attached to crude oil furnace and waste heat boiler should be increased to the maximum height as permitted by the Civil Aviation Department. Continuous on-line stack monitoring equipments for measurement of SO2 & NOx should be installed. The monitored data should be submitted to SPCB every 3 months and every 6 months to the Ministry of Env. & Forest for review.

11. The existing waste water treatment facilities should be suitably augmented so as to meet the MINAS standards.

12. Recycling/Reuse of the treated effluent to the maximum extent possible should be planned.

13. Adequate number of influent and effluents quality monitoring stations have to be planned with adequate facilities especially for the parameters like phenols, sulphides, oil and grease, suspended solids, BOD, COD, PH and flow.

14. System to recover oil from the oily sludges and

incinerator facility for burning the residues should be provided.

15. Hazardous substances and solid wastes should be handled, stored and disposed off as per the Hazardous Wastes (Management and Handling) Rules, 1989 of the EPA 1986.

16. The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing acoustic hoods, silencers etc. on all the sources of noise generation.

17. The density of green belt within the plant premises should be increased using native plant species in consultation with the local DFO.

18. Various socio-economic schemes should be initiated by NPCL so as to improve the socio economic environment in the region.

19. Recommendation made by NEERI in the EMP should be implemented and action plan for implementation of the same should be submitted to the Ministry for review.

20. Necessary approvals from the Chief Explosives Directorate, Inspector of Factories, Fire Safety Inspector etc. should be obtained and copies of approval letters, be made available to this Ministry for the storages and facilities pertaining to highly inflammable materials.

21. The project authority should set up laboratory facilities for collection and analysis of samples under the supervision of competent technical personnel, who will directly report to the Chief Executive.

22. An Environmental Management Cell should be established with suitably qualified people to carry out various functions and should be set up under the control of a senior executive who will report directly to the Head of the organisation.

23. Medical surveillance of workers should be done regularly to avoid possibility of contracting occupational diseases against the workers engaged in the various plants and record maintained.

24. The project authorities should carry out a water balance study at the proposed site and submit the report within 12 months.

25. The funds earmarked for the environmental protection measures should not be diverted for other purposes and year wise expenditure should be reported to this Ministry.

The project authorities should also comply with the additional stipulations and conditions prescribed in the EIA and risk analysis report.

The Ministry or any other competent authority may stipulate any further conditions, after reviewing reports prepared by the project authorities, or after assessing the pollution caused after the implementation of the project.

The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory. The above stipulated conditions will be monitored by the Ministry's Regional Office.

The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981; the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendment and rules.

(DR.R.NARRIER)
Joint Director

The Secretary,
Ministry of Petroleum & Natural Gas,
Shastri Bhavan,
New Delhi.

Copy to:-1. The Chairman-cum-Managing Director, 17, Jamshedji Tata Road, Bombay-400020.

2. The Chairman, A.P.Pollution Control Board, IInd Floor, HUDA Complex, Maitrivanum, Ameerpet, Hyderabad-38.

3. The Chairman, CPCB, Parivesh Bhavan, CBD Complex, East Arjun Nagar, New Delhi.

4. CCF, Regional Office(SZ), No.463, Ist Main, IIIrd Block, IIIrd Stage, Basaveswara Nagar,

5. Adviser(PAD), Planning Commission, Yojana Bhavan, New Delhi.

6. Adviser(PE), Planning Commission, Yojana Bhavan, New Delhi.

7. Jt.Secy(Plan Finance), Deptt.of Expdr. Ministry of Finance North Block, New Delhi.

→ BBP

ANNEXURE - 3

14-1[illegible] '96 FRI 18:08 ID:GM-COORDN. OFFICE N.DELHI TEL:(0091)(11)3073254 P.01/06

ORI: GM-PHS (VDM) CC: ED-RCD PH.

om: RKM/RK

PNVP for your review & file

No.J-11011/88/96-IA-II(I)

Telegram : PARYAVARAN,
NEW DELHI
दूरभाष :
Telephone : 4363961
टेलेक्स (द्विभाषीय) :
Telex : (bi-lingual) : W-66185 DOE IN
FAX : 4360678

भारत सरकार
पर्यावरण एवं वन मंत्रालय
GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS
पर्यावरण भवन, सी॰ जी॰ ओ॰ कॉम्प्लेक्स
PARYAVARAN BHAWAN, CGO COMPLEX
लोदी रोड, नई दिल्ली - 110003
LODHI ROAD, NEW DELHI-110003

Dated: 10.04.97

To,

The Chairman and Managing Director
Hindustan Petroleum Corporation Ltd.
Visakh Refinery, Post Box No 15
Visakhapatnam-530 011.

Subject : Installation of Diesel Hydrodesulphurisation Project at Visakh Refinery of HPCL - Evn. Clearance.

Sir,

This has reference to your letter No.PROJ/DHDS/P-47-21 dated 7th October, 1996 and 20th January, 1997 regarding your application for setting up a DHDS Unit at Visakh Refinery. The Ministry of Environment and Forests have carefully examined your application. It is observed that the following units are proposed under DHDS project.

-	DHDS Unit	1.8 MMTPA
-	Amine Treating Unit	178 TPH
-	SRU	65 TPD X 2 Trains
-	Sour Water Stripping Unit	12 m³/hr
-	Hydrogen Plant	18100 TPA

It is also noted that the above project is envisaged to meet the revised specification of maximum 0.25% wt. sulphur content in HSD w.e.f. April 1999 to reduce vehicular pollution.

2. The Ministry of Environment and Forests hereby accords environmental clearance for the project as per EIA Notification dated 27th January, 1994 subject to implementation of all conditions stipulated by the Ministry while according approval for the proposed "Expansion of Visakh Refinery from 4.5 to 7.5 MMTPA vide O.M. No. J-11011/22/94-IA-II(I) dated 5th May, 1995 within the stipulated time frame. (copy enclosed)

37

ANNEXURE - 3

INDIA-COORDN. OFFICE N.DELHI

2

In addition the following conditions should also be implemented by HPCL:

i) The project authority must strictly adhere to the stipulations laid down by the Andhra Pradesh State Pollution Control Board and the State Govt

ii) No expansion or modernisation of the plant should be carried out without prior approval of the Ministry of Environment and Forests.

iii) The total SO_2 emission from Visakh Refinery including DHDS project should not exceed the norm of 11.5 TPD.

iv) The existing ETP should be adequately augmented (if required) to accommodate the additional effluent from the DHDS project before commissioning project so as ensure the treated effluent meets the MINAS.

v) Time bound Action Plan for disposal of Oil Sludge/recovery of oil and design details of the solid waste disposal pit should be furnished to the Ministry within a period of 3 months.

vi) SRU having an efficiency of more than 99 % should be installed.

vii) The ground water quality should be regularly monitored and report submitted to the Ministry every six months.

viii) Time Bound Action Plan to implement the conditions stipulated by the Ministry while according environmental clearance for the refinery complex should be submitted to the Ministry within 3 months along with details of funds allocated for implementing the above.

3. The Ministry reserves the right to revoke the clearance, if implementation of any of the conditions stipulated by the Ministry or any other competent authority are not satisfactory.

4. The stipulated conditions will be monitored by the Regional Office of this Ministry located at Bangalore/CPCB/SPCB. A six monthly compliance status report should be submitted to them regularly. The Central/State Pollution Control Board will monitor the compliance of EMP measures in meeting the prescribed environment quality norms.

5. The Ministry reserves the right to impose any additional conditions or alter the existing conditions if found necessary. These will be fully implemented by the project authorities in a time bound manner.

6. The above conditions will be enforced interalia under the provisions of the Water (Prevention and Control of Pollution) Act, 1974; the Air/(Prevention and Control of Pollution) Act, 1981; the Environment (Protection) Act, 1986 and the Public/(Liability) Insurance Act, 1991 along with their amendments from time to time.

(Dr. R. Warrier)
Joint Director

28

ANNEXURE - 4

No. J-11013/55/2003 – IA II (I)
Government of India
Ministry of Environment & Forests
E mail: plahujarai@yahoo.com

Tel No.2 436 3973
Paryavaran Bhawan,
CGO Complex, Lodi Road,
New Delhi – 110 003
Dated the February 3, 2004

To

Shri Y.K. Rao
Dy. General Manager (Projects)
M/s Hindustan petroleum Corporation Ltd.,
Visakh Refinery, post box no. 15
Vishakapatnam 530011 (AP)

Sub: Clean fuels project and expansion from 7.5 to 10.0 MMTPA by M/s HPCL's Visakh Refinery.

Sir,

This has reference to your letter No. nil dated 5th November, 2003 and subsequent communication dated 27th December, 2003 on the above mentioned subject seeking exemption from environmental clearance based on the 'no increase in the pollution load', as per the provisions of EIA notification, 1994. It is noted that Andhra Pradesh Pollution Control Board vide its letter no. APPCB/VSP/72/HO/2003/64/1884 dated 26.09.2003 has certified that there will not be any increase in pollution load due to proposed clean fuel project and expansion facility. The capital outlay for the proposed project is Rs.1635 crores.

2.0. The proposal of M/s HPCL has been examined based on the documents/clarifications submitted to the Ministry including EIA/EMP /risk analysis and the ' no increase in the pollution load certificate' issued by the APPCB. It is noted that the company is proposing to install processing facilities for fuel quality improvement and reduction of pollution load. The major activities include the following:

- Installation of new process units and Revamped process units viz., Naphtha hydrotreater unit (NHT), Naphtha splitter unit (NSU), Reformer unit (CCR) types Light naphtha isomerisation unit, FCC gasoline splitter unit, FCC Gasoline Hydro-treating unit , Diesel Hydro-treating unit , LPG treating unit , Amine Regeneration unit , Sour water stripper unit (hydro-processing), Sour water stripper unit (non-hydro processing), Sulphur recovery unit, Flue gas desulphurisation-I (for FCC-I), Flue gas desulphurisation-II (for FCC-II) and FCC-I , FCC-II and Gasoline Merox. These would be configured with the existing units. The crude processing capacity would increase from 7.5 to 10.0 MMTPA by utilization of spare capacity in the existing plant and revamping of existing units. The configuration envisages meeting the Euro III specifications for Motor Spirit (MS) and High Speed Diesel (HSD).

RECEIVED
17 FEB 2004
Technical Department
H.P.C.L. - VR

A - Annexure

Comprehensive pollution control measures for reduction in gaseous emissions, effluent treatment and discharge and solid wastes. Specifically, company has incorporated measures for:

i. The SO2 emissions and HC emissions shall remain same at 11.5TPD and 2.5 TPD respectively, reduction in the SPM and NOx emissions from 1.45 TPD to 1.11 and 6.6 to 6.5 TPD respectively by installation of integrated FGD unit in the CFP process and low NOx burners.

ii. Comprehensive waste water management system and recycling and reuse of treated effluent so that the total treated effluent should not exceed a maximum of 542m3/hr.

iii. Reduction in the oil and grease from 15.6 TPD to less than 12.26TPD, bio remediation of oily sludge and disposal of hazardous DeSOx sludge at TSDF.

3.0. Keeping the above in view, Ministry has no objection to the proposed Clean fuels and expansion of refinery capacity project under the provisions of 'no increase in pollution load' as certified by the Andhra Pradesh Pollution Control Board subject to the specific environmental protection measures/ action plan envisaged in the EIA /EMP and risk analysis reports and subject to following terms and conditions:

(a) The company shall comply with all the conditions stipulated by this Ministry vide its letter no. J-11011/88/96-IA-II(I) dated 10th April, 1997.

(b) Specific limits stipulated for SO2, HC, SPM and NOx at para 2 should be strictly complied.

(c) The fresh water consumption should be pegged at 523m3/hr after the proposed modernization. The additional water required, if any, should be met through recycling/reuse of treated effluent.

(d) The industry shall implement all the recommendations made in the Charter on Corporate Responsibility for Environment Protection regarding air pollution, waste water and solid waste management and oil spill response facilities at Coastal refineries.

(e) All recommendations made in the Risk Analysis Report should be complied with during design, construction and operation stages to contain the risk within the plant boundry.

(f) No further modernization/expansion of the project should be carried out without prior permission of this Ministry.

PL

(g) Implementation of the project vis-à-vis environmental management/risk mitigation measures should be reported to the Ministry/Regional Office/State Pollution Control Board regularly on a six-monthly basis.

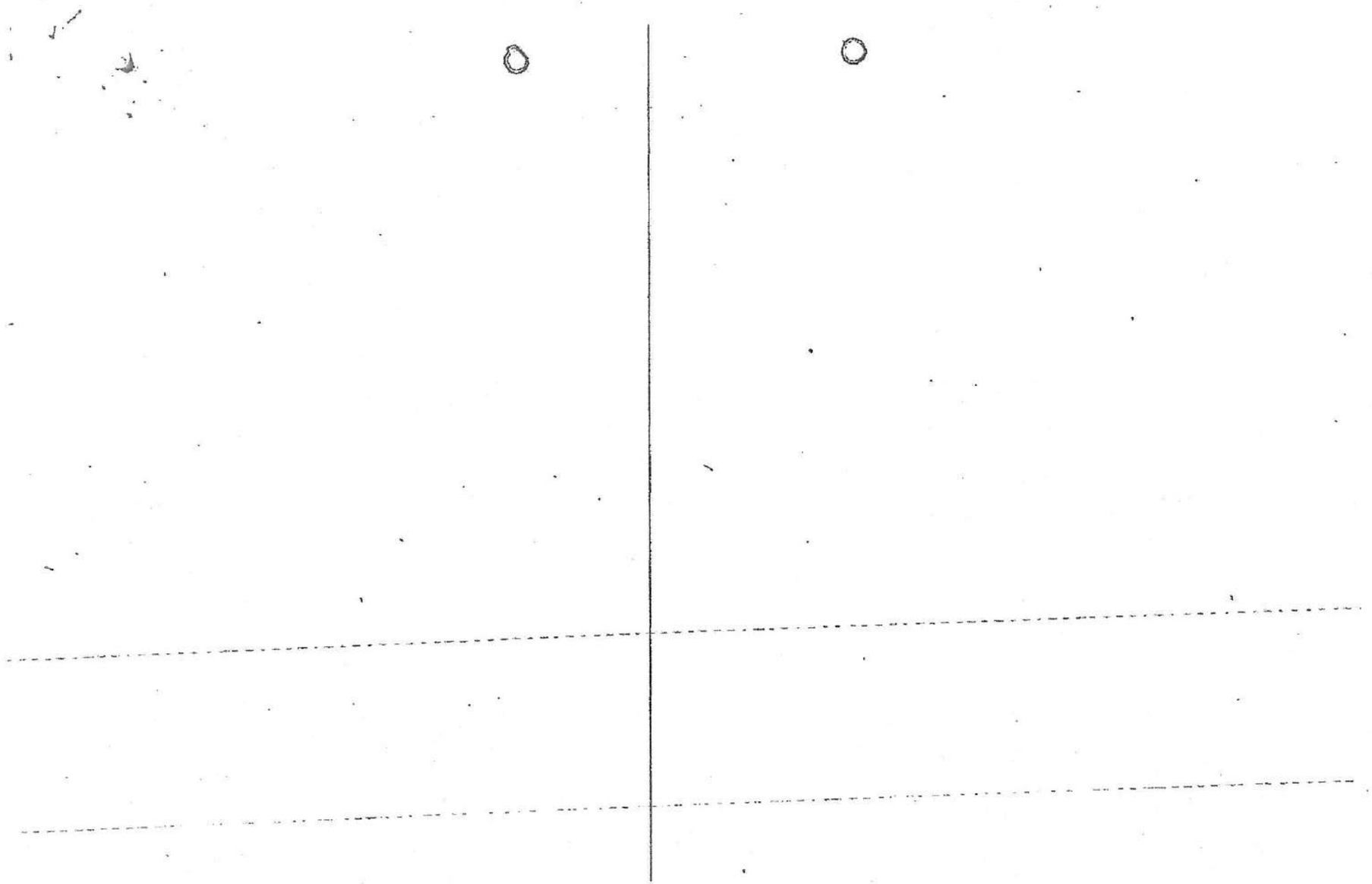
Yours faithfully,

(Dr. P. L. Ahujarai)
Additional Director

Copy to:

1. The Chairman, Andhra Pradesh State Pollution Control Board, 2nd Floor, HUDA Complex, Maitrivaram , S.R.Nagar, Hyderabad- 500 038.
2. The Chief Conservator of Forests (Central), Regional Office (SZ), Kendriya Sadan, IVth Floor, E&F Wing, 17th Main Road, Koramangalam, Bangalore-560034.

(Dr. P. L. Ahujarai)
Additional Director



ANNEXURE-5

F. No. J-11011/66/2007- IA II (I)
Government of India
Ministry of Environment and Forests
(I.A. Division)

Paryavaran Bhawan
CGO Complex, Lodhi Road
New Delhi – 110 003
plahujarai@yahoo.com
Telefax: 011 – 2436 3973
Dated: March 7, 2008

To,
M/s Hindustan Petroleum Corporation Ltd.
Visakh Refinery
Post Box No. 15
Visakhapatnam-530 011
Andhra Pradesh

Subject: Moderanisation Project for Mounded Storage System for Propylene/LPG at Visakh Refinery, Vishakapatnam, Andhra Pradesh by Hindustan Petroleum Corporation Ltd. - Environment Clearance Regarding.

Sir,

Kindly refer to your application No. Nil dated 4th January 2007 seeking environment clearance for the above mentioned project and subsequent letter No. CEE/07/MLVR/056 dated 19th October 2007 submitting additional information about the project.

2. The Ministry of Environment and Forests has examined the proposal. It is noted that the proposal is for installing 7 bullets of mounded storage for Propylene / LPG replacing Horton spheres at the 8.33 MMTPA Refinery at Vishakapatnam. The Project cost is Rs 124.00 Crores. 4 LPG transfer pumps of 225 m3/hr capacity, two propylene transfer pumps, 1 knockout drum for flare and 1 drain vessel will be added within the premises. Service water of 5,000 KL is required for commissioning and testing. There will be no solid waste or release of pollutants.

3. The project activity is listed at 4 (a) and is of 'A' Category under the EIA Notification, 2006. The Expert Appraisal Committee recommended the project for environmental clearance as per Para 7(ii) of EIA Notification, 2006 dispensing with the preparation of EIA/EMP Report as well as Public Hearing.

4. Based on the information submitted by you, the Ministry of Environment and Forests hereby accords environmental clearance to above project under the provisions of EIA Notification dated 14th September 2006 subject to the compliance of the following Specific and General conditions:

ANNEXURE - 5

A. SPECIFIC CONDITIONS

(i) All the safety and security systems provided in Risk Analysis Report for the Project shall be implemented. The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the Environmental Management Plan and Risk Analysis Report submitted to the Ministry vide letter no. CEE/07/MLVR/056 dated 19th October 2007.

(ii) There shall be no solid waste or release of pollutants.

(iii) Regular Ambient Air Quality Monitoring shall be carried out for VOC, HC and LPG, besides other parameters in the Work Zone Area and ambient air in and around the Plant. The location and results of existing monitoring stations shall be reviewed in consultation with the concerned State Pollution Control Board based on the occurrence of maximum ground level concentration and downwind direction of wind. Additional Stations shall be set up, if required. It will be ensured that at least one monitoring station is set up in up-wind & in down-wind direction along with those in other directions. Data shall be submitted to MoEF, CPCB and TNPCB.

(iv) Fugitive emissions in the work zone environment of storage area shall be regularly monitored. The emissions shall conform to the limits imposed by the State Pollution Control Boards/Central Pollution Control Board.

(v) There shall be no increase in the pollution load for any parameter from the expansion project.

(vi) There shall be no additional water requirement for the process except service water of 5,000 KL for commissioning and testing. Provisions for appropriate storage and treatment for fire fighting water shall be provided.

(vii) Noise level will be within the approved limits of 80 dB (A). The practice of acoustic plant design shall be adopted to limit noise exposure for personnel to an 8 hr time weighted average of 90 db (A).

(viii) Green belt shall be provided to mitigate the effects of fugitive emissions all around the plant in a minimum of 33% of the plant area in consultation with DFO as per CPCB guidelines.

(ix) The Company shall harvest surface as well as rainwater from the rooftops of the buildings proposed in the expansion project and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.

(x) The project authorities shall strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989, as amended in 2000 and the Public Liability Insurance Act for handling of hazardous chemicals etc. Necessary approvals from Chief Controller of Explosives must be obtained before commission of the expansion project. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.

B. GENERAL CONDITIONS

i. The project authorities must strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government.

ii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.

iii. The project authorities shall strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and as amended from time to time. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. shall be obtained. All Transportation of Hazardous Chemicals shall be as per the MVA, 1989.

iv. On- site and Off-site emergency preparedness plans shall be prepared. Approval from the nodal agency shall be obtained before commissioning the project.

v. The overall noise levels in and around the plant area shall be limited within the prescribed standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).

vi. Proper House keeping and adequate occupational health programes shall be taken up. Regular Occupational Health Surveillance Programme for the relevant diseases shall be carried out and the records shall be maintained properly for at least 10 years. Sufficient preventive measures shall be adopted to avoid direct exposure to emission and other Hydrocarbons etc.

vii. Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis.

viii. Usage of PPEs by all employees/ workers shall be ensured.

ix. A separate environment management cell with full fledge laboratory facilities to carry out various management and monitoring functions shall be set up under the control of a Senior Executive.

x. The project authorities will provide adequate funds both recurring and non-recurring to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes.

xi. The project proponent shall have a scheme for social upliftment in the surrounding villages with reference to contribution in road construction, education of health centers, sanitation facilities, drinking water supply, community awareness and employment to local people whenever and wherever possible both for technical and non-technical jobs. CSR activities will be undertaken by involving local villages and administration

xii. The implementation of the project vis-à-vis environmental action plans shall be monitored by concerned Regional Office of the Ministry/States Pollution Control Boards/Central Pollution Control Board. A six monthly compliance status report shall be submitted to monitoring agencies and displayed on the Website of the Company.

xiii. The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at Website of the Ministry of Environment and Forests at http://www.envfor.nic.in. This should be advertised within seven days from the date of issue of the clearance letter at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the concerned Regional office of this Ministry.

xiv. The date of Financial Closure and final approval of the project by the concerned authorities and the date of commencing the land development work as well as the commissioning of the project will be informed to the Ministry and its Regional Office.

5. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

6. The Ministry reserves the right to stipulate additional conditions if found necessary. The company will implement these conditions in a time bound manner.

7. The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, Hazardous Waste (Management & Handling) Rules, 1989/2003 and Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989/2000 along with their amendments and rules.

(Dr. P.L. Ahujarai)
Director

Copy to:

1. The Principal Secretary, Environment Forests, Science and Technology Department, Hyderabad, Government of Andhra Pradesh, Secretariat, Hyderabad- 500 022, Andhra Pradesh.

2. The Chief Conservator of Forests, Regional Office (Southern Zone) , Ministry of Environment & Forests, Kendriya Sadan ,4th Floor , C& F Wing, 17 Main Road, II Block , Kormangla, Banglore- 560 034, Karnataka.

3. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.

4. The Chairman, Andhra Pradesh Pollution Control Board, Paryavaran Bhawan, A-3, Industrial Estate, Santath Nagar, Hyderabad, Andhra Pradesh.

5. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi- 110003

6. Guard File

7. Monitoring File

8. Record File

(Dr. P.L. Ahujarai)
Director

ANNEXURE - 6

[Environmental clearance for the Project]

प्राप्त किया RECEIVED
कार्यकारी निदेशक
Executive Director's Office
- 9 SEP 2009
विशाखा रिफाइनरी
VISAKH REFINERY

F. No. J-11011/408/2009-IA-II(I)
Government of India
Ministry of Environment & Forests
(IA Division)

Paryavaran Bhawan
CGO Complex, Lodhi Road
New Delhi – 110 003
E-mail: ms.industry-mef@nic.in
Telephone: 011: 2436 3973
Dated : 2nd September, 2009

To

M/s HPCL's Visakh Refinery,
Petroleum House (PH-5)
17, Jamshedji Tata Road
P.O.Box No.- 11041
Mumbai (M.H.)- 400020

svsahni@hpcl.co.in

Sub: Expansion of clean fuels project 7.5 to 10.0 MMTPA and include EURO-IV diesel Production at 17, Jamshedji Tata Road, Mumbai by M/s HPCL's Visakh Refinery - Environmental Clearance reg.

Sir,

This has reference to your letter no. CEE/09/AJ/DHTVR/086 dated 11th June, 2009 alongwith Form-1, Executive summary of the project, EIA/EMP, layout plan and rapid Risk Analysis report seeking environment clearance under EIA Notification 2006 on the above-mentioned project.

2.0 The Ministry of Environment and Forests has examined the application. It is noted that M/s HPCL's Visakh Refinery has proposed for expansion of Clean Fuels project from 7.5 to 10.0 MMTPA by inclusion of EURO-IV diesel production and residue up gradation facilities at Visakh Refinery in Andhra Pradesh. Environmental clearance was accorded by the Ministry to HPCL, Visakh Refinery, vide letter no. J-11013/55/2003-IA II (I), dated February 03, 2004 for Clean Fuels Project and expansion from 7.5 to 10.0 MMTPA. The project envisaged putting treatment facilities to meet future specifications of Motor Spirit (MS) and High Speed Diesel (HSD) in a phased manner The DHT is planned to be installed now in order to meet EURO-III/IV specifications of HSD as per the Auto Fuel Policy of the Government of India effective April 2010. It is also proposed to install residue up-gradation facilities along with the Diesel treatment facilities while maintaining the crude processing capacity at the earlier approved 10 MMTPA level. The total land area of the project will be 515 acres. The total cost of the project will be Rs. 10611.87 Crores.

The project involves installation of following facilities:

- Euro-IV HSD Production facilities, viz. Diesel Hydro-Treater of 2.2 MMTPA capacity instead of 1.5 MMTPA
- Relocation of Product terminal and distribution facilities adjacent to existing premises.

3.0 It is noted that the total SO_2 and NOx emission will be maintained within existing limits. Refinery will be using Fuel Gas, generated in the process units as well as low sulphur internal

fuel oil (sulphur content within 0.5% wt) in the process heaters and boiler. Process design will be selected to minimise the emissions. The emergency vent gases will be collected in a closed vent alongwith flare system and will be burnt at high elevation to ensure safe combustion gases and their dispersion. It was noted that Municipal supply water will be the source of main reservoir of capacity 250000 m^3. The total raw water requirement is estimated as 674 m^3/hr. The cooling water requirement of 3000m^3/hr will be met from sea water canal. Estimated waste water generation is 155 m^3/hr and will be treated in ETP of 200 m^3/hr capacity and existing refinery units will be segregated and after treatment will be recycled as cooling water make up. The solid waste after suitable treatment will be sent to scientifically designed landfill system. The Company is in the process of finalizing the proposal to sell the solid waste generated from the proposed project and existing refinery units to authorized CPCB vendors as an option for the disposal of the solid waste from the Complex.

4.0 All the petroleum refinery activities are listed at 4(a) under 'A' category in the Schedule of EIA Notification, 2006 and hence considered and appraised at central level in 1st meeting of the Expert Appraisal Committee (Industry - 2) held during 24th-25th July, 2009. The public hearing was exempted as per para 7(ii) of EIA Notification, 2006.

5.0 Based on the information submitted by the project proponent, the Ministry of Environment and Forests hereby accords environmental clearance to above project under the provisions of EIA Notification, dated 14th September 2006 subject to the compliance of the following Specific and General Conditions:

A. SPECIFIC CONDITIONS:

i. M/s HPCL shall comply with the stipulations made in the environmental clearance accorded vide Ministry's vide letter No. J-11013/55/2003-IA II (I), dated February 03, 2004 for Clean Fuels Project and expansion from 7.5 to 10.0 MMTPA.

ii. M/s HPCL shall comply with new standards/ norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18th March 2008.

iii. The project authorities shall submit a feasible plan which will be followed to ensure that SO_2 emission from the refinery does not exceed the stipulated figure of 11.5 TPD at any time.

iv. The company shall undertake measures for control of dust emission during construction and traffic congestion.

v. Efforts shall be made to use gas as a fuel in the furnaces to the maximum extent possible.

vi. The process emissions (SO_2, NOx, HC, VOCs and Benzene) from various units shall conform to the standards prescribed by the AP State Pollution Control Board from time to time. At no time, the emission levels should go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the unit should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved.

vii. Ambient air quality monitoring stations, [SPM, SO_2, NO_x, H_2S, Mercaptan, NMHC and Benzene] should be set up in the Refinery complex in consultation with SPCB, based on occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modeling exercise to represent short term GLCs Continuous on-line stack monitoring equipment should be installed for measurement of SO_2, NO_x, CO and CO_2. Low NOx burners should be installed with online analyzers.

viii. The proponent shall upload the status of compliance of the stipulated EC conditions, including monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant namely; SPM, RSPM, SO_2, NOx (Ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at the convenient location near the main gate of the Company in the public domain.

ix. Monitoring of fugitive emissions should be carried out as per the guidelines of CPCB by fugitive emission detectors and reports should be submitted to the Ministry's Regional Office at Bangalore. For control of fugitive emission all unsaturated hydrocarbon will be routed to the flare system and the flare system should be designed for smoke less burning.

x. Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage should also be provided at strategic locations. The company should use low sulphur fuel to minimize SO_2 emission. Sulphur recovery units should have efficiency of 99.5 %. Leak Detection and Repair programme should be implemented to control HC/VOC emissions. Work zone monitoring should be carried out near the storage tanks besides monitoring of HCs/VOCs in the work zone.

xi. The waste water should be treated in the waste water treatment plant and the treated effluent should meet the prescribed standards. Efforts should be made to recycle the treated effluent to achieve zero discharge.

xii. The project authorities must strictly comply with the rules and regulation with regard to handling and disposal of Hazardous Wastes (Management, Handling and Trans Boundary Movement) Rules, 1989/ 2003/ 2008 wherever applicable. Authorization from the State Pollution Control Board must be obtained for collections/ treatment/ storage/ disposal of hazardous wastes.

xiii. The company should strictly follow all the recommendation mentioned in the charter on Corporate Responsibility for Environmental Protection (CREP) for the oil refineries.

xiv. The Company should take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. At place of ground flaring, the overhead flaring stack with knockout drums should be installed to minimize gaseous emissions during flaring.

xv. To prevent fire and explosion at Oil and Gas facility, potential ignition sources should be kept to a minimum and adequate separation distance between potential ignition sources and flammable material should be in place.

xvi. Onsite and offsite DMP shall be updated to cover the additional facilities and the updated plans shall be implemented.

xvii. Occupational health surveillance of worker should be done on a regular basis and records maintained as per the Factory Act.

xviii. Greenbelt should be developed to mitigate the effect of fugitive emission all around the plant in a minimum 33% plant area in consultation with DFO as per CPCB guidelines.

xix. The Company should undertake measures for rain water harvesting to recharge the ground water and minimize fresh water consumption.

xx. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

B. GENERAL CONDITIONS

i. The project authorities must strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government and any other statuary body.

ii. No further expansion or modification in the project shall be carried without prior approval of the Ministry of Environment and Forests. In case of deviations or alternations in the project proposal from those submitted to the Ministry for clearance, a fresh reference shall be made to the Ministry.

iii. At no time, the emissions shall go beyond the prescribed standards. In the event of failure of any pollution control system, the respective facilities should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved. Provision of adequate height of stack attached to DG sets & flare is to be done.

iv. Waste water shall be properly collected and treated so as to conform to the standards prescribed under EP Act & Rules and mentioned in the Consents provided by the relevant SPCB.

v. The overall noise levels in and around the premises shall be limited within the prescribed standards (75 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).

vi. The project authorities must strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 as amended in 2000 for handling of hazardous chemicals etc. Necessary approvals from Chief Controller of Explosives

must be obtained before commission of the expansion project, if required. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.

vii. The project authorities will provide adequate funds as non-recurring and recurring expenditure to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes.

viii. The company shall develop rain water harvesting structures to harvest the run off water for recharge of ground water.

ix. The stipulated conditions will be monitored by the concerned Regional Office of this Ministry/ Central Pollution Control Board/ State Pollution Control Board. A six monthly compliance report and the monitored data should be submitted to them regularly. It will also be displayed on the Website of the Company.

x. The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both on hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.

xi. A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/representations if any, were received while processing the proposal. The clearance letter shall also put up on the website of the Company by the proponent.

xii. The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at Website of the Ministry of Environment and Forests at http://www.envfor.nic.in. This should be advertised within seven days from the date of issue of the clearance letter at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the concerned Regional office of this Ministry.

xiii. The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986 as amended subsequently, shall also be put on the website of the Company alongwith the status of compliance of EC conditions and shall also be sent to the respective regional Office of the MoEF by e-mail.

xiv. A separate environment management cell with full fledged laboratory facilities to carry out various management and monitoring functions shall be set up under the control of a Senior Executive.

xv. The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project

6.0 The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

7.0 The Ministry reserves the right to stipulate additional conditions if found necessary. The company will implement these conditions in a time bound manner.

8.0 Any appeal against this environmental clearance shall lie with the National Environment Appellate Authority, Second Floor, Trikoot-I, Bhikaji Cama Place, New Delhi-110066, if preferred within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Authority Act, 1997.

9.0 The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 1989/ 2003/ 2008 and Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 along with their amendments and rules.

(Dr. P L Ahujarai)
Director

Copy to:

1. The Secretary, Department of Environment and Forests, Govt. of A.P., Secreturiat Hyderabad, A.P.
2. The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi – 110032.
3. The Chairman, Andra Pradesh Pollution Control Board, Paryavaran Bhavan, A-3 Industrial Estate, Sanathnagar, Hyderabad- 500018, A.P.
4. The Chief Conservator of Forests (Central), Ministry of Environment & Forests, Regional Office (SZ), Kendriya Sadan, IVth Floor, E&F wings 17th Main Road,Koramangala II Block, Bangalore-560034, Karnataka.
5. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi-110003.
6. Guard file.
7. Record file
8. Monitoring file.

(Dr. P L Ahujarai)
Director

12

52

ANNEXURE-7

F. No. J-11011/63/2013- IA II (I)
Government of India
Ministry of Environment, Forest and Climate Change
(I.A. Division)

Indira Paryavaran Bhawan
Aliganj, Jorbagh Road,
New Delhi -110003

E-mail : lk.bokolia@nic.in
Telefax : 011: 2436 0108
Dated : 11th February , 2016

To,

The Executive Director
M/s HPCL
Petroleum House, PH- 5 17,
Jamshedji Tata Road, Churchgate, Mumbai,
Maharashtra - 400020

E-mail : Oppradhan@hpcl.co.in ; Fax No. : 022-22025140

Subject: Expansion of Visakh Refinery from 8.33 MMTPA to 15.0 MMTPA at Village Malkapuram, Tehsil Visakhapatnam (Urban), District Visakhapatnam, Andhra Pradesh by M/s HPCL.- – Environmental clearance reg.

Ref.: Your online proposal no. IA/AP/IND2/30205/2014 dated 19th August, 2015.

Sir,

This has reference to your online proposal no. IA/AP/IND2/30205/2014 dated 19th August, 2015 alongwith project documents including Form 1, Prefeasibility Report, Draft Terms of References and EIA/EMP report on the above mentioned subject.

2.0 The Ministry of Environment, Forest and Climate Change has examined your application. It is noted that the proposal is for expansion of Visakh Refinery from 8.33 MMTPA to 15.0 MMTPA at Village Malkapuram, Tehsil Visakhapatnam (Urban), District Visakhapatnam, Andhra Pradesh by M/s HPCL. The proposed Visakh Refinery Modernisation Project (VRMP) is the brownfield expansion coming up in the existing premises of HPCL in contiguous area on the east side of existing Refinery created after re-siting HPCL Marketing Terminal & LPG bottling plant and in the plot area available towards north of existing Refinery (next to HPCL-Additional Tankage Project, ATP). This land adjacent to ATP area of Refinery is a leased plot acquired from Visakh Port Trust (VPT) and is already under HPCL possession. VRMP Plant area requirement is 167.5 Acres. Out of which, 122.8 acres land is located inside the Refinery premises and balance 44.7 acres of land is located in ATP plot (including VPT plot III). Additional 67.5 acres is earmarked for Green belt. The estimated capital cost is Rs. 18412 Crores. It is reported that no national park/ reserved forest/ protected forest is located within 10 km distance.

42

57

The capacities of various process units, auxiliary and revamp units for post VRMP scenario is as given below:

Process Units and Utilities under VRMP

S. No.	Unit	Capacity
Primary Processing Unit:		
1	Crude Distillation Unit (CDU)	9.0 MMTPA
2	VGO Hydrocracker (FC HCU)	3.3 MMTPA
3	Naphtha Isomerization Unit (NIU)	0.29 MMTPA
4	Solvent De-asphalting (SDA)	3.1 MMTPA
5	Slurry Hydrocracker (SHCU)	2.5 MMTPA
6	PRU	96 TPD
Auxiliary Units:		
6	Hydrogen Generation Units (HGU)	2 x 113 KTPA
7	Sulphur Recovery Units (SRU) including TGTU	2 x 360 TPD
8	Fuel Gas PSA	36 KTPA
9	SWS-I (Non Hydro-Processing)	300 TPH
10	SWS-II (Hydro processing)	185 TPH
11	ARU	2x540 TPH
12	SR. LPG Treater	112 KTPA
13	Integrated Effluent Treatment Plant (IETP) OWS streams - Wet weather flow	1000 m3/hr
Existing Unit Revamps:		
9	Naphtha Hydrotreating Unit (NHT)	1.154 (30% min) MMTPA
10	Continuous Catalytic Reformer (CCR)	0.769 (20% min) MMTPA
11	Diesel Hydro treating Unit (DHT)	2.2 (20% min) MMTPA
New Power Generation Units (CPP)		
	Captive Power Plant (Dual fuel - Naphtha as well as Natural Gas)	2 x 33 MW GTGs or (1x66 MW) + 3 x 33 MW STGs

UTILITY SYSTEM	
Recirculating Sea Cooling Water System	
Cooling Tower Cells	CT-1 : Capacity : 4000 m3/hr Number : 7w+1s CT-2 : Capacity : 4000 m3/hr Number : 7w+1s
Recirculating Sea Cooling Water Pumps	CT-1 : Capacity : 4000 m3/hr Number : 7w+2s CT-2 : Capacity : 4000 m3/hr Number : 7w+2s
Bearing Cooling Water System	
Bearing Cooling Tower Cells	Capacity : 800 m3/hr Number : 4w+1s
Bearing Cooling Water Pumps	Capacity : 800 m3/hr Number : 4w+1s
Demineralized Water System	
RO System	500 m3/hr
DM Water Tanks	2 X 4700 m3 capacity.
Power Plant Configuration	
Captive Power Plant	New GTG: 2 Power : 2 X 33 MW (Frame VI) or 1 x 66 MW (Frame VI-FA) HRSG : 2 X 110 TPH ; Pressure : 100 Kg/cm2(g)
	Boiler : 1W+ 1S Design capacity : 225 TPH Pressure : 36 kg/cm2 (g) **Steam Turbine Generator:** 1. Type : Double Extraction (VVHP to MP & LP) Power : 33 MW 2. Type : Extraction Cum Condensing (VHP to LP & Condensate) Power : 33 MW 3. Type: Total Condensing (VHP to Condensate) Power : 33 MW
Condensate Polishing Unit	Capacity: 65 m3/hr Number : 1W + 1S
Air Compressors (plant air, instrument air and Nitrogen)	Capacity : 13000 Nm3/hr, Number : 2W +1S
N2 System	Gaseous : 1560 Nm3/hr, Liquid Storage : 1000 M3

3.0 It is estimated that the total SO_2 emissions before and after VRMP will be 9.45 TPD and 11.5 TPD respectively. It is estimated that the total NOx emissions before and after VRMP will be 7.1 TPD and 11.15 TPD respectively. Heater/furnace will be provided with low NOx burner to reduce the NOx emissions. The height of new stack will be determined taking into consideration the guidelines for minimum stack height. Low Sulphur fuels will be used for internal fuel purpose. Sulphur recovery unit with tail gas treating facilities having 99.9 % efficiency will be provided. Flare gas recovery system will be installed. Steam injection facility to maintain adequate steam to fuel ration is provisioned to achieve smokeless operations in both existing and new flares. Total water requirement for post VRMP will be 1538 m3/hr. Out of which, fresh water consumption will be 873 m^3/hr, which will be met from Greater Visakha Municipal Corporation and remaining

22

55

water requirement i.e. 665 m3/hr will be met from treated effluent/recycled effluent. Besides, Post-VRMP total sea water requirement will be 21292 m^3/hr. In order to have better control in terms of liquid effluent treatment/management of the entire refinery effluent at single location, it is proposed to install a new state-of-the-art Integrated Effluent Treatment Plant (IETP), which shall replace all the existing effluent treatment plants apart from treating additional effluent from the VRMP facilities. The treated effluent from IETP is proposed to be treated in a RO plant to meet the DM water requirement. With the operation of RO plant in post VRMP scenario, the water consumption will be optimised with maximum recycle/reuse option.The rejects of effluent treatment plan will be discharged to the sea cooling water, which ultimately disposed to the sea. The oily sludge (1.5TPD-post VRMP) will be dewatered, handled and disposed as per existing practice. The bio sludge (2TPD-post VRMP) from bio-treatment section will be utilized as manure/landfill. Small quantities of non-hazardous and non-recyclable solid waste (approx 1500T/ year) will be sent to authorized landfill agency (TSDF) or recyclers for further disposal. This sludge is estimated to be generated (Approx. 1000 T/ tank) at the periodicity of 5 to 10 years and shall be handled and disposed as per existing refinery practice. The sludge will be treated for oil recovery after which the residual sludge will be subjected to bio-remediation.Spent catalyst will be disposed to authorized recyclers or TSDF located in Visakhapatnam.

4.0 All the Petroleum Refinery Plants are listed at S.N. 4(a) under Category 'A' and appraised at the Central level.

5.0 Public Hearing was held on 26thJune, 2015.

6.0 The proposal was considered by the Expert Appraisal Committee (Industry) in its 20th meeting held during 23rd – 24th June, 2014, 38th meeting held during 16th-17th March, 2015 and 2nd meeting held during 16th -17th December, 2015 respectively. Project Proponent and the EIA Consultant namely M/s Engineers India Ltd. have presented EIA / EMP report as per the TOR. EAC has found the EIA / EMP Report and additional information to be adequate and in full consonance with the presented TORs. The Committee recommended the proposal for environmental clearance.

7.0 Based on the information submitted by the project proponent, the Ministry of Environment and Forests hereby accords environmental clearance to above project under the provisions of EIA Notification dated 14th September 2006, subject to the compliance of the following Specific and General Conditions:

A. **SPECIFIC CONDITIONS :**

i. Compliance to all the environmental conditions stipulated in the environmental clearance letter no. J-11011/22/94-IA II(I) dated 30th May, 1995, F. No. J-11011/88/96- IA II (I) dated 10th April, 1997, J-11013/55/2003- IA II (I) dated 3rd February, 2004 and J-11011/66/2007-IA II (I) dated 7th March, 2008 and J-11011/408/2009-IA II (I) dated 2nd September, 2009 shall be satisfactorily implemented and compliance reports submitted to the Ministry's Regional Office at Chennai.

ii. M/s HPCL shall comply with new standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18th March, 2008.

iii. Continuous on-line stack monitoring for SO_2, NOx and CO of all the stacks shall be carried out. Low NOx burners shall be installed.

22

56

iv. The process emissions [SO_2, NOx, HC (Methane & Non-methane)], VOCs and Benzene from various units shall conform to the standards prescribed under the Environment (Protection) Act. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency of the pollution control device has been achieved.

v. Leak Detection and Repair programme shall be prepared and implemented to control HC/VOC emissions. Focus shall be given to prevent fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to. Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage shall be provided at strategic locations.

vi. SO_2 emissions after expansion from the plant shall not exceed 11.5 TPD and further efforts shall be made for reduction of SO2 load through use of low sulphur fuel. Sulphur recovery unit with tail gas treating facilities having 99.9 % efficiency shall be provided.

vii. As proposed, record of sulphur balance shall be maintained at the Refinery as part of the environmental data on regular basis. The basic component of sulphur balance include sulphur input through feed (sulphur content in crude oil), sulphur output from Refinery through products, byproduct (elemental sulphur), atmospheric emissions etc.

viii. Ambient air quality monitoring stations, [PM_{10}, $PM_{2.5}$, SO_2, NOx, H_2S, mercaptan, non-methane-HC and Benzene] shall be set up in the complex in consultation with Maharashtra Pollution Control Board, based on occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modeling exercise to represent short term GLCs and trend analysis w.r.t past monitoring results shall also be carried out. Adequate measures based on the trend analysis shall be taken to improve the ambient air quality in the project area.

ix. The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution. Besides, acoustic enclosure /silencer shall be installed wherever noise levels exceed the limit.

x. Fresh water requirement from Greater Visakha Municipal Corporation shall not exceed 873 m3/hr after expansion and prior permission shall be obtained from the competent authority. Industrial effluent generation will be 902 m3/hr and treated in the new state-of-the-art Integrated Effluent Treatment Plant (IETP). Treated effluent shall be fully reused/recycled as make-up water for raw water cooling towers. Domestic sewage shall be treated in sewage treatment plant (STP).

xi. Comprehensive water audit to be conducted on annual basis and report to the concerned Regional Office of MEF&CC. Outcome from the report to be implemented for conservation scheme.

xii. Automatic /online monitoring system (24 x 7 monitoring devices) for flow measurement and relevant pollutants in the treatment system to be installed. The data to be made available to the respective SPCB, Regional Office of MoEF&CC and in the Company's website.

xiii. Oil catchers/oil traps shall be provided at all possible locations in rain/ storm water drainage system inside the factory premises.

xiv. Oily sludge shall be disposed off into Coker. Annual Oily sludge generation and disposal data shall be submitted to the Ministry's Regional Office and CPCB.

xv. The Company should strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October, 1994 and January, 2000. Hazardous waste should be disposed of as per Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and amended time to time.

xvi. The membership of common TSDF should be obtained for the disposal of hazardous waste. Copy of authorization or membership of TSDF should be submitted to Ministry's Regional Office at Bhopal. Chemical/inorganic sludge shall be sent to treatment storage disposal facility (TSDF) for hazardous waste. Spent catalyst shall be sent to authorized recyclers/re-processors.

xvii. Proper oil spillage prevention management plan shall be prepared to avoid spillage/leakage of oil/petroleum products and ensure regular monitoring.

xviii. Acoustic enclosure /silencer shall be installed wherever it is possible.

xix. Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.

xx. The company should make the arrangement for protection of possible fire and explosion hazards during construction and operation phase. To prevent fire and explosion at oil and gas facility, potential ignition sources shall be kept to a minimum and adequate separation distance between potential ignition sources and flammable materials shall be in place.

xxi. The company shall strictly follow all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).

xxii. All issues raised during public hearing/consultation shall be satisfactorily implemented and adequate budget provision should be made accordingly.

xxiii. Thick greenbelt with suitable plant species shall be developed around unit. Selection of plant species shall be as per the CPCB guidelines.

xxiv. All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.

xxv. As proposed, Rs. 60 Crore shall be earmarked towards the Enterprise social responsibility based on Public Hearing issues and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office at Chennai. Implementation of such program shall be ensured accordingly in a time bound manner.

xxvi. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

F2

58

B. GENERAL CONDITIONS:

i. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board (SPCB), State Government and any other statutory authority.

ii. No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment & Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.

iii. The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever applicable.

iv. The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).

v. A separate Environmental Management Cell equipped with full fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.

vi. Adequate funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures and shall be used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government alongwith the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.

vii. The Regional Office of this Ministry/Central Pollution Control Board/State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.

viii. A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad / Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.

ix. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM_{10}, $PM_{2.5}$, SO_2, NOx, HC (Methane & Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

x. The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well

02

59

as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry / CPCB / SPCB shall monitor the stipulated conditions.

xi. The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company alongwith the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.

xii. The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and Forests at http:/envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional office.

xiii. Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.

8.0 The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

9.0 The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.

10.0 The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention &. Control of Water Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

(Lalit Bokolia)
Additional Director

Copy to :-

1. The Principal Secretary, Department of Environment, Forest, Science & Technology, Government of Andhra Pradesh, Hyderabad, A.P.
2. The Chief Conservator of Forests, Regional Office (Southern Zone, Bangalore)KendriyaSadan, 4th Floor, E&F Wing, II Block Koramangala, Banglore-560034.
3. The Chairman, Central Pollution Control Board PariveshBhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
4. The Chairman, Andhra Pradesh Pollution Control Board, ParyavaranBhawan, A-III, Industrial Estate, Sanath Nagar, Hyderabad - A.P.
5. Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhavan, Jorbagh Road, New Delhi.
6. Guard File/Monitoring File/Record File.

(Lalit Bokolia)
Additional Director

P2

60

ANNEXURE-8

ANDHRA PRADESH POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN, A-3, INDUSTRIAL ESTATE,
SANATHNAGAR, HYDERABAD - 500 018

Phone: 23887500
Website :www.appcb.ap.nic.in

REGD WITH POST WITH ACK DUE

CONSENT ORDER FOR ESTABLISHMENT

Order No. 72 /APPCB/CFE/RO-VSP/HO/2006 **Dt: 06.07.2016**

Sub: PCB – CFE - **M/s. Hindustan Petroleum Corporation Ltd., (Visakh Refinery Modernization Project), Malkapuram, Visakhapatnam** – Consent for Establishment of the Board **for expansion of refinery crude processing capacity from 8.33 Million MTPA to 15 Million MTPA** under Sec.25 of Water (P & C of P) Act, 1974 and Under Sec.21 of Air (P&C of P) Act, 1981 - Issued - Reg.

Ref:
1) Environmental Clearance order dt. 11.02.2016 issued by MOE&F, GOI, New Delhi.
2) Industry's application received through Single Desk System on 11.06.2016 & 21.06.2016.
3) R.O's inspection report dt. 21.06.2016.
4) CFE Committee meeting held on 05.07.2016.
5) Industry's mail dt. 06.07.2016.

1. In the reference 2nd cited, an application was submitted to the Board seeking Consent for Establishment (CFE) for expansion of the existing activity for refinery crude processing capacity from 8.33 Million MTPA to 15 Million MTPA with installed capacities as mentioned below, with a project cost of Rs. 18,412.24 Crores for expansion.

Sl. No.	Products	As per CFO order dt. 24.03.2016 (TPA)	After Expansion
1.	Propylene – domestic	36,000	104000
2.	LPG – domestic	6,43,000	606000
3.	Naphtha – domestic	1,20,000	810000
4.	Naphtha – export	53,000	
5.	Gasoline – domestic (Euro – III)	9,22,670	Dropped
6.	Gasoline – export (Euro – III)	7,32,330	Dropped
7.	Aviation Turbine Fuel (ATF)	1,20,000	30500
8.	Superior Kerosene oil (SKO)	5,21,330	693000
9.	Diesel – domestic (Euro – III & Euro-IV)*	37,86,670	Dropped
10.	FO 3.5% S – domestic	3,59,670	Dropped
11.	FO 3.5 % S – export	13,02,330	Dropped
12.	FO 1.0% S – domestic	2,37,670	Dropped
13.	Bitumen	2,20,660	221000
14.	Sulphur	56,370	298000
15.	Refinery Fuel (fuel gas + fuel oil + Naptha for GTGs)	7,41,670	834000
16.	Diesel (Euro – IV & Euro-V)*	---	9080000
17.	Gasoline (Euro – IV & Euro-V)*	----	2157000
18.	LDO	----	31000
19.	SHC Pitch	----	239000
	Total	**1,00,00,000 (approx)**	**1,50,00,000 (approx).**
16.	Captive power plant	121.2 MW*	271.82 MW*

* After expansion, the existing Frame – III GTG (2 Nos) of capacity 7.18 MW each proposed to be dismantled and hence the existing CPP is 106.84 MW.

Digitally Signed By B. S Prasad (Member Secretary)
Date : 06-Jul-2016 19:36:03 IST

Single Desk Approval Ref N : SDPCB0081160124

61

ANNEXURE - 3

2. As per the application, the above activity is to be located within the existing plant premises of Visakh Refinery, Malkapuram, Visakhapatnam and additional area of 81.0 acres leased from M/s. VPT.

3. The above site was inspected by the Environmental Engineer, Regional office, Visakhapatnam, A.P Pollution Control Board on 16.06.2016. The surroundings of the site are as following:

   North: M/s. Andhra Petro chemicals Limited.
   South: 80 Ft. Road (Scindia to Gajuwaka), Sriharipuram, Malkapauram
   East: M/s. IOCL Terminal
   West: M/s. CFL, M/s. HZL, M/s. Alufluoride etc.

4. The Board, after careful scrutiny of the application and verification report of Regional Officer, hereby issues **CONSENT FOR ESTABLISHMENT FOR EXPANSION** Under Section 25 of Water (Prevention & Control of Pollution) Act 1974 and Section 21 of Air (Prevention & Control of Pollution) Act, 1981 and the rules made there under. **This order is issued to the activity as mentioned at para (1) only.**

5. This Consent Order now issued is subject to the conditions mentioned in Schedule 'A' and Schedule 'B'.

6. This order is issued from pollution control point of view only. Zoning and other regulations are not considered.

7. **This order is valid for period of 7 years from the date of issue.**

Encl: Schedule 'A'
Schedule `B'

MEMBER SECRETARY

To

M/s. Hindustan Petroleum Corporation Ltd.,
(Visakh Refinery Modernization Project),
Malkapuram, Visakhapatnam
scmehta@hpcl.in,
jamala@hpcl.in, deepakkjha@hpcl.in

Copy to: 1. The JCEE, Z.O., Visakhapatnam for information and necessary action.
2. The E.E., R.O, Visakhapatnam for information and necessary action.

SCHEDULE - A

1. Separate energy meters shall be provided for Effluent Treatment Plant (ETP) and Air pollution Control equipments to record energy consumed.

2. The proponent shall obtain Consents for Operation (CFO) from APPCB, as required Under Sec.25/26 of the Water (P&C of P) Act, 1974 and under sec. 21/22 of the Air (P&C of P) Act, 1981, before commencement of the activity.

3. Notwithstanding anything contained in this conditional letter or consent, the Board hereby reserves its right and power Under Sec.27(2) of Water (Prevention and Control of Pollution) Act, 1974 and Under Sec.21(4) of Air (Prevention and Control of Pollution) Act, 1981 to review any or all the conditions imposed herein and to make such alternation as deemed fit and stipulate any additional conditions by the Board.

4. Compensation is to be paid for any environmental damage caused by it, as fixed by the Collector and District Magistrate as civil liability.

5. The rules and regulations notified by Ministry of Law and Justice, GOI, regarding the Public Liability Insurance Act, 1991 shall be followed.

SCHEDULE – B

Water:

1. The source of water is GVMC supply and the maximum permitted water consumption is 547920 KLD.

S. No.	Purpose	As per CFO dated 24.03.2016	Total after expansion
		(KLD)	(KLD)
1	Process & Washings	11856	26088
2	Industrial Cooling (sea water) (Re-circulated)	309505	475008
3	Industrial Cooling (sea water) (Once through)	193800	36000
4	Cooling (fresh)	6900	9852
5	Domestic	732	972
	Total	**522793**	**547920**

2. The maximum Waste Water Generation (KLD) shall not exceed the following:

S. No	Purpose	As per CFO dated 24.03.2016	Total after expansion
		(KLD)	(KLD)
1	Process & Washings	11820	19248
2	Industrial Cooling (sea water) (Re-circulated)	193800	407472
3	Industrial Cooling (sea water) (Once through)	24030	36000
4	Cooling (fresh)	456	2400
5	Domestic	636	792
	Total	230742	465912

ETP Details & Mode of Disposal : After expansion

The existing ETPs I, II and IV shall be dismantled as proposed by the industry and shall construct new Integrated Effluent Treatment Plant (IETP) of capacity 1000 m3/hr.

I. Outlet No. 1 & 4 a. Stream Details: Process & washings and Cooling tower blow down (fresh water) (951.5 m^3/hr)	
b. Treatment unit's details with dimensions and treatment capacity	a) Integrated Effluent Treatment Plant (IETP) (1000 m^3/hr) followed by RO (feed to RO-1005 m3/hr) treats the OWS streams and CTBD streams from the existing effluent treatment plants and also from the effluents from the VRMP facilities. b) The IETP also contains Contaminated Rain Water System (CRWS) of 390 m3/hr capacity (including existing 190 m3/hr capacity). This section removes free oil present in the effluent followed by filtration section. CRWS effluent shall be pumped to new ETP at controlled rate for treatment. c) IETP contains Spent Caustic treatment facility of 7 m3/hr capacity. Treated caustic from this section will be further sent to ETP for treatment.
c. Point of disposal	**a) The treated water from RO about 665 m^3/hr will be recycled into the process.** **b) RO rejects about 269 m^3/hr will be recycled to Re-Circulating Sea water make-up or disposed into Meghadrigedda surplus overflow channel, which joins Sea along sea water cooling tower blow down effluents.**

Treatment Sections in IETP	Treatment Units
ETP - Primary Treatment Section	➢ API oil separators ➢ CPI / TPI oil separators ➢ Dissolved Air Floatation
ETP - Spent Caustic Treatment Section	➢ Oxidation Column.
ETP – Secondary (Biological) Treatment Section	➢ Sequencing Batch Reactor / Mixed Bed Reactor
ETP - Polishing Treatment	➢ Pre treatment for RO ➢ MF/UF membrane
Tertiary Treatment Section	➢ Reverse Osmosis ➢ Mixed Bed

II. Outlet No. 2 & 3 Stream Details:	Industrial Cooling (sea water) (Re-circulated Cooling tower blow down) & Once through Cooling water
Treatment unit's details dimensions and treatment capacity	Intermediate separators
Point of disposal	Disposed into Meghadrigedda surplus overflow channel, which joins Sea.
III. Outlet No.5	Domestic waste water
Treatment unit's details dimensions and treatment capacity	STP of adequate capacity.
Point of disposal	Used for on land for plantation

3. Floor washing shall be admitted into the effluent collection system only and shall not

be allowed to find their way in storm drains or open areas. The industry shall maintain a good housekeeping. All pipe valves, sewers, drains shall be leak proof. Dyke walls shall be constructed around storage of chemicals.

4. All the units of the ETP shall be impervious to prevent ground water pollution.

5. The effluents shall be treated to the standards as stipulated under section 6 & 25 of Environment (Protection) Act, 1986, notified by MOE&F, GOI vide order dt. 18.03.2008 for oil refinery industry.

6. Separate meters with necessary pipe-line shall be provided for assessing the quantity of water used for each of the purposes mentioned below.

   a) Industrial cooling, boiler feed.
   b) Domestic purposes
   c) Processing, whereby water gets polluted and pollutants are easily bio- degradable.
   d) Processing, whereby water gets polluted and the pollutants are not easily bio-degradable.

Air:

7. The proponent shall comply with the following for controlling air pollution.

M/s. Hindustan Petroleum Corporation Limited (Visakh Refinery) is operating 31 Nos of stacks attached to Crude Distillation Units (CDU – I, II & III), Fluidized Catalytic Cracking Units (FCCU – I & II), Diesel Hydro De-Sulphurisation unit (DHDS), Sulphur Recovery Unit, Captive Power Plant (CPP). Heat Recovery Steam Generation Units (HRSGU) and operating 4 No. of stacks for DHT Project. The details are as following:

Sl No	Source of Pollution	Stack height in m
HPCL-Visakh Refinery (Existing facilities)		
1	CDU – II Crude Oil Heater, 11 F1	60
2	CDU – II Reduced Crude Oil Heater, 12 F1	60
3	FCCU – II Feed Heater, 14 F1	60
4	CDU – I Crude Oil Heater, 2 F1 -	60
5	CDU – I Crude Oil Heater, 2 F4	60
6	CDU – I Reduced Crude Oil Heater, 2F2	60
7	PP-I Utility Boiler (BHPV)	60
8	PP-I Utility Boiler (WIL-8)	60
9	FCCU-II CO Boiler, 14-F-3 (OR)	80
10	Flue Gas Desulpharization unit (FGD) – II	60
11	CPP Heat Recovery Steam Generator – I (HRSG-I)	60
12	CPP Heat Recovery Steam Generator – II (HRSG-II)	60
13	CDU – III Crude Oil Heater, 42F1	60
14	CDU – III Reduced Crude Oil Heater, 42F2	60
15	VBU Feed Heater, 46F1	60
16	FCCU-I Feed Heater, 4F51	60
17	CO Boiler for FCCU – I, 4-F-52 (OR)	60
18	Flue Gas Desulpharization unit (FGD) – I	60
19	CPP Heat Recovery Steam Generator – III (HRSG-III)	60
20	CPP Heat Recovery Steam Generator – IV (HRSG-IV)	60
21	DHDS Reformer, 61F11	60
22	DHDS Pre-Desulphurization Heater, 61F1	35

23	DHDS Heater, 60 F1	60
24	DHDS- SRU Train I & II incinerator, 65-X-001	60
25	NHT (charge heater + splitter reboiler) 72-F-I	60
26	Continuous catalytic reforming unit (CCR) - 74-F-I	60
27	FCCNHT – Heater – 75-F-1	60
28	SRU Train III incinerator, 79-X-310	60
29	2 X 75 TPH boilers (IBH)	60
30	HRSG CPP Heat Recovery Steam Generator – V - (HRSG-V) 1 X 60 T/hr	60
31	HRSG CPP Heat Recovery Steam Generator – VI - (HRSG-VI) 1 X 60 T/hr	60
32	Combined feed heater - 90-F-01	60
	Product fractionators reboiler – 90-F-02	
33	HGU Reformer Naphtha firing – 91-20	60
34	HGU Naphtha super heater FG firing – 91-F-01	60
35	SRU Incinerator FG firing – 92-M-22	60

After expansion:

Chimney No.	Description of Chimney	Qty of Emissions at peak flow (Nm^3/hr)
1	Stack attached to CDU – II Crude Oil Heater, 11 F1	79,812
2	Stack attached to CDU – II Reduced Crude Oil Heater, 12 F1	25,716
3	Stack attached to FCCU – II Feed Heater, 14 F1	20,514
4	Stacks attached to FCCU-II CO Boiler (OR)	93,631
5	Stack attached to FCCU-II FGDS	140,737
6	Stack attached to CDU – III Crude Oil Heater, 42F1	57,300
7	Stack attached to CDU – III Reduced Crude Oil Heater, 42F2	15,300
8	Stack attached to FCCU-I Feed Heater, 4F51	21,487
9	Stacks attached to FCCU-I CO Boiler	84,647
10	Stack attached to FCCU-I FGDS	110,266
11	Stack attached to CPP Heat Recovery Steam Generator – III (HRSG-III)	3,20,388
12	Stack attached to CPP Heat Recovery Steam Generator – IV (HRSG-IV)	3,20,388
13	Stack attached to DHDS Heater, 60 F1	18,781
14	Stack attached to DHDS-SRU Incinerator, 65 F1	12,717
15	Stack attached to NHT (charge heater + splitter reboiler)	31,248
16	Stack attached to continuous catalytic reforming unit (CCR)	80,385
17	Stack attached to FCCNHT	1,310
18	Stack attached to SRU III Incinerator	1,519
19	Stack attached to 2 X 75 TPH boilers	44,123
20	Stack attached to 2 X 25 MW D.G. sets	2,77,704
21	Stack attached to 2 X 60 T/hr HRSG	2,77,704

22	Combined feed heater - 90-F-01 Product fractionators reboiler – 90-F-02	71074
23	HGU Reformer Naphtha firing – 91-20	139671
24	HGU Naphtha super heater FG firing – 91-F-01	1596
25	SRU Incinerator FG firing – 92-M-22	32938
26	Stack attached to CDU IV	225225
27	Stack attached to VDU IV	97260
28	Stack No.1 attached to HCU	124287
29	Stack No.2 attached to HCU	124287
30	Stack No.1 attached to SHCU	114910
31	Stack No.2 attached to SHCU	114910
32	Stack attached to SDA	114910
33	Stack attached to HGU Train-1	571824
34	Stack attached to HGU Train-2	571824
35	Stack attached to SRU/TGTU Train-1	73316
36	Stack attached to SRU/TGTU Train-1	73316
37	Stack attached to New GTG + HRSG 1	502425
38	Stack attached to New GTG + HRSG 2	502425
39	Stack for New boilers (One Running & One Stand-by)	154624

The industry is proposed to remove 10 stacks from the existing facility out of 35 stacks provided and proposed to provide additional stacks of 14 and the total stacks after commissioning of the refinery will be 39 stacks. The industry shall submit the heights of the above stacks to the Board while applying CFO.

1. b) Details of Process Emissions in expansion:		Control Equipment in expansion
Hot well gases from CDU-IV	:	Hot well gases are to be routed to the furnaces to minimize odour.
Sour fuel gas from CDU-IV	:	The sour fuel gas is to be routed to fuel gas amine absorption unit. The sour fuel gas is to be converted to sweet fuel gas and used as fuel in the refinery.
Off gases from DHT unit expansion:	:	The off gases are to be routed to amine absorption unit. The rich amine is to be regenerated in amine regeneration unit (ARU). The H_2S rich acid gas is to be sent to SRU for recovery of sulphur.
Sour water stripper off gases (H2S &NH3)	:	The sour water from CDU-IV, HCU & SHCU containing H_2S & NH_3 is to be routed to sour water stripper unit (SWSU). The off gases generated from sour water stripper column are to be routed to SRUs for recovery of sulphur. The stripped effluent is to be routed to IETP.
SRU-I/ II & TGTU	:	Two sulphur recovery units (SRU) – 2 X 360 TPD capacity units are to be installed for recovery of sulphur from Acid gas streams using Claus process combined with CBA process. These units shall have 99.9% sulfur recovery due to TGTU (Tail gas treatment Unit).
Gases from safety relief valves during emergency	:	Flare stack is proposed to burn the off gases relieved during emergency.
Details of VRMP Mercaptanes/H2S present in products	:	LPG amine absorption unit shall remove H_2S and mercaptans present in LPG.
Rich H2S gas from ARU (Amine Regeneration unit)		Acid gases are to be routed to SRU for recovery of sulphur.
Sour water from units.		The sour water containing H_2S & NH_3 is to be routed to sour water stripper unit (SWSU) for removal of H2S & NH3.
Product and crude storage tanks, valves & flanges	:	1. The industry shall provide floating roof tanks for new tanks and secondary seals are proposed to minimize HC emissions. 2. The industry shall engage consultant for regular Leak Detect and Repair Program (LDAR).
Characteristics of emissions:	:	Hydro carbon, H_2S, SO_2 & Mercaptans etc.

c) Details of Fugitive Emissions:	Control measures
Benzene, Toluene, Xylene, VOC emissions etc.,	1. Minimum number of flanges, valves, etc. 2. High grade gasket material for packing 3. Usage of low leakage valves preferably with bellow seals 4. Using pumps with mechanical seals 5. New tanks will be of floating roof with double mechanical seals. 6. Provision of seals in the drain and manholes.

8. The proponent shall ensure compliance of the National Ambient Air quality standards notified by MoEF, GoI vide notification No. GSR. 826 (E), dated. 16.11.2009 during construction and regular operational phase of the project

9. The industry shall maintain on-line stack monitoring equipment for measurement of HCl, SO2, NOx, H2S, Mercaptan, CO & SPM and network to APPCB for website display.

10. A sampling port with removable dummy of not less than 15 cm diameter shall be provided in the stack at a distance of 8 times the diameter of the stack from the nearest constraint such as bends etc. A platform with suitable ladder shall be provided below 1 meter of sampling port to accommodate three persons with instruments. A 15 AMP 250 V plug point shall be provided on the platform.

11. The generator shall be installed in a closed area with a silencer and suitable noise absorption systems. The ambient noise level shall not exceed 75 dB(A) during day time and 70 dB(A) during night time.

12. The industry shall maintain total SO_2 load even after expansion will remain the same permitted load of 11.5 TPD in the consent by increasing the efficiency of Sulphur recovery units from 99.5 to 99.9 %, reducing the Sulphur content in the liquid fuels used, for furnace heating purpose to 0.47% from 0.5 to 0.7% and by decommissioning old CDU and installing latest CDU etc.,

13. **The industry shall provide Sulphur recovery unit with tail gas treatment facility with 99.9% efficiency in order to maintain the overall emission load for SO2 emissions less than 11.5 TPD even after expansion. The details of Sox balance is as following:**

S.No.	Source of Sox	Quantity (TPD)
1	Fuel gas (100 ppm)	0.17
2	Natural gas based CPP (10 ppm)	0.01
3	Natural gas based HGU (10 ppm)	0.02
4	Naphtha based CPP (29 ppm)	0.01
5	Naphtha based HGU (50 ppm)	0.04
6	Fuel oil (4710 ppm)	7.86
7	FCC-I (with FGD)	0.23
8	FCC-II (with FGD)	1.36
9	DHT SRU	0.60
10	Existing SRU	0.40
11	New SRU	0.80
	TOTAL	**11.50**

Solid Waste:

14. The proponent shall comply with the following:

Sl. No.	Source	Present Quantity	Quantity after Expansion	Mode of disposal
1.	Spent Catalyst	500 MTs/year	1960 MTs/year	TSDF / Authorized recycler
2.	Spent Charcoal	10 MTs/3 years	1500 MT/year	TSDF
3.	Organic Residue	6 MT/3 years		
4.	Spent Clay	18 MT/3 years		
5.	High Oily Sludge	2500 MT/Crude tank	1000 MT/Crude tank/5 years	Shall be sent for Oil recovery
6.	Low Oily Sludge Non-Bio remedial Sludge	35 kgs/MT of High Oily Sludge	1500 kg/day	Shall be combined with de-oiled sludge
7.	Bio remedial sludge (ETP Sludge)	100 MT/year	667 MT/year	Landfill / Manure inside refinery
8.	DHDS (HDS & Reformer)	8 MT/3 yrs	8 MT/3 yrs	Authorised reprocessors / recyclers
9.	Containers & Container liners of HW & Hazardous chemicals	400 Nos/month	400 Nos/month	Disposal to outside agencies after de-toxification
10.	Tank Bottom Sludge	20 KL/year	20 KL/year	Authorized re-processors / re-cyclers
11.	Activated Alumina	16950 kg once in 6 months	(16950 kg once in 6 months) + (409000 Kg Once in an year)	
12.	Molecular Sieve	1200 kg once in 6 months	(1200 kg once in 6 months) + (60150 kg once in 3 years)	

15. The following rules and regulations notified by the MOE&F, GOI shall be implemented.

a) Hazardous and other wastes (Management and Transboundary Movement), Rules, 2016.
b) Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.
c) Batteries (Management & Handling) Rules, 2010.
d) The Chemical Accidents (Emergency Planning, Preparedness) Rules,1996.
e) E – Waste (Management) Rules, 2016.

Other Conditions:

16. The total area of the industry after expansion is 860.0 acres. Green belt is existing in an area of 45.0 acres. The area of the green belt after expansion is 112.5 acres. The industry vide mail dt. 06.07.2016 informed that being a brown field project, there is no adequate space available within the refinery for provision of additional green belt. Further, plantation of trees is not recommended inside the plant area due to safety considerations and development of green belt along the boundary is prohibited considering the associated security risk. The industry under "Green Visakha Programme" about 4,50,000 saplings were

planted till 2015 – 16. Additional plantation of 2,00,000 saplings is to be undertaken up and completed during 2016 – 17. The major areas of plantation are Autonagar, Vadlapudi, Parawada, Sheelanagar, Aganampudi, Denkada etc., and the total acreage of block plantation in these areas is approximately 700 acres.

17. Dyke walls to be provided around storage tanks. Spillages / oil water mixture if any, shall be contained in the dykes and treated in the existing ETP and the oil shall be taken to storage tank. The treated wastewater confirming to on land for irrigation standards only shall be used for gardening purpose within the premises.

18. The company shall install automatic leak detection system supported hooters or alarm system.

19. Emergency visual indicators should be installed at main gate and other important points so that critical information is available within 2 minutes of declaring emergency.

20. Wind sock(s) should be positioned such that they are easily visible to all persons and one of them should be visible at night.

21. Required water drains and Fire fighting hydrants should be provided in the facility.

22. The industry shall ensure compliance of standards notified for oil refinery industry by MOE&F, GOI vide notification dt. 18.03.2008 and its amendments thereof as stipulated by the MoEF&CC, GoI, New Delhi.

23. The proponent shall ensure that there shall not be any change in the process technology and scope of working without prior approval from the Board.

24. The proponent shall comply with all the directions issued by the Board from time to time.

25. Concealing the factual data or submission of false information/ fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts.

26. Notwithstanding anything contained in this conditional consent, the Board hereby reserves its right and power under Sec.27(2) of Water (Prevention and Control of Pollution) Act, 1974 and under Sec.21(4) of Air (Prevention and Control of Pollution) Act, 1981 to review any or all the conditions imposed herein and to make such alternation as deemed fit and stipulate any additional conditions or revoke the order in the interest of environment protection.

27. Any person aggrieved with this order may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules, 1982, to the Appellate Authority constituted under Section 28 of Water (Prevention and Control of Pollution) Act,1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.

MEMBER SECRETARY

To

M/s. Hindustan Petroleum Corporation Ltd.,
(Visakh Refinery Modernization Project),
Malkapuram, Visakhapatnam
scmehta@hpcl.in,
jamala@hpcl.in, deepakkjha@hpcl.in

ANNEXURE-9

ANDHRA PRADESH POLLUTION CONTROL BOARD
Paryavarana Bhavan, A-III, Industrial Estate,
Sanathnagar, Hyderabad-500 018
Phone : 040-23887500, Website : www.appcb.ap.nic.in

RED CATEGORY
RENEWAL OF CONSENT & AUTHORIZATION ORDER
BY REGISTERED POST WITH ACKNOWLEDGEMENT DUE

Consent Order No : APPCB/VSP/VSP/72/CFO/HO/2016- Date : 24.03.2016

CONSENT is hereby granted for Operation under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Authorisation under Rule 5 of the Hazardous Wastes (Management, Handling & Transboundary, Movement) Rules, 2008 & Amendments thereof and the rules and orders made there under (hereinafter referred to as 'the Acts', 'the Rules') to:

M/s. Hindustan Petroleum Corporation Ltd.,
(Visakha Refinery & DHT Plant), Malkapuram,
Visakhapatnam. - 530 011.
Email: nandanwarss@hpcl.co.in

(Hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant to discharge the effluents from the outlets and the quantity of emissions per hour from the chimneys as detailed below:

(i) Outlets for discharge of effluents:

Outlet No.	Outlet Description	Max Daily Discharge in KLD	Point of Disposal
Refinery			
1	Process & Washings after treatment	11,292	Into Sea
2.	Boiler blow down after treatment	216	
3.	Cooling blow down after treatment	2,17,830	Into Sea
4.	Domestic Effluents after pre-treatment	348	Septic Tank Followed By Soak Pit.
DHT Plant			
5.	Process & washings	528	Into Meghadrigedda surplus course finally joining to Sea after treatment in ETP (I to IV).
6.	DM waste water	240	
7.	Domestic	288	Onland for plantation after treatment in STP.

ii) Emissions from chimneys:

S. No	Description of Chimney	Quantity of Emissions in Nm3/hr. at peak flow
HPCL – Visakha Refinery		
1.	Stack attached to CDU – II Crude Oil Heater, 11 F1	79,812
2.	Stack attached to CDU – II Reduced Crude Oil Heater, 12 F1	25,716
3.	Stack attached to FCCU – II Feed Heater, 14 F1	20,514
4.	Stack attached to CDU – I Crude Oil Heater, 2 F1	33,009
5.	Stack attached to CDU – I Crude Oil Heater, 2 F4	24,470
6.	Stack attached to CDU – I Reduced Crude Oil Heater, 2F2	16,146

Environmental Engineer 1764 Regional Office Visakhapatnam 11.4.16 A.P. Pollution Control Board

7.	Stack attached to PP-I Utility Boiler (BHPV)	53,068
8.	Stack attached to PP-I Utility Boiler (WIL-8)	53,068
9.	Stack attached to FCCU-II CO Boiler	93,631
10.	Stack attached to PP-II Utility Boilers (2x 50 TPH)	1,08,328
11.	Stack attached to CPP Heat Recovery Steam Generator – I (HRSG-I)	1,73,416
12.	Stack attached to CPP Heat Recovery Steam Generator – II (HRSG-II)	1,73,416
13.	Stack attached to CDU – III Crude Oil Heater, 42F1	57,300
14.	Stack attached to CDU – III Reduced Crude Oil Heater, 42F2	15,300
15.	Stack attached to VBU Feed Heater, 46F1	31,500
16.	Stack attached to FCCU-I Feed Heater, 4F51	21,487
17.	Stack attached to FCCU-I CO Boiler	84,647
18.	Stack attached to CPP Heat Recovery Steam Generator – III (HRSG-III)	3,20,388
19.	Stack attached to CPP Heat Recovery Steam Generator – IV (HRSG-IV)	3,20,388
20.	Stack attached to DHDS Reformer, 61F11	61,001
21.	Stack attached to DHDS Pre-Desulphurisation Heater, 61F1	1,566
22.	Stack attached to DHDS Heater, 60 F1	18,781
23.	Stack attached to DHDS-SRU Incinerator, 65 F1	12,717
24	Stack attached to NHT (charge heater + splitter reboiler)	31428
25.	Stack attached to Continuous catalytic reforming unit (CCR)	80385
26.	Stack attached to FCCNHT	1310
27.	Stack attached to SRU III Incinerator	1519
28.	Stack attached to 2x75 TPH boilers	44123
29.	Stack attached to 2x25 MW D.G.Sets	277704
30.	Stack attached to 2x60 T/hr HRSG	277704
HPCI – DHT Plant		
31.	Attached to DHT Feed Heater (2.2 MMTPA) / Product Fractionators reboiler	--
32.	Attached to HGU (Naphtha superheater) FG firing (36,000 TPA)	--
33.	Attached to HGU (Tubular Reformer) Naphtha firing	--
34.	Attached to Sulphur Recovery Unit Incinerator FG firing	--

iii) **HAZARDOUS WASTE AUTHORISATION (FORM – II) [See Rule 5 (4)]:**

M/s. Hindustan Petroleum Corporation Limited, Visakha Refinery & DHT Plant, Malkapuram, Visakhapatnam District is hereby granted an authorization to operate a facility for collection, reception, storage, treatment, transport and disposal of Hazardous Wastes namely:

REFINERY

- **HAZARDOUS WASTES WITH DISPOSAL OPTION:**

S.No	Name of the Hazardous waste	Stream	Quantity of Hazardous waste	Method of disposal
1.	Spent Catalyst	4.2 of Schedule - I	500 MTs/Yr	TSDF, Parawada, Visakhapatnam District. The industry shall explore the possibility of its re-use.
2.	Spent Charcoal	4.4 of Schedule - I	10 MTs/3Yrs	

3.	Organic Residue	4.4 of Schedule - I	6 MT/3Yrs	TSDF, Parawada, Visakhapatnam District / Authorised cement plants for co-processing.
4.	Spent Clay	4.6 of Schedule - I	18 MT/3yrs	TSDF, Parawada, Visakhapatnam District.
5.	Chemical Sludge (Caustic Sludge)	4.5 of Schedule – I	**	TSDF, Parawada, Visakhapatnam District.

** Total Quantity generated.

- **HAZARDOUS WASTES WITH RECYCLING OPTION:**

S.No	Name of the Hazardous waste	Stream	Quantity of Hazardous waste	Method of disposal
1.	High Oily sludge	4.1 of Schedule - I	2500 MT/ crude tank	Shall be sent for Mechanical treatment to recover oil
2.	Low oily Sludge Non-Bio remedial sludge	4.1 of Schedule - I	35Kgs/MT of high oily sludge	De-oiled sludge recovery after mechanical treatment. Explore the option of sending de-oiled sludge to Authorised Cement plants for co processing.
3.	Bio remedial sludge (ETP Sludge)	4.1 of Schedule - I	100 MTPA	Authorised Reprocessors / Recyclers.
4.	DHDS (HDS & Reformer)	4.2 of Schedule - I	8 MT/3Yrs	
5.	Containers & Container Liners of HW & Hazardous chemicals.	33.3 of schedule - I	400 Nos/month	Only after detoxification, it shall be disposed to the outside agencies.
6.	Tank Bottom Sludge	3.3 of Schedule – I	20 KL/year	Authorised Reprocessors / Recyclers (or) Authorised cement plants for co-processing.
7.	Activated alumina	4.2 of Schedule - I	16,950 Kgs once in 6 months	Authorised Reprocessors / Recyclers (or) TSDF, Parawada
8.	Molecular sieve	35.1 of Schedule - I	1,200 Kgs once in 6 months	

DHT PLANT

- **HAZARDOUS WASTES WITH DISPOSAL OPTION:**

Sl. No.	Process unit	Stream	Quantity	Mode of disposal
1.	Diesel Hydrotreater unit			Shall be disposed to APPCB / CPCB approved
	i) Reactor -1	4.4 of Schedule - I	190 Tons/2 years	
	ii) Reactor – 2	4.4 of Schedule - I	279 Tons/2 years	

47

71

2.	Hydrogen generation unit (HGU)			agencies.
	i) Hydrodesulphurizer/ Reformer etc.	4.4 of Schedule - I	302.3 M^3/2 years	
	ii) Desulphurizer (ZnO)	4.4 of Schedule - I	106.1 M^3/6 months	
	iii) Chlorine Guard	4.4 of Schedule - I	32.8 M^3/6 months	
3.	Sulphur Recovery Unit (SRU)			
	Catalyst/ support bed etc.	4.2 of Schedule - I	31.2 M^3/3 years	

This consent order is valid for manufacturing the following products along with quantities indicated only:

A.Refinery

Sl. No.	Products	Capacity (For 10 MMTPA crude) TPA
1.	Propylene – domestic	36,000
2.	LPG – domestic	6,43,000
3.	Naphtha – domestic	1,20,000
4.	Naphtha – export	53,000
5.	Gasoline – domestic (Euro – III)	9,22,670
6.	Gasoline – export (Euro – III)	7,32,330
7.	ATF	1,20,000
8.	SKO	5,21,330
9.	Diesel – domestic (Euro – III)	37,86,670
10.	FO 3.5% S – domestic	3,59,670
11.	FO 3.5 % S – export	13,02,330
12.	FO 1.0% S – domestic	2,37,670
13.	Bitumen	2,20,660
14.	Sulphur	56,370
15.	Refinery Fuel (fuel gas + fuel oil + Naptha for GTGs)	7,41,670
	Total	1,00,00,000
	Captive power plant	121.20 MW

<u>New facilities constructed in the refinery under Mounded Project:</u>

- Five LPG Bullets (each of 1200 MT capacity) under one mound. Each bullet diameter is 7.0 meters and Length 70 meters. Two Propylene bullets (each of 750 MT capacity) under one mound. The diameter of bullet is 7.0 meter and Length 50 meter.
- Four LPG transfer pumps each of rated capacity 225 m3/hr to transfer the products to marketing terminal.
- Two Propylene transfer pumps each of rated capacity 50 m3/hr to transfer the products to marketing gantry and M/s APCL, the captive customer.
- Mercaptan dosing system.
- One drain vessel.
- One knock out drum for Flare.
- Fire protection and security system.

74

B. DHT Plant

For Diesel Hydro Treating and Associated facilities as mentioned below to produce Diesel to meet EURO – IV specification (50 ppm of sulphur content) of capacity 2.2 MMTPA as per Auto Fuel Policy of the Government of India within existing refinery premises:

Sl. No	Process units	Capacity
1	Diesel Hydro Treatment Unit (DHT)*	2.2 MMTPA of Feed
2	Hydrogen Generation Unit	36000 TPA of H_2
3	Sulphur Recovery Unit-I (SRU) with TGT unit	300 TPD of Sulphur product
4	Amine Regeneration Unit (ARU)-I	300 T/hr
5	Fuel Gas Amine Treating Unit (FGT)-I	20 T/hr

* The process is an enriched treatment facility within the permitted 10 MMTPA crude through put of Visakha Refinery

This order is subject to the provisions of 'the Acts' and the Rules' and orders made thereunder and further subject to the terms and conditions incorporated in the schedule A, B & C enclosed to this order.

This combined order of consent & Hazardous Waste Authorization shall be valid for a period ending with the **31.12.2020.**

Sd/-
MEMBER SECRETARY

To
M/s. Hindustan Petroleum Corporation Ltd.,
Visakha Refinery & DHT Plant, Malkapuram,
Visakhapatnam - 530 011.

Copy to :

1. The JCEE, Zonal Office, **Visakhapatnam** for information and necessary action.
2. The JCEE (Cess), APPCB, **Hyderabad** for information.
3. The **JCEE(HWM)**, APPCB, **Hyderabad** for information.
4. The Environmental Engineer, Regional Office, **Visakhapatnam** for information and necessary action.

// T.C.F.B.O. //

25/3/16

Joint Chief Environmental Engineer
Unit Head-IV

SCHEDULE-A

1. Any up-set condition in any industrial plant / activity of the industry, which result in, increased effluent / emission discharge and/ or violation of standards stipulated in this order shall be informed to this Board, under intimation to the Collector and District Magistrate and take immediate action to bring down the discharge / emission below the limits.
2. The industry should carryout analysis of waste water discharges or emissions through chimneys for the parameters mentioned in this order on quarterly basis and submit to the Board.
3. All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991 should be followed as applicable.
4. The industry should put up two sign boards (6x4 ft. each) at publicly visible places at the main gate indicating the products, effluent discharge standards, air emission standards,

75

hazardous waste quantities and validity of CFO and exhibit the CFO order at a prominent place in the factory premises.

5. Not withstanding anything contained in this consent order, the Board hereby reserves the right and powers to review / revoke any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Acts by the Board.
6. The industry shall file the water cess returns in Form-I as required under section (5) of Water (Prevention and Control of Pollution) Cess Act, 1977 on or before the 5th of every calendar month, showing the quantity of water consumed in the previous month along with water meter readings. The industry shall remit water cess as per the assessment orders as and when issued by Board.
7. The applicant shall submit Environment statement in Form V before 30th September every year as per Rule No.14 of E(P) Rules, 1986 & amendments thereof.
8. The applicant should make applications through Online for renewal of Consent (under Water and Air Acts) and Authorization under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts and detailed compliance of CFO conditions for obtaining Consent & HW Authorization of the Board. The industry should immediately submit the revised application for consent to this Board in the event of any change in the raw material used, processes employed, quantity of trade effluents & quantity of emissions. Any change in the management shall be informed to the Board. The person authorized should not let out the premises / lend / sell / transfer their industrial premises without obtaining prior permission of the State Pollution Control Board.
9. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to Appellate authority constituted under Section 28 of the Water(Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air(Prevention and Control of Pollution) Act, 1981.

SCHEDULE-B

WATER POLLUTION:

1. The effluent discharged shall not contain constituents in excess of the tolerance limits mentioned below. Further, the following parameters shall be complied for Process & Wash effluents at the Outlets of ETP-I,II,III & IV i.e., before mixing with Cooling waste water discharge:

Outlet	Parameter	Limiting Standards
1 to 3, 5 & 6	pH	6.50 – 8.50
	Oil & Grease	5 mg/l
	Chromium Hexavelent	0.10 mg/l
	Pb	0.10 mg/l
	Total Suspended Solids	100 mg/l
	Phenols	0.35 mg/l
	Cyanides as CN	0.20 mg/l
	Chemical Oxygen Demand	125 mg/l
	Biochemical Oxygen Demand	15 mg/l
	Sulphides (as S)	0.5 mg/l
	Ammonia as N	15.0 mg/l
	P	3.0 mg/l
	Cr (Total)	2.0 mg/l
	Hg	0.01mg/l
	Zn	5.0 mg/l
	Ni	1.0 mg/l
	Cu	1.0 mg/l
	Benzene	0.1 mg/l

27

76

2. The industry shall take steps to reduce water consumption to the extent possible and consumption shall NOT exceed the quantities mentioned below:

S. No.	Purpose	Quantity in KLD (Refinery)	Quantity in KLD (DHT Plant)
1.	Process & Washings	3,600	6576
2.	Boiler feed	1,680	--
3.	Industrial Cooling (Makeup) / Humidification / Water spraying)	5,01,769	1536
4.	Industrial water	6900	--
5.	Domestic	372	360
	Total :	5,14,321	8472

The source of water is Municipal Water and Sea Water. The following is the permitted water consumption:

Sl. No.	Purpose	Quantity (KLD) (Refinery)	Quantity (KLD) (DHT Plant)
1	Industrial cooling, boiler feed.	503449	1536
2	Domestic purposes.	372	360
3	Process, whereby water gets polluted and pollutants are easily bio degradable.	--	--
4	Processing, whereby water gets polluted and the pollutants are not easily bio – degradable.	10500	6576
	Total	514321	8,472

Separate meters with necessary pipe-line shall be maintained for assessing the quantity of water used for each of the purposes mentioned above for Cess assessment purpose.

3. The industry shall construct and commission STP within six months.

AIR POLLUTION:

1. The emissions shall not contain constituents in excess of the prescribed limits mentioned below:

Chimney No.	Parameter	Emission Standards
1 to 23 (23 stacks)	Particulate Matter	115
24 to 27	Particulate Matter	10
28 & 33	Particulate Matter	50
34	Particulate matter	10

2. The industry shall comply with ambient air quality standards of PM10 (Particulate Matter size less than 10μm) - 100 μg/ m3; PM2.5 (Particulate Matter size less than 2.5 μm) - 60 μg/ m3; SO2 - 80 μg/ m3; NOx - 80 μg/m3, outside the factory premises at the periphery of the industry.

Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009.

Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)
Night time (10 PM to 6 AM) - 70 dB (A)

87

77

3. The industry shall operate 3 CAAQM stations for monitoring Benzene, Carbon Monoxide, Ammonia, Nitrogen Dioxide, Ozone, PM_{10}, $PM_{2.5}$ and Sulphur Dioxide with recording facility and connected to PCB website.

4. The industry shall comply with emission limits for DG sets of capacity upto 800 KW as per the Notification G.S.R.520 (E), dated 01.07.2003 and G.S.R.448(E), dated 12.07.2004 under the Environment (Protection) Act Rules. In case of DG sets of capacity more than 800 KW shall comply with emission limits as per the Notification G.S.R.489 (E), dated 09.07.2002 at serial no.96, under the Environment (Protection) Act, 1986.

GENERAL:

1. The industry shall maintain flow meters preferably Electro Magnetic flow meters with totalisers for water and effluent quantity measurements for different streams of effluents and different categories of water usage stipulated in this order.
2. The industry shall comply with CPCB directions dated 05.02.2014 / 02.03.2015 and guidelines issued regarding online emission and effluent monitoring systems issued from time to time.
3. The industry shall connect and upload the online CAAQMs.
4. Thick green belt shall be maintained all along the boundary of the industry with minimum area of 33% of total project area keeping in view the safety precautions. Existing Green belt shall not be disturbed in the proposed expansion / construction activity. The industry shall participate in Green Visakha programme and shall achieve the targets in time frames specified.
5. Dyke walls shall be maintained around storage tanks. Spillages / oil water mixture if any, shall be contained in the dykes and treated in the existing ETP and the oil shall be taken to storage tank. The treated wastewater confirming to onland for irrigation standards only shall be used for gardening purpose within the premises.
6. **The industry shall submit final report of IISc immediately after receipt along with action plan for implementation of recommendations.**
7. The industry shall inform the breakdowns, shutdowns, non operations of pollution control systems and startup & shutdown periods of process units to APPCB duly taking alternate measures.
8. Odour control systems shall be improved at the Merox plants and ETP areas. The industry shall not cause any odour nuisance problem.
9. The off-gases of Bitumen Blowing Unit shall be treated before emitting into the atmosphere.
10. The flare stack shall be improved to flare off all hydrocarbons by ensuring complete combustion without any black smoke.
11. The stripped off VOCs / Ammonia / Mercaptanes from the ETP system shall not be allowed to escape into the atmosphere and these have to be collected and incinerated.
12. In case of bad weather conditions and inversions, the industry shall run the process units with low Sulphur crude oil only.
13. The industry shall take measures to improve the efficiencies of furnaces to at least 95% so as to control the generation of un-burnt hydrocarbons and particulates. The efficiency evaluation carried out by expert agencies shall be submitted to Board.
14. The industry shall maintain the drainage system properly. Storm water shall be collected and be treated before disposing into the drains.
15. The oil generation shall be prevented at the sources (process units) so that excessive oil does not reach the ETPs above the designed capacities.
16. No further Expansion is allowed without obtaining EC and CFE.
17. The pollution loads shall come down as follows after expansion cum modernization activity:
    a) Effluent loads:
        i) The oil and grease should be reduced from 15.76 TPD to less 12.26 TPD
        ii) Sulphides from 1.712 TPD should be reduced to 1.66 TPD
        iii) Phenol from 0.79 TPD should be reduced to 0.67 TPD
        iv) TSS should remain same at 1.25 TPD
        v) BOD should be reduced from 5.55 TPD to 4.6 TPD
        vi) COD should be reduced from 21.4 TPD to 17.2 TPD

77

78

b) Air Pollution:

Reduce the air pollution loads as follows due to installation of integrated FGD unit in the CFP process unit and installation of low NOx burners in 11F1 & 12F1 of CDU-II & in 2F1, 2F2, 2F4 of CDUI and both CO boilers.

a. The SO2 emissions should remain same at 11.5 TPD
b. The SPM should be reduced from 1.45 TPD to 1.11 TPD
c. The hydro carbon emission should remain same at 2.5 TPD
d. The NOx emissions should be reduced from 6.6 TPD to 6.5 TPD

18. The industry shall ensure that the pollution loads are not increased at any point of time.
19. The stack and online AAQ monitoring analysers shall be regularly calibrated so as to record the actual values of air pollutants.
20. The industry shall comply with Noise Pollution (Regulation & Control) Rules 2000.
21. The industry shall comply with New Standard for Oil Refineries notified by MOEF vide GSR No. 186(E), dt.18.03.2008.
22. M/s HPCL shall maintain smokeless flare in flare stacks.
23. The industry shall ensure that the efficiency of the Sulphur recovery in the Sulphur Recovery Units (SRU) shall be at least 98.7% as per EPA standard for existing plants.
24. In the plant area, values of VOC (non-methane hydrocarbons) shall be monitored as per EPA notification
25. The industry shall submit separate valid PLI policy for its Visakha Refinery.
26. The industry shall develop and maintain thick green belt in the area of Horton Sphere location to mitigate the effects all around the plant.
27. The industry shall maintain "FGD system to FCCU- I & II " to achieve SPM limit of 50 mg/Nm^3 and to bring down the SO_2 emissions and report the compliance to the RO, Visakhapatnam
28. The total storage capacity of LPG and Propylene in the bowl area shall not exceed 10,490 MT excluding Caveren storage.
29. The industry shall bring down the load based standards of SO_2, HC, COD, Oil & Grease, Sulphides, Phenol, COD, SPM & NOx.
30. The industry shall construct sheds for storage of hazardous waste.
31. The industry shall comply with Task Force directions issued by the Board from time to time.
32. The industry shall maintain the following records and the same shall be made available to the inspecting officers of the Board:
    a. Daily production details (ER-1 Central Excise Returns).
    b. Quantity of Effluents generated, treated, recycled/reused.
    c. Log Books for pollution control systems.
    d. Sulphur content in raw material.
    e. Characteristics of effluents, emissions and ambient air.
    f. Hazardous/non hazardous solid waste generated and disposed.
    g. Inspection book.
    h. Manifest copies hazardous waste.

SCHEDULE – C

[See rule 5(4)]

[CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]

1. All the rules and regulations notified by Ministry of Environment and Forests, Government of India under the E(P) Act, 1986 in respect of management, handling, transportation and storage of the Hazardous wastes should be followed.
2. The industry shall not store hazardous waste for more than 90 days as per the Hazardous Wastes (Management. Handling and Transboundary Movement) Rules, 2008 and amendments thereof.
3. The industry shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal to the manufacturers / dealers on buyback basis.
4. The industry shall maintain 6 copy manifest system for transportation of waste generated and a copy shall be submitted to concerned Regional Office of APPCB. The driver who transports Hazardous Waste should be well acquainted about the procedure to be followed

79

Pf

ANNEXURE - 10

File No.APPCB-11022/128/2019-TEC-CFO-APPCB

ANDHRA PRADESH POLLUTION CONTROL BOARD
D.No.33-26-14D/2, Near Sunrise Hospital, Pushpa Hotel Centre,
Chalamalavari Street, Kasturibaipet, Vijayawada - 520 010
Phone. No.0866-2463200, Website : www.pcb.ap.gov.in

RED CATEGORY
CONSENT & AUTHORIZATION ORDER

Consent Order No : APPCB/VSP/VSP/72/CFO/HO/2019- 18/12/2019

CONSENT is hereby granted for Operation under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Authorisation under Rule 6 of the Hazardous & Other Wastes (Management and Transboundary, Movement) Rules, 2016 and the rules and orders made there under (hereinafter referred to as 'the Acts', `the Rules') to:

M/s. Hindustan Petroleum Corporation Ltd., (Existing and Expansion)
(Visakha Refinery), Malkapuram,
Visakhapatnam. - 530 011.
Email: varaprasadpn@hpcl.in

(Hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant to discharge the effluents from the outlets and the quantity of emissions per hour from the chimneys as detailed below:

i) Outlets for discharge of effluents:

Outlet No.	Outlet Description	Max Daily Discharge in KLD	Point of Disposal
Refinery			
1 (ETP I, II & IV)	Process & Washings after treatment	11,820	Into Meghadrigedda surplus course finally joining to Sea after treatment.
2.	Cooling blow down after treatment	2,18,286	Into Sea
3.	Domestic Effluents after pre-treatment	636.0	Onland for Plantation after treatment in STP

ii) Emissions from chimneys:

S. No	Description of Chimney	Quantity of Emissions in Nm3/hr. at peak flow
HPCL - Visakh Refinery		
1.	Stack attached to CDU - II Crude Oil Heater, 11 F1	79,812
2.	Stack attached to CDU - II Reduced Crude Oil Heater, 12 F1	25,716

3.	Stack attached to FCCU - II Feed Heater, 14 F1	20,514
4.	Stack attached to CDU - I Crude Oil Heater, 2 F1 -	33,009
5.	Stack attached to CDU - I Crude Oil Heater, 2 F4	24,470
6.	Stack attached to CDU - I Reduced Crude Oil Heater, 2F2	16,146
7.	Stack attached to PP-I Utility Boiler (BHPV)	53,068
8.	Stack attached to PP-I Utility Boiler (WIL-8)	53,068
9.	Stack attached to FCCU-II CO Boiler, 14-F-3 (OR)	93,631
10.	Stack attached to CPP Heat Recovery Steam Generator - I (HRSG-I)	1,73,416
11.	Stack attached to CPP Heat Recovery Steam Generator - II (HRSG-II)	1,73,416
12.	Stack attached to CDU - III Crude Oil Heater, 42F1	57,300
13.	Stack attached to CDU - III Reduced Crude Oil Heater, 42F2	15,300
14.	Stack attached to VBU Feed Heater, 46F1	31,500
15.	Stack attached to FCCU-I Feed Heater, 4F51	21,487
16.	Stack attached to CO Boiler for FCCU - I, 4-F-52 (OR)	84,647
17.	Stack attached to CPP Heat Recovery Steam Generator - III (HRSG-III)	3,20,388
18.	Stack attached to CPP Heat Recovery Steam Generator - IV (HRSG-IV)	3,20,388
19.	Stack attached to DHDS Reformer, 61F11	61,001
20.	Stack attached to DHDS Pre-Desulphurization Heater, 61F1	1,566
21.	Stack attached to DHDS Heater, 60 F1	18,781
22.	Stack attached to DHDS- SRU Train I & II incinerator, 65F001	18,200
23.	Stack attached to NHT (charge heater + splitter re-boiler) 72-F1/F2	31,428
24.	Stack attached to Continuous catalytic reforming unit (CCR) - 74 F1/F2/F3/F4	80,385
25.	Stack attached to FCCNHT HDS reactor Feed heater(75F1)	7,050
26.	Stack attached to SRU Train III incinerator, 79F302	11,300
27.	Stack attached to IBH boilers (2 X 75 TPH)	44,123

28.	Stack attached to CPP HRSG Heat Recovery Steam Generator - V - (HRSG-V) 1 X 60 T/hr	2,77,704
29.	Stack attached to CPP HRSG Heat Recovery Steam Generator - VI - (HRSG-VI) 1 X 60 T/hr	2,77,704
30.	Stack attached to Combined feed heater & Product fractionators reboiler - 90F01 & 90F02-	--
31.	Stack attached to HGU Reformer Naphtha firing - 91F20	--
32.	Stack attached to HGU Naphtha super heater FG firing - 91F01	--
33.	Stack attached to SRU Incinerator FG firing - 92F02	--
34.	Stack attached to Flue Gas Desulpharization unit (FGD) - II	1,40,737
35.	Stack attached to Flue Gas Desulpharization unit (FGD) - I	110,266
36.	Stack attached to FCC NHT 2nd HDS feed heater (75F51N)	--

iii) **HAZARDOUS WASTE AUTHORISATION (FORM - II) [See Rule 5 (4)]:**

M/s. Hindustan Petroleum Corporation Limited, Visakha Refinery & DHT Plant, Malkapuram, Visakhapatnam District is hereby granted an authorization to operate a facility for collection, reception, storage, treatment, transport and disposal of Hazardous Wastes namely:

REFINERY

- **HAZARDOUS WASTES WITH DISPOSAL OPTION:**

S.No	Name of HW	Category	Quantity	Mode of Treatment & Disposal/Recycling/Reuse/etc.
1.	Spent Catalyst	4.2 of Schedule - I	1202.7 MT/year	Shall be disposed to authorized re-processors, Recyclers & TSDF
2	Spent clay	4.5 of Schedule - I	18 MT / 3 years	Shall be disposed to TSDF
3	Spent carbon / charcoal	4.2 of Schedule - I	10 MT / 3 years	Shall be disposed to authorized re-processors, Recyclers & TSDF

- **HAZARDOUS WASTES WITH RECYCLING OPTION:**

S.No	Name of HW	Category	Quantity	Mode of Treatment & Disposal/Recycling/Reuse/etc.
4.	High oily sludge	4.1 of Schedule - I	2520 MT / Crude Tank	Shall be sent for Mechanical treatment to recover oil / To authorized reprocessors or recyclers
5.	Low oily sludge (Bio-remedial sludge)	4.1 of Schedule - I	188.2 MT	Shall be sent for bio-remediation / To authorized reprocessors or recyclers
6	Containers & Container	33.3 of	400 Nos /	After detoxification, it shall be

	liners of HW & Hazardous chemicals	Schedule - I	Month	disposed to the outside agencies.

This consent order is valid for manufacturing the following products along with quantities indicated only:

A. Refinery

Sl. No.	Products	Capacity (For 10 MMTPA crude) TPA
1.	Propylene	36,000
2.	LPG - domestic	6,43,000
3.	Naphtha	1,73,000
4.	Gasoline (Euro - VI)	16,55000
5.	ATF	1,20,000
6.	SKO	5,21,330
7.	Diesel (Euro - VI)	37,86,670
8.	FO 3.5% S	16,62,000
9.	FO 1.0% S	2,37,670
10.	Bitumen	2,20,660
11.	Sulphur	56,370
12.	Refinery Fuel (fuel gas + fuel oil + Naptha for GTGs)	7,41,670
	Total	1,00,00,000
	Captive power plant	121.20 MW

This order is subject to the provisions of `the Acts' and the Rules' and orders made thereunder and further subject to the terms and conditions incorporated in the schedule A, B & C enclosed to this order.

This combined order of consent & Hazardous Waste Authorization shall be valid for a period ending with the 31st day of December, 2020.

VIVEK YADAV IAS, MS(VY), O/o MEMBER SECRETARY-APPCB

To
M/s. Hindustan Petroleum Corporation Ltd.,
Visakha Refinery, Malkapuram,
Visakhapatnam - 530 011.

Copy to:

1. The JCEE, Zonal Office, Visakhapatnam for information and necessary action.
2. The Environmental Engineer, Regional Office, Visakhapatnam for information and necessary action.

SCHEDULE-A

1. Any up-set condition in any industrial plant / activity of the industry, which result in, increased effluent / emission discharge and/ or violation of standards stipulated in this order shall be informed to this Board, under intimation to the Collector and District Magistrate and take immediate action to bring down the discharge / emission below the limits.
2. The industry should carryout analysis of waste water discharges or emissions through chimneys for the parameters mentioned in this order on quarterly basis and submit to the Board.
3. All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991 should be followed as applicable.
4. The industry should put up two sign boards (6x4 ft. each) at publicly visible places at the main gate indicating the products, effluent discharge standards, air emission standards, hazardous waste quantities and validity of CFO and exhibit the CFO order at a prominent place in the factory premises.
5. Notwithstanding anything contained in this consent order, the Board hereby reserves the right and powers to review / revoke any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Acts by the Board.
6. The applicant shall submit Environment statement in Form V before 30th September every year as per Rule No.14 of E(P) Rules, 1986 & amendments thereof.
7. The applicant should make applications through Online for renewal of Consent (under Water and Air Acts) and Authorization under H&OW (M&TM) Rules, 2016 at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts and detailed compliance of CFO conditions for obtaining Consent & HW Authorization of the Board. The industry should immediately submit the revised application for consent to this Board in the event of any change in the raw material used, processes employed, quantity of trade effluents & quantity of emissions. Any change in the management shall be informed to the Board. The person authorized should not let out the premises / lend / sell / transfer their industrial premises without obtaining prior permission of the State Pollution Control Board.
8. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to Appellate authority constituted under Section 28 of the Water(Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air(Prevention and Control of Pollution) Act, 1981.
9. The industry may explore the possibility of tapping the solar energy for their energy requirements.

SCHEDULE-B

The facility shall surrender the Consent Order No: APPCB/VSP/VSP/72/CFO/HO/2016, Dt.24.03.2016 and valid up to 31.12.2020 to RO, Visakhapatnam after receipt of this order and the same stands cancelled from the date of receipt of this order.

1. The effluent discharged shall not contain constituents in excess of the tolerance limits mentioned below. Further, the following parameters shall be complied for Process & Wash effluents at the Outlets of ETP-I,II & IV i.e., before mixing with Cooling waste water discharge:

Outlet	Parameter	Limiting Standards
1	pH	6.50 - 8.50
	Oil & Grease	5 mg/l
	Chromium Hexavelent	0.10 mg/l
	Pb	0.10 mg/l
	Suspended Solids	20 mg/l
	Phenols	0.35 mg/l
	Cyanides as CN	0.20 mg/l
	Chemical Oxygen Demand	125 mg/l
	Biochemical Oxygen Demand	15 mg/l
	Sulphides (as S)	0.5 mg/l
	Ammonia as N	15.0 mg/l
	P	3.0 mg/l
	Cr (Total)	2.0 mg/l
	Hg	0.01mg/l
	Zn	5.0 mg/l
	Ni	1.0 mg/l
	Cu	1.0 mg/l
	Benzene	0.1 mg/l
	TKN	40.0 mg/l
	V	0.2 mg/l
	Benza (a) Pyrene	0.2 mg/l

Cooling Water

Outlet	Parameter	Limiting Standards
2	pH	6.50 - 8.50
	Oil & Grease	1.0 mg/l
	Chromium Hexavelent	0.10 mg/l
	Cr (Total)	2.0 mg/l

Domestic

Outlet	Parameter	Limiting Standards
3	pH	6.50 - 8.50
	Biochemical Oxygen Demand	30 mg/l
	Total Suspended Solids	<100 mg/l
	Fecal Coliform (FC) (Most Probable Number per 100 milliliter, MPN/100ml	<1000 MPN/100 ml

2. The source of water is Municipal Water and Sea Water. The industry shall take steps to reduce water consumption to the extent possible and consumption shall NOT exceed the quantities mentioned below:

S. No.	Purpose	Quantity in KLD
1.	Process & Washings	10,176.0
2.	Boiler feed	1,680.0
3.	Industrial Cooling (Makeup) / Humidification / Water spraying)	5,03,305.0

4.	Industrial water	6,900.0
5.	Domestic	732.0
	Total :	5,22,793

Separate meters with necessary pipe-line shall be maintained for assessing the quantity of water used for each of the purposes mentioned above for Cess assessment purpose.

3. The emissions shall not contain constituents in excess of the prescribed limits mentioned below:

Chimney No.	Parameter	Emission Standards mg/Nm^3
1 to 24, 26 to 31, 33 (31 stacks)	Particulate Matter	100
34 & 35	Particulate Matter	50
25, 32 & 36	Particulate matter	10

4. The industry shall comply with Standards for Oil Refineries notified by MOEF vide GSR No. 186(E), dt.18.03.2008.
5. The industry shall comply with ambient air quality standards of PM10 (Particulate Matter size less than 10mm) - 100 mg/ m3; PM2.5 (Particulate Matter size less than 2.5 mm) - 60 mg/ m3; SO2 - 80 mg/ m3; NOx - 80 mg/m3, Ammonia - 400 mg/m^3, and CO - 4.0 mg/m^3, Benzene - 5.0 mg/m^3, Benzo (a) Pyrene - 1.0 ng/m^3 outside the factory premises at the periphery of the industry.
   Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009.
   Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)
   Night time (10 PM to 6 AM) - 70 dB (A)
6. The industry shall operate 3 CAAQM stations for monitoring Benzene, Carbon Monoxide, Ammonia, Nitrogen Dioxide, Ozone, PM_{10}, $PM_{2.5}$ and Sulphur Dioxide with recording facility and connected to APPCB website.
7. The industry shall comply with emission limits for DG sets of capacity upto 800 KW as per the Notification G.S.R.520 (E), dated 01.07.2003 and G.S.R.448(E), dated 12.07.2004 under the Environment (Protection) Act Rules. In case of DG sets of capacity more than 800 KW shall comply with emission limits as per the Notification G.S.R.489 (E), dated 09.07.2002 at serial no.96, under the Environment (Protection) Act, 1986.

GENERAL:

1. The industry shall maintain flow meters preferably Electro Magnetic flow meters with totalisers for water and effluent quantity measurements for different streams of effluents and different categories of water usage stipulated in this order.
2. The industry shall comply with CPCB directions dated 05.02.2014 / 02.03.2015 and guidelines issued regarding online emission and effluent monitoring systems issued from time to time.
3. Thick green belt shall be maintained all along the boundary of the industry with minimum area of 33%. Existing Green belt shall not be disturbed in the proposed expansion / construction activity.
4. Dyke walls shall be maintained around storage tanks. Spillages / oil water mixture if any, shall be contained in the dykes and treated in the existing ETP and the oil shall be taken to storage tank. The treated wastewater confirming to onland for irrigation standards only shall be used for gardening purpose within the premises.
5. The industry shall inform the breakdowns, shutdowns and non operations of pollution control systems to APPCB duly taking alternate measures.

6. Odour control systems shall be improved at the Merox plants and ETP areas. The industry shall not cause any odour nuisance problem.
7. The off-gases of Bitumen Blowing Unit shall be treated before emitting into the atmosphere.
8. The flare stack shall be improved to flare off all hydrocarbons by ensuring complete combustion without any black smoke.
9. The stripped off VOCs / Ammonia / Mercaptanes from the ETP system shall not be allowed to escape into the atmosphere.
10. In case of bad weather conditions and inversions, the industry shall run the process units with low Sulphur crude oil only.
11. The industry shall take measures to improve the combustion efficiencies of furnaces to atleast 95% so as to control the generation of un-burnt hydrocarbons and particulates.
12. The industry shall maintain the drainage system properly. Storm water shall be collected and be treated before disposing into the drains.
13. The oil generation shall be prevented at the sources (process units) so that excessive oil does not reach the ETPs above the designed capacities.
14. No further Expansion is allowed without obtaining EC and CFE.
15. The pollution loads shall not exceed the following:

a) Effluent loads:

i) The oil and grease - 12.26 TPD
ii) Sulphides - 1.66 TPD
iii) Phenol - 0.67 TPD
iv) TSS - 1.25 TPD
v) BOD - 4.6 TPD
vi) COD - 17.2 TPD

b) Air Pollution:

i) SO2 emissions - 11.5 TPD

ii) SPM - 1.11 TPD

iii) Hydro carbon emission - 2.5 TPD

iv) NOx emissions - 6.5 TPD

16. The industry shall ensure that the pollution loads are not increased at any point of time.
17. The stack and online AAQ monitoring analysers shall be regularly calibrated so as to record the actual values of air pollutants.
18. The industry shall comply with Noise Pollution (Regulation & Control) Rules 2000.
19. M/s HPCL shall maintain smokeless flare in flare stacks.
20. The industry shall ensure that the efficiency of the Sulphur recovery in the Sulphur Recovery Units (SRU) shall be at least 98.7% as per EPA standard for existing plants.
21. In the plant area, values of VOC (non-methane hydrocarbons) shall be monitored as per EPA notification
22. The industry shall construct sheds for storage of hazardous waste.
23. The industry shall comply with Task Force directions issued by the Board from time to time.
24. The industry shall maintain the following records and the same shall be made available to the inspecting officers of the Board:

a) Daily production details (ER-1 Central Excise Returns).

b) Quantity of Effluents generated, treated, recycled/reused.

c) Log Books for pollution control systems.

d) Sulphur content in raw material.

e) Characteristics of effluents, emissions and ambient air.

f) Hazardous/non hazardous solid waste generated and disposed.

g) Inspection book.

h) Manifest copies hazardous waste.

25. The industry shall comply with CPCB directions dated 05.02.2014 / 02.03.2015 and guidelines issued regarding online monitoring systems issued from time to time. The online monitoring system shall be calibrated periodically as per equipment suppliers manual / CPCB guidelines before starting the production.
26. The industry shall obtain the PLI policy which includes Environmental Relief Fund (ERF) and submit copy to RO, Visakhapatnam on yearly base.
27. The industry shall update the information in OCEMS - Industry Information Data Entry Software for Compliance Reporting Protocol in PART-II (Sections F & G) Every Quarter on 1st January, 1st April, 1st July and 1st October through this software system.
28. Any other directions / circulars / notices issued by CPCB, MoEF&CC and APPCB shall be followed from time to time.

SCHEDULE - C

[See rule 6(2)]

[CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]

1. The authorised person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.
2. The authorisation shall be produced for inspection at the request of an officer authorised by the State Pollution Control Board.
3. The person authorised shall not rent, lend, sell, transfer or otherwise transport the hazardous and other wastes except what is permitted through this authorisation.
4. Any unauthorised change in personnel, equipment or working conditions as mentioned in the application by the person authorised shall constitute a breach of his authorisation.
5. The person authorised shall implement Emergency Response Procedure (ERP) for which this authorisation is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time;
6. The person authorised shall comply with the provisions outlined in the Central Pollution Control Board guidelines on "Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty".
7. It is the duty of the authorised person to take prior permission of the State Pollution Control Board to close down the facility.
8. An application for the renewal of an authorisation shall be made as laid down under these Rules.
9. Any other conditions for compliance as per the Guidelines issued by the Ministry of

Environment, Forest and Climate Change or Central Pollution Control Board from time to time.

Specific Conditions:

10. Annual return shall be filed by June 30th for the period ensuring 31st March of the year.
11. The industry shall enter an agreement with the Cement industries for disposal of incinerable waste or shall dispose to Alternative Fuel Raw material facility (AFRF) OR to TSDF for co-incineration.
12. The industry shall comply with the provisions of HWM Rules, 2016 in terms of interstate transport of Hazardous Waste and manifest document prescribed Under Rule 18 and 19 of the HWM Rules, 2016.
13. The industry shall not store hazardous waste for more than 90 days as per the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.
14. The industry shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal to the manufacturers / dealers on buyback basis.
15. The industry shall transport the hazardous waste to cement industries only through vehicle fitted with GPS tracking system.
16. The industry shall maintain 7 copy manifest system for transportation of waste generated and a copy shall be submitted to concerned Regional Office of APPCB. The driver who transports Hazardous Waste should be well acquainted about the procedure to be followed in case of an emergency during transit. The transporter should carry a Transport Emergency (TREM) Card.
17. The industry shall maintain proper records for Hazardous and Other Wastes stated in Authorisation in Form-3 i.e., quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form-4 as per Rule 20 (2) of the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.
18. The industry shall comply with the provisions of HWM Rules, 2016 in terms of interstate transport of Hazardous Waste and manifest document prescribed Under Rule 18 and 19 of the HWM Rules, 2016.

The industry shall submit Half yearly compliance reports to all the stipulated conditions in Environmental Clearance (EC), Consent for Establishment (CFE) and Consent for Operation (CFO) through website i.e., https://pcb.ap.gov.in by 1st of January and 1st July of every year. The first half yearly compliance reports shall be furnished by the industry and second half yearly compliance reports shall be the audited through NABL accredited third party.

VIVEK YADAV IAS, MS(VY), O/o MEMBER SECRETARY-APPCB

To
M/s. Hindustan Petroleum Corporation Ltd.,
(Visakha Refinery), Malkapuram,
Visakhapatnam - 530 011.

Signature Not Verified

Digitally signed by VIVEK YADAV
Date: 2019.12.18 19:10:14 IST
Reason: Approved

ANNEXURE - II

File No.APPCB-11022/128/2019-TEC-CFO-APPCB

ANDHRA PRADESH POLLUTION CONTROL BOARD
D.No.33-26-14D/2, Near Sunrise Hospital, Pushpa Hotel Centre,
Chalamalavari Street, Kasturibaipet, Vijayawada - 520 010
Phone. No.0866-2463200, Website : www.pcb.ap.gov.in

RED CATEGORY
CONSENT & AUTHORIZATION ORDER

Consent Order No : APPCB/VSP/VSP/72/CFO/HO/2021- 09/03/2021

CONSENT is hereby granted for Operation under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Authorisation under Rule 6 of the Hazardous & Other Wastes (Management and Transboundary, Movement) Rules, 2016 and the rules and orders made there under (hereinafter referred to as 'the Acts', `the Rules') to:

M/s. Hindustan Petroleum Corporation Ltd.,
(Visakh Refinery), Malkapuram,
Visakhapatnam. - 530 011
Email: gbhagavan@hpcl.in

(Hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant to discharge the effluents from the outlets and the quantity of emissions per hour from the chimneys as detailed below:

i. Outlets for discharge of effluents:

Outlet No.	Outlet Description	Max Daily Discharge in KLD	Point of Disposal
Refinery			
1 (ETP I, II & IV)	Process & Washings	11,820	The industry shall treat the effluents in ETP. The treated effluent shall be discharge into Meghadrigedda surplus course, finally joining the Sea, duly meeting the Board discharge standards.
2.	Cooling blow down	3,59,400	Shall discharge into Meghadrigedda surplus course, finally joining the Sea after treatment, duly meeting the Board discharge standards.
3.	Domestic Effluents	144	After treatment in STP, the treated waste water shall be used onland for irrigation, within the industry premises duly meeting the Board discharge standards (BOD -30 mg/l)

ii) Emissions from chimneys:

S. No	Description of Chimney	Quantity of Emissions in Nm3/hr. at peak flow
HPCL - Visakh Refinery		

ANNEXURE - II

1.	Stack attached to CDU - II Crude Oil Heater, 11 F1	79,812
2.	Stack attached to CDU - II Reduced Crude Oil Heater, 12 F1	25,716
3.	Stack attached to FCCU - II Feed Heater, 14 F1	20,514
4.	Stack attached to CDU - I Crude Oil Heater, 2 F1 -	33,009
5.	Stack attached to CDU - I Crude Oil Heater, 2 F4	24,470
6.	Stack attached to CDU - I Reduced Crude Oil Heater, 2F2	16,146
7.	Stack attached to PP-I Utility Boiler (WIL-8)	53,068
8.	Stack attached to FCCU-II CO Boiler, 14-F-3 (OR)	93,631
9.	Stack attached to CPP Heat Recovery Steam Generator - I (HRSG-I)	1,73,416
10.	Stack attached to CPP Heat Recovery Steam Generator - II (HRSG-II)	1,73,416
11.	Stack attached to CDU - III Crude Oil Heater, 42F1	1,14,200
12.	Stack attached to CDU - III Reduced Crude Oil Heater, 42F2	20,608
13.	Stack attached to VBU Feed Heater, 46F1	31,500
14.	Stack attached to FCCU-I Feed Heater, 4F51	21,487
15.	Stack attached to CO Boiler for FCCU - I, 4-F-52 (OR)	84,647
16.	Stack attached to CPP Heat Recovery Steam Generator - III (HRSG-III)	3,20,388
17.	Stack attached to CPP Heat Recovery Steam Generator - IV (HRSG-IV)	3,20,388
18.	Stack attached to DHDS Reformer, 61F11	61,001
19.	Stack attached to DHDS Pre-Desulphurization Heater, 61F1	1,566
20.	Stack attached to DHDS Heater, 60 F1	18,781
21.	Stack attached to DHDS- SRU Train I & II incinerator, 65F001	18,200
22.	Stack attached to NHT (charge heater + splitter re-boiler) 72-F1/F2	31,428
23.	Stack attached to Continuous catalytic reforming unit (CCR) - 74 F1/F2/F3/F4	80,385
24.	Stack attached to FCCNHT HDS reactor Feed heater(75F1)	7,050
25.	Stack attached to SRU Train III incinerator, 79F302	11,300
26.	Stack attached to IBH boilers (2 X 75 TPH)	44,123

27.	Stack attached to CPP HRSG Heat Recovery Steam Generator - V - (HRSG-V) 1 X 60 T/hr	2,77,704
28.	Stack attached to CPP HRSG Heat Recovery Steam Generator - VI - (HRSG-VI) 1 X 60 T/hr	2,77,704
29.	Stack attached to Combined feed heater & Product fractionators reboiler - 90F01 & 90F02-	71,074
30.	Stack attached to HGU Reformer Naphtha firing - 91F20	1,39,671
31.	Stack attached to HGU Naphtha super heater FG firing - 91F01	1,596
32.	Stack attached to SRU Incinerator FG firing - 92F02	32,938
33.	Stack attached to Flue Gas Desulpharization unit (FGD) - II	1,40,737
34.	Stack attached to Flue Gas Desulpharization unit (FGD) - I	110,266
35.	Stack attached to FCC NHT 2nd HDS feed heater (75F51N)	5,715

iii) HAZARDOUS WASTE AUTHORISATION (FORM - II) [See Rule 6 (2)]:

M/s. Hindustan Petroleum Corporation Limited, Visakh Refinery, Malkapuram, Visakhapatnam District is hereby granted an authorization to operate a facility for collection, reception, storage, treatment, transport and disposal of Hazardous Wastes namely:

REFINERY

- **HAZARDOUS WASTES WITH DISPOSAL OPTION:**

S.No	Name of HW	Category	Quantity	Mode of Treatment & Disposal/Recycling/Reuse/etc.
1.	Spent Catalyst	4.2 of Schedule - I	4800 MT / 4 years	Shall be routed through M/s. APEMC so as to send to authorized re-processors / recyclers (as recyclable waste) / TSDF for landill (as landfillable waste).
2	Spent clay	4.5 of Schedule - I	280 MT / 4 years	Shall be routed through M/s. APEMC so as to send to TSDF, Visakhapatnam for landill (as landfillable waste).
3	Spent carbon / charcoal	4.2 of Schedule - I	680 MT / 4 years	Shall be routed through M/s. APEMC so as to send to preprocessors / cement industry for co-processing. (as utilizable waste)
4	Spent Resin	35.2 of Schedule - I	200 MT / 4 years	Shall be routed through M/s. APEMC so as to send to authorized re-processors / recyclers (as recyclable waste waste) / TSDF for incineration (as incinerable waste).
5	Contaminated cotton rags or other cleaning material	33.2 of Schedule - I	10 MT / year	Shall be routed through M/s. APEMC so as to dispose to TSDF for incineration (as incinerable waste).

- HAZARDOUS WASTES WITH RECYCLING OPTION:

S.No	Name of HW	Category	Quantity	Mode of Treatment & Disposal/Recycling/Reuse/etc.
4.	High oily sludge	4.1 of Schedule - I	2520 MT / Crude Tank	Shall be sent for Mechanical treatment to recover oil / shall be routed through M/s.APEMC so as to dispose to APPCB authorized reprocessors or recyclers (as recyclable waste)
5.	Low oily sludge (Bio-remedial sludge)	4.1 of Schedule - I	400 MT / Year	Shall be sent for bioremediation / shall be routed through M/s.APEMC so as to dispose to APPCB authorized reprocessors or recyclers (as recyclable waste)
6	Containers & Container liners of HW & Hazardous chemicals	33.1 of Schedule - I	700 Nos / Month	shall be routed through M/s. APEMC so as to dispose to APPCB authorised agencies, after detoxification. (as recyclable waste)

This consent order is valid for manufacturing the following products along with quantities indicated only:

A. Refinery

Sl. No.	Products	Capacity (For 10 MMTPA crude) TPA
1.	Propylene	36,000
2.	LPG - domestic	6,43,000
3.	Naphtha	1,73,000
4.	Gasoline (Euro - VI)	16,55000
5.	ATF	1,20,000
6.	SKO	5,21,330
7.	Diesel (Euro - VI)	37,86,670
8.	FO 3.5% S	16,62,000
9.	FO 1.0% S	2,37,670
10.	Bitumen	2,20,660
11.	Sulphur	56,370
12.	Refinery Fuel (fuel gas + fuel oil + Naptha for GTGs)	7,41,670
	Total	1,00,00,000
	Captive power plant	121.20 MW

This order is subject to the provisions of `the Acts' and the Rules' and orders made thereunder and further subject to the terms and conditions incorporated in the schedule A, B & C enclosed to this order.

This combined order of consent & Hazardous Waste Authorization shall be valid for a period ending with the 31st day of December, 2025.

DR. B.MADHUSUDHANA RAO, JCEE(MSRB), O/o JOINT CHIEF ENVIRONMENTAL ENGINEER4-APPCB

To
M/s. Hindustan Petroleum Corporation Ltd.,
Visakh Refinery, Malkapuram,
Visakhapatnam - 530 011.

Copy to:

1. The JCEE, Zonal Office, Visakhapatnam for information and necessary action.
2. The Environmental Engineer, Regional Office, Visakhapatnam for information and necessary action.

SCHEDULE-A

1. Any up-set condition in any industrial plant / activity of the industry, which result in, increased effluent / emission discharge and/ or violation of standards stipulated in this order shall be informed to this Board, under intimation to the Collector and District Magistrate and take immediate action to bring down the discharge / emission below the limits.
2. The industry should carryout analysis of waste water discharges or emissions through chimneys for the parameters mentioned in this order on quarterly basis and submit to the Board.
3. All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991 should be followed as applicable.
4. The industry should put up two sign boards (6x4 ft. each) at publicly visible places at the main gate indicating the products, effluent discharge standards, air emission standards, hazardous waste quantities and validity of CFO and exhibit the CFO order at a prominent place in the factory premises.
5. Notwithstanding anything contained in this consent order, the Board hereby reserves the right and powers to review / revoke any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Acts by the Board.
6. The industry shall ensure that there shall not be any change in the process technology, source & composition of raw materials and scope of working without prior approval from the Board.
7. The applicant shall submit Environment statement in Form V before 30th September every year as per Rule No.14 of E(P) Rules, 1986 & amendments thereof.
8. The applicant should make applications through Online for renewal of Consent (under Water and Air Acts) and Authorization under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts and detailed compliance of CFO conditions for obtaining Consent & HW Authorization of the Board.
9. The industry should immediately submit the revised application for consent to this Board in the event of any change in the raw material used, processes employed, quantity of trade effluents & quantity of emissions. Any change in the management

shall be informed to the Board. The person authorized should not let out the premises / lend / sell / transfer their industrial premises without obtaining prior permission of the State Pollution Control Board.

10. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to Appellate authority constituted under Section 28 of the Water(Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air(Prevention and Control of Pollution) Act, 1981.
11. The industry shall be liable to pay Environmental Compensation / Other Environmental Taxes, if any environmental damage caused to the surroundings, as fixed by the Collector & District Magistrate or any other competent authority as per the Rules in vogue.
12. The industry may explore the possibility of tapping the solar energy for their energy requirements.
13. The industry should educate the workers and nearby public of possible accidents and remedial measures.

SCHEDULE-B

1. Online stack monitoring values of stacks are exceeding the Board standards. The industry shall comply with the Board standards for all the stacks, without fail.
2. Not obtained NOC from fire department. As committed, the industry shall obtain NOC from fire department by 12.03.2021 and submit a copy at concerned Regional Office, APPCB.

Water Pollution:

1. The effluent discharged shall not contain constituents in excess of the tolerance limits mentioned below. Further, the following parameters shall be complied for Process & Wash effluents at the Outlets of ETP-I,II & IV i.e., before mixing with Cooling waste water discharge:

Outlet	Parameter	Limiting Standards
1	pH	6.50 - 8.50
	Oil & Grease	5 mg/l
	Chromium Hexavelent	0.10 mg/l
	Pb	0.10 mg/l
	Suspended Solids	20 mg/l
	Phenols	0.35 mg/l
	Cyanides as CN	0.20 mg/l
	Chemical Oxygen Demand	125 mg/l
	Biochemical Oxygen Demand	15 mg/l
	Sulphides (as S)	0.5 mg/l
	Ammonia as N	15.0 mg/l
	P	3.0 mg/l
	Cr (Total)	2.0 mg/l
	Hg	0.01mg/l
	Zn	5.0 mg/l
	Ni	1.0 mg/l

	Cu	1.0 mg/l
	Benzene	0.1 mg/l
	TKN	40.0 mg/l
	V	0.2 mg/l
	Benza (a) Pyrene	0.2 mg/l

Cooling Water

Outlet	Parameter	Limiting Standards
2	pH	6.50 - 8.50
	Oil & Grease	1.0 mg/l
	Chromium Hexavelent	0.10 mg/l
	Cr (Total)	2.0 mg/l

Domestic

Outlet	Parameter	Limiting Standards
3	pH	6.50 - 8.50
	Biochemical Oxygen Demand	30 mg/l
	Total Suspended Solids	<100 mg/l
	Fecal Coliform (FC) (Most Probable Number per 100 milliliter, MPN/100ml	<1000 MPN/100 ml

2. The source of water is Municipal Water and Sea Water. The industry shall take steps to reduce water consumption to the extent possible and consumption shall NOT exceed the quantities mentioned below:

S. No.	Purpose	Quantity in KLD
1.	Process & Washings	10,176.00
2.	Boiler feed	7,272.00
3.	Industrial Cooling (Makeup) / Humidification / Water spraying)	3,82,560(1,560 - cooling makeup in addition to this sea water of 3,81,000 KLD for cooling)
4.	Domestic	480.00
	Total :	**4,00,488** (in addition to this sea water of 3,81,000 KLD for cooling)

Separate meters with necessary pipe-line shall be maintained for assessing the quantity of water used for each of the purposes mentioned above.

Air Pollution:

3. The emissions shall not contain constituents in excess of the prescribed limits mentioned below:

Chimney No.	Parameter	Emission Standards mg/Nm^3
1 to 23, 25 to 30, 32 (30 stacks)	Particulate Matter	100
33 & 34	Particulate Matter	50
24, 31 & 35	Particulate matter	10

4. The industry shall comply with Standards for Oil Refineries notified by MOEF vide GSR No. 186(E), dt.18.03.2008.

FP

5. The industry shall comply with ambient air quality standards of PM10 (Particulate Matter size less than 10mm) - 100 mg/ m3; PM2.5 (Particulate Matter size less than 2.5 mm) - 60 mg/ m3; SO2 - 80 mg/ m3; NOx - 80 mg/m3, Ammonia - 400 mg/m^3, and CO - 4.0 mg/m^3, Benzene - 5.0 mg/m^3, Benzo (a) Pyrene - 1.0 ng/m^3 outside the factory premises at the periphery of the industry. -
   Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009.
   Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)
   Night time (10 PM to 6 AM) - 70 dB (A)
6. The industry shall operate 3 CAAQM stations for monitoring Benzene, Carbon Monoxide, Ammonia, Nitrogen Dioxide, Ozone, PM_{10}, $PM_{2.5}$ and Sulphur Dioxide with recording facility and connected to APPCB website.
7. The industry shall comply with emission limits for DG sets of capacity upto 800 KW as per the Notification G.S.R.520 (E), dated 01.07.2003 and G.S.R.448(E), dated 12.07.2004 under the Environment (Protection) Act Rules. In case of DG sets of capacity more than 800 KW shall comply with emission limits as per the Notification G.S.R.489 (E), dated 09.07.2002 at serial no.96, under the Environment (Protection) Act, 1986.

GENERAL:

8. The industry shall comply the conditions stipulated in the permission issued by PESO.
9. The industry shall explore the possibility for recycling the waste water after treatment instead of discharging the waste water into Meghadrigedda surplus course during expansion.
10. The industry shall include Oil & Grease parameter in the online continuous effluent monitoring system.
11. The industry shall maintain flow meters preferably Electro Magnetic flow meters with totalisers for water and effluent quantity measurements for different streams of effluents and different categories of water usage stipulated in this order.
12. The industry shall comply with CPCB directions dated 05.02.2014 / 02.03.2015 and guidelines issued regarding online monitoring systems issued from time to time. The online monitoring system shall be calibrated periodically as per equipment suppliers manual / CPCB guidelines before starting the production.
13. Thick green belt shall be maintained all along the boundary of the industry with minimum area of 33%. Existing Green belt shall not be disturbed in the proposed expansion / construction activity.
14. Dyke walls shall be maintained around storage tanks. Spillages / oil water mixture if any, shall be contained in the dykes and treated in the existing ETP and the oil shall be taken to storage tank. The treated wastewater confirming to onland for irrigation standards only shall be used for gardening purpose within the premises.
15. The industry shall inform the breakdowns, shutdowns and non operations of pollution control systems to APPCB duly taking alternate measures.
16. Odour control systems shall be improved at the Merox plants and ETP areas. The industry shall not cause any odour nuisance problem.
17. The off-gases of Bitumen Blowing Unit shall be treated before emitting into the atmosphere.
18. The flare stack shall be improved to flare off all hydrocarbons by ensuring complete combustion without any black smoke.
19. The stripped off VOCs / Ammonia / Mercaptanes from the ETP system shall not be allowed to escape into the atmosphere.
20. In the plant area, values of VOC (non-methane hydrocarbons) shall be monitored as

per EPA notification

21. In case of bad weather conditions and inversions, the industry shall run the process units with low Sulphur crude oil only.
22. The industry shall take measures to improve the combustion efficiencies of furnaces to atleast 95% so as to control the generation of un-burnt hydrocarbons and particulates.
23. The industry shall maintain the drainage system properly. Storm water shall be collected and be treated before disposing into the drains.
24. The oil generation shall be prevented at the sources (process units) so that excessive oil does not reach the ETPs above the designed capacities.
25. No further Expansion is allowed without obtaining EC and CFE.
26. The pollution loads shall not exceed the following:
    a) Effluent loads:
        i) The oil and grease - 12.26 TPD
    ii) Sulphides - 1.66 TPD
    iii) Phenol - 0.67 TPD
    iv) TSS - 1.25 TPD
    v) BOD - 4.6 TPD
    vi) COD - 17.2 TPD
    b) Air Pollution:

i. SO2 emissions - 11.5 TPD
ii. SPM - 1.11 TPD
iii. Hydro carbon emission - 2.5 TPD
iv. NOx emissions - 6.5 TPD

27. The industry shall ensure that the pollution loads are not increased at any point of time.
28. The stack and online AAQ monitoring analysers shall be regularly calibrated so as to record the actual values of air pollutants.
29. The industry shall comply with Noise Pollution (Regulation & Control) Rules 2000.
30. The industry shall ensure that the efficiency of the Sulphur recovery in the Sulphur Recovery Units (SRU) shall be at least 98.7% as per EPA standard for existing plants.
31. Sulphur recovery efficiency shall be calculated on monthly basis, using quantity of Sulphur in the feed to SRU and quantity of Sulphur recovered.
32. The industry shall construct sheds for storage of hazardous waste.
33. The industry shall comply with Task Force directions issued by the Board from time to time.
34. The industry shall maintain the following records and the same shall be made available to the inspecting officers of the Board:

a. Daily production details (ER-1 Central Excise Returns).
b. Quantity of Effluents generated, treated, recycled/reused.
c. Log Books for pollution control systems.
d. Sulphur content in raw material.
e. Characteristics of effluents, emissions and ambient air.
f. Hazardous/non hazardous solid waste generated and disposed.
g. Inspection book.
h. Manifest copies hazardous waste.

35. The industry shall ensure that reduced Sulphur compounds and other odorous compound emissions are within odour detection threshold.
36. The industry shall carry out the Leak Detection and Repair Program (LDAR) at the specific regular intervals to identify the emission of VOCs, Volatile Hazardous Air pollutants from any leaking equipment, process equipment, etc preferably every month and the records shall be submitted to the APPCB officials during inspection.

PP

37. VOCs shall be monitored at vulnerable locations periodically inside the plant. The sporadic odorous emissions shall also be placed on record and necessary measures to stop reoccurrences shall be taken.
38. Gas detection systems shall be in place to detect process leakages.
39. Sulphur recovery units shall have continuous systems for monitoring of SO_2. Manual monitoring for all the emission parameters shall be carried out once in a month. Data on Sulphur Dioxide emissions (mg/Nm^3) shall be reported regularly.
40. The industry shall extend the PLI policy which includes Environmental Relief Fund (ERF) and submit copy to RO, Visakhapatnam on yearly base.
41. The industry shall update the information in OCEMS - Industry Information Data Entry Software for Compliance Reporting Protocol in PART-II (Sections F & G) Every Quarter on 1st January, 1st April, 1st July and 1st October through this software system.
42. The industry shall submit half-yearly compliance report for the schedule A,B& C conditions stipulated in CFO & HWA order audited through NABL / MoEF accredited laboratories.
43. The industry shall comply with OSD guidelines and their amendment from time to time.
44. Any other directions / circulars / notices issued by CPCB, MoEF&CC and APPCB shall be followed from time to time.

Special conditions:

45. The industry shall prepare a safety report and carry out an independent safety audit report of the respective industrial activities including chemical storages / isolated storages by an expert not associated with such industrial activity as required under Rule 10 of MSIHC Rules, 1989 and get it approved by the Factories Dept., and submit the compliance along with copy of the safety report, safety audit report and safety certificate at concerned Regional Office, APPCB.
46. The industry shall identify major accident hazard chemicals & list out the hazardous chemicals endangered to human health & environment, and the details shall be furnished to the Factories Department and the Regional Office, APPCB time to time duly certifying the same by the industry. Further, the industry shall extend training to the working personnel while handling hazardous chemicals for the prevention of accidents and necessary antidotes to ensure safety, as per the MSIHC Rules, 1989.
47. The industry shall carryout calibration of safety equipment and leak detection systems at regular intervals and shall certify the same with the Factories Department. That certified copy shall be submitted to the APPCB, Regional Office. The industry shall install fluorescent Wind Vane at the highest point in the industry premises.
48. The industry shall inventory the hazardous wastes and its quantities stored within the industry premises as per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 (HOWM Rules, 2016) and shall furnish the details to Regional Office, APPCB on a monthly basis duly certifying the same by the industry.
49. The industry shall submit Risk analysis and risk assessment covering worst scenario clearly describing impact within the industry premises and outside the industry premises and emergency response system.
50. The industry shall inventorize the storage quantities of hazardous chemicals (raw materials), products, as per the hazard nature of reactivity / toxicity / flammability / explosive stored/handling in the premises as defined in the Management of Storage, Import of Hazardous Chemicals (MSIHC) Rules, 1989 and the details shall be furnished to the Factories Department and to the Regional Office, APPCB on

monthly basis duly certifying the same.

51. The industry shall submit the copy of the safety audit report and On-Site / Off Site Emergency Plans as applicable after being certified by the Factories Department to the APPCB, Regional Office from time to time, if the storage quantity of hazardous chemicals is equal to or, in excess of the threshold quantities specified in schedule 2 & 3 of MSIHC Rules, 1989.
52. VOC meters with real time data transmission facility through internet of things (IoT) shall be installed near the production blocks and near the chemical storage tanks and link to the servers of APPCB and CPCB, with in 3 months
53. The industries and isolated storages that are storing hazardous chemicals less than the threshold quantities mentioned under MSIHC Rules, 1989 shall submit safety certificate to the concerned Regional Office, APPCB

SCHEDULE - C

[See rule 6(2)]

[CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]

1. The authorised person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.
2. The authorisation shall be produced for inspection at the request of an officer authorised by the State Pollution Control Board.
3. The person authorised shall not rent, lend, sell, transfer or otherwise transport the hazardous and other wastes except what is permitted through this authorisation.
4. Any unauthorised change in personnel, equipment or working conditions as mentioned in the application by the person authorised shall constitute a breach of his authorisation.
5. The person authorised shall implement Emergency Response Procedure (ERP) for which this authorisation is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time;
6. The person authorised shall comply with the provisions outlined in the Central Pollution Control Board guidelines on "Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty".
7. It is the duty of the authorised person to take prior permission of the State Pollution Control Board to close down the facility.
8. An application for the renewal of an authorisation shall be made as laid down under these Rules.
9. Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.

Specific Conditions:

10. Annual return shall be filed by June 30th for the period ensuring 31st March of the year.
11. The industry shall enter an agreement with the Cement industries for disposal of utilizable waste or shall dispose to Alternative Fuel Raw material facility (AFRF) OR to TSDF for co-incineration.
12. The industry shall comply with the provisions of HWM Rules, 2016 in terms of interstate transport of Hazardous Waste and manifest document prescribed Under Rule 18 and 19 of the HWM Rules, 2016.
13. The industry shall not store hazardous waste for more than 90 days as per the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.

14. The industry shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal to the manufacturers / dealers on buyback basis.
15. The industry shall transport the hazardous waste to cement industries only through vehicle fitted with GPS tracking system.
16. The industry shall maintain 7 copy manifest system for transportation of waste generated and a copy shall be submitted to concerned Regional Office of APPCB. The driver who transports Hazardous Waste should be well acquainted about the procedure to be followed in case of an emergency during transit. The transporter should carry a Transport Emergency (TREM) Card.
17. The industry shall maintain proper records for Hazardous and Other Wastes stated in Authorisation in Form-3 i.e., quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form-4 as per Rule 20 (2) of the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.
18. The industry shall comply with the provisions of HWM Rules, 2016 in terms of interstate transport of Hazardous Waste and manifest document prescribed Under Rule 18 and 19 of the HWM Rules, 2016.

The industry shall submit Half yearly compliance reports to all the stipulated conditions in Environmental Clearance (EC), Consent for Establishment (CFE) and Consent for Operation (CFO) through website i.e., https://pcb.ap.gov.in by 1st of January and 1st July of every year. The first half yearly compliance reports shall be furnished by the industry and second half yearly compliance reports shall be the audited through NABL accredited third party.

DR. B.MADHUSUDHANA RAO, JCEE(MSRB), O/o JOINT CHIEF ENVIRONMENTAL ENGINEER4-APPCB

To
M/s. Hindustan Petroleum Corporation Ltd.,
(Visakh Refinery), Malkapuram,
Visakhapatnam - 530 011.

Signed by Dr.
B.madhusudhana Rao
Date: 09-03-2021 14:58:40
Reason: Approved

ANNEXURE - 17

Table 2: Compliance status of consent conditions under Water Act, 1974 and Air Act, 1981 and Authorisation under Hazardous & Other Wastes Rules, 2016.

S. No.	Consent conditions	Compliance status
Schedule - A		
1	Any upset condition in any industrial plant / activity of the industry, which result in, increased effluent / emission discharge and / or violation of standards stipulated in this order shall be informed to this Board, under intimation to the Collector and District Magistrate and take immediate action to bring down the discharge / emission below the limits	The industry has noted the point
2	The industry should carryout analysis of waste water discharges or emissions through chimneys for the parameters mentioned in this order on quarterly basis and submit to the Board.	**Complied** The unit is monitoring effluent & emission quarterly and submitting the analysis results to APPCB. The committee verified the same during inspection.
3	All the rules & regulation notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991 should be followed as applicable	The industry has noted the point
4	The industry should put up two sign boards (6x4 ft. each) at publicly visible places at the main gate indicating the products, effluent discharge standards, air emission standards, hazardous waste quantities and validity of CFO and exhibit the CFO order at a prominent place in the factory premises.	**Partially complied** Only one board at the main entrance of the building is placed and the data are not updated.
5	Notwithstanding anything contained in this consent order, the Board hereby reserves the right and powers to review / revoke any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Acts by the Board	The industry has noted the point
6	The industry shall ensure that there shall not be any change in the process technology, source & composition of raw materials and scope of working without prior approval from the Board.	The industry has noted the point
7	The applicant shall submit Environment Statement	**Complied**

ANNEXURE - 17

	in Form V before 30th September every year as per Rule No. 14 of E (P) Rules, 1986 & amendments thereof.	The industry has submitted Environmental Statement for 2019-20 to APPCB on 31.08.2020.
8	The applicant should make applications through online for renewal of Consent (under Water and Air Acts) and Authorization under H&OW (M&TM) Rules, 2016 at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts and detailed compliance of CFO conditions for obtaining Consent & HW Authorization of the Board.	**Not Complied** The validity of the CFO was expiring on December 31, 2020 and the industry applied for CFO renewal through online on 04.11.2020. Just 30 days before the expiry.
9	The industry should immediately submit the revised application for consent to this Board in the event of any change in the raw material used, processes employed, quantity of trade effluents & quantity of emissions. Any change in the management shall be informed to the Board. The person authorized should not let out the premises / lend / sell / transfer their industrial premises without obtaining prior permission of the State Pollution Control Board.	The industry has noted the point
10	Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to Appellate authority constituted under Section 28 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.	The industry has noted the point
11	The industry shall be liable to pay Environmental Compensation / Other Environmental Taxes, if any environmental damage caused to the surroundings, as fixed by the Collector & District Magistrate or any other competent authority as per the Rules in vogue	The industry has noted the point
12	The industry may explore the possibility of tapping the solar energy for their energy requirements.	**Not complied** It was informed that Solar panels are planned for installation as part of expansion project.
13	The industry should educate the workers and nearby	**Complied**

	public of possible accidents and remedial measures	As a part of mass awareness the industry educating the nearby public of possible accidents and remedial measures. It was informed that last awareness was conducted in February, 2021.
Schedule - B		
1	Online stack monitoring values of stacks are exceeding the Board standards. The industry shall comply with the Board standards for all the stacks, without fail.	**Not complied** A few exceedances were observed during March, 2021. The industry should take periodic calibration and maintenance of analysers.
2	Not obtained NOC from fire department. As committed, the industry shall obtain NOC from fire department by 12.03.2021 and submit a copy at concerned Regional Office, APPCB	**Not complied** The industry has applied for Fire NOC and yet to receive.
Water Pollution:		
1	The effluent discharged shall not contain constituents in excess of the tolerance limits mentioned in CFO. Further, the prescribed parameters shall be complied for Process & Wash effluents at the outlets of ETP-I, II & IV i.e., before mixing with cooling wastewater discharge:	**Not complied** As per the analysis results in table 13, The values of TSS and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP – IV outlet
2	The source of water is Municipal water and Sea Water. The industry shall take steps to reduce water consumption to the extent possible and consumption shall NOT exceed the quantities mentioned in the CFO Separate meters with necessary pipe-line shall be maintained for assessing the quantity of water used for each of the purposes mentioned above.	**Not complied** The industry has not installed flow meter for assessing the quantity of water used in each section.
Air Pollution:		
3	The emissions shall not contain constituents in excess of the prescribed limits mentioned in the CFO	**Complied** The five stacks monitored are meeting the APPCB prescribed standards.
4	The industry shall comply with Standards for Oil Refineries notified by MOEF vide GSR No. 186 (E),	**Not complied** Effluent and ambient air

	dt.18.03.2008	quality are not meeting the standards
5	The industry shall comply with ambient air quality standards of PM (Particulate Matter size less than 10 µm) – 100 µg/m3 , PM (Particulate Matter size less than 2.5 µm) – 60 µg/m3 , SO2 – 80 µg/m3 , NOx - 80 µg/m3 , Ammonia – 400 µg/m3 , CO – 4 mg/m3 , Benzene – 5 µg/m3 , Benzo (a) Pyrene – 1 ng/m3 , outside the factory premises at the periphery of the industry. Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated.18.11.2009. Noise levels : Day time (6 AM to 10 PM) – 75 dB(A) Night time (10 PM to 6 AM) – 70 dB(A	**Not complied** The values of PM_{10} & $PM_{2.5}$ values are exceeding the 24 hour average standards monitored at five locations as shown in table 5.
6	The industry shall operate 3 CAAQM stations for monitoring Benzene, Carbon Monoxide, Ammonia, Nitrogen Dioxide, Ozone, PM10, PM2.5 and Sulphur Dioxide with recording facility and connected to APPCB website.	**Complied** The industry has installed three CAAQM Stations and is connected to APPCB/CPCB websites.
7	The industry shall comply with emission limits for DG sets of capacity up to 800 KW as per the Notification G.S.R.520 (E), dated 01.07.2003 and G.S.R.448 (E), dated 12.07.2004 under the Environment (Protection) Act Rules. In case of DG sets of capacity more than 800 KW shall comply with emission limits as per the Notification G.S.R.489 (E), dated 09.07.2002 at serialno.96, under the Environment (Protection) Act, 1986.	The industry has noted the point
General		
8	The industry shall comply the conditions stipulated in the permission issued by PESO.	The conditions of the PESO was not verified by the committee members
9	The industry shall explore the possibility for recycling the waste water after treatment instead of discharging the waste water into Meghadrigedda surplus course during expansion.	**Not complied** The entire treated effluent from ETPs is discharged into Meghadrigedda surplus course.
10	The industry shall include Oil & Grease parameter in the online continuous effluent monitoring system.	**Not complied** The industry has not installed Oil & Grease parameter in the online continuous effluent monitoring system

11	The industry shall maintain flow meters preferably Electro Magnetic flow meters with totalizers for water and effluent quantity measurements for different streams of effluents and different categories of water usage stipulated in this order.	**Partially Complied** The flow meters are installed at inlet & outlet of ETPs. However only one flow meter is installed in the water reservoir.
12	The industry shall comply with CPCB directions dated 05.02.2014 / 02.03.2015 and guidelines issued regarding online emission and effluent monitoring systems issued from time to time.	**Complied** The industry has complied to the directions of CPCB dated 5.2.2014 & 2.3.2015 and have installed online effluent & emission monitoring system and has connected to CPCB & APPCB servers.
13	Thick green belt shall be maintained all along the boundary of the industry with minimum area of 33%. Existing Green belt shall not be disturbed in the proposed expansion / construction activity.	**Not complied** The industry has planted trees only on southern side, there is hardly any trees available at other three sides. There is no 33 % area of green belt in the industry.
14	Dyke walls shall be maintained around storage tanks. Spillage / oil water mixture if any, shall be contained in the dykes and treated in the existing ETP and the oil shall be taken to storage tank. The treated waste water confirming to onland for irrigation standards only shall be used for gardening purpose within the premises.	**Complied** Dyke walls are provided for all the storage tanks and the storm water from the dyke is taken to ETPs for treatment.
15	The industry shall inform the breakdown, shutdowns, and non-operations of pollution control systems to APPCB duly taking alternate measures.	The industry has noted the point.
16	Odour control systems shall be improved at the Merox plants and ETP areas. The industry shall not cause any odour nuisance problem.	**Not complied** During inspection, committee experienced strong VOC odour at all the ETPs and also at the guard ponds. The Merox plant was not in operations, hence could not be verified.
17	The off-gases of Bitumen Blowing Unit shall be treated before emitting into the atmosphere.	**Complied** The industry informed that Off gases are routed to furnace.
18	The flare stack shall be improved to flare off	During inspection, no black smoke

	all hydrocarbons by ensuring complete combustion without any black smoke.	was observed in the flare stack.
19	The stripped off VOCs / Ammonia / Mercaptans from the ETP system shall not be allowed to escape into the atmosphere.	**Not complied** The industry has not installed VOC stripper in the ETP system.
20	In the plant area, values of VOC (non-methane hydrocarbons) shall be monitored as per EPA notification.	The industry has noted the point.
21	In case of bad weather conditions and inversions, the industry shall run the process units with low Sulphur crude oil only.	The industry has noted the point and informed that Refinery emissions are primarily governed by the fuels used rather than the types of crudes processed. Low Sulphur Fuel oil (LSHS), desulphurised Fuel Gas and Naphtha (of very low Sulphur content) are the fuels used in the refinery, the Sulphur contents of which remain in the same range irrespective of the type of crude processed.
22	The industry shall take measures to improve the combustion efficiencies of furnaces to at least 95% so as to control the generation of un-burnt hydrocarbons and particulates.	The committee could not verify the combustion efficiencies. However it was informed that State-of-the-art technology is adopted for all furnace designs to achieve the maximum possible efficiencies.
23	The industry shall maintain the drainage system properly. Storm water shall be collected and be treated before disposing into the drains.	**Not complied** The storm water drain near the ETP –II was filled with white sand like thing and near the TPIs, the raw effluent was filled in the drains. Near the guard pond, the storm water was filled and informed that it will be taken through tankers to ETP for treating.
24	The oil generation shall be prevented at the sources (process units) so that excessive oil does not reach the ETPs above the designed capacities.	**Not complied** The floating of oil was noticed in the guard pond as well as in the final outlets of I & II.
25	No further expansion is allowed without obtaining EC and CFE.	The industry has noted the point.

26	The pollution loads shall not exceed the following: a) Effluent loads: i) The Oil & grease - 12.26 TPD ii) Sulphides - 1.66 TPD iii) Phenol - 0.67 TPD iv)TSS - 1.25 TPD. v) BOD - 4.6 TPD vi)COD - 17.2 TPD b) Air Pollution: i) SO2 emissions - 11.5 TPD ii) SPM - 1.11 TPD iii) Hydro carbon emission - 2.5 TPD iv) NOx emissions - 6.5 TPD	**Complied** The committee calculated the effluent and emission loads as shown in table 14 & 8 and are complying with standard prescribed by APPCB.
27	The industry shall ensure that the pollution loads are not increased at any point of time.	The industry has noted the point.
28	The stack and online AAQ monitoring analyzers shall be regularly calibrated so as to record the actual values of air pollutants.	**Complied** The industry is regularly calibrating the analysers, during inspection the committee verified the analyser by passing the known concentration of gas in the CAAQM station.
29	The industry should comply with Noise Pollution (Regulation & Control) Rules 2000.	The committee could not verify the Noise Pollution (Regulation & Control) Rules 2000.
30	The industry shall ensure that the efficiency of the Sulphur recovery in the Sulphur Recovery Units (SRU) should be at least 98.7% as per EPA standard for existing plants.	**Complied** As per the records provided by the industry, 98-99% of sulphur is recovered as shown in the table 20
31	Sulphur recovery efficiency shall be calculated on monthly basis, using quantity of Sulphur in the feed to SRU and quantity of Sulphur recovered.	**Complied** The industry is calculating the sulphur recovery efficiency.
32	The industry shall construct sheds for storage of hazardous waste.	**Complied**
33	The industry shall comply with Task Force Directions issued by the Board from time to time.	**Not complied** The direction issued by the Task force on 19.03.2020 has been complied.
34	The industry shall maintain the following records and the same shall be made available to the inspecting officers of the Board: a) Daily production details (ER-1 Central Excise Returns) b) Quantity of Effluents generated, treated, recycled/reused. c) Log Books for pollution control systems. d) Sulphur content in the raw material. e) Characteristics of effluents, emissions and ambient air. f) Hazardous / non-hazardous solid waste	**Not complied** The industry informed that the records are maintained, but no records / log books were shown to committee when asked, instead the information were given in white paper sheets.

	generated and disposed g) Inspection book h) Manifest copies hazardous waste	
35	The industry shall ensure that reduced Sulphur compounds and other odorous compound emissions are within odour detection threshold.	The industry has noted the point.
36	The industry shall carry out the Leak Detection and Repair Program (LDAR) at the specific regular intervals to identify the emission of VOCs, Volatile Hazardous Air pollutants from any leaking equipment, process equipment, etc preferably every month and the records shall be submitted to the APPCB officials during inspection.	**Complied** The industry is carrying out LDAR through a third party laboratory. The copy of the last LDAR was given to committee which was carried out in August 2020.
37	VOCs shall be monitored at vulnerable locations periodically inside the plant. The sporadic odorous emissions shall also be placed on record and necessary measures to stop reoccurrences shall be taken	**Partially complied** The VOC at the ETPs area and high sludge storage area is very high and the industry informed that new Integrated ETP with VOC stripper is installed to reduce the VOC at ETP area.
38	Gas detection systems shall be in place to detect process leakages	**Complied** Gas detection system in each process area has been installed with alert arm system. The same was verified by the committee during inspection.
39	Sulphur recovery units shall have continuous systems for monitoring of SO2. Manual monitoring for all the emission parameters shall be carried out once in a month. Data on Sulphur Dioxide emissions (mg/Nm3) shall be reported regularly	**Complied** Online SO_2 analysers are installed in the SRUs and the data are transferred to CPCB/APPCB servers. It was informed by the industry that monthly emissions parameters are monitored and the results are recorded.
40	The industry shall obtain the PLI policy which includes Environmental Relief Fund (ERF) and submit copy to RO, Visakhapatnam on yearly base.	**Complied** HPCL informed that, Corporation has a comprehensive valid PLI policy No.111700/48/2022/9, dated 31.03.2021. Visakh Refinery is also included in this policy.
41	The Industry shall update the information in	The industry has noted the point

	OCEMS – Industry Information Data Entry Software for Compliance Reporting Protocol in PART-II (Sections F & G) Every Quarter on 1st January, 1st April, 1st July and 1st October through this software system.	
42	The industry shall submit half-yearly compliance report for the schedule A,B& C conditions stipulated in CFO & HWA order audited through NABL / MoEF accredited laboratories.	**Complied**
43	The industry shall comply with OSD guidelines and their amendment from time to time	The industry has noted the point
44	Any other directions / circulars / notices issued by CPCB, MoEF&CC and APPCB shall be followed from time to time.	The industry has noted the point
Special Conditions:		
45	The industry shall prepare a safety report and carry out an independent safety audit report of the respective industrial activities including chemical storages / isolated storages by an expert not associated with such industrial activity as required under Rule 10 of MSIHC Rules, 1989 and get it approved by the Factories Dept., and submit the compliance along with copy of the safety report, safety audit report and safety certificate at concerned Regional Office, APPCB.	**Complied**
46	The industry shall identify major accident hazard chemicals & list out the hazardous chemicals endangered to human health & environment, and the details shall be furnished to the Factories Department and the Regional Office, APPCB time to time duly certifying the same by the industry. Further, the industry shall extend training to the working personnel while handling hazardous chemicals for the prevention of accidents and necessary antidotes to ensure safety, as per the MSIHC Rules, 1989.	**Complied**
47	The industry shall carryout calibration of safety equipment and leak detection systems at regular intervals and shall certify the same	**Complied**

	with the Factories Department. That certified copy shall be submitted to the APPCB, Regional Office. The industry shall install fluorescent Wind Vane at the highest point in the industry premises	
48	The industry shall inventory the hazardous wastes and its quantities stored within the industry premises as per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 (HOWM Rules, 2016) and shall furnish the details to Regional Office, APPCB on a monthly basis duly certifying the same by the industry.	**Partially Complied**
49	The industry shall submit Risk analysis and risk assessment covering worst scenario clearly describing impact within the industry premises and outside the industry premises and emergency response system.	**Complied**
50	The industry shall inventorize the storage quantities of hazardous chemicals (raw materials), products, as per the hazard nature of reactivity / toxicity / flammability / explosive stored/handling in the premises as defined in the Management of Storage, Import of Hazardous Chemicals (MSIHC) Rules, 1989 and the details shall be furnished to the Factories Department and to the Regional Office, APPCB on monthly basis duly certifying the same	**Not complied**
51	The industry shall submit the copy of the safety audit report and On-Site / Off Site Emergency Plans as applicable after being certified by the Factories Department to the APPCB, Regional Office from time to time, if the storage quantity of hazardous chemicals is equal to or, in excess of the threshold quantities specified in schedule 2 & 3 of MSIHC Rules, 1989.	**Complied**
52	VOC meters with real time data transmission facility through internet of things (IoT) shall be installed near the production blocks and near the chemical storage tanks and link to the	**Not complied**

	servers of APPCB and CPCB, within 3 months	
53	The industries and isolated storages that are storing hazardous chemicals less than the threshold quantities mentioned under MSIHC Rules, 1989 shall submit safety certificate to the concerned Regional Office, APPCB	**Not complied**
SCHEDULE – C [See rule 6(2)] **CONDITIONS OF AUTHORISATION FOR OCCUPER OR OPERATOR HANDLING HAZARDOUS WASTES**		
1	The authorized person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under	**Complied**
2	The authorization shall be produced for inspection at the request of an officer authorized by the State Pollution Control Board	**Complied**
3	The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous and other wastes except what is permitted through this authorization	**Complied**
4	Any unauthorized change in personnel, equipment or working conditions as mentioned in the application by the person authorized shall constitute a breach of his authorization.	**Complied**
5	The person authorized shall implement Emergency Response Procedure (ERP) for which this authorization is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time.	**Being complied**
6	The person authorized shall comply with the provisions outlined in the Central Pollution Control Board guidelines on "Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous waste and Penalty".	The industry has noted the point
7	It is the duty of the authorized person to take prior permission of the State Pollution Control Board to close down the facility.	**Complied**
8	An application for the renewal of an authorization shall be made as laid down under these Rules.	**Not complied** The validity of the CFO was expiring on December 31, 2020 and

		the industry applied for CFO renewal through online on 04.11.2020. Just 30 days before the expiry.
9	Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.	The industry has noted the point
Specific Conditions:		
10	Annual return shall be filed by June 30th of the period ensuring 31st March of the year	**Complied** The Hazardous waste returns for the year 2019-20 was submitted to APPCB vide letter dated 22.06.2020.
11	The industry shall enter an agreement with the Cement industries for disposal of incinerable waste or shall dispose to Alternative Fuel Raw material facility (AFRF) OR to TSDF for coincineration.	**Complied**
12	The industry shall comply with the provisions of HWM Rules, 2016 in terms of interstate transport of Hazardous Waste and manifest document prescribed Under Rule 18 and 19 of the HWM Rules, 2016.	**Complied**
13	The industry shall not store hazardous waste for more than 90days as per the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016	**Complied**
14	The industry shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal to the manufactures / dealers on buyback basis.	**Complied**
15	The industry shall transport the hazardous waste to cement industries only through vehicle fitted with GPS tracking system	Complied
16	The industry shall maintain 7 copy manifest system for transportation of waste generated and a copy shall be submitted to concerned Regional Office of APPCB. The driver who transports Hazardous waste should be well acquainted about the procedure to be followed in case of an emergency during transit. The	**Complied** Manifest copies are submitted to APPCB through online manifest portal for the wastes that are disposed. TREM card is issued to transporter during transportation of Hazardous Wastes

CPI

	transporter should carry a Transport Emergency (TREM) Card.	
17	The industry shall maintain proper records for Hazardous and Other wastes stated in Authorization in Form-3 i.e, quantity of incinerable waste, land disposable waste, recyclable waste etc., and file annual returns in Form-4 as per Rule 20 (2) of the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.	**Complied**
18	The industry shall comply with the provisions of HWM Rules, 2016 in terms of interstate transport of Hazardous waste and manifest document prescribed Under Rules 18 and 19 of the HWM Rules, 2016.	**Complied**
19	The industry shall submit Half yearly compliance reports to all the stipulated conditions in Environmental Clearance (EC), Consent for Establishment (CFE) and Consent for Operation (CFO) through website i.e., https://pcb.ap.gov.in by 1st of January and 1st July of every year. The first half yearly compliance reports shall be furnished by the industry and second half yearly compliance reports shall be the audited through NABL accredited third party.	**Complied**

ANNEXURE - 14

ANDHRA PRADESH POLLUTION CONTROL BOARD
D.No.33-26-14, D/2, Near Sunrise Hospital, Pushpa Hotel Centre,
Chalamalavari street, Kasturibalpet, Vijayawada – 520 010

Phone:0866-2463200,
Gram : Kalusya Nivarana
Website www.appcb.ap.nic.in

Order No. 702/APPCB/UH-II/TF/VSP/2020- Date:19.03.2020.

DIRECTIONS

Sub: PCB - TF-HO - M/s. Hindustan Petroleum Corporation Ltd., (Visakh Refinery & DHT Plant), Malkapuram, Visakhapatnam District – Non-Compliance of Board Directions - Legal hearing held on 04.03.2020 – **Directions – Issued** – Reg.

Ref:
1. Consent Order No: APPCB/VSP/VSP-72/CFO/2016, dt.18.12.2019 valid upto 31.12.2020.
2. Inspection of the industry by Board officials on 25.02.2020.
3. External Advisory Committee (Task Force) Meeting held on 04.03.2020.

***

Whereas you are operating the Petroleum Refinery in the name & style of M/s. Hindustan Petroleum Corporation Ltd., (Visakha Refinery) is located at Malkapuram, Visakhapatnam District.

Whereas vide reference 1st cited, the Board has issued Consent for Operation & Hazardous Waste Authorization order to the industry vide order dated 18.12.2019 valid up to 31.12.2020 for production of Diesel(Euro-VI), Gasoline, SKO, ATF, LPG etc.,

Whereas vide reference 2nd cited, the Board officials inspected the industry on 25.02.2020 and observed the followings:

1. Expansion works are in progress.
2. The effluent being discharged from the two sources i.e from ETP-I and ETP-IV are not meeting the board standards. At the time of inspection samples were collected from the outlet of the ETP-I and ETP-II.
3. The ETP I Outlet is having BOD of 20 mg/l against standard of 15 mg/l, sulphides 1.8 mg/l against standard of 0.5 mg/l .
4. ETP-IV having BOD of 16 mg/l against standard of 15 mg/l and TSS 27 mg/l against standard of 20 mg/l .
5. Oil traces are letting in to Megadrigadda surplus channel finally into sea at Naval dock yard channel.
6. Online monitoring values of Stack are exceeding the Board standards and exceedance notices have been served to the industry.
7. Frequent complaints are received against odour nuisance in the city and from the Naval Colony.
8. The industry shall monitor the odor nuisance substances like Di-Methyl amines, Di-Ethyl amines, H2S and Mercaptance and petroleum hydrocarbons leakages with NABL accredited labs and shall take necessary measure for control of odor nuisance.
9. Frequent Black smoke is observed through flare stacks.
10. HPCI shall comply with the CPCB directions and guidelines issued regarding performance of the calibration of on line monitoring system once in 6 months.
11. The industry shall construct sheds for the storage of hazardous waste. A sample was collected from the internal drain near slop oil tank which is having oil & Grease of 6.2 ppm aginst 10 ppm, PH 4.89 aginst 6.5 -8.5 , TSS 415 against 20 mg/l, COD 172 mg/l against 125 mg/l, the BOD 48 mg/l aginst 15 mg/l.
12. As per the CFO, the cooling blowdown of 2,18,286 KLd is permitted for disposal into Megadrigadda surplus course finally joining to sea, after treatment.
13. During the inspection , cooling Tower outlet(2 nos) are collected and oil& Grease is exceeding (2.6 ppm and 3.2 ppm)the standard (1 PPM).

FPI

ANNEXURE - IA

14. The AAQ was conducted at three places and PM10 is 113 µg/m3 against the standard of 100 µg/m3.
15. From the consolidated analysis reports (Jan 2019 to Dec 2019) of ETP-I outlet (DMF outlet) the BOD, Nickel and lead exceeded the standards multiple times and the Hexavalent Chromium and Mercury exceeded one time.
16. From the consolidated analysis reports(Jan 2019 to Dec 2019) of ETP-I outlet (Cooling tower) the TSS, BOD, phosphates, nickel, copper, Nickel and lead Mercury one time.
17. From the consolidated analysis reports(Jan 2019 to Dec 2019) of ETP-IV outlet (DMF outlet) the Ph BOD, COD, Copper Hexavalent Chromium and lead exceeded the standards.
18. The industry has provided online connectivity to all the 36 stacks. From 01.09.2019 to 29.02.2020, considering all the parameters the values have exceeded 644 times.

Whereas vide reference 3rd cited, legal hearing was conducted before the External Advisory Committee (Task Force) Meeting of A.P. Pollution Control Board on 04.03.2020. The representatives of the industry have attended the legal hearing and submitted that they are meeting ETP outlet standards and informed that the incidences of odorous emissions are sporadic and the increase in SPM during the monitoring is due to ongoing construction activity.

The Committee, after detailed discussions, recommended to issue the following directions. The Board hereby issue the following directions under Sec.33 (A) of Water (Prevention and Control of Pollution) Amendment Act, 1988 and under Sec.31 (A) of Air (Prevention & Control of Pollution) Amendment Act, 1987:

1. ***The industry shall carry out the study by reputed institute like IIT regarding the odour issue.***
2. ***The industry shall ensure that reduced sulphur compounds and other odorous compound emissions are within odour detection threshold.***
3. ***The industry shall carry out the Leak Detection and Repair Program (LDAR) at the specified regular intervals to identify the emission of VOCs, Volatile Hazardous Air pollutants from any leaking equipment, process equipment, etc preferably every month and the records shall be submitted to the APPCB officials during inspection.***
4. ***VOCs shall be monitored at vulnerable locations periodically inside the plant. The sporadic odorous emissions shall also be placed on record and necessary measures to stop reoccurrences shall be taken.***
5. ***The industry shall ensure that odorous compounds in Merox unit are within odour detection threshold at minute levels.***
6. ***Gas detection systems shall be in place to detect process leakages.***
7. ***The industry shall operate the ETP-I, ETP-II and ETP- IV continuously to ensure that the outlet of each meet the discharge standards as stipulated in the CFO.The industry shall ensure that treated process water, Treated cooling tower blow down joining the Meghadrigadda shall meet the discharge standards including the heavy metals.***
8. ***The industry shall ensure that values of parameters of Online Stack monitoring systems are within the Board standards.***
9. ***The industry shall ensure that values of continuous Ambient Air Quality Monitoring (CAAQM) station are within the standards.***
10. ***The industry shall submit their preparedness plan for the use of low Sulphur fuels in case of bad weather conditions.***
11. ***The industry shall comply with CFO conditions.***
12. ***The contaminated storm water shall not be let outside the industry premises.***
13. ***The preventive maintenance of VOC condensers shall be taken up at regular intervals.***
14. ***The industry shall submit BG of Rs.64 Lakhs towards the compliance of above directions within 15 days for valid of one year.***

You are hereby directed to note that, should you violate any one of the directions mentioned above, your unit will be closed under Sec.33 (A) of Water (Prevention & Control of Pollution) Amendment Act, 1988 and Sec.31 (A) of Air (Prevention & Control of Pollution) Amendment Act, 1987 without any further notice, in the interest of Public Health and Environment.

This Order comes into effect from today i.e.,19.03.2020.

Sd/-
MEMBER SECRETARY

To
M/s. Hindustan Petroleum Corporation Ltd.,
(Visakh Refinery & DHT Plant), Malkapuram,
Visakhapatnam District.

Copy to:

1. The Joint Chief Environmental Engineer, ZO, Visakhapatnam for information for information and necessary action.
2. The Environmental Engineer, Regional Office, Visakhapatnam for information and necessary action.

//T.C.F.B.O. //

JOINT CHIEF ENVIRONMENTAL ENGINEER
UH-II

ANNEXURE-15

Task Force directions of APPCB, dated 19.03.2020 and their point-wise compliance status:

S. No.	Directions	Compliance status as provided by the refinery	Present status as on date of joint committee inspection
1	The industry shall carry out the study by reputed institute like IIT regarding the odour issue.	As directed by APPCB, HPCL-Visakha Refinery will carry out the odour study within the premises of Refinery by a reputed consultant and submit the report. APPCB is requested to suggest the agency/consultant to be considered for carrying out the study at Visakha Refinery.	**Not complied** Purchase order placed on M/s. Glens Innovation Labs Pvt. Ltd., Chennai, dated 17.03.2021 for carrying out odour study at HPCL – Visakha Refinery. The study is expected to be started in the month of April, 2021.
2	The industry shall ensure that reduced sulphur compounds and other odorous compound emissions are within odour detection threshold.	Sulphur compounds & H2S are handled in a closed system. Thus, chances for emanation of any odorous compounds from the refinery are not there.	During the inspection of the refinery, no perceptible odours of reduced sulfur compounds (H2S, mercaptans, organic disulfides, etc.) were observed.
3	The industry shall carry out the Leak Detection and Repair Program (LDAR) at the specified regular intervals to identify the emission of VOCs, Volatile Hazardous Air pollutants from any leaking equipment, process equipment, etc preferably every month and the records shall be submitted to the APPCB officials during inspection.	Leak Detection and Repair (LDAR) survey is being carried out regularly by MoEF recognized laboratory. Survey reports are being maintained.	Not complied
4	VOCs shall be monitored at vulnerable locations periodically inside the plant. The sporadic odorous emissions shall also be placed on record and necessary measures to stop reoccurrences shall be taken.	VOCs within the refinery premises are monitored periodically as per MoEF notification.	Partially complied.
5	The industry shall ensure that odorous compounds in Merox unit are within odour detection threshold at minute levels.	Sulphur compounds & H2S are handled in a closed system. Thus, chances for emanation of any odorous compounds from the refinery are not	Treatment of odourous sulfur compounds like, H2S, mercaptanes, etc. is carried out in closed reactor systems.

21-3ЛИХЭИИЧ.

		there	
6	Gas detection systems shall be in place to detect process leakages.	Gas detectors are available to detect process leakages.	Gas detectors are installed in process units and other locations of the refinery for timely detection of leakages of Hydrocarbon and toxic gases like H2S.
7	The industry shall operate the ETP-I, ETP-II and ETP-IV continuously to ensure that the outlet of each meet the discharge standards as stipulated in the CFO. The industry shall ensure that treated process water, Treated cooling tower blow down joining the Meghadrigadda shall meet the discharge standards including the heavy metals.	ETPs are in service and treated process water, treated cooling tower blow down are meeting the discharge standards including the heavy metals. Reports of the effluent sample analysis carried out by MoEF recognized laboratory during the past 3 months are enclosed in Annexure-IIA.	The values of TSS, BOD and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP – IV ACF outlet (Table – 4.5). Efficiency of the ETPs to be improved.
8	The industry shall ensure that values of parameters of Online Stack monitoring systems are within the Board standards.	All the refinery emissions are monitored continuously for maintaining the parameters within the stipulated limits by ensuring required design & operational controls.	Refinery has provided CEMS to 32 out of the 35 stacks to monitor PM, SO2, NOx & CO on real-time basis and connected to APPCB server. CEMS for measuring Hydrocarbons to be installed.
9	The industry shall ensure that values of continuous Ambient Air Quality Monitoring (CAAQM) stations are within the standards.	All the ground level concentrations of pollutants are ensured within the stipulated limits.	Joint Committee has carried out ambient air quality monitoring within & outside the refinery during inspection and found that PM 10 & PM 2.5 values are exceeding the 24 hour average standard limit. Though the concentrations of SO2 & NOx are not exceeding the 24 hour average standard limits, the values are considerably higher in comparison with that of the concentrations elsewhere in Visakhapatnam city.
10	The industry shall submit their	The fuels used in the	Refinery has used low

	preparedness plan for the use of low Sulphur fuels in case of bad weather conditions.	refinery are Low Sulphur Heavy Stock (LSHS), desulphurized fuel gas and Naphtha. Dedicated storage tanks are available for the low Sulphur liquid fuels from where fuel will be supplied to all furnaces/boilers. Emissions from the refinery are monitored continuously and are within the stipulated limits.	sulfur containing fuels like, fuel gas, LSHS & CPP Naphtha during the year, 2020. An amount of 2.98 tons / day of sulfure dioxide has been emitted by the refinery during the year, 2020 by way of burning of low sulfur containing fuels (Table – 7.3). Hence, not exceeded the SO2 emission load of 11.5 TPD.
11	The industry shall comply with CFO conditions.	Being complied.	Under implementation of the conditions of the CFO order dated 09.03.2021.
12	The contaminated storm water shall not be let outside the industry premises	Being complied.	Not observed any unauthorized discharges of untreated effluents outside the industry premises during inspection.
13	The preventive maintenance of VOC condensers shall be taken up at regular intervals	We would like to bring to your kind notice that VOC condensers are not available in HPCL Visakh Refinery and hence, request APPCB kindly not to consider this direction.	Not applicable at present as there is no VOC condenser in the project area.
14	The industry shall submit BG of Rs. 64 Lakhs towards the compliance of above directions within 15 days for valid of one year.	Original bank guarantee No. 0393NDLG00066021 dated 23.07.2020 executed by ICICI Bank, Mumbai for Rupees 64,00,000/- (rupees sixty four lakhs only) is attached.	Complied.

ANNEXURE-16

ANNEXURE

GPS Co-ordinates of the Manual AAQM and Mobile CAAQM locations

S.No.	Description	Location	Monitoring period	Latitude	Longitude
1	Mobile CAAQMS	Northwest corner of the industry near ETP-4	25.03.2021 to 26.03.2021	17.700329	83.237126
2	Mobile CAAQMS	Southeast side of the industry (near Industry South CAAQM station)	26.03.2021 to 27.03.2021	17.688419	83.250038
3	Manual AAQM station	Northeast side of the industry (near industry CAAQM Station at HLPH)	25.03.2021 to 26.03.2021	17.696921	83.251094
4	Manual AAQM station	Southeast side of the industry (near Industry South CAAQM station)	25.03.2021 to 26.03.2021	17.688419	83.250038
5	Manual AAQM station	Yarada Park housing colony- S10 Building (south west to industry)	25.03.2021 to 26.03.2021	17.688231	83.240756

207

ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY, VISAKHAPATNAM

M. RAVI, M.Sc
SENIOR ENVIRONMENTAL SCIENTIST

Ph: 0891-2719380/481
e-mail: zovsplab-ses2@appcb.gov.in

ANALYSIS REPORT OF AMBIENT AIR QUALITY MONITORING

Sample No. : 2021 – 03 – A – 017 to 019

Name of the Industry : M/s. Hindustan Petroleum Corporation Ltd., (Visakha Refinery), Malkapuram, Visakhapatnam.

Sample collected by : Junior Scientific Officer & Analyst (OS), Zonal Laboratory, Visakhapatnam during the visit of NGT Committee

Sample No.	Name of the Station	Date of Monitoring	24 hours Average				
			PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	NH_3 ($\mu g/m^3$)
A–017	Northeast side of the industry (near industry CAAQM Station at HLPH)	25.03.2021 to 26.03.2021	267	92	44	33	29
A–18	Yarada Park housing colony- S10 Building (south west to industry)		115	69	19	17	27
A–19	Southeast side of the industry (near Industry South CAAQM station)		248	83	48	36	30
NAAQ Standards (24 Hours Average)			100.0	60.0	80.0	80.0	400.0

Note: The PM_{10} & $PM_{2.5}$ concentrations at all the three locations are exceeding the NAAQ Standards.

M. Ravi

SENIOR ENVIRONMENTAL SCIENTIST

A.P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, VISAKHAPATNAM
MOBILE CONTINUOUS AMBIENT AIR QUALITY MONITORING STATION
24 Hrs. AVERAGE VALUES
M/s Hindustan Petroleum Corporation Ltd., (Visakha Refinery), Malkapuram,Visakhapatnam

Location-1: Northwest corner of the industry near ETP-4

Date	Time	CO mg/m³	O3 µg/m³	NO2 µg/m³	NH3 µg/m³	SO2 µg/m³	PM 2.5 µg/m³	PM 10 µg/m³	AT °C	RH %	WS m/s	WD deg	BP mmHg
25.03.2021 to 26.03.2021	18:00 to 17:00	1.4	57.7	39	40	84	89	320	31.4	63.7	1.0	215	765
NAAQ Standards (24 Hrs. Avg)	-	*2	*100	80	400	80	60	100	–	–	–	–	–

Location-2: Southeast side of the industry (near Industry South CAAQM station)

Date	Time	CO mg/m³	O3 µg/m³	NO2 µg/m³	NH3 µg/m³	SO2 µg/m³	PM 2.5 µg/m³	PM 10 µg/m³	AT °C	RH %	WS m/s	WD deg	BP mmHg
26.03.2021 to 27.03.2021	18:00 to 17:00	1.7	66.2	42	35	52	94	298	31.7	65.1	1.1	201	764
NAAQ Standards (24 Hrs. Avg)	-	*2	*100	80	400	80	60	100	–	–	–	–	–

Note: * Ozone & CO standards is for 8 hours

Remarks:
1. The SO2, PM 2.5& PM10 concentratons at location-1 are exceeding the NAAQ Standards
2. The PM 2.5 & PM10 concentratons at location-2 are exceeding the NAAQ Standards

SENIOR ENVIRONMENTAL SCIENTIST

A.P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, VISAKHAPATNAM
MOBILE CONTINUOUS AMBIENT AIR QUALITY MONITORING STATION
VOCs and MERCAPTANS VALUES (24 Hrs average)

M/s Hindustan Petroleum Corporation Ltd., (Visakha Refinery), Malkapuram,Visakhapatnam

Location-1: Northwest corner of the industry near ETP-4

Date	Time	Methylmercaptan (ppb)	Ethylmercaptan (ppb)	Dimethylsulfide (ppb)	Carbon disulfide (ppb)	Diethylsulfide (ppb)	Dimethyldisulfide (ppb)	Diethyldisulfide (ppb)	2-methylpentane (ppb)	3-methylpentane (ppb)	2,4-dimethylpentane (ppb)	benzene (µg/m³)	cyclohexane (ppb)	2-methylhexane (ppb)	2,3-dimethylpentane (ppb)	3-methylhexane (ppb)	n-heptane (ppb)	2,3,4-trimethylpenta (ppb)
25.03.2021 to 26.03.2021	18:00 to 17:00	0.0	0.0	0.4	0.0	0.3	0.5	0.4	0.3	0.0	0.2	2.7	1.3	1.3	0.2	0.3	0.1	0.0

Location-2: Southeast side of the industry (near Industry South CAAQM station)

Date	Time	Methylmercaptan (ppb)	Ethylmercaptan (ppb)	Dimethylsulfide (ppb)	Carbon disulfide (ppb)	Diethylsulfide (ppb)	Dimethyldisulfide (ppb)	Diethyldisulfide (ppb)	2-methylpentane (ppb)	3-methylpentane (ppb)	2,4-dimethylpentane (ppb)	benzene (µg/m³)	cyclohexane (ppb)	2-methylhexane (ppb)	2,3-dimethylpentane (ppb)	3-methylhexane (ppb)	n-heptane (ppb)	2,3,4-trimethylpenta (ppb)
26.03.2021 to 27.03.2021	18:00 to 17:00	0.0	0.0	0.4	0.0	0.3	0.7	0.4	0.3	0.0	0.2	3.3	0.6	1.0	3.8	1.3	0.2	0.1

A.P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, VISAKHAPATNAM
MOBILE CONTINUOUS AMBIENT AIR QUALITY MONITORING STATION
VOCs and MERCAPTANS VALUES (24 Hrs average)

M/s Hindustan Petroleum Corporation Ltd., (Visakha Refinery), Malkapuram,Visakhapatnam

Location-1: Northwest corner of the industry near ETP-4

Date	Time	methylcyclohexane (ppb)	toluene (µg/m³)	2-methylheptane (ppb)	3-methylheptane (ppb)	n-octane (ppb)	ethylbenzene (ppb)	m,p-xylene (ppb)	styrene (ppb)	o-xylene (ppb)	n-nonane (ppb)	n-propylbenzene (ppb)	1,3,5-trimbenzene (ppb)	1,2,4-trimbenzene (ppb)	n-decane (ppb)	1,2,3-trimbenzene (ppb)	Ethane-FID (ppb)	Propane-FID (ppb)
25.03.2021 to 26.03.2021	18:00 to 17:00	0.1	8.7	10.7	0.7	0.0	0.3	0.7	0.1	0.2	0.0	0.0	0.7	0.2	2.5	3.0	6.6	0.9

Location-2: Southeast side of the industry (near industry South CAAQM station)

Date	Time	methylcyclohexane (ppb)	toluene (µg/m³)	2-methylheptane (ppb)	3-methylheptane (ppb)	n-octane (ppb)	ethylbenzene (ppb)	m,p-xylene (ppb)	styrene (ppb)	o-xylene (ppb)	n-nonane (ppb)	n-propylbenzene (ppb)	1,3,5-trimbenzene (ppb)	1,2,4-trimbenzene (ppb)	n-decane (ppb)	1,2,3-trimbenzene (ppb)	Ethane-FID (ppb)	Propane-FID (ppb)
26.03.2021 to 27.03.2021	18:00 to 17:00	0.0	3.3	4.6	7.9	0.1	0.1	0.5	0.2	0.1	0.2	0.0	0.5	0.5	2.1	4.8	4.8	2.1

A.P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, VISAKHAPATNAM
MOBILE CONTINUOUS AMBIENT AIR QUALITY MONITORING STATION
VOCs and MERCAPTANS VALUES (24 Hrs average)

M/s Hindustan Petroleum Corporation Ltd., (Visakha Refinery), Malkapuram,Visakhapatnam

Location-1: Northwest corner of the industry near ETP-4

Date	Time	iso-Butane-FID (ppb)	n-Butane-FID (ppb)	trans-2-butene (ppb)	1-butene (ppb)	cis-2-butene (ppb)	cyclopentane-FID (ppb)	iso-Pentane-FID (ppb)	n-Pentane FID (ppb)	trans-2-pentene (ppb)	1-pentene (ppb)	cis-2-pentene (ppb)	2,2-dimethylbutane (ppb)	2,3-dimethylbutane (ppb)	isoprene (ppb)	methylcyclopentane (ppb)	1-Hexene (ppb)
25.03.2021 to 26.03.2021	18:00 to 17:00	2.6	3.2	. 0.1	0.6	0.0	0.9	1.0	0.6	. 0.1	0.1	0.0	0.7	12.4	1.0	0.0	0.9

Location-2: Near South Caaqms

Date	Time	iso-Butane-FID (ppb)	n-Butane-FID (ppb)	trans-2-butene (ppb)	1-butene (ppb)	cis-2-butene (ppb)	cyclopentane-FID (ppb)	iso-Pentane-FID (ppb)	n-Pentane FID (ppb)	trans-2-pentene (ppb)	1-pentene (ppb)	cis-2-pentene (ppb)	2,2-dimethylbutane (ppb)	2,3-dimethylbutane (ppb)	isoprene (ppb)	methylcyclopentane (ppb)	1-Hexene (ppb)
26.03.2021 to 27.03.2021	18:00 to 17:00	2.3	2.5	0.1	1.2	0.1	1.8	1.7	0.7	0.3	0.2	0.0	0.3	60.9	1.2	0.1	0.7

SENIOR ENVIRONMENTAL SCIENTIST

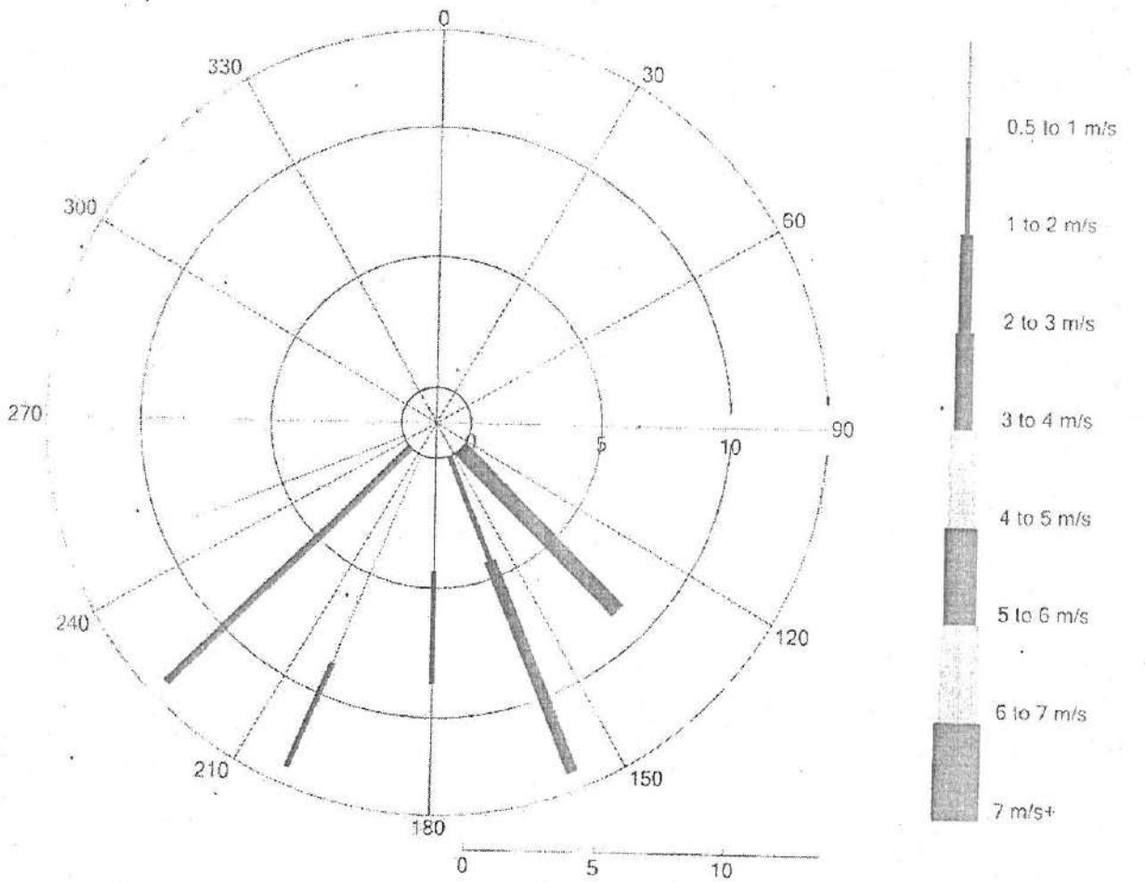
Andhra Pradesh Pollution Control Board

Continuous Ambient Air Quality Monitoring Station : Mobile Van

Near CAAQMS WEST OF ETP-4,HPCL,VSP

Wind Rose

25-03-2021 18:00 to 26-03-2021 17:00



34.8% calm

100.0% valid data present

P05

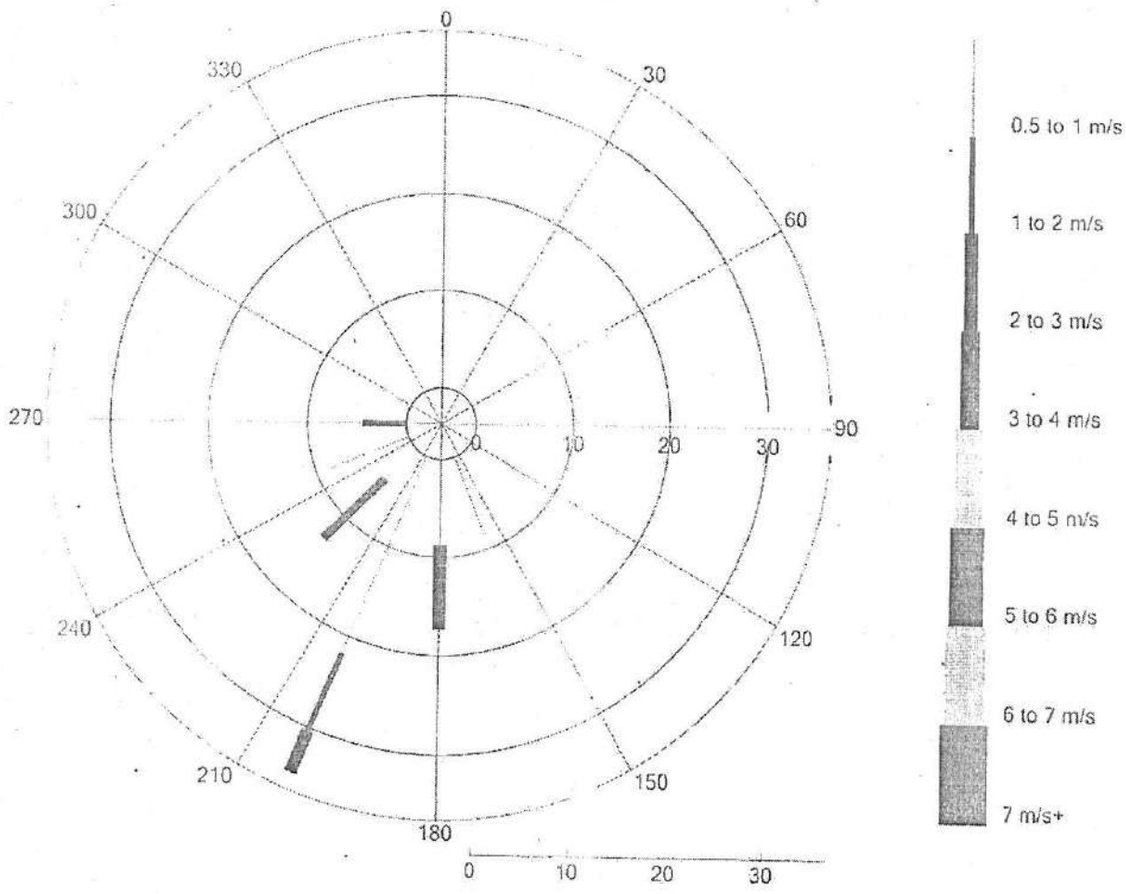
Andhra Pradesh Pollution Control Board

Continuous Ambient Air Quality Monitoring Station : Mobile Van

Near South CAAQMS,HPCL,VSP

Wind Rose

26-03-2021 18:00 to 27-03-2021 17:00



13.0% calm

100.0% valid data present

A.P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, VISAKHAPATNAM
MOBILE CONTINUOUS AMBIENT AIR QUALITY MONITORING STATION
24 Hrs. AVERAGE VALUES
Coromandel Gate, Visakhapatnam

Location: Near M/s Coromandel Main Gate, Ajanta Colony, Sriharipuram, Gajuwaka, Visakhapatnam

Date	Time	CO mg/m³	O3 µg/m³	NO µg/m³	NO2 µg/m³	NOx µg/m³	NH3 µg/m³	SO2 µg/m³	PM 2.5 µg/m³	PM 10 µg/m³	AT °C	RH %	WS m/s	WD deg	BP mmHg
03.05.2021 to 04.05.2021	13:00 to 12:00	0.9	41.2	9	25	34	16	33	25	91	31.7	68.3	0.9	232	762
Date	Time	CO mg/m³	O3 µg/m³	NO µg/m³	NO2 µg/m³	NOx µg/m³	NH3 µg/m³	SO2 µg/m³	PM 2.5 µg/m³	PM 10 µg/m³	AT °C	RH %	WS m/s	WD deg	BP mmHg
04.05.2021 to 05.05.2021	13:00 to 12:00	1.0	29.7	10	22	32	15	25	17	72	31.0	76.0	0.7	201	762
Date	Time	CO mg/m³	O3 µg/m³	NO µg/m³	NO2 µg/m³	NOx µg/m³	NH3 µg/m³	SO2 µg/m³	PM 2.5 µg/m³	PM 10 µg/m³	AT °C	RH %	WS m/s	WD deg	BP mmHg
05.05.2021 to 06.05.2021	13:00 to 12:00	0.9	55.1	9	24	32	23	37	16	67	30.8	71.8	0.8	204	763
NAAQ Standards 24 Hrs.	-	*2	*100	–	80	–	400	80	60	100	–	–	–	–	–

Note: * Ozone & CO standards is for 8 hours

SENIOR ENVIRONMENTAL SCIENTIST

A.P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, VISAKHAPATNAM
MOBILE CONTINUOUS AMBIENT AIR QUALITY MONITORING STATION
VOCs and MERCAPTANS VALUES (24 Hrs average)

M/s Coromandel Main Gate, Visakhapatnam

Location: Near M/s Coromandel Main Gate, Ajanta Colony, Sriharipuram, Gajuwaka, Visakhapatnam

Date	Time	Methylmercaptan (ppb)	Ethylmercaptan (ppb)	Dimethylsulfide (ppb)	Carbon disulfide (ppb)	Diethylsulfide (ppb)	Dimethyldisulfide (ppb)	Diethyldisulfide (ppb)	2-methylpentane (ppb)	3-methylpentane (ppb)	2,4-dimethylpentane (ppb)	benzene (ppb)	cyclohexane (ppb)	2-methylhexane (ppb)	2,3-dimethylpentane (ppb)	3-methylhexane (ppb)	[illegible] (ppb)	[illegible] (ppb)
03.05.2021 to 04.05.2021	13:00 to 12:00	0.1	0.0	0.4	0.0	0.3	0.5	0.4	0.3	0.1	0.1	1.5	0.1	0.7	0.1	0.5	0.1	0.0
Date	Time	Methylmercaptan (ppb)	Ethylmercaptan (ppb)	Dimethylsulfide (ppb)	Carbon disulfide (ppb)	Diethylsulfide (ppb)	Dimethyldisulfide (ppb)	Diethyldisulfide (ppb)	2-methylpentane (ppb)	3-methylpentane (ppb)	2,4-dimethylpentane (ppb)	benzene (ppb)	cyclohexane (ppb)	2-methylhexane (ppb)	2,3-dimethylpentane (ppb)	3-methylhexane (ppb)	[illegible] (ppb)	[illegible] (ppb)
04.05.2021 to 05.05.2021	13:00 to 12:00	0.0	0.1	0.5	0.0	0.3	0.5	0.4	0.4	0.1	0.2	0.6	0.1	0.9	0.9	1.5	0.1	0.0
Date	Time	Methylmercaptan (ppb)	Ethylmercaptan (ppb)	Dimethylsulfide (ppb)	Carbon disulfide (ppb)	Diethylsulfide (ppb)	Dimethyldisulfide (ppb)	Diethyldisulfide (ppb)	2-methylpentane (ppb)	3-methylpentane (ppb)	2,4-dimethylpentane (ppb)	benzene (ppb)	cyclohexane (ppb)	2-methylhexane (ppb)	2,3-dimethylpentane (ppb)	3-methylhexane (ppb)	[illegible] (ppb)	[illegible] (ppb)
05.05.2021 to 06.05.2021	13:00 to 12:00	0.0	0.1	0.4	0.0	0.3	0.5	0.4	0.1	0.1	0.1	0.7	0.5	0.5	0.9	2.4	0.1	0.1

A.P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, VISAKHAPATNAM
MOBILE CONTINUOUS AMBIENT AIR QUALITY MONITORING STATION
VOCs and MERCAPTANS VALUES (24 Hrs average)

M/s Coromandel Main Gate, Visakhapatnam

Location: Near M/s Coromandel Main Gate, Ajanta Colony, Sriharipuram, Gajuwaka, Visakhapatnam

Date	Time	Iso-Butane-FID (ppb)	n-Butane-FID (ppb)	trans-2-butene (ppb)	1-butene (ppb)	cis-2-butene (ppb)	cyclopentane-FID (ppb)	Iso-Pentane-FID (ppb)	n-Pentane FID (ppb)	trans-2-pentene (ppb)	1-pentene (ppb)	cis-2-pentene (ppb)	2,2-dimethylbutane (ppb)	2,3-dimethyl Butane (ppb)	Isoprene (ppb)	methylcyclopentane (ppb)	[illegible] (ppb)
03.05.2021 to 04.05.2021	13:00 to 12:00	1.9	0.9	0.5	0.6	0.0	1.1	0.7	0.3	0.2	0.2	0.1	1.6	41.3	0.5	0.1	0.9
Date	Time	Iso-Butane-FID (ppb)	n-Butane-FID (ppb)	trans-2-butene (ppb)	1-butene (ppb)	cis-2-butene (ppb)	cyclopentane-FID (ppb)	Iso-Pentane-FID (ppb)	n-Pentane FID (ppb)	trans-2-pentene (ppb)	1-pentene (ppb)	cis-2-pentene (ppb)	2,2-dimethylbutane (ppb)	2,3-dimethyl Butane (ppb)	Isoprene (ppb)	methylcyclopentane (ppb)	[illegible] (ppb)
04.05.2021 to 05.05.2021	13:00 to 12:00	3.4	0.4	1.1	1.0	0.0	2.1	1.0	0.1	0.5	0.2	0.0	0.2	106.8	0.6	0.2	0.7
Date	Time	Iso-Butane-FID (ppb)	n-Butane-FID (ppb)	trans-2-butene (ppb)	1-butene (ppb)	cis-2-butene (ppb)	cyclopentane-FID (ppb)	Iso-Pentane-FID (ppb)	n-Pentane FID (ppb)	trans-2-pentene (ppb)	1-pentene (ppb)	cis-2-pentene (ppb)	2,2-dimethylbutane (ppb)	2,3-dimethyl Butane (ppb)	Isoprene (ppb)	methylcyclopentane (ppb)	[illegible] (ppb)
05.05.2021 to 06.05.2021	13:00 to 12:00	3.8	1.2	0.2	1.6	0.0	1.6	2.1	0.5	0.4	0.2	0.0	0.2	89.6	1.5	0.0	1.0

SENIOR ENVIRONMENTAL SCIENTIST

A.P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, VISAKHAPATNAM
MOBILE CONTINUOUS AMBIENT AIR QUALITY MONITORING STATION
VOCs and MERCAPTANS VALUES (24 Hrs average)

M/s Coromandel Main Gate, Visakhapatnam

Location: Near M/s Coromandel Main Gate, Ajanta Colony, Sriharipuram, Gajuwaka, Visakhapatnam

Date	Time	methylcyclohexane (ppb)	toluene	2-methylheptane (ppb)	3-methylheptane (ppb)	n-octane (ppb)	ethylbenzene (ppb)	m,p-xylene (ppb)	styrene (ppb)	o-xylene (ppb)	n-nonane (ppb)	n-propylbenzene (ppb)	1,3,5-trimbenzene (ppb)	1,2,4-trimbenzene (ppb)	n-decane (ppb)	1,2,3-trimbenzene (ppb)	Ethane-FID (ppb)	Propane-FID (ppb)
03.05.2021 to 04.05.2021	13:00 to 12:00	0.0	6.1	3.9	5.2	0.0	0.1	0.3	0.1	0.1	0.0	0.0	0.8	0.1	2.1	3.7	3.1	2.8
Date	Time	methylcyclohexane (ppb)	toluene	2-methylheptane (ppb)	3-methylheptane (ppb)	n-octane (ppb)	ethylbenzene (ppb)	m,p-xylene (ppb)	styrene (ppb)	o-xylene (ppb)	n-nonane (ppb)	n-propylbenzene (ppb)	1,3,5-trimbenzene (ppb)	1,2,4-trimbenzene (ppb)	n-decane (ppb)	1,2,3-trimbenzene (ppb)	Ethane-FID (ppb)	Propane-FID (ppb)
04.05.2021 to 05.05.2021	13:00 to 12:00	0.0	4.2	4.2	8.2	0.0	0.1	0.5	0.0	0.3	0.0	0.0	0.5	0.4	1.5	6.7	4.0	19.9
Date	Time	methylcyclohexane (ppb)	toluene	2-methylheptane (ppb)	3-methylheptane (ppb)	n-octane (ppb)	ethylbenzene (ppb)	m,p-xylene (ppb)	styrene (ppb)	o-xylene (ppb)	n-nonane (ppb)	n-propylbenzene (ppb)	1,3,5-trimbenzene (ppb)	1,2,4-trimbenzene (ppb)	n-decane (ppb)	1,2,3-trimbenzene (ppb)	Ethane-FID (ppb)	Propane-FID (ppb)
05.05.2021 to 06.05.2021	13:00 to 12:00	0.0	3.2	7.9	2.9	0.0	0.0	0.3	0.0	0.2	0.0	0.0	0.5	0.5	1.3	5.1	5.7	7.8

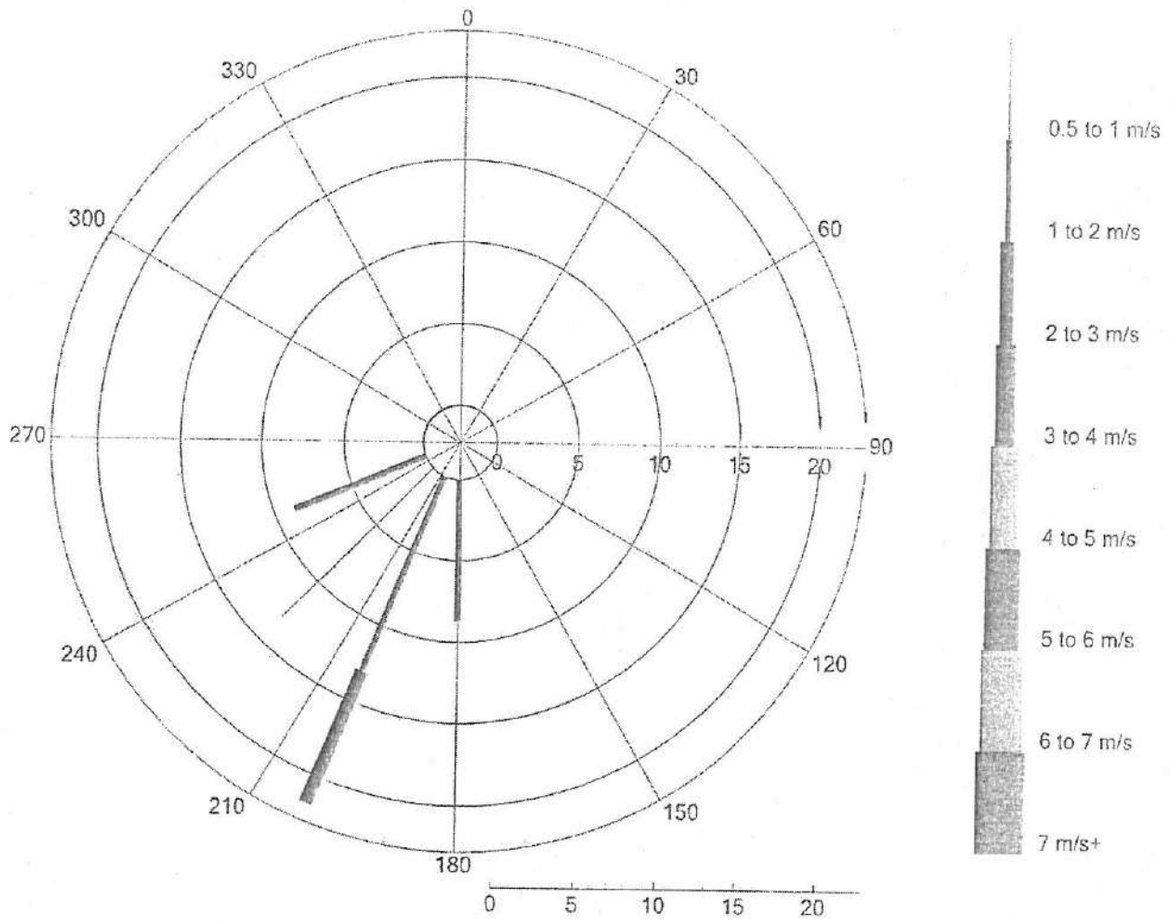
Andhra Pradesh Pollution Control Board

Continuous Ambient Air Quality Monitoring Station : Mobile Van

Near Coromandel Gate,Visakhapatnam

Wind Rose

03-05-2021 13:00 to 04-05-2021 12:00



47.8% calm

100.0% valid data present

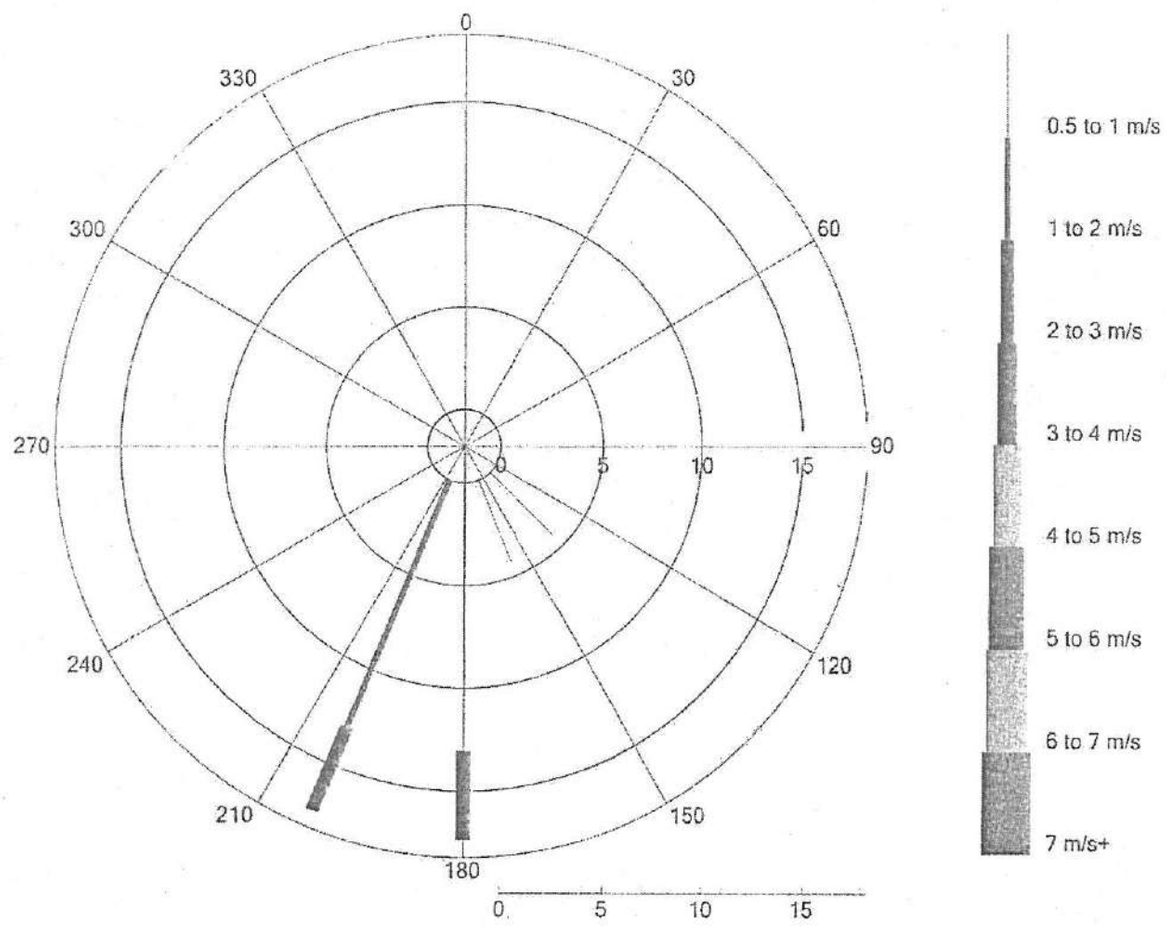
Andhra Pradesh Pollution Control Board

Continuous Ambient Air Quality Monitoring Station : Mobile Van

Near Coromandel Gate,Visakhapatnam

Wind Rose

04-05-2021 13:00 to 05-05-2021 12:00



56.5% calm

100.0% valid data present

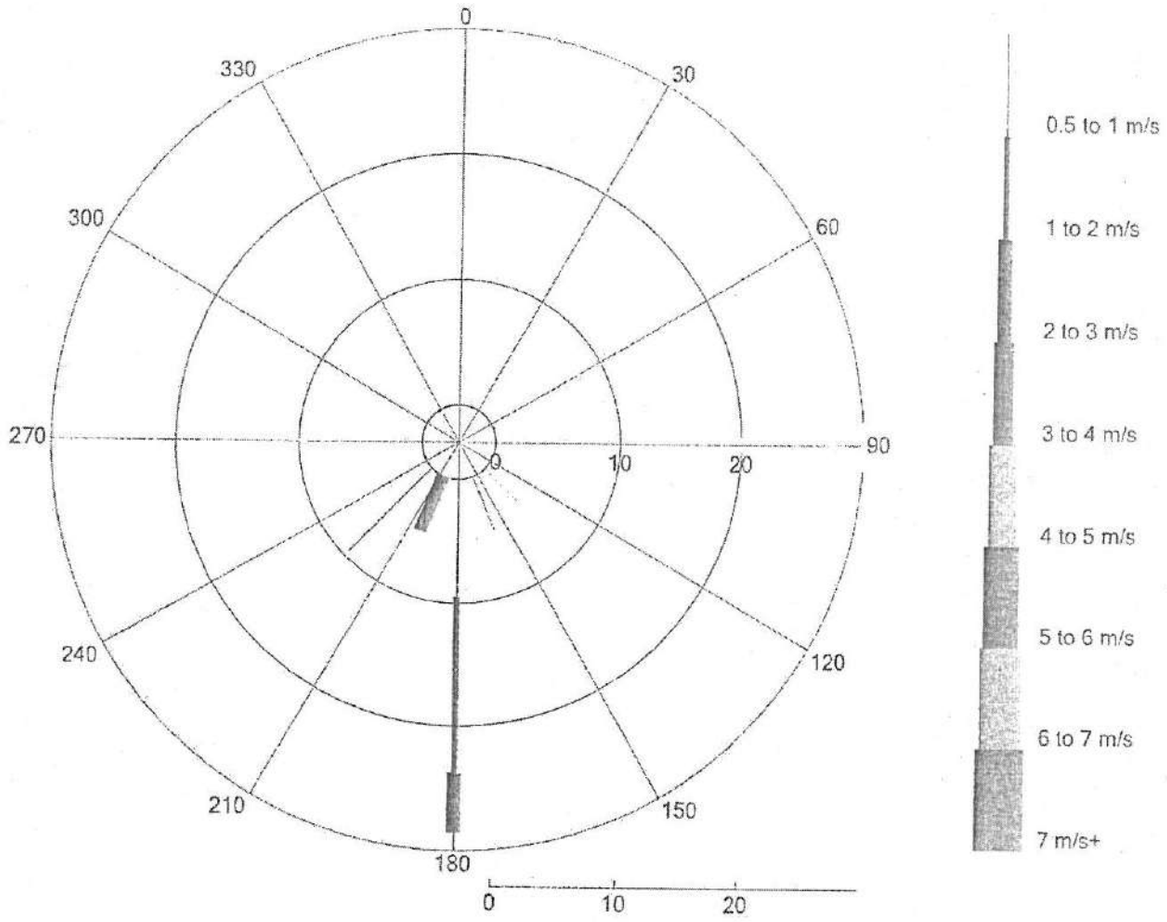
Andhra Pradesh Pollution Control Board

Continuous Ambient Air Quality Monitoring Station : Mobile Van

Near Coromandel Gate,Visakhapatnam

Wind Rose

05-05-2021 13:00 to 06-05-2021 12:00



47.6% calm

91.3% valid data present

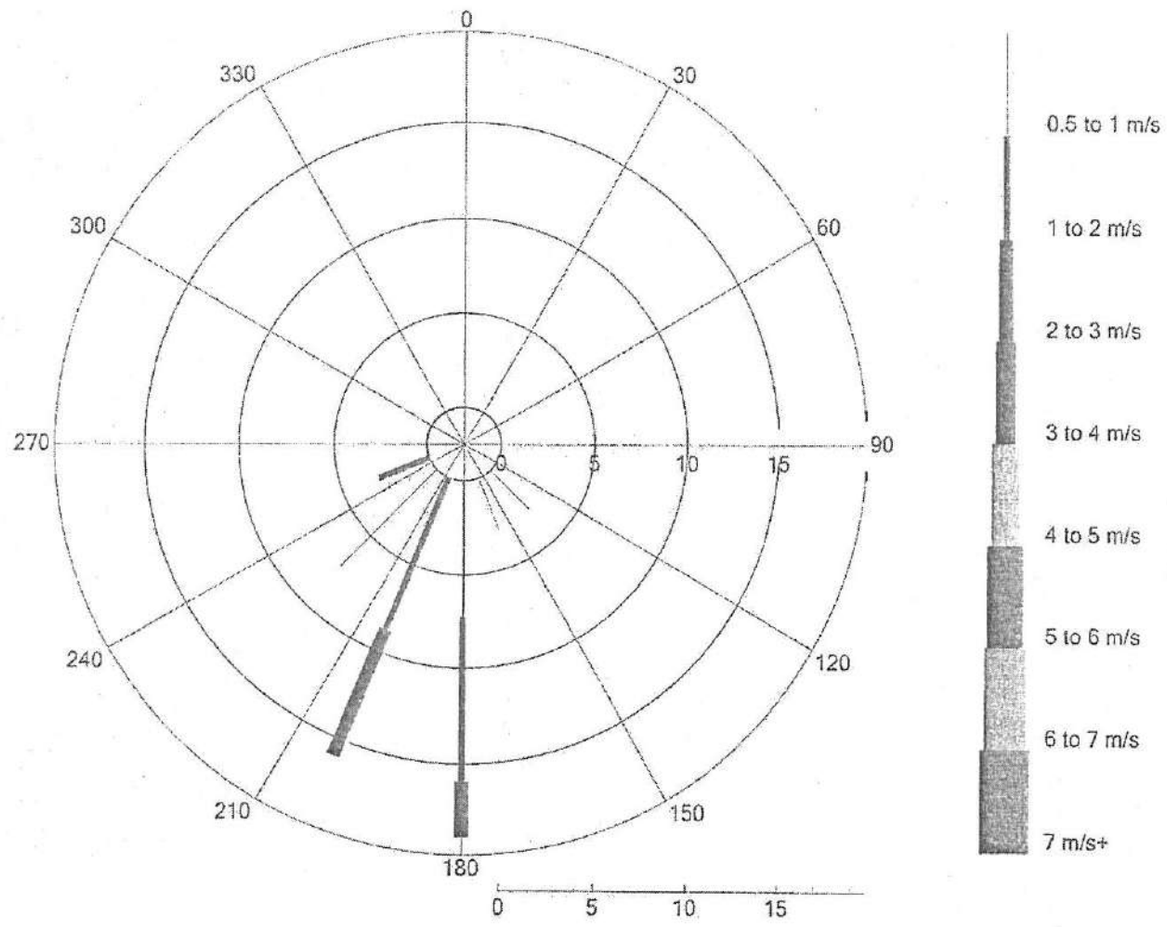
Andhra Pradesh Pollution Control Board

Continuous Ambient Air Quality Monitoring Station : Mobile Van

Near Coromandel Gate,Visakhapatnam

Wind Rose

03-05-2021 13:00 to 06-05-2021 12:00



49.3% calm

97.2% valid data present

Ambient Air Quality Data - 2020 (January to December)

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

Location: CAAQMS 1 - South Gate

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
1	2020-01-01	NA	42.7	3.35	18.25	1.87	0	6.97	NA
2	2020-01-02	NA	29.09	2.88	20.65	3.24	0	6.27	NA
3	2020-01-03	NA	29.61	2.58	17.53	3.53	0	6.06	NA
4	2020-01-04	NA	12.15	2.42	29.6	3.43	0	6.56	NA
5	2020-01-05	NA	251.6	2.24	42.08	2.33	0	6.69	NA
6	2020-01-06	NA	29.59	2.53	46.2	2.72	0	6.6	NA
7	2020-01-07	NA	32.95	2.22	59.81	3.77	0	5.88	NA
8	2020-01-08	NA	33.28	2.25	75.38	3.78	0	6.31	NA
9	2020-01-09	NA	44.58	2.23	76.31	4.25	0	7.02	NA
10	2020-01-10	NA	30.49	6.72	49.52	6.62	0	6.27	NA
11	2020-01-11	NA	55.58	15.09	68.45	7.31	0	6.96	NA
12	2020-01-12	NA	44.53	17.82	63.72	7.02	0	0.86	NA
13	2020-01-13	NA	67.32	30.88	82.63	7.5	0	1.66	NA
14	2020-01-14	NA	212.23	47.38	87.73	7.41	0	0.68	NA
15	2020-01-15	NA	59.77	31.84	52.7	7.21	0	0.89	NA
16	2020-01-16	NA	45.17	35.17	54.21	7.6	0	1.1	NA
17	2020-01-17	NA	39.17	26.82	46.28	5.38	0	0.72	NA
18	2020-01-18	NA	29.71	4.52	50.22	2.9	0	0.44	NA
19	2020-01-19	NA	23.57	5.07	46.54	2.78	0	0.36	NA
20	2020-01-20	NA	29.59	12	46.82	2.72	0	0.41	NA
21	2020-01-21	NA	10.85	2.22	51.25	2.34	0	0.47	NA
22	2020-01-22	NA	35.78	2.22	59.49	2.91	0	0.54	NA
23	2020-01-23	NA	56.22	11.45	82.73	3.34	0	0.54	NA
24	2020-01-24	NA	62.32	23.89	83.67	3.88	0	0.59	NA
25	2020-01-25	NA	35.82	6.14	54.19	2.82	0.03	0.5	NA
26	2020-01-26	NA	72.89	4.05	57.73	3.24	0.09	1.98	NA
27	2020-01-27	220.86	30.47	2.76	23.09	2.7	8.06	1.6	NA

ANNEXURE - 17

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
28	2020-01-28	161.14	27.47	4.56	13.59	3.13	65.63	4.48	NA
29	2020-01-29	157.1	24.88	5.24	3.46	2.78	1.91	1.83	NA
30	2020-01-30	166.26	29.27	0.05	9.71	3.35	0.64	0.73	NA
31	2020-01-31	154.26	43	0.05	25.21	1.79	9.91	0.72	NA
32	2020-02-01	88.5	19.67	0.05	37.17	1.6	5.66	0.7	NA
33	2020-02-02	75.79	11.23	0.05	37.73	1.42	5.61	0.71	NA
34	2020-02-03	97.24	18.76	0.05	42.9	1.48	12.93	0.78	NA
35	2020-02-04	92.52	28.5	0.05	23.07	2.35	2.38	0.64	NA
36	2020-02-05	121.24	23.01	0.05	30.25	2.12	3.85	0.68	NA
37	2020-02-06	116.59	16.63	0.05	25.57	1.78	11.54	0.7	NA
38	2020-02-07	110.98	15.34	0.64	8.39	1.79	18.75	0.63	NA
39	2020-02-08	83.45	12.12	0.84	26.96	1.66	17.08	0.72	NA
40	2020-02-09	67.54	7.99	1.35	36.53	1.36	28.66	0.72	NA
41	2020-02-10	86.3	13.89	1.5	38.47	1.45	23.94	0.74	NA
42	2020-02-11	130.25	32	1.21	51.36	1.72	27.3	0.79	NA
43	2020-02-12	156.21	38.67	1.7	59.58	1.92	28.43	0.72	NA
44	2020-02-13	179.43	52.81	7.44	60.93	2.25	20.01	0.69	NA
45	2020-02-14	183.68	49.45	6.95	59.18	2.26	17.71	0.67	NA
46	2020-02-15	223.51	58.31	10.54	45.94	2.63	10.3	0.66	NA
47	2020-02-16	134.74	28.54	6.66	33.47	2.03	12.23	0.73	NA
48	2020-02-17	128.63	16.99	7.77	21.52	2.08	5.34	0.67	NA
49	2020-02-18	146.8	23.56	3.02	21.9	1.9	15.44	0.74	NA
50	2020-02-19	125.25	25.01	0.8	22.71	1.64	19.4	0.68	NA
51	2020-02-20	127.63	26.5	0.77	34.41	1.53	26.61	0.75	NA
52	2020-02-21	112.77	15.9	0.86	55.08	1.61	29.75	0.81	NA
53	2020-02-22	122.66	18.33	0.88	58.45	1.09	32.34	0.79	NA
54	2020-02-23	111.22	23.59	0.76	48.9	0.11	33.33	0.73	NA
55	2020-02-24	118.9	21.75	0.94	37.68	0.14	22.96	0.74	NA
56	2020-02-25	124.22	17.32	1.18	36.43	0.14	18.08	0.74	NA
57	2020-02-26	110.77	19.97	1.56	41.47	0.14	15.17	0.71	NA
58	2020-02-27	106.14	13.43	1.6	45.15	1.04	10.27	0.72	NA

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
59	2020-02-28	134.82	26.75	1.2	49.03	1.66	24.17	0.7	NA
60	2020-02-29	132.29	28.32	1.01	45.12	1.58	38.83	0.77	NA
61	2020-03-01	122.67	22.07	0.99	30.32	1.59	36.96	0.8	NA
62	2020-03-02	143.31	27.07	1.01	27.6	1.98	34.83	0.69	NA
63	2020-03-03	292.51	197.9	1.2	22.05	2.5	31.7	0.66	NA
64	2020-03-04	154.06	23.42	1.39	13.79	2.24	29.8	0.74	NA
65	2020-03-05	87.41	6.83	1.46	6.95	1.81	29.75	0.78	NA
66	2020-03-06	66.26	7.8	1.27	2.28	1.38	28.87	0.74	NA
67	2020-03-07	72.51	3.11	0.98	1.29	1.26	28.89	0.81	NA
68	2020-03-08	99.3	5.49	1.14	0.08	1.69	27.33	0.72	NA
69	2020-03-09	84.62	12.15	1.26	2.39	1.3	27.81	0.68	NA
70	2020-03-10	82.34	8.27	1.24	1.02	1.22	26.67	0.73	NA
71	2020-03-11	131.48	10.75	1.27	1.46	1.78	13.88	0.7	NA
72	2020-03-12	83.95	6.17	1.39	4.31	1.07	30.24	0.73	NA
73	2020-03-13	124.92	18.64	1.65	10.65	1.22	21.36	0.67	NA
74	2020-03-14	110.8	93.69	5.78	13.5	1.49	23.97	0.71	NA
75	2020-03-15	96.88	12.13	13.62	13.08	1.44	18.86	0.78	NA
76	2020-03-16	132.78	31.54	26.03	21.67	2.67	26.74	0.79	NA
77	2020-03-17	105.97	13.29	25.27	17.25	1.63	25.12	0.73	NA
78	2020-03-18	151.11	84.8	32.96	58.94	0.94	11.2	0.64	NA
79	2020-03-19	123.72	22.92	28.31	47.44	0.78	20.04	0.71	NA
80	2020-03-20	74.17	12.46	26.48	39.02	0.38	27.62	0.73	NA
81	2020-03-21	93.1	11.37	28.62	39.49	0.56	21.95	0.66	NA
82	2020-03-22	91.85	12.08	27.55	30.89	0.5	24.95	0.74	NA
83	2020-03-23	92.86	16.96	26.63	27.5	0.39	25.88	0.72	NA
84	2020-03-24	81.1	13.94	25.79	26.31	0.52	28.33	0.72	NA
85	2020-03-25	77.28	9.5	25.56	19.67	0.51	27.22	0.75	NA
86	2020-03-26	62.9	7.49	26	17.27	0.25	22.49	0.75	NA
87	2020-03-27	123.58	21.48	30.73	29.92	0.78	21.67	0.75	NA
88	2020-03-28	170.98	29.36	35.59	40.82	1.02	30.38	0.78	NA
89	2020-03-29	143.88	23.51	38.3	35.38	0.7	32.32	0.76	NA

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
90	2020-03-30	119.56	20.75	27.35	30.26	0.75	40.13	0.8	NA
91	2020-03-31	111.74	18.89	28.08	33.85	0.41	37.6	0.8	NA
92	2020-04-01	124.52	23.21	26.35	28.65	0.67	36.09	0.81	NA
93	2020-04-02	129.46	17.95	30.84	25.99	0.68	32.23	0.77	NA
94	2020-04-03	136.15	22.94	27.75	26.56	1.12	35.45	0.79	NA
95	2020-04-04	115.36	20.37	26.25	24.99	1.35	31.52	0.83	NA
96	2020-04-05	90.27	10.41	27.41	21.31	1.04	33.32	0.77	NA
97	2020-04-06	89.87	8.64	26.22	21.79	1.32	31.56	0.83	NA
98	2020-04-07	93.77	8.08	26.43	26.11	1.42	31.02	0.77	NA
99	2020-04-08	42.85	91.58	25.76	19.75	0.93	30.41	0.81	NA
100	2020-04-09	75.7	18.53	26.59	28.24	1.15	40.91	0.8	NA
101	2020-04-10	111.93	21.94	26.98	29.5	1.62	35.38	0.8	NA
102	2020-04-11	59.77	11.53	25.2	18.11	1.03	34.1	0.85	NA
103	2020-04-12	79.12	15.78	25.57	27.11	1.31	35.3	0.82	NA
104	2020-04-13	136.54	26.26	28.16	40.25	1.66	32.65	0.79	NA
105	2020-04-14	122.75	22.94	26.14	33.79	1.44	31.19	0.76	NA
106	2020-04-15	99.93	17.36	25.86	24.52	1.33	33.98	0.84	NA
107	2020-04-16	136.98	21.33	27.38	29.42	1.86	31.55	0.81	NA
108	2020-04-17	100.37	14.19	25.67	23.89	1.34	31.6	0.75	NA
109	2020-04-18	80.39	10.34	25.66	20.77	1.1	30.83	0.82	NA
110	2020-04-19	85.02	12.53	25.93	23.46	1.38	30.44	0.78	NA
111	2020-04-20	70.23	9.06	25.88	17.88	1.09	30.67	0.79	NA
112	2020-04-21	76.51	9.76	25.75	18.23	1.25	31.9	0.82	NA
113	2020-04-22	71.7	8.75	25.9	13.56	1.07	31.95	0.83	NA
114	2020-04-23	62	8.2	25.66	14.78	1.09	31.75	0.84	NA
115	2020-04-24	105.6	63.56	26.13	12.39	1.07	31.74	0.79	NA
116	2020-04-25	258.39	9.97	25.6	13.87	0.96	32.43	0.8	NA
117	2020-04-26	NA	7.25	25.26	24.93	1.03	31.63	0.84	NA
118	2020-04-27	NA	7.37	25.84	27.57	1.09	36.85	0.89	NA
119	2020-04-28	NA	17.78	26.04	27.89	1.28	33.73	0.82	NA
120	2020-04-29	NA	10.51	26.07	29.49	1.12	33.25	0.84	NA

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
121	2020-04-30	NA	23.45	25.94	34.53	1.37	34.61	0.8	NA
122	2020-05-01	NA	13.73	25.96	25.55	1.15	37.14	0.81	NA
123	2020-05-02	NA	19.07	26.5	28.05	1.3	39.13	0.82	NA
124	2020-05-03	NA	13.3	26.06	22.83	1.13	35.14	0.84	NA
125	2020-05-04	NA	15.17	26.15	22.25	1.51	31.07	0.81	NA
126	2020-05-05	NA	9.76	26.6	14.4	1.29	30.08	0.79	NA
127	2020-05-06	NA	5.31	26.72	16.38	0.98	31.74	0.83	NA
128	2020-05-07	NA	6.35	26.43	14.74	0.99	35.2	0.87	NA
129	2020-05-08	NA	8.48	26.68	19.23	1.15	31.3	0.81	NA
130	2020-05-09	NA	8.97	26.68	16.04	1.09	33.63	0.81	NA
131	2020-05-10	NA	18.12	27.12	27.57	1.41	34.85	0.81	NA
132	2020-05-11	NA	7.62	26.87	18.91	1.04	32.28	0.78	NA
133	2020-05-12	NA	48.73	26.69	14.01	0.99	33.96	0.75	NA
134	2020-05-13	NA	11.37	26.77	23.8	0.98	32.9	0.78	NA
135	2020-05-14	NA	8.04	26.78	15.14	0.9	31.5	0.77	NA
136	2020-05-15	NA	7.97	26.58	14.35	0.92	32.88	0.77	NA
137	2020-05-16	NA	13.93	26.64	15.62	0.94	33.56	0.79	NA
138	2020-05-17	NA	5.16	26.65	26.04	0.89	33.29	0.72	NA
139	2020-05-18	NA	7.17	15.73	31.4	0.92	31.84	0.75	NA
140	2020-05-19	NA	65.85	9	67.22	1.18	33.8	0.72	NA
141	2020-05-20	NA	46.94	8.15	57.22	1.58	39.05	0.73	NA
142	2020-05-21	NA	36.05	5.98	34.71	1.28	43.55	0.75	NA
143	2020-05-22	NA	22.93	1.44	21.06	1.04	40.44	0.74	NA
144	2020-05-23	NA	18.71	1.76	17.62	0.98	40.55	0.79	NA
145	2020-05-24	0	12.02	1.84	17.68	0.97	33.8	0.77	NA
146	2020-05-25	0	14.39	1.7	17.48	0.96	34.49	0.77	NA
147	2020-05-26	0	16.08	1.78	19.6	1.12	32.62	0.74	NA
148	2020-05-27	0	21.45	1.63	27.54	1.03	33.24	0.73	NA
149	2020-05-28	380.43	22.24	1.6	26.88	1	35.45	0.73	NA
150	2020-05-29	NA	20.1	1.8	20.11	1.02	38.1	0.8	NA
151	2020-05-30	45.06	16.7	2.18	25.01	1.02	36.13	0.74	NA

222

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
152	2020-05-31	44.17	13.58	1.98	16.73	0.86	36.72	0.81	NA
153	2020-06-01	40.79	9.52	1.84	25.61	0.92	34.98	0.81	NA
154	2020-06-02	23.14	8.22	2.01	17.95	0.85	19.96	0.75	NA
155	2020-06-03	25.78	16.12	2.35	28.64	0.94	4.08	0.76	NA
156	2020-06-04	22.58	10.69	2.36	19.18	0.93	5.11	0.83	NA
157	2020-06-05	81.5	23.16	2.31	30.29	1.29	5.12	0.78	NA
158	2020-06-06	32.43	17.61	2.26	24.85	0.87	6.31	0.79	NA
159	2020-06-07	48.72	25.29	2.07	27.92	1.02	5.7	0.8	NA
160	2020-06-08	68.63	29.53	2.2	24.84	1.17	5.41	0.77	NA
161	2020-06-09	32.66	30.58	2.18	49.31	1.17	4.96	0.78	NA
162	2020-06-10	106.1	61.32	1.85	35.53	0.92	9.22	0.81	NA
163	2020-06-11	91.57	85.32	2.25	38.27	1.08	4.68	0.75	NA
164	2020-06-12	35.91	26.97	5.72	36.4	1.35	3.34	0.74	NA
165	2020-06-13	45.73	12.89	1.64	25.13	1.05	6.74	0.76	NA
166	2020-06-14	47.31	14.4	1.27	22.17	0.94	5.84	0.77	NA
167	2020-06-15	60.09	15.78	1.58	24.63	1.17	6.59	0.78	NA
168	2020-06-16	46.89	12.55	1.73	23.41	0.97	7.16	0.79	0.03
169	2020-06-17	60.71	16.25	1.37	24.13	0.91	8.05	0.75	0.73
170	2020-06-18	45.99	12.05	1.44	24.08	0.87	9.71	0.87	0.14
171	2020-06-19	39.08	10.14	1.54	23.58	0.68	10.21	0.79	18.77
172	2020-06-20	61.32	20.95	1.13	23.76	0.79	10.99	0.82	0.03
173	2020-06-21	57.1	19.98	1.52	22.55	0.75	9.15	0.77	0.03
174	2020-06-22	74.62	23.23	1.04	22.98	0.8	8.94	1.07	0.02
175	2020-06-23	89.35	21.34	0.91	28.24	0.79	7.61	0.8	0.04
176	2020-06-24	54.03	11.57	0.77	17.29	0.69	3.92	0.79	0.02
177	2020-06-25	47.74	11.01	0.8	16.23	0.68	2.62	0.76	51.52
178	2020-06-26	31.21	6.53	1.1	15.37	0.71	1.58	0.82	263.89
179	2020-06-27	50.15	8.02	0.96	19.38	0.73	1.84	0.78	0.04
180	2020-06-28	42.72	10.96	0.84	16.83	0.73	2.47	0.88	0.03
181	2020-06-29	47.73	14.08	0.93	19.94	0.73	1.96	0.87	0.02
182	2020-06-30	120.23	11.29	6.51	8.41	0.73	0.81	0.76	0.02

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
183	2020-07-01	38.6	9.66	1.37	1.52	0.79	0.31	0.8	198.82
184	2020-07-02	51.4	14.83	1.39	27.42	0.84	2.11	0.81	280.78
185	2020-07-03	42.48	13.79	0.65	21.95	0.77	2.81	0.79	0.03
186	2020-07-04	31.67	8.71	0.65	8.18	0.75	2.53	0.82	0.03
187	2020-07-05	18.72	4.81	0.44	13.71	0.66	2.83	0.85	0.02
188	2020-07-06	34.12	11.61	0.63	12.32	0.81	2.8	0.85	0.03
189	2020-07-07	73.78	19.31	1.46	4.21	0.94	2.57	0.84	0.03
190	2020-07-08	83.05	19.18	0.37	0.14	0.95	3.01	0.77	0.03
191	2020-07-09	71.64	12.65	0.69	20.09	0.95	3.14	0.81	0.03
192	2020-07-10	62.55	8.3	0.52	0.3	0.7	3.22	18.51	5.05
193	2020-07-11	76.01	14.34	0.47	0.16	0.87	3.11	17.52	42.67
194	2020-07-12	52.01	10.29	0.32	0.16	0.75	3.4	2.01	0.02
195	2020-07-13	39.83	9.77	0.64	0.12	0.75	2.78	2.47	102.91
196	2020-07-14	38.54	418.62	0.89	0.17	0.87	2.76	1.39	286.17
197	2020-07-15	44.33	11.09	0.96	0.14	0.83	2.3	2.34	378.37
198	2020-07-16	36.41	7.64	3.11	0.11	0.94	2.66	2.78	5.76
199	2020-07-17	62.13	14.8	0.9	7.2	0.97	3.37	1.7	0.04
200	2020-07-18	70.31	11.94	0.77	12.45	0.71	2.66	0.22	96.23
201	2020-07-19	76.78	13.74	0.95	12.51	0.79	2.82	0.32	0.03
202	2020-07-20	62.95	13.5	0.65	9.92	0.71	2.91	0.18	0.03
203	2020-07-21	55.22	10.13	0.73	8.46	0.75	2.51	0.05	7.46
204	2020-07-22	61.06	7.13	1.04	11.53	0.74	2.5	0.42	21.73
205	2020-07-23	35.39	8.51	1.07	8.51	0.6	2.5	0.07	15.14
206	2020-07-24	68.83	14.26	1.16	25.76	0.72	2.42	0.06	0.92
207	2020-07-25	66.48	16.98	1.02	16.1	0.69	2.62	0.06	0.24
208	2020-07-26	63.66	10.65	0.89	2.73	0.53	2.81	0.09	0.27
209	2020-07-27	66.42	17.78	1.13	14.05	0.61	2.81	0.06	0.23
210	2020-07-28	86.68	20.57	1.08	15.77	0.97	2.7	0.05	0.33
211	2020-07-29	48	11.92	1.61	14.46	0.79	3.14	0.09	0.22
212	2020-07-30	40.85	11.12	1.84	12.35	0.61	2.75	0.02	0.32
213	2020-07-31	49.7	8.68	2.25	12.1	0.89	2.74	0.08	0.29

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
214	2020-08-01	70.44	18.07	1.83	7.64	0.81	2.97	0.06	0.32
215	2020-08-02	46.94	10.71	2.08	10.39	0.61	3.18	0.04	0.36
216	2020-08-03	29.93	97.97	2.43	14.59	0.55	2.94	0.08	0.23
217	2020-08-04	24.21	6.63	2.03	6.74	0.47	2.91	0.04	0.21
218	2020-08-05	28.7	8.47	2.72	14.25	0.47	2.69	0.09	7.88
219	2020-08-06	49.39	9.79	1.76	8.31	0.56	3.18	0.09	0.21
220	2020-08-07	60.38	15.31	1.43	6.09	0.66	2.96	0.04	0.67
221	2020-08-08	48.28	12.74	1.43	13.32	0.57	2.97	0.07	0.53
222	2020-08-09	57.27	15.47	1.4	14.81	0.66	2.81	0.06	1.2
223	2020-08-10	37.83	10.42	1.94	6.55	0.52	2.92	0.1	0.3
224	2020-08-11	53.78	14.99	1.16	6.22	0.56	4.18	0.12	0.23
225	2020-08-12	33.74	9.48	1.11	7.49	0.5	3.36	0.08	0.31
226	2020-08-13	24.69	8.49	1.52	6.46	0.53	2.69	0.06	0.16
227	2020-08-14	17.94	7.05	1.74	7.86	0.51	2.45	0.1	0.07
228	2020-08-15	16.05	6.52	2.11	7.49	0.45	2.44	0.13	0.04
229	2020-08-16	24.88	7.69	2.05	7.5	0.51	2.6	0.13	0.11
230	2020-08-17	39.8	9.5	2.05	8.76	0.64	2.6	0.07	0.05
231	2020-08-18	52	13.86	2.64	14.13	0.76	2.69	0.1	3.16
232	2020-08-19	39.65	10.23	1.68	8.26	0.5	2.88	0.07	23.53
233	2020-08-20	28.68	7.15	2.55	8.24	0.48	2.84	0.07	0.07
234	2020-08-21	50	10.75	2.98	10.56	0.51	2.83	0.04	2.53
235	2020-08-22	68.05	17.63	2.34	8.06	0.63	2.55	0.11	0.09
236	2020-08-23	55.76	17.26	2.12	7.34	0.58	2.71	0.13	0.1
237	2020-08-24	68.22	20.61	2.58	15.47	0.77	3.32	0.04	2.53
238	2020-08-25	82.03	22.66	2.64	26.29	0.85	3.21	0.03	0.8
239	2020-08-26	80.79	25.78	2.62	21.79	0.71	2.77	11.66	1.1
240	2020-08-27	75.66	19.97	2.26	17.17	0.69	3.24	26.8	0.2
241	2020-08-28	113.89	28.29	1.93	13.93	0.78	3.32	27.68	2.01
242	2020-08-29	118.44	27.55	1.45	11.46	0.67	3.27	28.05	146.02
243	2020-08-30	128.13	36.63	1.38	11.29	0.72	4.11	27.84	2.46
244	2020-08-31	133.19	37.79	1.39	18.11	0.9	3.73	27.42	2.6

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
245	2020-09-01	74.1	23.88	4.11	30.6	0.84	3.69	27.07	1.18
246	2020-09-02	53.13	16.35	4.02	31.3	0.67	2.84	26.76	0.67
247	2020-09-03	77.25	19.49	3.09	19.57	0.61	2.94	27.28	0.56
248	2020-09-04	64.56	13.12	3.3	17.59	0.55	2.31	27.6	0.73
249	2020-09-05	83.98	11.12	3.5	18.31	0.53	2.29	27.72	1.04
250	2020-09-06	62.51	8.02	2.66	12.69	0.56	2.35	28.11	1.55
251	2020-09-07	59.36	6.44	3.11	13.72	0.53	2.36	27.96	1.24
252	2020-09-08	64.63	8.26	4.06	15.43	0.57	2.67	27.72	0.94
253	2020-09-09	68.13	60.07	3.54	12.42	0.52	7.84	27.77	0.49
254	2020-09-10	82.38	12.61	2.36	17.93	0.56	2.88	27.8	1.07
255	2020-09-11	76.39	15.9	2.32	9.69	0.45	3.61	27.7	0.8
256	2020-09-12	54.12	15.23	9.62	7.81	0.35	4.07	27.96	0.47
257	2020-09-13	18.71	6.14	15.3	6.63	0.29	3.44	28.33	0.05
258	2020-09-14	38.15	3.53	14.34	6.77	0.27	3.63	28.12	0.03
259	2020-09-15	43.64	6.23	14.35	7.59	0.34	3.86	28.14	0.14
260	2020-09-16	66.36	12.43	14.45	7.69	0.49	3.42	28	0.19
261	2020-09-17	75.9	12.87	14.48	7.32	0.43	3.67	28.14	0.26
262	2020-09-18	92.83	23.02	14.32	9.09	0.46	3.58	27.91	0.22
263	2020-09-19	69.02	17.06	14.42	11.39	0.35	2.88	27.9	0.19
264	2020-09-20	41.41	12.75	14.12	6.79	0.35	2.82	28.35	0.06
265	2020-09-21	45.81	17.48	14.09	5.8	0.38	3.14	28.07	24.46
266	2020-09-22	44.25	10.24	13.99	6.08	0.35	3.19	28.14	0.09
267	2020-09-23	89.21	16.44	13.99	5.57	0.55	3.74	28.01	0.03
268	2020-09-24	94.74	16.71	14.63	5.67	0.45	3.73	28.14	0.81
269	2020-09-25	77.04	19.89	14.17	5.53	0.41	4.06	28.1	0.76
270	2020-09-26	105.34	21.12	14.78	17.66	0.67	2.96	27.27	0.62
271	2020-09-27	181.2	39.22	14.59	16.46	0.84	2.84	27.13	0.2
272	2020-09-28	144.43	47.97	14.23	11.35	0.6	5.71	27.71	0.4
273	2020-09-29	215.18	65.05	14.45	16.16	0.72	5.83	27.54	2.03
274	2020-09-30	123.12	35.39	16.13	20.98	0.79	3.99	27.06	3.42
275	2020-10-01	111.59	29.55	16.14	27.2	0.9	2.61	26.38	2.8

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
276	2020-10-02	153.87	39.76	15.02	15.99	0.71	3.22	27.27	2.78
277	2020-10-03	166.04	58.24	14.98	16.42	0.76	5.72	27.48	1.03
278	2020-10-04	87.15	31.96	14.85	15.16	0.7	3.79	27.42	1.71
279	2020-10-05	136.75	17.35	15.09	15.19	0.55	2.95	27.36	0.09
280	2020-10-06	79.55	19.41	15.03	17.46	0.66	17.89	27.05	1.05
281	2020-10-07	90.37	28.33	14.84	15.41	0.62	3.72	27.54	0.65
282	2020-10-08	116.97	31.93	14.6	12.65	0.59	2.91	27.51	0.36
283	2020-10-09	121.64	35.99	15.64	21.85	0.81	2.43	27.09	0.03
284	2020-10-10	112.56	40.24	14.56	14.19	0.69	2.49	27.55	0.02
285	2020-10-11	28.22	8.72	14.16	8	0.32	2.54	27.94	0.04
286	2020-10-12	24.74	7.96	16.74	15.7	0.36	2.34	27.69	0.05
287	2020-10-13	23.8	60.62	14.69	6.86	0.37	2.42	28.14	0.05
288	2020-10-14	45.54	10.13	14.92	20.92	0.57	2.66	26.87	0.07
289	2020-10-15	80.19	22.68	15.14	25.56	0.87	2.33	26.4	0.05
290	2020-10-16	66.87	23.74	14.53	16.08	0.67	2.61	27.07	0.51
291	2020-10-17	46.88	11.85	14.36	14.56	0.43	2.98	27.72	1.15
292	2020-10-18	51.75	15.44	13.88	9.84	0.38	3.66	27.95	2.02
293	2020-10-19	42.9	17.55	13.91	8.78	0.36	3.57	28.01	0.53
294	2020-10-20	83.63	6.13	14.14	16.06	0.5	3.01	27.49	0.68
295	2020-10-21	118.45	72.02	14.54	18.6	0.94	2.41	27.32	0.05
296	2020-10-22	164.73	52.02	15.67	31.15	1.23	2.85	26.53	0.01
297	2020-10-23	241.49	83.87	15.01	22.96	1.94	3.1	26.68	0
298	2020-10-24	274.89	84.28	14.22	18.15	1.06	4.35	27.59	0
299	2020-10-25	193.68	72.52	13.69	10.12	0.74	6.28	27.68	0
300	2020-10-26	145.16	53.33	13.73	9.89	0.54	5.25	28	0
301	2020-10-27	193.5	53.33	13.75	17.78	0.73	5.36	27.34	0
302	2020-10-28	239.68	61.47	15.34	23.1	0.8	5.03	26.88	0.01
303	2020-10-29	227.37	54.28	17.01	27.13	0.82	1.94	26.7	0
304	2020-10-30	225.75	59.82	18.01	22.76	0.78	2.99	27.3	0
305	2020-10-31	241.08	67.71	15.51	21.03	0.87	3.11	27.59	0
306	2020-11-01	180.84	66.78	14.95	13.24	0.82	3.6	28.06	0

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
307	2020-11-02	155.33	59.35	13.6	12.78	0.74	3.49	27.83	0
308	2020-11-03	126.55	42.31	13.4	9.27	0.54	3.83	28.23	0
309	2020-11-04	96.74	50.74	13.24	11.07	0.62	3.53	27.9	0
310	2020-11-05	131.97	66.98	13.65	9.21	0.69	4.32	28.18	0
311	2020-11-06	189.89	72.63	13.25	14.29	0.72	2.87	27.76	0
312	2020-11-07	213.06	73.61	13.45	14.05	0.72	1.84	27.77	0
313	2020-11-08	205.22	64.02	18.82	17.55	0.72	1.75	27.71	0
314	2020-11-09	195.55	67.77	19.06	22.18	0.85	1.9	27.35	0
315	2020-11-10	158.5	50.72	19.38	16.26	0.55	7.53	27.6	0
316	2020-11-11	34.47	10.79	14.53	18.39	0.41	3.3	27.21	0
317	2020-11-12	49.61	12.41	14.51	16.15	0.47	2.8	27.38	0
318	2020-11-13	142.04	24.02	15.38	23.2	0.52	5.61	27.28	0
319	2020-11-14	138.11	46.02	15.13	10.09	0.45	9.41	27.82	0
320	2020-11-15	105.1	41.93	13.76	4.82	0.37	4.3	28.48	0
321	2020-11-16	121.9	41.54	13.96	13.61	0.5	1.28	27.73	0
322	2020-11-17	180.38	67.37	15.13	17.32	0.75	1.3	27.45	0
323	2020-11-18	159.56	64.87	14.89	12.52	0.76	1.3	27.71	0
324	2020-11-19	130.29	48.25	15.35	14.04	0.7	0.69	15.13	0
325	2020-11-20	165.09	168.86	15.18	19.17	1.03	9.53	9.13	0
326	2020-11-21	162.93	56.35	16.39	19.33	0.75	18.73	79.53	0
327	2020-11-22	124.85	49.53	15.46	8.35	0.48	18.73	132.37	0
328	2020-11-23	142.13	63.39	15.25	12.54	0.39	18.72	77.41	0
329	2020-11-24	142.28	51.57	18.3	19.48	0.37	18.72	4.11	0
330	2020-11-25	157	52.76	20.29	12.57	0.43	18.73	6.58	0
331	2020-11-26	77.27	38.07	21.05	18.07	0.48	18.72	12.82	0
332	2020-11-27	52.47	24.31	24.86	19.24	0.31	25.02	12.57	0
333	2020-11-28	135.89	43.54	24.43	29.18	0.74	13.1	14.1	0
334	2020-11-29	161.74	44.96	21.75	18.14	0.57	72.3	12.48	0
335	2020-11-30	230.3	76.31	17.73	33.4	1.01	41.51	12.68	0.02
336	2020-12-01	200.04	60.78	6.64	24.47	0.77	2.02	12.51	0.02
337	2020-12-02	198.62	64.38	5.84	25.49	0.78	0	12.98	0

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
338	2020-12-03	213.98	70.59	5.04	22.5	0.81	0	12.44	0.01
339	2020-12-04	216.75	85.69	2.97	20.68	0.92	0	12.97	0.02
340	2020-12-05	238.18	70.83	0.3	18.45	0.9	0	12.16	0.06
341	2020-12-06	139.74	51.66	0.03	14.39	0.65	0	11.85	0.05
342	2020-12-07	176.14	60.59	23.53	23.42	0.83	5.13	12.18	0
343	2020-12-08	187.22	64.01	50.93	27.03	1.01	6.91	12.51	0.01
344	2020-12-09	209.28	66.72	42.48	68.39	1.13	12.88	13.58	0
345	2020-12-10	198.74	72.73	25.2	69.68	1.01	14.63	12.5	0.01
346	2020-12-11	234.77	315.45	22.45	72.68	1.2	17.67	12.86	0.04
347	2020-12-12	210.47	73.79	18.77	71.02	1.05	12.68	13.78	0.05
348	2020-12-13	238.82	88.72	26.86	62.46	1.35	11.58	13.04	0.08
349	2020-12-14	197.43	81.48	14.28	63.47	1.17	14.73	12.08	0.09
350	2020-12-15	197.7	82.91	9.34	48.52	0.88	26.36	11.41	0.02
351	2020-12-16	161.25	60.61	6.57	48.28	0.78	20.22	12.02	0
352	2020-12-17	198.3	81.76	10.55	53.97	0.96	17.51	11.96	0.09
353	2020-12-18	208.71	89	10.46	38.28	0.9	22.03	11.49	0.25
354	2020-12-19	190.15	78.3	10.7	45.57	0.83	23.54	11.35	0.03
355	2020-12-20	194.57	73.71	17.96	48.52	0.84	22.06	11.05	0
356	2020-12-21	187.98	72.47	22.69	60.56	0.96	18.11	11.34	0
357	2020-12-22	238.36	75.6	23.56	88.4	1.19	13.98	11.63	0
358	2020-12-23	199.25	73.01	25.32	71.7	1.01	14.17	11	0
359	2020-12-24	207.56	85.05	20.94	59.43	1.01	21.36	10.99	0
360	2020-12-25	245.64	113.74	20.16	53.83	1.19	19.44	10.82	0
361	2020-12-26	259.08	121.25	22.1	58.7	1.26	22.72	10.97	NA
362	2020-12-27	233.19	111.75	17.76	43.78	1.13	23.58	10.85	NA
363	2020-12-28	288.26	161.43	20.57	64.55	1.3	24.36	9.62	0.19
364	2020-12-29	238.62	103.42	27.78	63.11	1.23	21.78	8.89	0.29
365	2020-12-30	218.91	88.03	31.61	57.03	1.02	21.06	8.87	0.15
366	2020-12-31	239.42	92.4	27.06	51.57	1.01	33.78	9.26	0.03

9
4
20

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
367	Standards - 24 hours average	100	60	80	80	4 (1 hour average)	180 (1 hour average)	400	-
368	Standards - Annual average	60	40	50	40	2 (8 hour average)	100 (8 hour average)	100	5
369	Maximum Value	380.43	418.62	50.93	88.4	7.6	72.3	132.37	378.37
370	Minimum Value	16.05	3.11	0.03	0.08	0.11	0.03	0.02	0.01
371	Average	108.2	130.4	11.4	24.8	1.2	14.7	9.1	13.6
372	No. of data available days	307	366	366	366	366	337	366	150.0
373	Data Availablity %	83.88	100.00	100.00	100.00	100.00	92.08	100.00	40.98

Ambient Air Quality Data - 2021 (January to April)

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

Location: CAAQMS 1 - South Gate

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
1	2021-01-01	241.27	106.32	30.2	40.83	1.03	40.14	9.16	0
2	2021-01-02	219.27	105.89	25.89	41.66	1.02	7.26	9.65	0
3	2021-01-03	237.16	108.64	25.71	49.55	1.07	22.62	9.74	0.14
4	2021-01-04	179.4	62.17	29.64	47.91	0.76	25.44	9.7	0.26
5	2021-01-05	170.93	110.68	28.2	35.61	0.79	25.32	9.77	0.04
6	2021-01-06	170.07	68.91	31.95	54.2	0.93	15.41	9.37	0.05
7	2021-01-07	161.84	104.37	46.76	56.45	0.91	7.98	10.32	0.22
8	2021-01-08	113.53	39.62	55.88	42.72	0.66	8.12	11	0.12
9	2021-01-09	136.7	51.66	38.29	59.1	0.82	14.24	7.35	0.26
10	2021-01-10	143.28	53.23	25.9	46.52	0.79	11.69	5.51	0.2
11	2021-01-11	212.31	72.76	34.69	67.81	0.99	13.51	7.11	0.04
12	2021-01-12	190.8	71.76	37.28	66.91	0.92	11.06	7.29	0.16
13	2021-01-13	249.73	266.61	39.72	78.03	1.41	11.09	6.99	0.12
14	2021-01-14	144.52	65.44	39.93	36.32	0.83	10.2	5.63	0.16
15	2021-01-15	139.89	62.7	46.22	20.5	0.69	9.8	4.53	0.02
16	2021-01-16	131.2	55.87	56.88	23.74	0.71	7.72	1.29	0.22
17	2021-01-17	123.61	57.78	69.47	26.64	0.6	7.42	1.52	0.13
18	2021-01-18	173.55	75.44	93.81	33.96	0.71	17.23	1.66	0.01
19	2021-01-19	171.03	76.69	62.57	44.1	0.69	10.74	10.8	0.1
20	2021-01-20	237.49	87.35	33.09	65.2	1.39	7.38	10.41	0.14
21	2021-01-21	257.36	90.37	35.19	64.85	1.41	11.81	10.65	0.15
22	2021-01-22	190.32	80.68	32.32	35.8	0.91	17.53	10.8	0.12
23	2021-01-23	160.72	69.97	45.84	29.03	0.74	12.41	11.24	0.16
24	2021-01-24	177.32	75.06	47.22	40.99	0.9	8.4	11.03	0.02
25	2021-01-25	165.94	60.78	60.29	47.39	0.93	5.05	10.75	0.16
26	2021-01-26	134.71	52.12	68.58	44.12	0.85	4.39	10.73	0.37
27	2021-01-27	148.66	100.22	79.21	51.27	0.79	7.13	10.95	0.21

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
28	2021-01-28	115.3	72.39	83.94	43.05	0.82	12.18	10.98	0.35
29	2021-01-29	68.75	72.62	53.76	32.1	0.78	14.24	11.01	0.65
30	2021-01-30	185.15	71.03	55.33	45.65	0.88	11.45	11.03	0.65
31	2021-01-31	139.03	59.77	83.68	36.74	0.76	15.2	10.85	0.65
32	2021-02-01	217.94	303.7	45.78	37.41	0.96	28.85	10.96	0.22
33	2021-02-02	196.71	122.2	65.87	44.69	0.94	20.63	11.08	0
34	2021-02-03	171.04	40.22	57.5	58.19	0.74	11.98	11.22	0
35	2021-02-04	174.11	31.93	60.64	65.7	0.67	11.92	11.11	0
36	2021-02-05	174.09	35.88	64.66	64.15	0.69	11.93	11.07	0
37	2021-02-06	153.25	32.61	47.96	51.92	0.84	14.34	12.55	0
38	2021-02-07	145.23	37.28	36.87	42.45	0.92	15.46	11.37	0
39	2021-02-08	165.5	42.26	30.41	47.18	0.92	19.14	11.13	0.09
40	2021-02-09	175.67	49.9	34.96	50.96	1.02	14	11.4	0.22
41	2021-02-10	179.62	56.91	34	49.38	1.06	14.23	11.12	0.11
42	2021-02-11	166.88	50	28.78	43.25	1.04	14.5	1.43	0.01
43	2021-02-12	148.34	38.15	29.3	47.98	0.92	10.56	0.51	0.1
44	2021-02-13	111.84	23.49	27.09	42.07	0.78	9.43	0.12	0.13
45	2021-02-14	115.78	18.67	26.27	40.58	0.83	8.85	0.09	0.13
46	2021-02-15	174.11	26.59	27.73	43.16	1.1	6.19	0.02	0.14
47	2021-02-16	192.93	37.2	28.84	39.93	1.37	5.6	0	0.26
48	2021-02-17	180.12	48.89	44.27	45.84	0.93	19.48	3.05	0.31
49	2021-02-18	147.94	42.23	62.68	29.62	0.77	22.79	2.77	0.14
50	2021-02-19	150.04	36.9	71.7	34.09	0.76	22.9	3.31	0.11
51	2021-02-20	125.14	27.28	71.72	35.05	0.7	18.51	3.25	0.06
52	2021-02-21	131.59	31.85	66.04	36.33	0.81	17.46	3.3	0.14
53	2021-02-22	139.07	34.23	64.23	47.84	0.81	12.5	3.34	0.13
54	2021-02-23	202.71	49.71	68.45	67.62	1.5	9.03	3.43	0.02
55	2021-02-24	178.81	40.38	58.43	48.26	1.26	11.61	3.37	0.18
56	2021-02-25	201.44	41.84	60.31	49.82	1.7	5.98	3.34	0.03
57	2021-02-26	206.5	45.47	60.73	48.11	1.55	8.82	2.82	0.1
58	2021-02-27	245.66	53.49	52.64	47.39	1.89	4.67	2.34	0.05

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
59	2021-02-28	143.96	28.83	45.33	28.81	1.22	5.92	2.14	0.05
60	2021-03-01	177.92	25.84	49.27	32.14	1.16	2.81	2.19	0.01
61	2021-03-02	201.53	36.31	49.35	39.55	1.7	5.48	2.84	0.01
62	2021-03-03	177.76	36.53	44.06	43.08	1.13	10.01	2.37	0.05
63	2021-03-04	190.9	33.39	47.2	44.52	1.35	12.77	3.23	0.01
64	2021-03-05	228.05	37.45	43.34	34.76	1.4	8.67	3.13	0.03
65	2021-03-06	253.06	39.68	49.36	59.42	1.17	9.47	3.75	0.08
66	2021-03-07	157.63	24.28	38.32	28.47	1.33	2.61	2.92	0.2
67	2021-03-08	126.96	141.13	36.17	27.44	0.94	1.38	3.23	0.04
68	2021-03-09	110.19	10.09	38.28	34.74	1	1.03	7	0.06
69	2021-03-10	138.37	18.89	34.3	29.23	1	0.84	8.11	0.3
70	2021-03-11	148.05	63.01	28.48	28.88	1.05	5.59	9.87	0.12
71	2021-03-12	147.47	18.31	34.52	30.33	1.14	5.29	16.14	0.11
72	2021-03-13	158.13	34.76	42.7	56.24	1.09	4.83	14.5	0.2
73	2021-03-14	89.6	13.4	29.71	40.91	0.7	6.17	14.49	0.02
74	2021-03-15	125.2	24.07	25.47	31.17	0.86	14.92	14.48	0.01
75	2021-03-16	154.94	98.31	22.87	54.12	1.3	10.13	14.47	0.1
76	2021-03-17	135.8	24.96	17.97	21.56	0.92	12.48	14.48	0.06
77	2021-03-18	143.83	29.71	20.07	23.97	1.14	11.38	14.48	0.14
78	2021-03-19	189.86	36.09	25.6	37.54	1.03	2.19	13.48	0.03
79	2021-03-20	185.59	45.3	18.77	26.2	1.23	17.41	13.9	0.11
80	2021-03-21	153.92	36.98	17.22	20.17	1.08	15.72	8.86	0.06
81	2021-03-22	216.62	47.54	27.61	41.58	1.27	9.14	0.07	0.06
82	2021-03-23	222.81	80.45	35.3	43.02	1.02	14.44	0.07	0.03
83	2021-03-24	249.71	94.89	35.37	51.39	1.25	21.91	4.09	0.17
84	2021-03-25	287.84	68.33	17.62	61.8	1.77	16.24	10.74	0.41
85	2021-03-26	308.08	78.97	11.6	49.99	2.09	13.86	10.41	0.09
86	2021-03-27	252.93	71.04	2.54	39.31	1.41	10.01	9.77	0.06
87	2021-03-28	202.59	60.31	1.12	32.58	1.32	5.82	8.34	0
88	2021-03-29	173.07	46.42	1.02	20.84	1.26	9.09	6.83	0.01
89	2021-03-30	188.61	42.2	0.04	22.88	1.35	15.58	3.7	0.03

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
90	2021-03-31	237.32	60.89	1.46	22.93	2.13	21.92	7.58	0.05
91	2021-04-01	242.18	75.36	0.66	33.62	1.92	11.19	7.62	0.06
92	2021-04-02	145.96	46.04	0	19.99	0.99	17.16	6.18	0.07
93	2021-04-03	114.63	33.22	0.11	19.53	0.79	20.62	0.05	0.03
94	2021-04-04	147.67	51.63	0.03	35.01	1.21	18.67	0.07	0.02
95	2021-04-05	115.29	34.35	0	20.87	0.82	10.65	0.05	0.02
96	2021-04-06	135.78	38.91	0	22.27	0.85	8.82	0.06	0.05
97	2021-04-07	173.05	43.47	0.52	20.74	1.13	10.29	0.07	0.07
98	2021-04-08	128.6	34.66	9.18	19.54	1.05	21.63	0.07	0.02
99	2021-04-09	104.72	28.69	0	13.33	0.82	13.67	0.07	0.03
100	2021-04-10	75.07	20.89	0	12.58	0.36	12.78	0.07	0.36
101	2021-04-11	79.54	25.82	0	12.45	0.05	6.41	0.07	0.2
102	2021-04-12	133.5	31.26	0	19.95	1.02	8.74	0.07	0
103	2021-04-13	NA	NA	NA	NA	NA	NA	NA	NA
104	2021-04-14	153.94	30.48	2.44	37.74	0.88	8	0.07	0.34
105	2021-04-15	101.15	27.81	0.93	28.79	1.08	8.89	0.07	0.15
106	2021-04-16	52.15	8.3	0.25	16.25	0.65	11.59	0.07	0.07
107	2021-04-17	50.31	8.88	0	15.43	0.66	8.92	0.07	0.12
108	2021-04-18	65.97	11.29	0.03	14.85	0.81	6.5	0.07	0.08
109	2021-04-19	96.06	25.08	0	17.75	0.92	9.53	0.07	0.04
110	2021-04-20	133.05	34.57	0	25.09	1.13	7.71	0.07	0.15
111	2021-04-21	125.3	28.51	0	17.05	1.03	7.88	0.07	0.06
112	2021-04-22	91.35	23.28	0	16.01	0.85	9.26	0.07	0.03
113	2021-04-23	101.47	27.32	1.24	26.9	0.78	8.48	0.07	0.09
114	2021-04-24	124.31	40.44	0.74	29.61	0.92	14.52	0.07	0.01
115	2021-04-25	136.48	36.29	3.97	23.88	1.11	8.29	0.07	0.06
116	2021-04-26	123.58	31.72	0.22	18.5	0.87	6.93	0.07	0.02
117	2021-04-27	131.9	32.98	0.08	17.27	0.9	8.33	0.07	0.05
118	2021-04-28	106.88	28.7	0	13.98	0.78	9.73	0.07	0.01
119	2021-04-29	93.55	28.06	0	13.95	0.74	8.13	0.07	0.01
120	2021-04-30	117.78	41.24	0	22.46	0.8	7.69	0.07	0.02

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
121	Standards - 24 hours average	100	60	80	80	4 (1 hour average)	180 (1 hour average)	400	-
122	Standards - Annual average	60	40	50	40	2 (8 hour average)	100 (8 hour average)	100	5
123	Maximum Value	308.08	303.7	93.81	78.03	2.13	40.14	16.14	0.65
124	Minimum Value	50.31	8.3	0.03	12.45	0.05	0.84	0.02	0.01
125	Average	160.86	53.30	35.94	37.25	1.01	11.69	5.81	0.12
126	No. of data available days	119	119	104	119	119	119	118	109.0
127	Data Availablity %	99.17	99.17	86.67	99.17	99.17	99.17	98.33	90.83

2.25

Ambient Air Quality Data - 2020 (January to December)

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

Location: CAAQMS 2 - Store Yard

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
1	2020-01-01	30.88	370.87	3.02	0	0.33	1.43	1	NA
2	2020-01-02	142.45	232.34	6.9	0	0.42	6.1	0.96	NA
3	2020-01-03	372.53	19.24	7.32	7.75	0.08	0.28	1.01	NA
4	2020-01-04	372.99	12.69	12.19	10.39	0.07	0.52	0.96	NA
5	2020-01-05	372.37	11.88	11.95	9.91	0.09	0.53	0.97	NA
6	2020-01-06	372.45	16.47	7.69	9.55	0.07	1.49	0.88	NA
7	2020-01-07	373	16.79	23.95	7.72	0.59	0.12	0.84	NA
8	2020-01-08	372.41	19.27	60.31	4.73	0	0.1	1.06	NA
9	2020-01-09	372.38	26.35	42.53	6.04	0	0.11	1.33	NA
10	2020-01-10	372.24	20.55	54.12	5.54	0	0.12	1.28	NA
11	2020-01-11	374.76	21.3	59.88	0.97	0	0.12	1.07	NA
12	2020-01-12	374.94	29.48	35.93	3.5	0	0.11	1.24	NA
13	2020-01-13	374.96	35.52	27.98	7.3	0.01	0.11	1.32	NA
14	2020-01-14	374.61	51.65	24.52	5.5	0	0.11	1.52	NA
15	2020-01-15	374.9	33.14	25.07	19.63	0	0.12	1.33	NA
16	2020-01-16	374.34	26.22	30.69	5.81	0	0.31	1.05	NA
17	2020-01-17	374.49	28.07	32.77	1.58	0	0.48	1.05	NA
18	2020-01-18	374.84	30.23	37.21	1.73	0.27	0.46	44.84	NA
19	2020-01-19	375.3	26.42	30.4	5.39	0	0.48	100.66	NA
20	2020-01-20	374.41	26.54	76.79	9.48	0.05	0.78	81.04	NA
21	2020-01-21	371.01	20.27	129.13	7.07	0.27	0.5	41.09	NA
22	2020-01-22	334.08	26.74	131.33	10.2	0.7	0.46	4.04	NA
23	2020-01-23	371.49	39.18	131.4	11.57	0.71	0.47	4.54	NA
24	2020-01-24	375.7	45.63	124.6	9.75	0.84	0.46	5.44	NA
25	2020-01-25	374.85	33.83	97.61	8.07	0.65	0.44	6.16	NA
26	2020-01-26	373.66	19.37	68.18	9.11	0.86	2.15	9.16	NA
27	2020-01-27	374.88	0	44.63	24.17	1.27	8.66	24.57	NA

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
28	2020-01-28	374.81	4.57	62.31	45.43	2.04	0.48	6.46	NA
29	2020-01-29	368.05	31.76	26.61	20.55	2.69	0.96	7.86	NA
30	2020-01-30	374.66	33.62	16.36	39.07	2.97	0.96	8.59	NA
31	2020-01-31	374.97	36.49	125.02	19.77	3.72	0.87	6.96	NA
32	2020-02-01	374.77	22.12	232.58	20.82	4.13	0.94	9.38	NA
33	2020-02-02	374.7	21.37	241.45	17.4	4.6	0.85	9.54	NA
34	2020-02-03	374.5	21.72	229.37	19.08	4.57	0.79	8.09	NA
35	2020-02-04	374.81	24.45	248.71	22.03	3.71	0.89	7.36	NA
36	2020-02-05	374.69	41.18	220.47	14.25	2.72	0.81	8.34	NA
37	2020-02-06	374.43	29.83	250	14.79	1.57	0.75	7.21	NA
38	2020-02-07	374.92	28.27	249.84	13.74	3.72	0.84	6.4	NA
39	2020-02-08	374.49	18.27	236.93	12.66	4.3	0.79	9.42	NA
40	2020-02-09	373.17	15.2	250	15.2	4.62	0.63	9.36	NA
41	2020-02-10	373.48	21.13	250	13.51	4.52	0.6	9.43	NA
42	2020-02-11	374.37	34.94	250	16.33	4.51	0.51	9.23	NA
43	2020-02-12	374.4	40.2	201.42	14.33	4.53	0.51	11.1	NA
44	2020-02-13	374.29	52.7	112.75	18.42	4.73	0.55	9.52	NA
45	2020-02-14	374.28	54.36	148.79	20.77	4.2	0.46	8.1	NA
46	2020-02-15	374.85	62.4	244.43	15.14	4.28	16.62	5.23	NA
47	2020-02-16	374.59	42.96	250	20.28	4.23	6.19	5.94	NA
48	2020-02-17	374.42	40.95	222.15	18.03	4.03	5.81	5.7	NA
49	2020-02-18	374.39	38.32	112.68	9.59	4.03	6.2	7.64	NA
50	2020-02-19	374.68	32.15	99.49	14.6	3.49	6.2	7.95	NA
51	2020-02-20	373.2	34.13	26.8	2.42	3.36	6.12	9.34	NA
52	2020-02-21	372.73	28.38	0.04	10.65	3.5	6.15	6.54	NA
53	2020-02-22	371.86	21.98	0.03	6.78	3.58	6.11	8.11	NA
54	2020-02-23	370.59	15.07	0.03	2.97	7.48	6.1	7.14	NA
55	2020-02-24	371.52	19.61	0.04	5.6	1.86	6.01	7.26	NA
56	2020-02-25	371.86	27.41	6.84	10.79	0.74	6.12	8.57	NA
57	2020-02-26	371.58	31.16	3.7	20.67	0	6.17	6.14	NA
58	2020-02-27	372.18	28.76	4.36	15.32	0.6	6.12	7.26	NA

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
59	2020-02-28	372.44	43.16	7.94	15.13	1.1	6.17	7.3	NA
60	2020-02-29	372.53	43.12	8.29	7.9	0.65	5.9	9.35	NA
61	2020-03-01	372.11	34.86	6.56	10.73	0.57	6.05	7.74	NA
62	2020-03-02	372.5	50.37	5.89	16.52	0.58	6.12	3.09	NA
63	2020-03-03	372.84	57.22	5.43	26.81	0.78	6.27	3.91	NA
64	2020-03-04	374.32	61.5	5.44	187.84	0.76	6.27	4.77	NA
65	2020-03-05	374.31	33.97	5.63	144	0.64	6.25	3.77	NA
66	2020-03-06	374.4	19.66	5.03	88.43	0	6.23	5.07	NA
67	2020-03-07	374.13	20.05	4.29	39.75	0.65	6.31	5.16	NA
68	2020-03-08	374.08	26.51	3.82	91.85	1.01	6.29	3.7	NA
69	2020-03-09	373.82	29	3.33	60.45	0.98	6.28	3.73	NA
70	2020-03-10	373.85	27.95	3.07	60.85	1.25	6.32	3.57	NA
71	2020-03-11	374.06	27.57	2.86	9.65	2.52	6.33	3.88	NA
72	2020-03-12	374.14	24.15	5.85	24.14	1.66	6.34	3.61	NA
73	2020-03-13	373.2	33.67	4.58	29.49	1.54	6.29	3.34	NA
74	2020-03-14	371.87	33.74	3.41	7.47	1.42	4.3	3.45	NA
75	2020-03-15	372.04	34.99	2.98	16.72	1.46	4.04	2.59	NA
76	2020-03-16	372.74	52.54	9.19	0.61	1.38	2.94	3.49	NA
77	2020-03-17	372.33	30.93	12.12	7.98	1.93	0	3.45	NA
78	2020-03-18	372.85	38.99	11.89	16.55	2.19	0	3.15	NA
79	2020-03-19	373.07	36.06	11.65	12.24	2.02	0	3.08	NA
80	2020-03-20	372.42	32.76	10.79	15.97	1.76	0	4.14	NA
81	2020-03-21	372.39	31.14	10.35	19.15	1.68	0	3.87	NA
82	2020-03-22	372.55	31.95	9.76	24.73	2.37	0	3	NA
83	2020-03-23	372.51	35.19	9.01	15.38	5.08	0	3.9	NA
84	2020-03-24	372.75	31.56	9.13	12.32	5.48	0	4.11	NA
85	2020-03-25	372.44	32.22	8.43	12.08	5.36	0	3.87	NA
86	2020-03-26	372.65	24.84	8.15	7.65	5.15	0	4.35	NA
87	2020-03-27	372.38	31	7.66	7.2	5.33	0	4.44	NA
88	2020-03-28	372.33	37.56	7.63	9.11	5.43	0	4.32	NA
89	2020-03-29	372.49	37.28	7.66	8.59	5.43	0	4.29	NA

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
90	2020-03-30	372.09	35.83	7.12	9.23	5.33	0	4.25	NA
91	2020-03-31	372.22	35.93	7.72	9.74	5.19	0	4.07	NA
92	2020-04-01	371.91	37.12	7.64	9.22	5.21	0	4.03	NA
93	2020-04-02	372.14	29.18	7.25	5.68	5.34	0	4.07	NA
94	2020-04-03	372.67	31.46	7.47	5.28	5.42	0	3.96	NA
95	2020-04-04	372.71	35.3	7.45	7.48	5.36	0	3.79	NA
96	2020-04-05	373.04	29.61	7.41	7.86	5.15	0	3.69	NA
97	2020-04-06	373.1	25.38	7.24	7.52	5.08	0	3.64	NA
98	2020-04-07	372.63	21.23	6.73	6.04	5.5	0	3.73	NA
99	2020-04-08	372.3	13.17	6.03	5.29	5.24	0	3.53	NA
100	2020-04-09	372.45	23.33	6.7	6.9	5.1	0	3.76	NA
101	2020-04-10	372.35	24.62	6.47	8.38	5.33	0	3.51	NA
102	2020-04-11	372.22	19.22	5.92	7.59	3.4	0	3.39	NA
103	2020-04-12	372.2	22.96	5.83	12.1	0.44	0	3.23	NA
104	2020-04-13	372.37	29.51	5.97	4.93	0.6	0	3.29	NA
105	2020-04-14	372.32	30.9	5.98	0	0.74	0	3.03	NA
106	2020-04-15	372.35	31.33	5.82	0.01	0.7	0	3.07	NA
107	2020-04-16	372.84	24.65	6.52	0	0.61	0	3.25	NA
108	2020-04-17	372.57	17.5	5.81	0	0.6	0	3.46	NA
109	2020-04-18	372.44	13.8	5.72	18.94	0.66	0	3.25	NA
110	2020-04-19	372.4	17.33	6.06	49.54	0.71	0	3.04	NA
111	2020-04-20	372.43	18.75	6.43	49.94	0.72	0	2.99	NA
112	2020-04-21	372.48	18.79	6.38	48.79	0.81	0	2.98	NA
113	2020-04-22	372.39	14.98	6.22	34.06	0.69	0	3.1	NA
114	2020-04-23	372.48	20.21	7.24	31.06	0.71	0	3.04	NA
115	2020-04-24	372.4	21.47	6.85	22.98	0.65	0	3.15	NA
116	2020-04-25	372.62	41.89	7.67	29.72	0.79	0	3.07	NA
117	2020-04-26	372.48	15.18	7.77	43.9	0.78	0	2.44	NA
118	2020-04-27	373.03	17.6	7.81	41.59	0.66	0	2.9	NA
119	2020-04-28	372.51	24.55	7.27	41.68	0.7	0	2.76	NA
120	2020-04-29	372.19	23.46	8.34	44.98	0.72	0	2.73	NA

4/5/20

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
121	2020-04-30	372.44	33.84	8.16	47.83	0.71	0	2.74	NA
122	2020-05-01	372.79	28.23	7.76	37.38	0.7	0	2.94	NA
123	2020-05-02	372.63	24.65	7.76	30.99	0.71	0	3.14	NA
124	2020-05-03	372.65	21.73	7.1	31.12	0.67	0	3.12	NA
125	2020-05-04	372.55	26.54	6.8	32.58	0.62	0	3.02	NA
126	2020-05-05	371.3	20.21	5.47	32.01	0.57	0	3.03	NA
127	2020-05-06	372.33	19.68	5.36	34.15	0.6	0	2.97	NA
128	2020-05-07	372.53	21.22	7.47	36.07	0.53	0	3.27	NA
129	2020-05-08	372.44	17.54	7.63	31.8	0.64	0	3.21	NA
130	2020-05-09	372.25	21.74	7.08	32.45	0.63	0	3.34	NA
131	2020-05-10	372.25	32.22	6.74	37.36	0.65	0	3.14	NA
132	2020-05-11	371.95	18.41	6.37	28	0.66	0	3.05	NA
133	2020-05-12	372.37	13.55	6.8	37.07	0.66	0	3.07	NA
134	2020-05-13	372.55	23.22	6.66	41.57	0.68	0	2.83	NA
135	2020-05-14	372.5	16.36	6.74	37.21	0.71	0	3.24	NA
136	2020-05-15	372.24	15.96	6.74	41.16	0.57	0	3.31	NA
137	2020-05-16	372.4	18.86	6.99	14.67	0.54	0	3.34	NA
138	2020-05-17	373.57	13.95	7.45	35.67	0.62	0	2.19	NA
139	2020-05-18	373.26	15.58	7.39	13.38	0.65	0	2.95	NA
140	2020-05-19	372.29	36.45	6.89	8.46	0.67	0	2.94	NA
141	2020-05-20	372.35	66.23	6.95	42.91	0.66	0	2.08	NA
142	2020-05-21	372.75	49.88	6.55	4.54	0.57	0	3.94	NA
143	2020-05-22	372.25	34.65	6.34	0	0.6	0	4.07	NA
144	2020-05-23	372.06	26.92	6	0	0.56	0	4.21	NA
145	2020-05-24	372.01	22.67	6.33	0	0.58	0	4	NA
146	2020-05-25	372.87	26.15	6.5	0.1	0.62	0	3.97	NA
147	2020-05-26	372.57	20.53	5.92	0.97	0.68	0	4.08	NA
148	2020-05-27	370.96	23.57	4.08	0	0.71	0	4.12	NA
149	2020-05-28	372.12	31.54	4.59	9.58	0.58	0.98	4.14	NA
150	2020-05-29	374.41	29.21	6.12	16.39	0.57	1.86	3.76	NA
151	2020-05-30	374.1	30.29	6.56	21.05	0.55	1.89	3.1	NA

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
152	2020-05-31	374.37	27.22	6.44	23.16	0.51	1.91	3.28	NA
153	2020-06-01	374.96	17.76	7.03	13.63	0.53	1.92	3.78	NA
154	2020-06-02	374.73	19.38	6.92	2.27	0.6	1.92	3.7	NA
155	2020-06-03	374.51	29.57	6.67	1.65	0.57	1.93	3.27	NA
156	2020-06-04	374.17	20.82	6.44	0.59	0.68	1.92	3.52	NA
157	2020-06-05	374.1	33.32	6.42	8.1	0.67	1.92	3.29	NA
158	2020-06-06	374.76	29.85	6.62	19.16	0.49	1.92	3.52	NA
159	2020-06-07	375.5	38.66	6.53	33.1	0.5	1.92	2.81	NA
160	2020-06-08	373.8	39.11	6.05	19.26	0.49	1.93	3.51	NA
161	2020-06-09	372.41	34.11	5.06	6.84	0.64	1.92	3.35	NA
162	2020-06-10	373.27	30.26	5.24	9.49	0.74	1.92	3.49	NA
163	2020-06-11	372.37	26.15	4.98	4.54	0.84	1.91	3.31	NA
164	2020-06-12	183.01	33.26	4.69	7.59	0.82	1.19	3.06	NA
165	2020-06-13	31.51	20.94	4.3	0.37	1.02	0.04	4.17	NA
166	2020-06-14	74.22	27.55	3.51	1.07	0.73	0	3.66	NA
167	2020-06-15	61.26	23.57	4.74	0	0.7	0	4.19	NA
168	2020-06-16	22.43	10.4	5.21	0.56	0.57	0.67	3.69	1.61
169	2020-06-17	0.02	0.05	4.95	0.34	0.6	1.74	3.26	2.37
170	2020-06-18	7.35	16.68	4.59	0.63	0.53	1.78	3.2	1.47
171	2020-06-19	21.52	63.76	4.54	2.46	0.64	1.75	2.98	1.43
172	2020-06-20	36.85	91.9	5.56	2.79	0.57	1.76	2.95	1.38
173	2020-06-21	32.37	266.05	5.37	2.71	0.73	1.77	2.65	1.14
174	2020-06-22	95.2	181.81	5.04	0.53	0.81	2.09	4	1.45
175	2020-06-23	265.74	37.4	5.12	3.47	0.68	3.75	3.29	1.99
176	2020-06-24	91.26	26.33	5.28	1.39	0.59	3.8	3.47	1.22
177	2020-06-25	114.9	25.66	5.28	3.74	0.78	3.79	2.81	1.58
178	2020-06-26	61.29	18.57	4.91	8.06	0.86	3.83	2.7	1.38
179	2020-06-27	68.38	23.33	5.32	9.15	0.94	3.79	2.86	1.31
180	2020-06-28	61.73	25.9	5.61	10.34	0.95	3.81	2.84	1.39
181	2020-06-29	65.17	25.2	5.63	11.61	1.18	3.81	2.74	1.52
182	2020-06-30	66.36	26.42	5.72	16.3	0.82	3.81	2.52	0.92

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
183	2020-07-01	68.19	22.91	5.56	16.08	0	3.84	2.56	1.88
184	2020-07-02	86.37	30.93	5.68	19.02	0	3.82	2.65	2.73
185	2020-07-03	71.02	25.06	5.87	25.93	0	3.82	2.84	1.61
186	2020-07-04	36.98	17.98	6.3	31.58	0.21	3.82	3.08	1.38
187	2020-07-05	21.17	10.26	6.48	32.78	0.52	3.8	3.18	1.02
188	2020-07-06	30.28	26.28	5.76	31.92	0.37	3.84	3.12	0.93
189	2020-07-07	65.26	24.16	4.64	16.69	0.87	3.8	3.4	1.02
190	2020-07-08	87.72	29.78	4.33	7.88	1.01	3.79	3.53	1.35
191	2020-07-09	68.52	22.78	4.44	6.48	0.78	3.82	3.29	1.22
192	2020-07-10	55.77	18.89	4.14	4.21	0.78	3.79	3.13	1.15
193	2020-07-11	66.73	22.47	4.75	4.82	1.01	3.79	3.1	1.31
194	2020-07-12	50.62	18.82	3.49	4.16	0.8	3.79	2.7	1.73
195	2020-07-13	64.52	19.43	3.68	14.41	0.66	3.8	2.17	1.26
196	2020-07-14	53.05	19.21	4.08	20.16	0.71	3.8	2.62	1.08
197	2020-07-15	53.2	21.21	4.05	26.61	0.65	3.78	2.5	1.99
198	2020-07-16	30.97	14.66	3.8	20.3	0.63	3.81	2.87	1.35
199	2020-07-17	49.9	17.74	3.53	7.13	0.81	3.8	2.91	1.12
200	2020-07-18	73.42	23.13	3.78	11.03	0.63	3.78	2.71	1.61
201	2020-07-19	60.32	21.13	4.26	10.76	0.66	3.81	2.75	1.43
202	2020-07-20	51.61	21.77	4.26	10.54	0.74	3.78	2.81	1.17
203	2020-07-21	39.37	15.26	4.06	15.3	0.89	3.83	2.72	2.04
204	2020-07-22	39.85	13.37	3.78	12.26	0.85	3.8	2.58	1.27
205	2020-07-23	34.32	16.28	3.43	6.29	1.11	3.81	2.48	1.41
206	2020-07-24	59.72	24.8	2.82	9.87	1.16	3.82	2.53	1.05
207	2020-07-25	66.74	27.61	2.71	5.6	1.16	3.83	2.45	0.96
208	2020-07-26	95.95	34.65	2.69	56.29	1.24	3.79	2.33	1.33
209	2020-07-27	129.39	140.25	2.83	210.9	1.04	3.81	2.46	1.24
210	2020-07-28	83.31	28.77	1.45	405.13	0.91	3.78	2.53	12.68
211	2020-07-29	47.01	19.14	0.13	402.5	1	3.79	2.45	2.13
212	2020-07-30	88.69	20.21	0.76	332.8	0.4	3.82	2.04	3.35
213	2020-07-31	66.81	21.98	0.58	213.79	0	3.8	2.09	2.54

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
214	2020-08-01	105.08	24.11	2.5	210.94	0	3.81	2.6	2.34
215	2020-08-02	65.33	24.73	0.91	224.26	0	3.81	2.29	2.86
216	2020-08-03	49.28	17.44	0.7	251.98	0	3.79	2.61	2.52
217	2020-08-04	30.19	12.62	1.09	324.81	0.04	3.79	3.03	2.26
218	2020-08-05	27.11	14.52	1.35	366.37	0.1	3.84	2.92	3.4
219	2020-08-06	51.07	18.92	1.19	398.51	0.18	3.82	2.86	2.46
220	2020-08-07	58.53	21.04	0.47	364.59	0.2	3.78	2.75	2.38
221	2020-08-08	114.98	25.98	1.1	279.34	0.28	3.78	3.01	5.53
222	2020-08-09	113.29	27.9	0.13	312.3	0.35	3.79	2.63	2.91
223	2020-08-10	63.73	19.2	0.33	269.11	0.27	3.8	3.26	1.85
224	2020-08-11	57.34	22.3	1.06	2.33	0.06	8.79	3.82	3.21
225	2020-08-12	43.31	16.81	0.94	0.11	0.21	8.74	3.47	13.57
226	2020-08-13	35.21	16.51	2.65	0.74	0.36	8.18	3.46	25.11
227	2020-08-14	19.78	18.03	1.64	0.8	0.24	8.44	3.44	0
228	2020-08-15	17.84	14.07	1.68	0.45	0.18	8.27	3.18	0
229	2020-08-16	25.48	15.84	1.37	0.24	0.04	8.71	3.02	0
230	2020-08-17	38	13.64	1.83	0.06	0.03	7.81	3.03	0
231	2020-08-18	39.24	16.4	1.35	0.12	0.23	8.14	3.14	0
232	2020-08-19	42.31	14.98	0.89	0.16	0.16	6.41	4.43	0
233	2020-08-20	30.07	13.19	1.09	0.11	0.23	6.2	3.48	8.23
234	2020-08-21	34.49	16.16	1.11	0.11	0.29	7.37	3.37	9.88
235	2020-08-22	26	17.81	0.86	0.11	0.37	8.02	3.43	0
236	2020-08-23	26	22.14	0.93	0.11	0.31	10.45	3.37	0
237	2020-08-24	177.5	26.02	1.1	0.11	0.28	10.12	3.2	0
238	2020-08-25	78.73	30.04	1.12	0.28	0.35	6.56	2.58	10.38
239	2020-08-26	96.95	35.89	0.52	0.32	0.39	5.54	2.31	0
240	2020-08-27	58.16	25.04	0.97	0.11	0.3	6.86	3.41	0
241	2020-08-28	83.29	32	1.95	0.16	0.31	9.32	3.48	0
242	2020-08-29	78.92	31.87	1.5	0.08	0.47	9.32	3.66	0
243	2020-08-30	103.93	41.14	1.5	0.08	0.5	8.49	3.12	0
244	2020-08-31	139.04	47.57	2.96	0.34	0.77	6.81	2.2	0

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
245	2020-09-01	89.59	34.65	2.01	0.64	0.3	6.03	2.23	0
246	2020-09-02	47.6	22.88	2.24	0.43	0.36	5.38	2.46	0
247	2020-09-03	55.67	26.36	1.45	0.49	0.45	6.59	2.68	0
248	2020-09-04	60.75	24.54	7.46	0.25	0.27	5.31	2.55	0
249	2020-09-05	73.72	23.23	1.87	0.18	0.27	4.81	1.99	0
250	2020-09-06	49.89	17.36	1.95	0.02	0.31	4.75	2.62	0
251	2020-09-07	58.22	16.76	2.81	0.01	0.16	5.13	2.51	0
252	2020-09-08	73.49	20.66	1.71	0.07	0.27	5.18	2.35	3.68
253	2020-09-09	56.92	17.34	2.05	0.11	0.2	5.14	2.56	0.09
254	2020-09-10	117.42	23.04	2.29	0.11	0.35	5.57	2.21	5.27
255	2020-09-11	78.5	27.51	3.14	0.11	0.48	5.74	2.49	0.25
256	2020-09-12	59.08	28.3	2.94	0.11	0.25	5.13	2.19	0.21
257	2020-09-13	30.54	16.1	3.37	0.11	0.26	4.94	2.45	0.17
258	2020-09-14	30.24	13.77	3.58	0.11	0.18	5.4	3.11	0.2
259	2020-09-15	141.59	134.89	4.39	0.11	0.1	5.5	3.52	0.21
260	2020-09-16	51.52	22.71	1.68	0.11	0.36	5.32	3.51	0.25
261	2020-09-17	66.73	24.02	0.93	0.07	0.42	5.76	3.33	0.25
262	2020-09-18	104.65	36.86	1.08	0	0.6	6.43	3.21	0.23
263	2020-09-19	74.66	30.47	1	0	0.09	5.05	3.01	0.22
264	2020-09-20	57.46	25.35	0.91	0	0.28	5	3.6	0.29
265	2020-09-21	67.11	25.93	2.94	0	0.03	5.67	4.16	0.41
266	2020-09-22	37.69	17.09	1.34	0	0.19	5.67	4.17	0.27
267	2020-09-23	50.7	20.92	1.49	0	0.43	6.58	4.42	0.28
268	2020-09-24	67.02	25.27	0.93	0	0.36	6.77	4.22	0.26
269	2020-09-25	58.25	26.74	2.01	0	0.38	6.34	3.75	0.3
270	2020-09-26	60.23	23.7	1.33	0	0.54	5.03	2.98	0.33
271	2020-09-27	114.67	44.04	0.22	0	0.94	5.81	3.15	0.19
272	2020-09-28	141.51	56.36	2.75	0	0.15	5.62	2.99	0.13
273	2020-09-29	143.03	63.28	0.46	0	0.28	4.84	3.23	0.18
274	2020-09-30	365.22	42.38	NA	NA	NA	NA	NA	NA
275	2020-10-01	79.86	34.36	NA	NA	NA	NA	NA	NA

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
276	2020-10-02	129.68	49.26	NA	NA	NA	NA	NA	NA
277	2020-10-03	157.8	63.58	NA	NA	NA	NA	NA	NA
278	2020-10-04	79.93	35.93	NA	NA	NA	NA	NA	NA
279	2020-10-05	47.75	20.77	NA	NA	NA	NA	NA	NA
280	2020-10-06	70.18	73.37	2.07	5.02	0.63	4.38	3.66	0.22
281	2020-10-07	74.72	31.15	0.83	4.55	0.4	4.37	3.65	0.23
282	2020-10-08	97.59	36.54	0.16	5.01	0.3	4.27	3.59	0.21
283	2020-10-09	98.51	38.86	1.44	4.95	0.43	4.22	3.58	0.23
284	2020-10-10	178.71	99.83	0.05	5.19	0.54	7.78	3.22	0.2
285	2020-10-11	25.96	103.23	2.74	3.69	0.08	1.15	3.94	0.21
286	2020-10-12	6.4	1000	0.75	1.71	0.27	2.37	4.8	0.24
287	2020-10-13	182.66	82.5	1.46	4.45	0.09	1.4	3.16	0.2
288	2020-10-14	35.68	14.18	0.4	4.8	0.54	1.25	3.56	0.25
289	2020-10-15	57.87	19.2	0.87	5.79	0.76	1.99	3.39	0.18
290	2020-10-16	58.1	17.95	1	6.22	0.59	0.68	3.52	0.25
291	2020-10-17	39.22	11.36	2.05	5.49	0.26	0.92	4.13	0.24
292	2020-10-18	44.02	11.48	0.12	4.29	0.04	2.1	4.69	0.19
293	2020-10-19	45.51	11.39	1.02	4.15	0.33	1.92	5.63	0.21
294	2020-10-20	28.55	8.84	0.31	4.68	0.47	1.06	5.73	0.28
295	2020-10-21	128.84	30.87	0.69	5.24	0.74	1.36	5.96	0.95
296	2020-10-22	154.47	41.49	1.41	9.75	1.26	3.7	5.28	0.98
297	2020-10-23	231.58	57.36	0.42	9.11	1.39	5.1	4.85	0.57
298	2020-10-24	297.16	104.8	2.53	7.1	0.88	5.46	6.55	0.25
299	2020-10-25	149.46	41.46	0.33	6.09	0.75	5.11	6.21	0
300	2020-10-26	129.31	36.77	0.49	4.84	0.65	2.65	6.51	0
301	2020-10-27	138.04	45.37	0.05	4.74	0.59	5.36	6.39	0.04
302	2020-10-28	178.95	49.13	0.25	5.7	0.56	5.77	6.06	1.69
303	2020-10-29	246.66	108.95	0.87	4.91	0.24	8.02	5.56	0.01
304	2020-10-30	126.5	14.54	4.75	5.15	1.02	8.3	5.71	0
305	2020-10-31	127.24	19.71	13.95	6.05	1.59	6.33	5.62	1.84
306	2020-11-01	115.48	20.48	1.97	5.61	1.17	4.86	5.36	0.4

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
307	2020-11-02	121.11	21.47	2.2	4.83	1.06	3.48	5.36	1.38
308	2020-11-03	86.98	20.02	3.89	5.43	0.79	2.47	5.9	0.4
309	2020-11-04	102.33	23.02	2.3	5.98	0.89	1.54	6.85	0.32
310	2020-11-05	99.68	24.19	3.31	5.34	2.39	1.98	7.39	0.36
311	2020-11-06	123.65	27.31	3.52	6.79	2.66	2.31	10.37	1.31
312	2020-11-07	134.62	27.6	1.46	8.44	1.81	3.9	10.04	0.6
313	2020-11-08	149.39	21.8	1.19	7.67	1.65	3.4	10.81	0.37
314	2020-11-09	142.28	24.83	2.45	7.35	2.15	2.73	9.68	2.07
315	2020-11-10	115.94	19.31	2.84	6.2	1.71	1.98	10.25	1.19
316	2020-11-11	17.76	9.53	8.95	5.92	1.1	0.21	12	1.38
317	2020-11-12	29.11	10.15	2.01	4.72	1.17	0.49	10.14	0.24
318	2020-11-13	74.45	13.72	3.36	6.53	1.69	1.12	9.59	1.24
319	2020-11-14	90.12	19.61	1.32	6.83	1.4	1.09	10.75	0.92
320	2020-11-15	66.25	18.33	3.03	6.38	1.39	0.47	12.73	1.47
321	2020-11-16	79.61	19.55	3.31	7.45	1.26	0.33	12.71	0.89
322	2020-11-17	115.03	25.94	2.69	8.42	1.81	0.19	11.42	1.68
323	2020-11-18	108.61	24.12	1.46	6.84	1.74	0.12	10.5	1.74
324	2020-11-19	94.09	24.72	2.3	6.94	1.49	2.09	9.46	0.14
325	2020-11-20	120.25	24.24	3.4	8.81	2.91	2.59	8.06	0
326	2020-11-21	107.08	22.43	2.87	10.7	1.92	5.37	6.82	0.23
327	2020-11-22	84.2	23.43	NA	NA	NA	NA	NA	NA
328	2020-11-23	93.46	32.29	11.51	3.62	1.96	2.25	9.51	2.12
329	2020-11-24	144.34	82.17	9.01	6.32	1.58	NA	9.65	0.21
330	2020-11-25	147.48	30.15	8.95	7.79	1.71	NA	16.16	0.88
331	2020-11-26	76.76	24.08	22.82	6.52	1.1	0.39	14.99	0.99
332	2020-11-27	33.86	23.13	7.02	4.16	0.97	9.11	14.13	3.99
333	2020-11-28	75.32	20.61	16.96	6.72	1.77	0.24	11.72	0.39
334	2020-11-29	88.03	20.68	5.9	6.96	1.62	1.52	12.17	0.28
335	2020-11-30	136.56	36.61	7.64	7.82	1.9	2.26	12.87	0.93
336	2020-12-01	119.91	122.54	7.25	8.07	1.28	4.46	13.01	2.63
337	2020-12-02	165.79	75.09	4.86	8.56	2.26	2.76	12.81	0.64

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
338	2020-12-03	210.54	105.28	6.36	8.12	1.86	3.04	13.16	0.26
339	2020-12-04	133.51	47.65	8.31	8.56	2.27	2.1	11.97	0.31
340	2020-12-05	135.71	43.81	5.49	7.87	1.81	2.28	11.58	0.15
341	2020-12-06	87.01	30.23	3.41	5.85	1.3	1.38	11.89	0.17
342	2020-12-07	117.39	40.47	4.07	6.57	1.64	1.54	10.93	0.27
343	2020-12-08	138.36	46.36	5.05	7.76	1.73	1.7	9.65	0.19
344	2020-12-09	161.25	51.7	1.58	10.22	2	1.84	8.58	0.2
345	2020-12-10	153.96	55.35	5.33	8.59	2.21	3.72	8.46	0.42
346	2020-12-11	177.2	64.71	2.01	10.3	3.1	NA	7.55	0.26
347	2020-12-12	175.31	60.88	5.04	10.92	2.46	2.45	7.35	0.29
348	2020-12-13	168.76	63.64	6.91	9.03	3.34	2.02	7.38	0.16
349	2020-12-14	156.2	61.11	12.28	9.27	2.18	1.01	7.34	0.21
350	2020-12-15	126.79	90.77	15.62	7.07	2.15	1.5	8.23	0.44
351	2020-12-16	103.22	44.65	8.22	4.83	1.99	1.84	5.97	0.22
352	2020-12-17	130.25	59.46	7.91	6.16	2.08	1.84	6.1	0.4
353	2020-12-18	144.22	65.95	7.62	13.91	2.03	1.32	6.1	0.31
354	2020-12-19	133.69	63.38	1.7	32.28	1.29	8.86	7.73	0.47
355	2020-12-20	140.58	63	2.88	30	1.73	2.55	9.78	0.29
356	2020-12-21	154.15	70.31	6.44	28.39	1.63	1.76	9.74	0.21
357	2020-12-22	166.1	74.83	2.12	32.11	2.17	1.83	9.48	0.32
358	2020-12-23	160.74	67.51	1.78	35.32	2	1.81	9.06	0.15
359	2020-12-24	161.11	77.55	3.06	35.17	2.04	2.39	9.16	0.17
360	2020-12-25	181.73	98.9	1.81	32.69	2.32	2	8.49	0.54
361	2020-12-26	183.65	103.85	29.05	30.08	3.08	3.37	9.05	0.56
362	2020-12-27	146.6	93.27	2.33	27.75	2.3	1.26	9.04	0.42
363	2020-12-28	182.1	97.03	3.46	29.37	2.15	1.61	8.38	0.6
364	2020-12-29	178.01	90.37	1.43	33.12	2.69	3.27	7.49	0.3
365	2020-12-30	140.86	73.8	2.15	28.24	1.89	2.33	8.43	0.42
366	2020-12-31	143.69	81.35	50.5	30.52	1.86	1.36	8.51	0.58

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
367	Standards - 24 hours average	100	60	80	80	4 (1 hour average)	180 (1 hour average)	400	-
368	Standards - Annual average	60	40	50	40	2 (8 hour average)	100 (8 hour average)	100	5
369	Maximum Value	375.7	1000	250	405.13	7.48	16.62	100.66	25.11
370	Minimum Value	0.02	0.05	0.03	0.01	0.01	0.04	0.84	0.01
371	Average	215.8	37.7	19.8	27.1	1.38	3.61	5.57	1.47
372	No. of data available days	366	365	359	337	340	282	359	166.0
373	Data Availablity %	100.00	99.73	98.09	92.08	92.90	77.05	98.09	45.36

348

Ambient Air Quality Data - 2021 (January to April)

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

Location: CAAQMS 2 - Store Yard

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
1	2021-01-01	164.17	91.51	0.99	24.89	2.4	1.95	8.81	0.92
2	2021-01-02	183.3	107.22	1.3	26.76	2.34	0.2	9.09	0.56
3	2021-01-03	151.21	92.72	0.85	25.83	2.45	0.44	9.59	0.44
4	2021-01-04	112.17	61.67	10.89	30.53	2.15	0.47	9.67	0.44
5	2021-01-05	116.18	66.15	76.93	26.61	1.8	0.47	10.51	0.42
6	2021-01-06	114.79	59.2	10.36	26.53	2.1	0.26	10.87	0.62
7	2021-01-07	108.42	61.9	5.27	28.9	1.75	0.23	10.13	0.35
8	2021-01-08	90.41	49.14	4.84	32.71	1.49	1.18	10.63	0.48
9	2021-01-09	111.59	59.85	36.39	35.74	1.59	1.37	11.59	0.36
10	2021-01-10	115.63	61.86	4.52	35.7	1.72	1.98	10.67	0.49
11	2021-01-11	170.33	75.46	4.02	33.95	2.61	1.46	8.8	0.35
12	2021-01-12	142.27	74.06	12.81	31.2	2.47	0.83	8.76	0.47
13	2021-01-13	157.12	106.63	14.33	34.28	3.17	0.68	10.47	0.31
14	2021-01-14	100.42	68.59	7.07	25.26	1.56	0.47	17.09	0.48
15	2021-01-15	110	66.77	8.34	105.59	2.95	1.21	16.65	0.41
16	2021-01-16	250.96	233.74	1.79	15.71	1.02	0.49	9.47	0.63
17	2021-01-17	65.08	41.22	40.36	15.97	0.05	0.32	9.47	0.69
18	2021-01-18	116.7	70.62	17.73	27.98	1.41	0.31	7.89	0.5
19	2021-01-19	123.82	80.54	11.99	21.52	1.56	43.58	7.96	0.2
20	2021-01-20	277.52	184.93	52.77	28.11	0.63	0.84	8.14	0.4
21	2021-01-21	182.22	102.66	12.41	29	3.29	0.28	8.77	0.41
22	2021-01-22	136.16	84.95	40.14	24.88	2.2	0.52	8.68	0.32
23	2021-01-23	113.06	77.41	35.22	19	2.01	0.56	8.69	0.17
24	2021-01-24	142.86	90.65	22	21.09	2.22	0.52	5.7	0.13
25	2021-01-25	127.87	74.38	7.35	27.05	1.76	0.49	1.42	0.16
26	2021-01-26	105.83	65.73	23.46	25.85	1.99	0.47	0.65	0.12
27	2021-01-27	130.43	77.95	21.41	24.63	1.82	0.45	0.77	0.08

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
28	2021-01-28	134.46	85.16	13.87	26.55	1.82	0.43	18.24	0.09
29	2021-01-29	113.55	78.23	18.92	14.7	1.39	0.37	18.08	0.36
30	2021-01-30	143.55	91.06	23.24	26.96	2.54	0.37	18.24	0.3
31	2021-01-31	110.25	80.58	14.83	24.9	2.36	0.4	11.03	0.25
32	2021-02-01	145.75	104.28	5.48	23.34	2.47	0.36	18.55	0.47
33	2021-02-02	129.52	89.67	19.71	22.53	1.92	0.42	37.12	0.82
34	2021-02-03	202.28	135.43	10.12	29.83	0.62	0.76	23.16	0.4
35	2021-02-04	120.9	64.38	4.67	26.8	0.49	1.26	13.82	0.22
36	2021-02-05	128.91	65.5	5.86	30.3	0.57	1.21	12.18	0.43
37	2021-02-06	114.09	63.15	10.1	30.12	0.62	1.12	25.77	0.55
38	2021-02-07	117.15	67.86	17.5	27.74	0.64	1.08	34.06	0.45
39	2021-02-08	120.06	70.63	26.74	25.59	0.59	1.02	38.78	0.53
40	2021-02-09	131.29	81.62	2.47	27.88	0.74	1.35	27.34	0.35
41	2021-02-10	144.82	89.38	5.98	25.02	0.75	1.11	31.73	0.26
42	2021-02-11	141.97	87.85	3.43	31.18	0.75	1.24	30.14	0.22
43	2021-02-12	101.81	66.48	2.42	27.27	0.63	1.11	34.74	0.26
44	2021-02-13	89.71	52.34	1.51	22.74	0.53	1.13	26.35	0.51
45	2021-02-14	106.55	47.46	1.77	26.51	0.67	1.06	26.38	0.21
46	2021-02-15	139.96	56.62	19.54	25.55	0.81	1.13	24.29	1.02
47	2021-02-16	151.85	59.62	11.66	28.09	0.89	1.08	25.25	0.13
48	2021-02-17	134.56	71.31	10.16	27.66	0.52	0.96	21.46	0.22
49	2021-02-18	115.53	69.79	19.85	30	0.63	1.48	28.01	0.2
50	2021-02-19	98.53	57.33	5.06	23.14	0.47	1.34	30.54	0.23
51	2021-02-20	93.16	50.31	5.88	24.39	0.46	1.29	30.15	0.25
52	2021-02-21	97.76	52.37	4.94	25.17	0.46	1.29	30.72	0.18
53	2021-02-22	111.49	58.06	4.59	28.41	0.33	1.29	27.48	0.1
54	2021-02-23	157.48	72.43	8.15	30.16	0.87	1.41	25.57	0.06
55	2021-02-24	167.79	68.56	9.3	33.71	0.94	1.37	28.08	0.06
56	2021-02-25	174.15	67.36	9.4	33.29	1.03	1.3	27.76	0.17
57	2021-02-26	158.73	65.35	7.03	31.44	1.17	1.33	24.38	0.09
58	2021-02-27	185.07	80.63	13.56	25.82	1.34	1.36	22	0.1

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
59	2021-02-28	121	45.68	21.05	23.78	0.6	1.3	18.26	0.06
60	2021-03-01	117.16	35.32	6.43	21.11	0.6	1.3	17.57	0.12
61	2021-03-02	131.39	46.45	7.83	22.03	0.54	1.47	12.82	0.43
62	2021-03-03	159.66	62.84	12.89	26.75	0.94	1.47	12.39	0.08
63	2021-03-04	223.14	71.29	5.28	37.92	1.09	1.33	14.44	0.07
64	2021-03-05	167.47	112.05	2.93	27.67	1.08	1.4	12.58	0.07
65	2021-03-06	208.18	53.3	3.62	29.66	0.96	NA	13.93	0.12
66	2021-03-07	126.23	39.38	9.33	23.06	0.89	NA	13.73	0.13
67	2021-03-08	95.87	26.93	7.35	21.83	0.6	1.5	13.4	0.08
68	2021-03-09	80.88	22.12	6.69	23.23	0.6	NA	14.84	0.02
69	2021-03-10	92.87	18.57	12.27	20.8	0.61	1.71	68.42	0.13
70	2021-03-11	81.61	107.63	4.37	18.17	0.81	2	72.33	0.33
71	2021-03-12	116	140.29	8.25	19.19	0.92	2.04	40.4	0.3
72	2021-03-13	137.41	40.91	16.67	27.05	0.97	2.07	34.27	0.09
73	2021-03-14	80.29	33	13.16	26.98	0.45	2.09	147.01	0.06
74	2021-03-15	174.21	119.02	6.13	19.76	0.75	25.65	53.63	1.79
75	2021-03-16	150.94	60.87	5.32	15.25	0.94	0.38	22.87	3.97
76	2021-03-17	241.82	113.98	3.54	16.8	0.92	0.41	19.3	0.07
77	2021-03-18	134.97	62.74	3.34	15.22	0.66	0.44	21.96	0.75
78	2021-03-19	161.1	70.51	4.6	18.05	0.83	0.39	1.25	0.09
79	2021-03-20	164.23	70.37	2.53	16.16	0.75	0.53	22.03	0.07
80	2021-03-21	139.58	64.11	2.81	14.49	0.83	0.48	25.61	0.06
81	2021-03-22	194.57	74.44	3.33	16.93	0.88	0.42	33.24	0.08
82	2021-03-23	216.15	84.77	4.92	19.29	0.74	0.47	45.61	0.1
83	2021-03-24	186.39	135.24	4.72	28.28	0.78	0.57	42.67	0.09
84	2021-03-25	219.31	127.08	11.08	41.92	1.07	0.42	54.39	0.03
85	2021-03-26	268.92	131.87	4.85	50.73	1.55	0.4	76.7	0.09
86	2021-03-27	198.19	103.07	4.93	34.94	1.02	0.47	91.84	0.11
87	2021-03-28	165.75	89.05	5.98	26.89	1.01	0.51	90.95	0.19
88	2021-03-29	129.08	67	3.29	21.33	0.8	0.57	60.79	0.11
89	2021-03-30	124.21	62.13	2.46	22.83	0.75	0.6	29.09	0.07

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
90	2021-03-31	146.97	82.24	5.92	21.13	0.7	0.9	35.42	0.2
91	2021-04-01	163.03	92.83	3.27	22.84	1.34	2.69	72.9	0.37
92	2021-04-02	108.48	66.48	1.73	21.98	0.63	0.52	73.37	0.03
93	2021-04-03	115.55	63.05	3.04	21.47	0.7	0.52	75.66	0.13
94	2021-04-04	131.25	84.44	1.07	33.93	0.99	0.54	105.14	0.05
95	2021-04-05	135.22	55.23	2.8	21.86	0.64	0.57	91.62	0.14
96	2021-04-06	144.17	73.68	4.64	24.36	0.79	0.57	102.35	0.08
97	2021-04-07	145.56	71.87	2.15	21.07	0.78	0.54	80.81	0.1
98	2021-04-08	108.49	60.09	4.05	19.54	0.49	0.59	1.8	0.08
99	2021-04-09	117.41	61.74	5.29	21.94	0.59	2.75	26.1	0.13
100	2021-04-10	63.49	37.57	6.28	16.68	0.4	3.26	35.67	0.33
101	2021-04-11	90.89	44.28	6.19	22.19	0.55	3.52	35.52	0.07
102	2021-04-12	129.39	72.12	6.43	23.51	0.5	3.51	35.54	3.63
103	2021-04-13	NA	NA	NA	NA	NA	NA	NA	NA
104	2021-04-14	197.89	52.8	8.87	29.63	0.85	NA	35.66	6.55
105	2021-04-15	91.42	38.53	5.99	32.96	0.7	0.69	40.05	3.42
106	2021-04-16	82.64	23.2	6.07	24.4	0.46	9.72	54.71	1.12
107	2021-04-17	63	21.38	4.96	15.58	0.34	10.46	46.24	0.34
108	2021-04-18	59.82	20.85	4.19	12.17	0.83	0.63	11.73	0.41
109	2021-04-19	91.4	34.13	14.26	14.3	1.31	15.65	27.47	0.65
110	2021-04-20	98.97	44.01	4.15	15.53	1.46	2.72	51.85	0.53
111	2021-04-21	72.91	31.79	5.91	11.48	1.49	3.67	49.65	0.18
112	2021-04-22	107.97	34.75	5.78	13.25	1.07	6.06	65.72	0.48
113	2021-04-23	165.19	45.13	7.18	18.19	1.03	3.03	84.6	0.36
114	2021-04-24	135.81	70.66	7.99	16.18	1.1	8.41	93.17	0.6
115	2021-04-25	129.94	45.84	10.35	17.1	1.56	3.55	87.18	0.59
116	2021-04-26	115.77	40.75	9.1	12.83	1.26	2.38	84.18	0.3
117	2021-04-27	105.63	38.58	7.08	11.45	0.76	3.06	79.68	0.28
118	2021-04-28	110.5	39.77	9.97	13.06	0.89	3.62	69.57	0.28
119	2021-04-29	101.58	36.3	7.61	10.79	0.85	3.03	43.61	0.25
120	2021-04-30	142.51	52.57	3.97	14.67	0.86	2.79	45.12	0.58

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
121	Standards - 24 hours average	100	60	80	80	4 (1 hour average)	180 (1 hour average)	400	-
122	Standards - Annual average	60	40	50	40	2 (8 hour average)	100 (8 hour average)	100	5
123	Maximum Value	277.52	233.74	76.93	105.59	3.29	43.58	147.01	6.55
124	Minimum Value	59.82	18.57	0.85	10.79	0.05	0.2	0.65	0.02
125	Average	135.16	70.31	10.01	24.93	1.13	2.15	33.38	0.44
126	No. of data available days	119	119	119	119	119	115	119	119.0
127	Data Availablity %	99.17	99.17	99.17	99.17	99.17	95.83	99.17	99.17

252

Ambient Air Quality Data - 2020 (January to December)

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

Location: CAAQMS 3 - HLPH

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
1	2020-01-01	80.04	NA	4.29	0.49	0	0	0.1	NA
2	2020-01-02	75.56	NA	4.29	0.81	0	0	0.1	NA
3	2020-01-03	77.56	NA	2.99	0.49	0.01	0	0.1	NA
4	2020-01-04	70.95	NA	1.26	0	0	0	0.1	NA
5	2020-01-05	70.03	NA	0.82	0	0	0	0.1	NA
6	2020-01-06	78.95	NA	1	0	0	0	0.1	NA
7	2020-01-07	80.35	NA	0.6	0	0	0	0.1	NA
8	2020-01-08	80.07	NA	0.55	0	0	0	0.1	NA
9	2020-01-09	91.11	NA	0.7	0	0	0	0.11	NA
10	2020-01-10	81.04	NA	1.06	0	0	0	0.1	NA
11	2020-01-11	85.78	NA	1.28	0	0	0	0.1	NA
12	2020-01-12	75.46	NA	1.15	0	0	0	0.1	NA
13	2020-01-13	95.2	NA	1.68	0.13	0.16	0	0.11	NA
14	2020-01-14	49.94	NA	0.34	0.03	0.37	0	0.11	NA
15	2020-01-15	0	NA	1.13	0.06	0.39	0	0.11	NA
16	2020-01-16	48.55	NA	1.69	0.04	0.34	11.49	0.11	NA
17	2020-01-17	78.65	NA	1.84	0.04	0.31	0	0.11	NA
18	2020-01-18	76.21	NA	1.62	0.03	0.25	0	0.11	NA
19	2020-01-19	74.93	NA	1.64	0.02	0.25	0	0.11	NA
20	2020-01-20	78.62	NA	1.53	0.01	0.28	0	0.11	NA
21	2020-01-21	77.08	NA	1.01	0.01	0.16	0	0.1	NA
22	2020-01-22	82.38	NA	0.91	0.01	0	0	0.1	NA
23	2020-01-23	90.28	NA	1.24	0.01	0	0	0.11	NA
24	2020-01-24	94.06	NA	1.46	0.02	0	0	0.11	NA
25	2020-01-25	80.8	NA	1.41	0.01	0	0	35.52	NA
26	2020-01-26	90.21	NA	2.24	1.82	0.01	4.91	66.81	NA
27	2020-01-27	79.04	NA	2.21	0.01	0	0	59.71	NA

2.54.

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
28	2020-01-28	88.29	NA	1.51	0.01	0	0	62.18	NA
29	2020-01-29	86.49	NA	1.61	0	0	0.01	48.07	NA
30	2020-01-30	91.2	NA	1.6	0.01	0	0.01	47.32	NA
31	2020-01-31	84.82	NA	1.32	0.02	0	0.01	49.73	NA
32	2020-02-01	73.54	NA	0.94	0.01	0	0	52.97	NA
33	2020-02-02	71.72	NA	0.54	0	0	0	30.84	NA
34	2020-02-03	74.5	290.18	0.5	0	0	0	38.24	NA
35	2020-02-04	73.07	290.18	0.81	0.01	0.01	0	66.7	NA
36	2020-02-05	82.47	284.64	1.14	0.24	0	0.01	76.3	NA
37	2020-02-06	76.18	290.18	1.49	0.31	0	0.01	76.3	NA
38	2020-02-07	78.41	290.18	1.6	0.26	0	0.01	76.3	NA
39	2020-02-08	72.42	287.64	1.23	0.28	0	0.01	76.3	NA
40	2020-02-09	71.19	290.18	0.89	0.13	0	0.01	76.3	NA
41	2020-02-10	73.67	290.18	0.8	0.13	0	0.01	76.3	NA
42	2020-02-11	81.09	290.18	0.84	0.3	0	0.01	76.3	NA
43	2020-02-12	83.12	NA	0.83	0.3	0	0.01	76.3	NA
44	2020-02-13	91.35	NA	1.26	0.36	0	0.01	76.3	NA
45	2020-02-14	94.38	NA	1.36	0.2	0	0.01	76.11	NA
46	2020-02-15	98.61	NA	1.36	0.01	0	0	62.31	NA
47	2020-02-16	85.94	NA	1.36	0	0	0	52.89	NA
48	2020-02-17	86.19	NA	0.94	0	0	0	53.08	NA
49	2020-02-18	84.13	NA	0	0	0	0	48.77	NA
50	2020-02-19	80.94	NA	0	0.1	0	0.01	50.73	NA
51	2020-02-20	80.01	NA	0	0.28	0	0	42.19	NA
52	2020-02-21	78.35	NA	0	0.26	0	0	33.23	NA
53	2020-02-22	78.92	NA	0	0.28	0	0	31.19	NA
54	2020-02-23	83.91	NA	0	0.27	0	0	32.41	NA
55	2020-02-24	87.05	NA	0	0.24	0	0	42.92	NA
56	2020-02-25	81.28	NA	0	0.26	0	0	52.19	NA
57	2020-02-26	79.39	NA	1.78	0.29	0	0	45.81	NA
58	2020-02-27	78.07	NA	1.88	0.28	0.01	0	26.89	NA

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
59	2020-02-28	86.92	NA	2.26	0.55	0.01	0	19.83	NA
60	2020-02-29	83.59	NA	2.27	0.7	0.01	0	13.22	NA
61	2020-03-01	78.95	NA	2.18	0.5	0.01	0	12.93	NA
62	2020-03-02	86.58	NA	2.57	0.45	0.01	0	13.49	NA
63	2020-03-03	86.82	NA	2.71	0.38	0.01	0	13.4	NA
64	2020-03-04	84.32	NA	2.83	0.39	0.02	0	13.99	NA
65	2020-03-05	76.86	NA	2	0.39	0.02	0	24.76	NA
66	2020-03-06	71.13	NA	0.32	0.39	0.53	0	42.32	NA
67	2020-03-07	72.8	NA	0.07	0.51	1.24	0	36.02	NA
68	2020-03-08	81.19	NA	0.23	0.96	1.53	0	43.19	NA
69	2020-03-09	73.74	NA	1.83	0.52	1.32	0.01	39.7	NA
70	2020-03-10	77.27	NA	0.96	0	1.29	0	32.48	NA
71	2020-03-11	84.23	NA	1.59	0	0.9	0	44.72	NA
72	2020-03-12	79.64	NA	1.52	0	1.09	0	53.22	NA
73	2020-03-13	92.67	NA	1.39	0.01	0.1	0.01	76.24	NA
74	2020-03-14	82.63	NA	1.05	0	0.1	0	53.81	NA
75	2020-03-15	81.3	NA	1.59	0	0.33	0	14.32	NA
76	2020-03-16	82.57	NA	1.48	0	0.36	0	13.14	NA
77	2020-03-17	82.54	NA	1.59	0	0.03	0.01	12.21	NA
78	2020-03-18	88.42	NA	1.68	0	0.15	0.01	14.09	NA
79	2020-03-19	85.66	NA	1.66	0	0.02	0	13.29	NA
80	2020-03-20	75.73	NA	1.63	0	0.01	0	12.8	NA
81	2020-03-21	NA	NA	NA	NA	NA	NA	NA	NA
82	2020-03-22	NA	NA	NA	NA	NA	NA	NA	NA
83	2020-03-23	NA	NA	NA	NA	NA	NA	NA	NA
84	2020-03-24	NA	NA	NA	NA	NA	NA	NA	NA
85	2020-03-25	NA	NA	NA	NA	NA	NA	NA	NA
86	2020-03-26	NA	NA	NA	NA	NA	NA	NA	NA
87	2020-03-27	NA	NA	NA	NA	NA	NA	NA	NA
88	2020-03-28	NA	NA	NA	NA	NA	NA	NA	NA
89	2020-03-29	NA	NA	NA	NA	NA	NA	NA	NA

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
90	2020-03-30	NA	NA	NA	NA	NA	NA	NA	NA
91	2020-03-31	NA	NA	NA	NA	NA	NA	NA	NA
92	2020-04-01	NA	NA	NA	NA	NA	NA	NA	NA
93	2020-04-02	NA	NA	NA	NA	NA	NA	NA	NA
94	2020-04-03	NA	NA	NA	NA	NA	NA	NA	NA
95	2020-04-04	NA	NA	NA	NA	NA	NA	NA	NA
96	2020-04-05	NA	NA	NA	NA	NA	NA	NA	NA
97	2020-04-06	NA	NA	NA	NA	NA	NA	NA	NA
98	2020-04-07	84.62	NA	1.89	0	0	0	29.27	NA
99	2020-04-08	74.36	NA	1.97	0	0.05	0	30.86	NA
100	2020-04-09	75.22	NA	1.78	0	0.1	0	24.59	NA
101	2020-04-10	83.67	NA	1.91	0	0.1	0	25.03	NA
102	2020-04-11	74.17	NA	1.79	0	0.06	0	27.77	NA
103	2020-04-12	79.66	NA	1.93	0	0	0.01	28.05	NA
104	2020-04-13	92.32	NA	2.17	0.23	0.02	0	28.72	NA
105	2020-04-14	88.33	NA	0.74	0.49	0	0	24.83	NA
106	2020-04-15	85.96	NA	0.05	0.46	0	0	28.57	NA
107	2020-04-16	87.68	NA	1.02	0.23	0.22	0	35.39	NA
108	2020-04-17	80.91	NA	1.66	0	0.75	0	29.63	NA
109	2020-04-18	79.1	NA	2.09	0	1.51	0	28.63	NA
110	2020-04-19	77.81	NA	1.97	0.06	1.53	0	27.35	NA
111	2020-04-20	79.93	NA	2.12	0	1.53	0	28.49	NA
112	2020-04-21	76.18	NA	2.02	0	1.12	0	27.47	NA
113	2020-04-22	70.73	NA	1.85	0	1.24	0	27.91	NA
114	2020-04-23	75.64	NA	2.08	0	0.46	0	31	NA
115	2020-04-24	72.66	NA	2.08	0	0.21	0	33.77	NA
116	2020-04-25	73.89	NA	2.1	0	0.12	0	30.59	NA
117	2020-04-26	70.27	NA	1.82	0	0.09	0	26.6	NA
118	2020-04-27	70.83	NA	1.85	0.01	0.25	0	20.77	NA
119	2020-04-28	76	NA	1.81	0	0.65	0	19.95	NA
120	2020-04-29	79.3	NA	1.98	0	0.65	0	22.83	NA

4 2 20

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
121	2020-04-30	81.34	NA	1.86	0.01	0.65	0	23.51	NA
122	2020-05-01	82.78	NA	0.65	0	0.65	0	27.37	NA
123	2020-05-02	77.51	NA	1.02	0	0.65	0	23.01	NA
124	2020-05-03	78.59	NA	1.68	0.01	0.65	0	26.69	NA
125	2020-05-04	81.26	NA	1.43	0	0.63	0	24.89	NA
126	2020-05-05	78.02	NA	0.31	0	0.61	0	28.63	NA
127	2020-05-06	72.17	NA	0.55	0.01	0.61	0	27.91	NA
128	2020-05-07	55.06	NA	0.25	0	0.61	0	27.44	NA
129	2020-05-08	56.3	NA	8.96	0	0.61	0	28.38	NA
130	2020-05-09	75.84	NA	38.15	0	0.62	0	32.64	NA
131	2020-05-10	81.2	NA	11.28	0	0.62	0	26.4	NA
132	2020-05-11	70.95	NA	0.07	0	0.63	0	25.42	NA
133	2020-05-12	72.91	NA	0.14	0	0.64	0	25.01	NA
134	2020-05-13	76.18	NA	0.09	0	0.65	0	25.84	NA
135	2020-05-14	71.25	NA	0.14	0.01	0.64	0	30.09	NA
136	2020-05-15	68.83	NA	0.18	0	0.64	0	29.52	NA
137	2020-05-16	70.68	NA	0	0.01	0.64	0	29.59	NA
138	2020-05-17	63.26	NA	0	0.01	0.64	0	26.78	NA
139	2020-05-18	67.65	NA	0.01	0.01	0.64	0	22.7	NA
140	2020-05-19	87.91	NA	0.07	0	0.5	0	20.65	NA
141	2020-05-20	103.11	NA	0.21	0	0.47	0	24.1	NA
142	2020-05-21	99.68	NA	0.18	0	0.47	0	34.97	NA
143	2020-05-22	87.43	NA	0.1	0	0.46	0	35.94	NA
144	2020-05-23	86.72	NA	0	0	0.45	0	34.8	NA
145	2020-05-24	80.4	NA	0	0.01	0.45	0	32.51	NA
146	2020-05-25	81.7	NA	0	0	0.45	0	33.5	NA
147	2020-05-26	85.26	NA	0	0	0.45	0	32.05	NA
148	2020-05-27	89.35	NA	0	0	0.45	0	33.49	NA
149	2020-05-28	87.25	NA	0	0	0.45	0	39.78	NA
150	2020-05-29	81.73	NA	0	0.01	0.45	0	39.94	NA
151	2020-05-30	76.02	NA	0	0.01	0.45	0	30.13	NA

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
152	2020-05-31	75.23	NA	0	0.01	0.45	0	32.12	NA
153	2020-06-01	72.25	NA	0	0	0.45	0	39.64	NA
154	2020-06-02	69.04	NA	0	0	0.46	0.19	49.03	NA
155	2020-06-03	76.96	NA	0	0	0.45	0.56	49.65	NA
156	2020-06-04	75.35	NA	0	0.01	0.45	0.54	43.96	NA
157	2020-06-05	81.25	NA	0	0	0.45	0.52	36.12	NA
158	2020-06-06	82.43	NA	0	0	0.45	0.54	46.64	NA
159	2020-06-07	86.24	NA	0	0	0.46	0.53	49.2	NA
160	2020-06-08	90.39	NA	0	0	0.28	1.83	52.15	NA
161	2020-06-09	75.08	NA	0.12	0	0.06	3.08	43.63	NA
162	2020-06-10	73.2	NA	0	0	0.06	3.11	47.1	NA
163	2020-06-11	73.03	NA	0	0	0.06	3.08	37.31	NA
164	2020-06-12	75.35	NA	0	0	0.06	3.09	29.57	NA
165	2020-06-13	73.13	NA	0	0	0.05	3.11	47.05	NA
166	2020-06-14	83.68	NA	0	0	0.07	3.13	61.67	NA
167	2020-06-15	82.42	0.02	0	0	0.07	3.03	66.7	NA
168	2020-06-16	43.26	0.03	0	0	0.06	2.54	37.03	1.11
169	2020-06-17	0.09	0.03	0	0	0.06	2.57	3.12	3.57
170	2020-06-18	24.62	0.03	0	0	0.06	9.87	2.1	1.57
171	2020-06-19	117.4	49.11	0	0	0.06	23.94	2.16	4.56
172	2020-06-20	NA	33.36	0	0	0.06	23.99	3.74	37.34
173	2020-06-21	NA	34.43	0	0.01	0.05	23.92	3.38	82.4
174	2020-06-22	135.09	51.43	0	0	0.05	21.16	4.15	3.33
175	2020-06-23	118.3	31.94	NA	NA	NA	2.5	4.57	0.63
176	2020-06-24	65.88	6.53	NA	NA	NA	2.55	2.98	0.03
177	2020-06-25	60.33	6.99	NA	NA	NA	2.51	2.1	0.03
178	2020-06-26	50.71	9.22	0.68	0.91	0.04	2.52	1.85	4.65
179	2020-06-27	91.48	26.32	0.98	0.91	0.04	2.54	2.02	14.23
180	2020-06-28	74.01	26.12	0	0.9	0.04	2.56	2.09	3.18
181	2020-06-29	72.93	19.24	0.47	0.97	0.02	2.54	2.84	17.59
182	2020-06-30	54.58	11.17	1.2	1.08	0	2.55	5.24	22.35

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
183	2020-07-01	66.06	20.53	1.45	0.98	0	2.55	4	46.74
184	2020-07-02	83.06	22.4	1.48	0.85	0	2.51	2.21	61.68
185	2020-07-03	61.13	17.42	0.74	0.84	0	2.52	2.17	54.33
186	2020-07-04	121.74	40.28	7.65	0.69	0	2.53	2.08	34.79
187	2020-07-05	78.18	44.31	16.58	1	0	2.57	2.27	0.01
188	2020-07-06	77.48	38.56	14.28	0.93	0	2.55	2.27	0.02
189	2020-07-07	102.38	33.33	9.82	0.93	0	2.54	2.17	0.16
190	2020-07-08	111.43	30.07	7.84	0.91	0	2.55	1.92	0.06
191	2020-07-09	87.32	18.44	6.29	0.92	0	2.52	1.89	0.13
192	2020-07-10	81.57	21.12	9.22	0.94	0	2.53	1.81	0.04
193	2020-07-11	99.07	30.68	10.05	0.92	0	2.53	2.07	0.15
194	2020-07-12	82.41	29.58	10.53	0.91	0	2.51	1.8	0.45
195	2020-07-13	75.91	20.85	6.68	0.91	0	2.51	2.16	1.95
196	2020-07-14	73.55	25.49	9.38	0.91	0	2.51	2	1.18
197	2020-07-15	62.02	14.74	4.76	0.9	0	2.54	2.13	0.5
198	2020-07-16	69.45	27.86	9.31	0.92	0	2.51	2.13	0.08
199	2020-07-17	75.35	21.81	6.41	0.93	0.06	2.54	1.84	0.04
200	2020-07-18	92.12	18.92	5.47	0.93	0.05	2.54	2.22	0.26
201	2020-07-19	87.13	23.46	7.15	0.94	0.07	2.55	2.18	0.01
202	2020-07-20	85.03	31.64	8.44	0.98	0.05	2.52	2.02	0.06
203	2020-07-21	70.82	17.13	6.37	1	0.07	2.53	2.12	0.09
204	2020-07-22	77.56	20.79	10.55	1.03	0.05	2.52	2.19	0.07
205	2020-07-23	74.36	29.77	11.76	1.03	0.05	2.52	2.01	0.33
206	2020-07-24	74.34	22.89	7.88	0.99	0.07	2.54	2.16	188.83
207	2020-07-25	63.31	12.43	1.65	1	0.06	2.58	2.4	655.35
208	2020-07-26	65.02	9.76	2.04	1.02	0.06	2.54	2.8	NA
209	2020-07-27	68.69	14.62	1.72	0.45	0.05	2.52	2.28	NA
210	2020-07-28	65.83	10.49	0.48	0	0.08	2.51	1.8	NA
211	2020-07-29	42.09	4.96	0.37	0	0.06	2.58	1.89	NA
212	2020-07-30	36.2	5.63	0.33	0	0.06	2.56	1.73	NA
213	2020-07-31	55.93	9.13	0.9	0	0.09	2.55	1.84	NA

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
214	2020-08-01	75	19.52	1.72	0	0.06	2.51	1.72	NA
215	2020-08-02	70.23	11.76	1.25	0	0.07	2.56	1.74	NA
216	2020-08-03	89	24.48	2.56	0	0.03	2.57	2	NA
217	2020-08-04	89.84	31.47	8.45	0	0.04	2.53	1.95	0.02
218	2020-08-05	69.06	18.67	7.16	0	0.04	2.55	1.87	0.02
219	2020-08-06	67.86	12.56	3.43	0	0.02	2.53	1.93	21.09
220	2020-08-07	168.94	28.16	7.22	0	0.05	2.51	1.66	0.16
221	2020-08-08	145.95	36.79	24.48	0	0.07	2.45	1.85	6.27
222	2020-08-09	77.26	20.47	11.08	0	0.05	2.53	1.87	7.34
223	2020-08-10	94.51	36.97	30.7	0	0.04	2.54	1.79	0.4
224	2020-08-11	92.53	NA	32.49	0	0.1	2.54	1.59	0.37
225	2020-08-12	89.89	NA	36.83	0	0.09	2.51	1.65	0.45
226	2020-08-13	64.19	NA	28.89	0	0.13	2.99	1.79	0.49
227	2020-08-14	122.83	27.5	21.53	0	0.04	2.53	1.76	0.33
228	2020-08-15	43.83	12.59	11.53	0	0.1	2.54	1.81	0.44
229	2020-08-16	48.54	14.17	10.49	0	0.14	2.54	1.89	1.5
230	2020-08-17	51.55	11.29	8.42	0	0.04	2.53	1.71	1.02
231	2020-08-18	74.39	21.92	9.6	0	0.06	2.53	1.7	0.76
232	2020-08-19	72.74	25.81	13.34	0	0.05	2.55	1.59	0.41
233	2020-08-20	54.16	16.05	11.96	0	0.1	2.51	1.84	289.72
234	2020-08-21	58.65	12.44	5.06	0	0.08	2.55	1.74	629.33
235	2020-08-22	74.4	23.17	4.32	0	0.07	2.49	1.69	655.35
236	2020-08-23	79.94	27.26	7.17	0	0.05	2.53	1.66	655.35
237	2020-08-24	96.26	NA	7.01	0	0.08	2.49	1.58	655.35
238	2020-08-25	94.8	26.18	4.35	0	0.07	2.53	1.8	619.1
239	2020-08-26	106.56	37.95	5.58	0.36	0.08	2.54	1.71	380.02
240	2020-08-27	103.01	36.65	9.05	1.05	0.05	2.51	1.65	0
241	2020-08-28	148.52	38.02	7.83	1.07	0.08	2.48	1.71	0
242	2020-08-29	138.22	34.35	6.8	1.05	0.08	2.49	1.58	0
243	2020-08-30	136.43	38.93	4.95	1.02	0.09	2.52	1.6	NA
244	2020-08-31	135.71	33.5	2.98	1.08	0.09	2.54	1.58	0.08

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
245	2020-09-01	72.62	19.24	1.84	1.05	0.07	2.5	1.42	0.12
246	2020-09-02	41.1	7.29	1.01	1.06	0.05	2.51	1.42	0.16
247	2020-09-03	41.3	7.7	0.6	1.04	0.05	2.5	1.41	0.25
248	2020-09-04	44.28	4.78	0.57	1.07	0.04	2.5	1.49	0.14
249	2020-09-05	57.51	7.23	1.02	1.02	0.06	2.54	1.45	0.09
250	2020-09-06	38.63	3.27	0.96	1.03	0.05	2.52	1.45	0.08
251	2020-09-07	59.87	5.9	2.07	1.05	0.06	2.54	1.43	0.03
252	2020-09-08	67.63	6.07	2.34	1.04	0.05	2.51	1.6	0
253	2020-09-09	60.25	6.76	2.82	0.97	0.05	2.56	1.58	0
254	2020-09-10	70.41	9.22	2.5	1.04	0.05	2.5	1.4	0.64
255	2020-09-11	78.18	11.84	1.82	1.02	0.06	2.51	1.54	0.91
256	2020-09-12	48.27	7.05	0.77	1.05	0.04	2.5	1.36	0.37
257	2020-09-13	18.61	0.59	0.74	0.51	0.03	2.54	1.2	0.15
258	2020-09-14	15.36	0	0.54	0.72	0.04	2.5	1.36	0.33
259	2020-09-15	18.96	0.1	0.65	1	0.04	2.54	1.45	0.21
260	2020-09-16	62.8	14.14	1.68	1.01	0.07	2.52	1.34	0.6
261	2020-09-17	70.5	17.93	2.01	1.02	0.07	2.52	1.33	2.73
262	2020-09-18	79.04	20.44	1.76	1.03	0.05	2.49	1.41	3.22
263	2020-09-19	62.72	13.91	1.01	0.98	0.05	2.52	1.44	0.95
264	2020-09-20	50.7	14.49	1.39	0.99	0.05	2.5	1.34	1.43
265	2020-09-21	75.15	29.25	7.58	1.03	0.05	2.51	1.34	2.25
266	2020-09-22	90.83	37.12	18.2	1.04	0.05	2.52	1.36	0.83
267	2020-09-23	82.56	21.01	7.74	1.03	0.07	2.52	1.5	1.27
268	2020-09-24	98.45	24.61	6.96	1.04	0.07	2.52	1.64	1.38
269	2020-09-25	92.26	29.13	10.91	1.04	0.07	2.49	1.69	1.11
270	2020-09-26	70.29	18.69	7.78	1.03	0.09	2.51	1.38	2.39
271	2020-09-27	106.54	27.52	2.4	1.02	0.09	2.53	1.39	2.47
272	2020-09-28	107.79	36.99	1.37	2.73	0.05	2.51	1.41	1.92
273	2020-09-29	143.63	49.73	1.14	4.97	0.07	2.49	1.49	1.64
274	2020-09-30	74.07	22.69	1.08	4.01	0.07	2.49	1.39	1.71
275	2020-10-01	60.9	19.25	1.22	2.6	0.08	2.52	1.35	1.89

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
276	2020-10-02	107.93	30.06	1.19	3.73	0.07	2.49	1.52	1.78
277	2020-10-03	134.53	43.05	1	5.3	0.08	2.51	1.78	0.74
278	2020-10-04	76.5	40.79	1.34	3.82	0.07	2.48	1.68	1.23
279	2020-10-05	47.77	10.21	0.8	3.24	0.05	2.48	1.51	1.01
280	2020-10-06	38.21	6.92	0.57	3.4	0.06	2.48	1.53	1.03
281	2020-10-07	61.42	18.07	0.57	3.84	0.06	2.51	1.5	1.63
282	2020-10-08	71.96	20.53	0.4	3.22	0.06	2.52	1.37	0.64
283	2020-10-09	87.78	26.31	0.65	3.57	0.08	2.5	1.32	1.73
284	2020-10-10	82.96	25.45	0.67	2.43	0.07	2.48	1.5	0.97
285	2020-10-11	22.74	2.4	0.54	1.99	0.05	2.49	1.41	0.66
286	2020-10-12	12.75	0.28	1.26	1.75	0.04	2.5	1.53	2.97
287	2020-10-13	16.34	0	0.4	1.6	0.04	2.5	1.54	0.65
288	2020-10-14	36.74	3.69	0.37	3.17	0.07	2.5	1.58	0.17
289	2020-10-15	72.32	18.35	0.69	4.13	0.09	2.51	1.57	2.13
290	2020-10-16	53.7	11.75	0.5	2.96	0.07	2.53	1.44	1.15
291	2020-10-17	36.35	3.35	0.32	2.22	0.05	2.5	1.44	0.77
292	2020-10-18	33.94	3.69	0.57	2.15	0.06	2.53	1.56	0.65
293	2020-10-19	40.73	9.3	0.36	2.15	0.06	2.52	1.36	0.46
294	2020-10-20	22.73	0.76	0.55	2.15	0.06	2.49	1.47	0.44
295	2020-10-21	49	16.55	0.56	2.15	0.08	2.48	1.47	1.56
296	2020-10-22	49	45.12	0.87	2.15	0.13	2.52	1.36	2.05
297	2020-10-23	49	65.42	0.87	2.15	0.12	2.48	1.39	1.06
298	2020-10-24	64.87	68.2	0.59	3.78	0.13	2.5	1.41	0.99
299	2020-10-25	1	58.32	0.8	3.11	0.1	2.51	1.36	1.41
300	2020-10-26	76.06	35.75	0.62	3.17	0.08	2.5	1.4	0.62
301	2020-10-27	175.2	36.29	0.88	5	0.09	2.51	1.42	2.56
302	2020-10-28	169.36	40.89	1.22	6.35	0.1	2.47	1.59	0.58
303	2020-10-29	216.77	49.22	1.12	6.76	0.09	2.5	1.56	0.68
304	2020-10-30	165.06	51.64	2.66	3.45	0.13	2.52	1.35	1.19
305	2020-10-31	152.88	66.54	4.32	2.69	0.15	2.46	1.39	5.82
306	2020-11-01	5.68	58.05	3.54	2.69	0.16	2.52	1.39	6.55

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
307	2020-11-02	91.93	50.73	2.77	2.69	0.16	2.58	1.47	4.33
308	2020-11-03	95.38	31.12	2.73	2.69	0.14	2.53	1.4	0.45
309	2020-11-04	103.42	37.54	2.49	2.69	0.16	2.47	1.47	0.45
310	2020-11-05	115.14	53.77	1.18	0	0.68	0	0.08	0.02
311	2020-11-06	129.45	57.29	3.3	0.23	0.67	0.05	0	0
312	2020-11-07	144.71	62.65	5.63	0.62	0.68	17.46	0.3	0.01
313	2020-11-08	132.35	50.93	9.93	NA	0.58	72.05	0	0
314	2020-11-09	197.45	72.4	9.97	3.68	0.58	27.32	0	0.01
315	2020-11-10	96.36	31.3	13.27	3.5	0.39	0	0	0
316	2020-11-11	21.61	2.6	6.27	3.5	0.28	0	0	0
317	2020-11-12	34.28	7.82	8.17	1.8	0.35	0.88	0.04	0
318	2020-11-13	72.93	15.28	9.22	0	0.34	1.74	0	0
319	2020-11-14	100.39	34.86	7.44	0	0.38	6.52	0	0
320	2020-11-15	88.86	34.52	6.69	0	0.34	8.93	0	0
321	2020-11-16	84.23	33.91	4.24	4.55	0.46	4.98	0.19	0
322	2020-11-17	120.85	52.74	5.21	9.28	0.57	4.73	1.86	0
323	2020-11-18	113.43	61.02	8.81	5.35	0.43	4.08	2.68	0
324	2020-11-19	102.88	45.85	10.6	6.59	0.42	2.52	1.71	0
325	2020-11-20	135.88	50.08	12.29	7.64	0.72	2.9	1.04	0
326	2020-11-21	132.64	48.85	11.74	8.21	0.58	3.57	0.58	0
327	2020-11-22	95.21	43.28	9.38	4.79	0.47	5.87	1.07	0
328	2020-11-23	110.59	52.5	5.91	9.9	0.46	6.7	0.85	0
329	2020-11-24	113.03	41.72	7.42	11.49	0.47	7.79	0.21	0
330	2020-11-25	135.33	46.13	12.99	18.9	0.49	6.6	0.04	0
331	2020-11-26	53.65	25.29	11.74	16.17	0.48	2.09	2.38	0
332	2020-11-27	35.01	13.29	7.94	19.39	0.44	0.92	0.85	0
333	2020-11-28	82.31	29.82	10.55	35.56	0.55	2.03	1.94	0
334	2020-11-29	105.12	33.3	4.44	28.41	0.4	14.33	4.46	0
335	2020-11-30	136.32	64.13	10.83	50.74	0.56	3.88	1.35	0.32
336	2020-12-01	121.58	37.92	8.92	48.69	0.56	0.82	2.16	0.93
337	2020-12-02	126.12	60.67	6.58	40.15	0.49	3.63	1.58	5.15

264

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
338	2020-12-03	187.47	54.61	8.97	30.42	0.52	1.88	0.25	3.63
339	2020-12-04	141.24	53.39	4.61	28.87	0.59	3.82	1.34	0.48
340	2020-12-05	129.12	53.94	5.13	27.31	0.57	3.49	0.01	0
341	2020-12-06	99.31	38.78	5.15	24.22	0.36	2.37	2.49	0
342	2020-12-07	137.72	52.79	11.98	29.8	0.42	0.79	1.92	0
343	2020-12-08	188.55	73.25	22.16	29.42	0.52	0.7	0.77	0
344	2020-12-09	198.18	74.09	50.48	32.29	0.64	2.29	0	0
345	2020-12-10	195.82	81.77	32.08	30.14	0.63	4	0.01	0
346	2020-12-11	201.6	86.87	22.72	28.86	0.72	3.87	0.64	0
347	2020-12-12	182.97	73.79	15.56	28.82	0.7	4.73	0.44	1.29
348	2020-12-13	189.45	79.39	21.58	25.79	0.89	7.48	0.12	2.31
349	2020-12-14	186.86	77.64	10.01	29.97	0.75	1.93	0	4.55
350	2020-12-15	149.3	66.8	6.49	29.65	0.62	1.91	0.39	1.37
351	2020-12-16	118.79	48.31	3.02	25.37	0.53	4.49	1.71	0.59
352	2020-12-17	135.84	63.62	6.03	26.07	0.61	4	2.91	0.7
353	2020-12-18	140.52	68.86	5.29	25.3	0.62	2.48	2.66	1.51
354	2020-12-19	146.47	66.95	3.97	26.58	0.53	4.44	0.48	0.39
355	2020-12-20	143.23	62.87	7.91	20.5	0.5	7.43	1.32	1.48
356	2020-12-21	183.02	79.3	21	32.54	0.55	2.13	0.26	0.53
357	2020-12-22	201.62	79.13	17.96	42.42	0.68	1.98	0	0.94
358	2020-12-23	204.49	78.75	17.06	43.67	0.63	2.49	0	0.68
359	2020-12-24	203.69	91.4	15.44	39.27	0.62	3.13	0.26	0.5
360	2020-12-25	241.41	123.13	14.1	44.21	0.81	5.8	0.55	1.47
361	2020-12-26	255.14	135.3	11.58	45.51	0.86	2.46	1.16	0.23
362	2020-12-27	217.94	120.51	12.66	29.94	0.82	5	0.46	2.49
363	2020-12-28	210.04	112.29	15.04	33.37	0.77	3.58	1.43	1.53
364	2020-12-29	211.24	104.76	13.3	37.24	0.75	5.01	0.13	1.06
365	2020-12-30	182.56	84.74	11.17	34.52	0.65	4.52	2.41	1.69
366	2020-12-31	186.41	80.65	7.73	47.06	0.62	9.01	0	0.44

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
367	Standards - 24 hours average	100	60	80	80	4 (1 hour average)	180 (1 hour average)	400	-
368	Standards - Annual average	60	40	50	40	2 (8 hour average)	100 (8 hour average)	100	5
369	Maximum Value	255.14	290.18	50.48	50.74	1.53	72.05	76.3	655.35
370	Minimum Value	0.09	0.02	0.01	0.01	0.01	0.01	0.01	0.01
371	Average	88.59	45.27	5.00	6.42	0.30	3.51	15.26	34.12
372	No. of data available days	346	203	305	229	280	231	336	155.0
373	Data Availablity %	94.54	55.46	83.33	62.57	76.50	63.11	91.80	42.35

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)

Ambient Air Quality Data - 2021 (January to April)

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

Location: CAAQMS 3 - HLPH

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
1	2021-01-01	203.11	99.79	8.6	28.53	0.72	12.45	0.29	5.69
2	2021-01-02	241.74	121.51	10.69	28.69	0.7	0.79	6.13	4.81
3	2021-01-03	205.03	105.44	9.64	24.27	0.75	11.06	0.02	1.4
4	2021-01-04	151.11	51.2	2.92	37.67	0.52	7.21	0	0.18
5	2021-01-05	142.38	63.71	6.49	31.33	0.67	6.7	0.93	4.06
6	2021-01-06	133.32	55.26	11.15	37.72	0.68	2.99	0.22	1.52
7	2021-01-07	162.63	54.21	5.8	30.28	0.49	0.66	0	0.05
8	2021-01-08	81.2	30.34	5.53	27.63	0.5	0.04	0.32	0.08
9	2021-01-09	118.23	51.03	8.9	26.44	0.5	1.75	0.02	0.1
10	2021-01-10	119.18	53.18	10.49	19.55	0.46	3.35	1.59	0.15
11	2021-01-11	170.17	74.58	17.7	30.78	0.69	2.44	0	0.22
12	2021-01-12	187.34	77.05	11.31	25.26	0.65	1.78	0.1	0.24
13	2021-01-13	172.62	97.4	7.62	25.91	0.9	2.24	0.21	0.25
14	2021-01-14	126.15	62.4	7.83	15.17	0.71	2.91	2.15	0.21
15	2021-01-15	125.01	61.09	28.89	13.42	0.55	4.57	3.2	0.12
16	2021-01-16	127.64	58.9	38.64	16.7	0.67	2.9	4.82	0.1
17	2021-01-17	113.5	55.24	15.72	11.64	0.53	3.54	3.47	0.01
18	2021-01-18	141.33	64.6	6.83	28.57	0.63	2.44	1.46	0
19	2021-01-19	153.81	71.73	9.87	34.92	0.55	2.37	0.43	0
20	2021-01-20	213.03	90.23	39.7	39.54	1.15	1.15	0	0
21	2021-01-21	249.99	87.46	19.67	36.95	0.94	4.03	0.44	0
22	2021-01-22	163.89	82.56	7.37	33.49	0.6	2.16	1.56	0
23	2021-01-23	138.23	71.99	11.95	26.24	0.55	2.59	1.42	0
24	2021-01-24	175.54	86.58	28.52	20.87	0.7	4.32	1.68	0
25	2021-01-25	163.34	72.29	47.75	24.85	0.74	3.76	0.29	0
26	2021-01-26	136.37	60.03	51.32	19.3	0.45	0.85	0.44	0
27	2021-01-27	145.44	59.09	12.74	21.61	0.53	2.43	3.06	0

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
28	2021-01-28	164.33	74.18	6.46	25.64	0.58	2.13	0.46	0
29	2021-01-29	197.92	75.73	4.82	29.09	0.49	1.22	0.72	0
30	2021-01-30	190.38	76.73	5.75	35.28	0.64	3.3	0	0
31	2021-01-31	144.67	62.83	6.42	24.06	0.63	10.31	1.32	0
32	2021-02-01	205.07	102.71	6.02	34.67	0.69	13.15	2.67	0
33	2021-02-02	191.27	83.61	8.2	30.55	0.72	7.53	1.34	0
34	2021-02-03	230.79	72.65	14.43	29.56	0.42	4.97	0.79	0
35	2021-02-04	209.93	59.29	17.97	45.2	NA	1.01	0	0
36	2021-02-05	207.22	64.03	10.8	47.98	0.63	0.81	0	0
37	2021-02-06	196.69	60.8	18.77	31.56	0.54	4.29	0	0
38	2021-02-07	187.45	67.85	27.42	18.93	0.55	8.75	1.96	0
39	2021-02-08	172.63	57.61	6.12	30.48	0.5	4.67	0.01	0
40	2021-02-09	211	80.85	15.04	23.79	0.49	9.73	0.01	0
41	2021-02-10	245.75	95.08	13.9	22.04	0.64	11.67	0.27	0
42	2021-02-11	207.4	84.51	11.42	22.45	0.62	12.85	0.27	0
43	2021-02-12	183.79	60.2	12.18	21.99	0.45	7.03	0	0
44	2021-02-13	153.53	52.38	23.71	19.34	0.37	8.32	0.03	0
45	2021-02-14	152.98	52.85	49.12	22.12	0.48	5.72	0	0
46	2021-02-15	224.23	65.8	65.64	32.38	0.75	2.7	0.02	0
47	2021-02-16	235.04	82.94	93.5	41.06	0.72	1.31	0	0
48	2021-02-17	178.69	71.95	31.76	24.36	0.49	13.27	0	0
49	2021-02-18	154.84	60.88	7.58	20.49	0.47	12.46	0.02	0
50	2021-02-19	153.04	52.95	10.35	23.47	0.4	13.94	0	0
51	2021-02-20	127.64	41.39	7.99	21.28	0.34	10.74	0	0
52	2021-02-21	126.12	43.73	7.95	14.05	0.35	13.36	0.98	0
53	2021-02-22	170.89	53.22	10.41	23.23	0.41	7.14	0	0
54	2021-02-23	239.09	86.75	39.1	28.39	0.87	9.36	0.45	0
55	2021-02-24	249.51	68.43	51.76	36.76	0.92	12.64	0	0
56	2021-02-25	251.56	82.17	91.8	43.11	1.2	7.75	0	0
57	2021-02-26	248.47	82.74	68.38	41.27	1.02	5.66	0	0
58	2021-02-27	291.2	91.3	62.3	35.46	1.37	2.56	0	0

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
59	2021-02-28	185.18	64.7	59.5	25.03	0.8	6.9	0.26	0
60	2021-03-01	234.08	71.95	139.78	34.03	0.8	0.54	0	0
61	2021-03-02	263.93	83.03	155.25	35.71	0.8	2.47	0	0
62	2021-03-03	248.22	86.19	128	32.7	0.78	7.39	0.19	0
63	2021-03-04	249.48	61.11	74.78	32.65	0.85	4.42	0	0
64	2021-03-05	283.11	71.28	103.96	37.64	1.07	3.08	0	0
65	2021-03-06	345.12	80.9	151.23	46.7	0.89	1.27	0	0
66	2021-03-07	238.39	66.32	134.5	30.06	0.88	0.67	0	0
67	2021-03-08	187.86	51.02	124.72	23.45	0.55	0.05	0	0
68	2021-03-09	192.81	49.82	163.31	21.72	0.6	0.02	0	0
69	2021-03-10	243.34	59.37	242.2	22.6	0.59	0.08	0	0
70	2021-03-11	234.97	56.28	198.85	19.82	0.85	0.05	0	0
71	2021-03-12	253.58	64.09	205.13	26	0.79	0.12	0	0
72	2021-03-13	199.62	34.39	69.54	24.66	0.64	0.94	0.08	0
73	2021-03-14	114.34	17.08	21.3	18.05	0.38	2.74	0.9	0
74	2021-03-15	198.42	38.4	20.02	19.11	0.4	12.4	0.15	0
75	2021-03-16	251.57	68.66	58.67	28.78	0.87	4.06	0	0
76	2021-03-17	214.88	74.41	114.65	29.83	0.64	4.79	0.01	0
77	2021-03-18	134.16	64.53	81.07	27.46	0.67	6.22	0.06	0
78	2021-03-19	181.94	76.58	142.95	36.19	0.84	1.97	0	0
79	2021-03-20	185.42	84.87	99.44	31.87	0.93	9.98	0.03	0
80	2021-03-21	147.94	70.69	72.47	28.01	0.79	8.6	1.27	0
81	2021-03-22	194.41	73.07	86.76	43.78	0.73	10.79	0.03	0
82	2021-03-23	184.31	61.97	22.89	38.73	0.65	8.18	2.74	0
83	2021-03-24	182.14	68.36	19.7	28.16	0.61	12.96	3.53	0
84	2021-03-25	218.93	80.26	25.36	34.04	1.18	10.56	0.66	0
85	2021-03-26	229.76	76.37	46.86	46.65	1.11	7.85	3.03	0
86	2021-03-27	209.68	69.68	30.68	39.95	1.04	4.07	3.46	NA
87	2021-03-28	174.14	63.97	42.21	28.1	1.06	1	9.01	NA
88	2021-03-29	154.84	51.03	48.75	26.29	0.97	2.8	4.03	NA
89	2021-03-30	175.82	59.02	152.68	31.61	1	4.62	2.81	NA

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
90	2021-03-31	206.32	76.15	68.62	39.42	1.22	9.09	1.77	NA
91	2021-04-01	203.05	80.75	26.77	39.62	1.51	5.06	6.07	NA
92	2021-04-02	122.51	46.1	35.92	30.19	0.67	10.98	3.18	NA
93	2021-04-03	108.71	26.28	6.98	19.82	0.52	12.28	5.91	0.07
94	2021-04-04	141.01	48.75	31.69	32.25	0.85	10.47	4.64	0.04
95	2021-04-05	124.66	28.48	9.46	20.67	0.41	5.66	5.09	0.05
96	2021-04-06	147.99	36.13	9.55	19.37	0.46	3.56	8.02	0.04
97	2021-04-07	171.32	42.48	37.78	26.87	0.76	2.53	4.07	0.05
98	2021-04-08	123.38	37.21	42.23	24.71	0.6	3.92	5.38	0.06
99	2021-04-09	100.58	30.82	34.82	23.01	0.54	4.41	2.27	0.05
100	2021-04-10	61.46	15.56	9.15	16.67	0.34	6.3	3.19	0.1
101	2021-04-11	71.24	28.07	40.73	15.28	0.4	0.64	6.32	0.12
102	2021-04-12	112.13	14.17	31.57	15.13	0.57	4.14	4.62	0.03
103	2021-04-13	NA	NA	NA	NA	NA	NA	NA	NA
104	2021-04-14	118.13	20.81	35.59	20.75	0.6	3	3.82	0
105	2021-04-15	84.49	35.61	54.87	32.91	0.73	2.87	3.99	0
106	2021-04-16	54.38	16.2	63.31	28.11	0.41	3.2	3	0
107	2021-04-17	43.78	6.47	28.13	18.64	0.31	2.39	5.08	0
108	2021-04-18	49.99	8.09	29.71	16.47	0.53	0.73	3.84	0
109	2021-04-19	82.57	23.16	41.85	21.02	0.55	1.73	4.6	0
110	2021-04-20	89.88	31.21	24.01	25.12	0.78	1.76	1.77	0
111	2021-04-21	85.81	25.57	32.05	19.58	0.71	2.09	5.23	0
112	2021-04-22	76.4	25.76	52.13	16.03	0.35	3.01	4.43	0
113	2021-04-23	104.9	37.6	71.65	28.07	0.64	3.35	2.71	0
114	2021-04-24	91.41	39.24	27.79	28.59	0.65	9.24	2.79	0
115	2021-04-25	119.81	45.76	79.04	35.82	0.94	0.79	0.91	0
116	2021-04-26	105.96	36.87	63.25	28.46	0.58	0.08	0.98	0
117	2021-04-27	113.35	34.61	49.72	26.41	0.56	0.83	5.64	0
118	2021-04-28	85.99	33.12	44.44	26.63	0.46	2.89	6.16	0
119	2021-04-29	78.07	24.83	25.19	21.28	0.45	2.99	1.92	0
120	2021-04-30	87.87	41.19	15.02	26.09	0.54	2.88	6.89	0

	Time	PM10 (ug/m3)	PM2.5 (ug/m3)	SO2 (ug/m3)	NOx (ug/m3)	CO (mg/m3)	O3 (ug/m3)	NH3 (ug/m3)	Benzene (ug/m3)
121	Standards - 24 hours average	100	60	80	80	4 (1 hour average)	180 (1 hour average)	400	-
122	Standards - Annual average	60	40	50	40	2 (8 hour average)	100 (8 hour average)	100	5
123	Maximum Value	345.12	121.51	242.2	47.98	1.51	13.94	9.01	5.69
124	Minimum Value	43.78	6.47	2.92	11.64	0.31	0.02	0.01	0.01
125	Average	168.44	59.53	45.47	27.81	0.68	4.94	2.32	0.73
126	No. of data available days	119	119	119	119	118	119	87	27.0
127	Data Availablity %	99.17	99.17	99.17	99.17	98.33	99.17	72.50	22.50

175

ANNEXURE -18

ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY, VISAKHAPATNAM
Behind RTA Office, Madhavadhar VUDA Colony
Visakhapatnam – 530 018.

M. RAVI
SENIOR ENVIRONMENTAL SCIENTIST

Ph: 0891-2719380/481
e-mail: zovsplab-ses2@appcb.gov.in

STACK MONITORING REPORT

Analysis Report No. : 2021 – 03 – ST – 006 to 009

Name & Address of the Industry : **M/s Hindustan Petroleum Corporation Ltd., (Visakha Refinery), Malkapuram, Visakhapatnam.**

Point of Collection : ST-006:Stack attached to DHDS Reformer-61 F11
ST-007:Stack attached to combined feed heater and product fractionators reboilers-90F01, 90F
ST-008:Stack attached to Flue gas desulphurization unit FGD-II
ST-009:Stack attached to continuous catalytic reforming Unit (CCR) 74F1,F2,F3,F4
ST-010: Stack attached SRU Train-III Incinerator 79F 302

Date of monitoring : 25 – 03 – 2021 to 27 – 03 – 2021

Monitoring conducted by :Junior Scientific Officer & Analyst (OS), Zonal Laboratory, Visakhapatnam during the visit of NGT Committee

S. No.	Sample No.	Date of monitoring	Sample Description	Parameter	Values (mg/Nm^3)	Standard
1.	ST-006	25.03.2021	Stack attached to DHDS Reformer-61F11	SPM	39.0	100
				SO_2	63.5	--
				NOx	35.7	--
2.	ST-007	26.03.2021	Stack attached to combined feed heater and product fractionators reboilers-90F01, 90F02	SPM	24.9	100
				SO_2	184.7	--
				NOx	204.9	--
3	ST-008	26.03.2021	Stack attached to Flue gas desulphurization unit FGD-II	SPM	36.0	50
				SO_2	147.5	--
				NOx	112.8	--
4	ST-009	26.03.2021	Stack attached to continuous catalytic reforming Unit (CCR) 74F1,F2,F3,F4	SPM	22.0	100
				SO_2	25.1	--
				NOx	117.4	--
5.	ST-010	27.03.2021	Stack attached SRU Train-III Incinerator 79F302	SPM	23.0	100
				SO_2	32.5	--
				NOx	35.7	--

Note: 1. NOx is measured through Testo-350 flue gas analyser
2. As per CFO load based standard was prescribed for SO_2 (11.5 TPD)

M. Ravi
SENIOR ENVIRONMENTAL SCIENTIST

ANNEXURE -18

ANNEXURE-19

Stack Monitroing Data (CEMS) - From 01.01.2020 to 30.04.2021

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

S. No.	Date	Stack01_CDU_I_2F1				Stack02_CDU_I_2F2-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
1	2020-01-01	61.44	31.84	132.92	35.35	57.48	30.17	134.16	35.18
2	2020-01-02	51.53	33.47	148.41	35.38	42.46	33.7	140.43	36.52
3	2020-01-03	9.56	34.97	83.3	35.43	9.41	34.83	83.9	35.04
4	2020-01-04	8.24	34.11	275.96	35.57	9.38	34.06	254.59	34.05
5	2020-01-05	0.02	34.66	321.32	35.4	0.16	34.69	312.08	32.4
6	2020-01-06	24.47	33.82	314.2	35.72	23.65	33.92	312.35	42.58
7	2020-01-07	24.07	31.16	240.27	35.68	19.79	33.63	221.86	43.06
8	2020-01-08	0.02	32.29	236.74	40.57	0.16	30.52	244.68	33.97
9	2020-01-09	26.68	32.02	192.37	43.8	23.89	31.78	181.02	42.41
10	2020-01-10	30.19	30.56	184.72	42.9	29.11	31.09	171.53	35.18
11	2020-01-11	87.01	31.35	232.49	42.48	91.95	31.62	221.52	35.53
12	2020-01-12	79.99	34.27	241.96	36.41	81.37	34.05	224.52	33.08
13	2020-01-13	22.82	33.52	109.65	36.68	20.38	33.69	105.24	33.48
14	2020-01-14	0.02	33.67	59.59	36.8	0.16	33.8	59.94	34.12
15	2020-01-15	0.02	32.4	64.57	37.1	0.16	32.34	64.65	35.45
16	2020-01-16	32.63	31.81	87.93	37.58	31.51	31.77	86.67	37.7
17	2020-01-17	67.51	31.55	299.77	36.93	69.85	31.53	363.99	36.52
18	2020-01-18	57.61	31.72	76.08	38.12	57.69	31.78	73.63	36.58
19	2020-01-19	57.62	31.16	103.68	40.66	57.66	31.21	104.62	36.03
20	2020-01-20	57.59	31.47	112.11	37.77	57.78	31.56	112.65	41.26
21	2020-01-21	57.59	31.48	112.96	38.57	57.77	31.41	112.86	44.18
22	2020-01-22	57.32	31.53	105.01	40.87	57.4	31.55	105.87	41.95
23	2020-01-23	57.45	31.45	109.56	38.91	57.59	31.49	107.71	42.59
24	2020-01-24	57.54	32.15	120.38	38.95	54.02	32.1	127.85	42.84
25	2020-01-25	57.73	33.5	120.06	43.3	57.93	32.98	117.91	42.48
26	2020-01-26	57.79	33.52	118.41	47.56	57.9	33.56	118.31	43.54
27	2020-01-27	57.83	33.52	126.21	40.43	57.95	33.62	121.05	43.64
28	2020-01-28	57.84	33.57	124.4	43.51	58.05	33.71	124.64	42.83
29	2020-01-29	NA	NA	NA	NA	NA	NA	NA	NA
30	2020-01-30	NA	NA	NA	NA	NA	NA	NA	NA
31	2020-01-31	NA	NA	NA	NA	NA	NA	NA	NA
32	2020-02-01	NA	NA	NA	NA	NA	NA	NA	NA
33	2020-02-02	NA	NA	NA	NA	NA	NA	NA	NA
34	2020-02-03	NA	NA	NA	NA	NA	NA	NA	NA
35	2020-02-04	NA	NA	NA	NA	NA	NA	NA	NA
36	2020-02-05	NA	NA	NA	NA	NA	NA	NA	NA
37	2020-02-06	NA	NA	NA	NA	NA	NA	NA	NA
38	2020-02-07	NA	NA	NA	NA	NA	NA	NA	NA
39	2020-02-08	NA	NA	NA	NA	NA	NA	NA	NA
40	2020-02-09	NA	NA	NA	NA	NA	NA	NA	NA
41	2020-02-10	NA	NA	NA	NA	NA	NA	NA	NA
42	2020-02-11	NA	NA	NA	NA	NA	NA	NA	NA
43	2020-02-12	NA	NA	NA	NA	NA	NA	NA	NA
44	2020-02-13	NA	NA	NA	NA	NA	NA	NA	NA
45	2020-02-14	NA	NA	NA	NA	NA	NA	NA	NA
46	2020-02-15	NA	NA	NA	NA	NA	NA	NA	NA
47	2020-02-16	NA	NA	NA	NA	NA	NA	NA	NA
48	2020-02-17	NA	NA	NA	NA	NA	NA	NA	NA
49	2020-02-18	NA	NA	NA	NA	NA	NA	NA	NA
50	2020-02-19	NA	NA	NA	NA	NA	NA	NA	NA
51	2020-02-20	NA	NA	NA	NA	NA	NA	NA	NA
52	2020-02-21	NA	NA	NA	NA	NA	NA	NA	NA
53	2020-02-22	NA	NA	NA	NA	NA	NA	NA	NA
54	2020-02-23	NA	NA	NA	NA	NA	NA	NA	NA
55	2020-02-24	NA	NA	NA	NA	NA	NA	NA	NA
56	2020-02-25	NA	NA	NA	NA	NA	NA	NA	NA
57	2020-02-26	NA	NA	NA	NA	NA	NA	NA	NA
58	2020-02-27	NA	NA	NA	NA	NA	NA	NA	NA
59	2020-02-28	NA	NA	NA	NA	NA	NA	NA	NA
60	2020-02-29	NA	NA	NA	NA	NA	NA	NA	NA
61	2020-03-01	NA	NA	NA	NA	NA	NA	NA	NA
62	2020-03-02	NA	NA	NA	NA	NA	NA	NA	NA
63	2020-03-03	NA	NA	NA	NA	NA	NA	NA	NA
64	2020-03-04	NA	NA	NA	NA	NA	NA	NA	NA

S. No.	Date	Stack01_CDU_I_2F1				Stack02_CDU_I_2F2-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
65	2020-03-05	NA	NA	NA	NA	NA	NA	NA	NA
66	2020-03-06	NA	NA	NA	NA	NA	NA	NA	NA
67	2020-03-07	NA	NA	NA	NA	NA	NA	NA	NA
68	2020-03-08	NA	NA	NA	NA	NA	NA	NA	NA
69	2020-03-09	NA	NA	NA	NA	NA	NA	NA	NA
70	2020-03-10	NA	NA	NA	NA	NA	NA	NA	NA
71	2020-03-11	NA	NA	NA	NA	NA	NA	NA	NA
72	2020-03-12	59.76	34.71	0.06	0	59.9	34.77	0	18.25
73	2020-03-13	68.91	35.2	151.08	0.49	68.71	35.21	169.34	18
74	2020-03-14	76.89	35.25	267.35	12.29	77.08	35.24	268.93	18.07
75	2020-03-15	76.94	35.32	252.8	24.12	77.09	35.36	252.67	17.99
76	2020-03-16	76.85	35.46	252.72	24.77	76.97	35.53	252.45	17.88
77	2020-03-17	76.97	35.82	253.03	24.19	77.14	35.85	252.94	17.86
78	2020-03-18	77.07	36.33	253.11	24.95	77.23	36.36	252.77	17.8
79	2020-03-19	77.09	36.61	252.22	24.58	77.25	36.76	251.93	17.5
80	2020-03-20	75.48	36.43	252.5	24.57	75.42	36.36	251.23	17.46
81	2020-03-21	70.51	30.92	250.11	32.36	70.68	30.96	249.65	17.24
82	2020-03-22	70.55	31.41	248.92	29.05	70.66	31.43	248.49	17.31
83	2020-03-23	70.66	31.46	367.62	25.29	70.76	31.48	367.19	16.86
84	2020-03-24	53.61	27.3	279.91	25.44	54.12	27.47	281.98	17.05
85	2020-03-25	25.31	20.61	141.03	25.77	25.46	20.62	140.74	16.74
86	2020-03-26	25.31	21.13	141.3	26.23	25.52	21.19	140.97	16.76
87	2020-03-27	25.39	21.48	141.72	25.76	25.53	21.48	141.3	16.87
88	2020-03-28	25.49	21.08	142.17	26.13	25.64	21.22	142.33	16.74
89	2020-03-29	25.43	21.02	142.41	30.4	25.58	21.05	142.15	8.44
90	2020-03-30	25.49	21.42	143.03	26.9	25.63	21.44	142.85	0
91	2020-03-31	25.49	21.47	143.25	28.01	25.61	21.55	143.15	0
92	2020-04-01	25.55	21.58	143.59	27.38	25.7	21.54	143.47	0
93	2020-04-02	25.55	21.35	143.34	26.51	25.73	21.39	143.1	0
94	2020-04-03	25.68	21.49	144.14	26.55	25.78	21.51	143.83	0
95	2020-04-04	25.7	21.61	160.5	27.93	25.83	21.64	159.58	0
96	2020-04-05	25.63	21.03	194.75	26.66	25.79	21.1	194.64	0
97	2020-04-06	25.77	21.58	195.62	26.79	25.92	21.56	195.32	9.1
98	2020-04-07	25.87	21.46	196.6	26.52	26.05	21.54	196.38	15.67
99	2020-04-08	25.85	21.82	190.44	26.88	26	22.01	190.38	15.93
100	2020-04-09	25.8	21.26	187.59	26.81	25.99	21.25	187.49	16.17
101	2020-04-10	25.76	21.32	188.54	27.85	25.88	21.37	188.42	15.96
102	2020-04-11	25.83	21.54	188.1	29.29	25.95	21.56	187.79	15.86
103	2020-04-12	26.04	22.07	189.22	30.26	26.15	22.02	188.92	15.86
104	2020-04-13	22.54	11.66	140.74	27.67	22.58	12.12	142.7	16.11
105	2020-04-14	24.83	0.02	99.68	27.39	24.95	0.05	99.57	15.84
106	2020-04-15	24.92	1.2	99.36	27.85	25.07	2.22	99.33	15.83
107	2020-04-16	25.12	14.57	93.22	28.06	25.19	14.75	93.05	15.77
108	2020-04-17	25.19	16.07	99.45	28.95	25.32	19.44	99.32	16.31
109	2020-04-18	25.23	14.97	75.23	37.38	25.35	15.11	75.7	15.94
110	2020-04-19	25.32	18.34	87.76	31.87	25.47	18.3	87.54	15.51
111	2020-04-20	25.33	17.2	86.98	28.84	25.47	17.33	84.77	15.06
112	2020-04-21	25.32	16.66	98	28.34	25.46	16.46	97.87	15.2
113	2020-04-22	25.33	16.16	98.47	29.01	25.48	15.54	98.1	15.09
114	2020-04-23	25.29	17.17	98.47	30.85	25.43	17.34	98.32	16.11
115	2020-04-24	25.27	16.88	99.05	32.01	25.42	16.83	98.72	17.76
116	2020-04-25	25.27	16.81	98.64	31.03	25.42	16.91	98.34	16.48
117	2020-04-26	25.35	17.06	98.19	30.05	25.47	17.12	97.97	16.48
118	2020-04-27	25.36	16.99	97.61	31.84	25.5	15.85	97.34	17.14
119	2020-04-28	25.31	16.98	98.05	29.41	25.44	17.05	98.05	17.09
120	2020-04-29	23.84	8.62	97.82	30.15	24.07	8.19	97.84	13.2
121	2020-04-30	25.22	0.05	97.1	36.99	23.97	0.07	97.03	9.12
122	2020-05-01	25.04	0.03	96.85	34.25	25.21	0.07	96.71	8.98
123	2020-05-02	25.07	0.03	96.2	32.1	25.21	0.07	95.79	9.18
124	2020-05-03	25.07	0.03	95.78	31.17	25.21	0.07	95.47	9.11
125	2020-05-04	25.06	0.03	96.22	30.9	25.22	0.07	95.77	8.36
126	2020-05-05	25.07	0.03	97.65	34.67	25.2	0.07	95.71	13.23
127	2020-05-06	25.06	0.03	89.94	29.68	25.21	0.07	86.03	7.38
128	2020-05-07	25.05	0.03	68.49	29.94	25.21	0.07	68.21	7.34
129	2020-05-08	25.15	1.02	73.49	33.46	25.27	1.05	76.14	8.61
130	2020-05-09	25.28	2.26	83.77	30.25	25.41	2.32	83.74	7.22
131	2020-05-10	16.07	1.57	50.72	30.12	16.8	1.63	52.78	7.8

S. No.	Date	Stack01_CDU_I_2F1			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
132	2020-05-11	11.84	0.02	33.26	31.18
133	2020-05-12	25.41	0.03	59.86	32.93
134	2020-05-13	25.37	0.03	105.58	30.82
135	2020-05-14	25.42	0.03	221.41	29.67
136	2020-05-15	25.37	0.03	132.75	29.38
137	2020-05-16	25.41	0.03	65.39	29.81
138	2020-05-17	25.42	0.03	16.36	29.75
139	2020-05-18	25.37	0.03	16.15	30.15
140	2020-05-19	25.37	0.03	22.64	30.3
141	2020-05-20	25.34	0.03	33.76	33.44
142	2020-05-21	25.33	0.15	117.53	36.19
143	2020-05-22	25.37	0.03	119.27	33.88
144	2020-05-23	25.42	0.03	119.45	33.9
145	2020-05-24	25.4	0.03	119.62	33.21
146	2020-05-25	25.42	8.4	119.88	33.58
147	2020-05-26	25.49	22.42	117.63	34.03
148	2020-05-27	25.5	22.65	119.45	35.14
149	2020-05-28	25.5	22.62	119.08	34.05
150	2020-05-29	133.43	39.9	187.92	35.54
151	2020-05-30	174.68	2.65	78.69	35.62
152	2020-05-31	14.57	0.03	0.07	35.42
153	2020-06-01	93.7	3.53	11.01	34.62
154	2020-06-02	119.05	0.03	33.12	34.55
155	2020-06-03	122.91	22.42	129.89	33.99
156	2020-06-04	62.42	36.74	308.42	35.05
157	2020-06-05	29.98	36.65	273.31	35.65
158	2020-06-06	25.5	34.93	215.65	36.12
159	2020-06-07	25.5	34.76	152.92	36.58
160	2020-06-08	25.5	35.69	150.27	36.27
161	2020-06-09	32.44	33.27	211.92	35.94
162	2020-06-10	25.66	32.31	186.73	38.04
163	2020-06-11	86.12	31.48	210.36	37.51
164	2020-06-12	53.14	31.28	136.61	36.11
165	2020-06-13	39.93	30.77	171.66	35.64
166	2020-06-14	25.68	27.59	227.93	35.82
167	2020-06-15	25.82	26.92	203.45	39.98
168	2020-06-16	25.92	23.5	200.76	36.81
169	2020-06-17	25.9	23.33	173.29	38.47
170	2020-06-18	17.25	22.46	160.94	38.34
171	2020-06-19	7.5	22.14	150.13	44.04
172	2020-06-20	14.38	23.54	145.86	38.83
173	2020-06-21	45.97	24.24	171.31	42.15
174	2020-06-22	24.36	22.46	157.96	41.47
175	2020-06-23	7.43	20.73	141.48	42.54
176	2020-06-24	6.7	20.35	175.53	43.07
177	2020-06-25	6.55	20.11	170.36	39.12
178	2020-06-26	6.37	20.2	165.77	38.39
179	2020-06-27	5.99	20.38	140.47	38.54
180	2020-06-28	5.73	19.38	129.8	39.14
181	2020-06-29	5.15	19.01	75.53	41.86
182	2020-06-30	6.74	18.41	185.84	39.9
183	2020-07-01	7.12	18.81	178.55	39.34
184	2020-07-02	7.18	19.36	174.75	39.76
185	2020-07-03	6.16	19.72	178.38	42.94
186	2020-07-04	6.11	19.28	164.3	41.37
187	2020-07-05	5.95	20.87	148.23	41.46
188	2020-07-06	13.53	22.09	178.76	42.56
189	2020-07-07	44.79	22.95	182.78	41.33
190	2020-07-08	54.92	23.78	202.85	40.93
191	2020-07-09	56.6	24.83	197.61	41.03
192	2020-07-10	38.4	25.09	150.24	40.62
193	2020-07-11	45.29	27.62	142.37	40.91
194	2020-07-12	53.26	29.78	142.24	41.07
195	2020-07-13	54.02	31.55	142.06	42.72
196	2020-07-14	61.02	33.36	137.58	43.54
197	2020-07-15	70.1	33.26	138.25	43.1
198	2020-07-16	69.54	33.64	141.55	43.81

Stack02_CDU_I_2F2-			
NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
12.93	0.2	36.68	8.99
25.58	0.07	59.32	9.37
25.5	0.07	100.86	9.36
25.52	0.07	216.73	9.35
25.54	0.07	134.2	9.19
25.56	0.07	66.01	9.82
25.57	0.07	17.71	9.76
25.53	0.07	15.6	9.55
25.48	0.07	26.93	9.72
25.46	0.07	31.73	10.58
25.52	0.07	37.9	10.42
25.52	0.07	119.2	9.91
25.57	0.07	119.06	9.3
25.56	0.07	119.53	8.68
25.55	8.47	119.49	8.7
25.64	22.78	119.26	8.74
25.64	22.74	119.32	8.82
25.64	22.71	119.08	8.74
24.27	11.81	107.09	8.58
16.02	0.07	0	21.99
14.5	0.07	0	31.3
84.45	3.33	9.53	31.11
117.95	0.07	31.17	31.33
126.08	21.89	125.98	31.38
59.52	36.45	327.91	31.49
29.91	35.88	330.83	32.33
25.64	35	214.84	31.79
25.65	34.67	149.89	31.29
25.64	36.06	153.53	33
33.24	33.59	206.92	32.01
25.78	32.32	183.64	34.62
89.25	31.35	215.53	33.42
53.66	31.51	134.66	32.91
36.88	30.44	171.41	32.27
25.85	27.58	232.04	32.83
25.96	26.67	202.47	33.21
26.08	23.34	197.95	34.05
26.07	23.31	172.08	33.72
18.65	22.68	159.59	34.61
7.69	22.12	150.51	39.51
14.79	24.31	159.29	36.59
46.95	24.27	171.09	36.34
21.66	22.17	130.54	36.52
7.51	21.33	162.34	36.54
6.84	20.32	175.06	35.26
6.68	20.21	172.59	35.11
6.44	20.42	159.79	35.45
6.08	20.52	140.74	35.13
5.87	19.28	146.68	35.19
5.29	18.96	80.37	35.58
6.53	18.42	147.17	35.19
7.11	19.09	175.8	35.5
7.27	19.8	183.18	36.64
6.34	19.58	173.13	38.99
6.25	20.06	172.06	39.68
6.07	20.21	145.14	39.3
13.85	22.04	178.37	39.56
44.82	22.84	181.28	38.66
55.14	23.68	202.6	39.56
59.83	24.82	194.24	38.83
37.91	25.25	144.36	39.14
45.86	28.3	141.92	38.83
52.76	29.9	141.83	21.75
54.82	31.62	140.33	0
60.87	33.45	137.65	0
69.67	33.18	138.51	0
69.88	33.67	142.17	12.21

S. No.	Date	Stack01_CDU_I_2F1				Stack02_CDU_I_2F2-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
199	2020-07-17	57.49	35.88	141.48	44.48	57.62	35.35	141.05	32.91
200	2020-07-18	57.76	35.49	143.97	43.78	58.09	35.71	143.16	33.54
201	2020-07-19	56.65	36.75	142.29	42.24	56.73	37.81	142.18	34.21
202	2020-07-20	39.46	33.38	153.72	44.35	35.65	31.82	145.99	34.72
203	2020-07-21	44.09	28.08	156.08	45.12	43.57	28.13	156.8	33.53
204	2020-07-22	22.32	32.9	150.57	43.19	22.56	33.08	149.27	32.61
205	2020-07-23	48.81	34.35	163.61	41.38	48.74	34.49	161.84	32.21
206	2020-07-24	50.56	36.51	187.1	39.71	50.61	36.68	184.51	31.54
207	2020-07-25	61.16	34.25	156.59	39.48	61.23	34.47	155.73	31.15
208	2020-07-26	120.31	37.53	153	37.57	121.82	37.84	152.93	28.18
209	2020-07-27	60.39	37.58	152.96	39.46	59.59	38.24	155.25	29.98
210	2020-07-28	49.53	39.28	158.65	39.28	46.43	37.12	158.93	29.9
211	2020-07-29	40.03	40.58	148.85	41.37	39.61	40.42	148.37	30.18
212	2020-07-30	29.04	39.74	148.24	43.01	29.52	39.82	149.65	30.18
213	2020-07-31	35.4	39.79	143.84	39.88	35.46	39.17	143.93	29.93
214	2020-08-01	34.88	40.42	147.5	38.33	35.08	41.06	144.18	30
215	2020-08-02	35.14	43.96	142.56	38.7	35.25	43.93	142.78	30.05
216	2020-08-03	33.8	54.38	144.17	37.69	34.18	54.82	144.26	31.12
217	2020-08-04	33.42	47.36	155.96	38.4	34.76	49.75	152.71	31.1
218	2020-08-05	36.14	40.93	156.56	40.11	36.7	46.59	159.95	32.13
219	2020-08-06	33.2	47.71	189.69	42.02	33.55	54.05	189.54	30.78
220	2020-08-07	11.79	39.22	204.76	38.47	11.84	40.07	204.19	13.94
221	2020-08-08	5.87	42.95	203.64	38.16	5.69	44.02	203.42	16.48
222	2020-08-09	4.9	58.7	203.41	41.07	5.05	62.71	201.06	28.7
223	2020-08-10	5.43	51.59	169.52	39.2	6.76	51.44	170.55	31.53
224	2020-08-11	10.94	50.05	167.18	39.35	11.04	48.57	171.04	32.96
225	2020-08-12	9.87	42.8	143.95	41.56	9.98	43.92	143.89	33.44
226	2020-08-13	7.76	42.16	138.7	41.92	7.92	41.67	138.1	32.16
227	2020-08-14	8.14	41.78	137.52	42.93	8.29	41.82	137.27	30.31
228	2020-08-15	8.88	41.35	140.6	39.88	9.03	41.55	139.6	29.72
229	2020-08-16	9.33	41.15	139.98	42.49	9.46	41.53	139.19	27.48
230	2020-08-17	84.25	41.6	142.3	39.7	77.95	41.8	141.25	27.23
231	2020-08-18	139.32	42.67	145.44	40.13	140.44	42.81	145.63	27.41
232	2020-08-19	104.55	44.67	141.83	40.24	106.02	44.47	150.01	27.24
233	2020-08-20	125.04	41.33	170.09	46.56	127.56	41.64	170.42	28.28
234	2020-08-21	63.43	36.11	175.41	44.44	65.49	36.21	171.49	25.72
235	2020-08-22	43.51	37.01	183.5	41.65	43.09	37.13	185.58	25.41
236	2020-08-23	43.3	37.23	186.86	43.17	42.57	37.41	187.59	25.91
237	2020-08-24	40.35	36.97	187.1	42.86	38.63	36.4	187.14	25.22
238	2020-08-25	36.93	35.98	167.86	41.55	39.43	35.63	165.48	26.44
239	2020-08-26	17.61	35.33	190.42	48.42	17.61	35.54	191.25	26.3
240	2020-08-27	18.12	35.08	185.55	44.02	18.76	34.9	184.05	27.06
241	2020-08-28	35.99	35.83	181.21	42.4	36.02	36.02	182.63	26.35
242	2020-08-29	28.34	35.81	177.57	44.97	29.46	35.85	176.41	26.41
243	2020-08-30	38.26	36.16	185.61	44.96	36.13	36.15	183.99	25.47
244	2020-08-31	27.69	35.38	186.31	46.34	25.24	35.54	186.91	25.41
245	2020-09-01	17.72	36.15	189.92	44.19	18.04	36.07	188.84	26.74
246	2020-09-02	3.93	35.95	174.23	43.9	3.63	36.18	175.16	68.23
247	2020-09-03	13.71	29.99	161.01	44.41	13.62	30.99	158.01	80.6
248	2020-09-04	18.32	28.96	183.51	44.5	18.57	28.8	180.01	16.97
249	2020-09-05	132.32	25.53	244.82	45.07	123.67	26.33	227.7	25.58
250	2020-09-06	298.16	20.26	358.45	44.94	299.37	20.32	359.69	25.89
251	2020-09-07	156.21	19.61	192.12	46.06	157.38	19.67	214.09	25.75
252	2020-09-08	257.5	18.65	322.23	45.66	256.74	19.1	304.09	25.94
253	2020-09-09	203.28	18.32	208.76	46.06	204.17	18.37	203.82	25.59
254	2020-09-10	184.46	18.71	371.44	46.45	183.47	18.76	356.05	25.74
255	2020-09-11	114.16	19.36	466.91	46.54	113.72	19.4	481.38	25.18
256	2020-09-12	15.73	19.23	397.5	47.17	16.07	19.89	402.62	25.45
257	2020-09-13	0.02	18.75	242.51	47.39	0.16	18.81	233.14	26.17
258	2020-09-14	266.16	19.26	105.93	48.91	268.51	19.42	102.15	24.99
259	2020-09-15	72.31	19.39	78.06	50.12	67.46	19.41	73.05	24.69
260	2020-09-16	195.72	19.91	142.71	49.83	27.46	19.82	52.08	24.74
261	2020-09-17	32.7	23.4	106.43	44.48	68.34	18.46	145.73	25.09
262	2020-09-18	22.74	29.24	96.82	29.68	101.97	17.28	227.64	25.57
263	2020-09-19	24.33	27.29	106.92	32.04	101.97	17.28	227.61	25.52
264	2020-09-20	24.84	26.56	119.21	47.29	101.97	17.28	227.61	25.16
265	2020-09-21	18.1	26	105.99	45.02	101.97	17.28	227.62	25.34

S. No.	Date	Stack01_CDU_I_2F1				Stack02_CDU_I_2F2-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
266	2020-09-22	29.86	17.92	124.18	27.98	101.98	17.28	227.65	24.61
267	2020-09-23	144.27	43.55	211.08	24.88	66.4	12.18	153.62	24.12
268	2020-09-24	378.35	97.05	392.69	23.24	284.67	2.16	317.09	20.39
269	2020-09-25	377.56	17.5	505.64	22.18	562.01	2.06	550.45	17.39
270	2020-09-26	368.98	48.59	514.23	22.77	549	2.46	639.78	16.89
271	2020-09-27	297.94	69.21	250.93	23.67	468.4	11.2	370.66	17.89
272	2020-09-28	320.03	54.87	248.18	25.95	591.2	0.68	420.07	17.4
273	2020-09-29	245.53	162.49	386.63	32.97	522.66	2.11	546.29	17
274	2020-09-30	221.09	138.86	432.03	42.98	478	1.83	600.71	16.62
275	2020-10-01	205.08	117.21	551.29	43.62	433.52	2.99	729.91	16.51
276	2020-10-02	50.52	65.48	213.66	37.07	104.11	3.16	197.25	16.83
277	2020-10-03	100.1	11.02	643.4	33.44	7.18	3.3	133.53	17.09
278	2020-10-04	182.93	122.3	1162.04	35.2	8.36	4.05	338.55	17.13
279	2020-10-05	286.19	150.28	1428.88	40.39	310.84	5.34	937.79	16.78
280	2020-10-06	475.74	80.4	1253.38	41.12	624.09	2.84	1189.16	7.69
281	2020-10-07	357.93	135.71	1055.95	41.14	564.83	2.56	1225.25	11.07
282	2020-10-08	232.4	131.93	946.45	41.55	558.24	2.29	1149.31	11.19
283	2020-10-09	240.39	135.63	837.42	45.41	617.41	2.56	1014.77	11.31
284	2020-10-10	227.17	127.81	741.21	40.14	517.36	3.77	840.16	11.41
285	2020-10-11	240.57	54.29	798.3	34.43	313.03	23.5	665.22	11.98
286	2020-10-12	248.07	11.98	808.15	0	336.83	2.25	814.15	11.98
287	2020-10-13	211.71	10.31	884.81	40.77	358.87	10.6	1339.36	11.97
288	2020-10-14	260.82	8.27	613.98	48.77	414.19	2.24	1088.89	11.77
289	2020-10-15	214.89	8.63	591.85	26.47	397.38	2.45	1064.22	11.92
290	2020-10-16	253.87	5.45	50.48	26.4	475.48	3.91	381.85	11.9
291	2020-10-17	175.25	6.87	57.53	26.56	361.06	2.34	509.65	11.81
292	2020-10-18	243.88	84.36	62.74	28.16	533.67	2.32	475.61	11.8
293	2020-10-19	197.81	30.22	47.92	27.15	502.76	2.37	465.18	11.78
294	2020-10-20	179.62	136.66	40.49	29.29	466.97	2.15	360.24	11.79
295	2020-10-21	151.16	68.73	44.86	30.07	398.88	10	418.81	11.61
296	2020-10-22	152.71	33.02	33.95	27.92	399.79	2.25	396.7	11.52
297	2020-10-23	128.07	66.27	53.39	28.29	360.29	2.49	498.57	11.49
298	2020-10-24	114.88	22.7	39.43	27.66	303.7	2.1	286.39	11.45
299	2020-10-25	78.08	11.66	85.65	27.87	202.49	2.44	536.67	11.68
300	2020-10-26	50.42	17.34	37.74	28.43	139.51	17.5	392.18	12.34
301	2020-10-27	36.9	79.56	33.75	31.45	119.55	2.6	258.09	11.34
302	2020-10-28	29.1	66.61	36.95	31.02	34.03	3.03	102.39	11.51
303	2020-10-29	32.83	4.05	47.82	28.6	8.51	4.8	28.49	12.13
304	2020-10-30	39.74	7.66	223.88	48.4	33.82	5.03	895.15	11.72
305	2020-10-31	68.22	18.12	533.38	75.27	101.19	25.43	1698.76	9.88
306	2020-11-01	134.74	40.59	1044.64	74.05	293.17	8.13	1474.1	10.84
307	2020-11-02	125.97	156.86	655.41	51.89	305.22	0.09	1463.1	9.87
308	2020-11-03	144.76	91.63	816.8	24.53	315.05	4.29	1519.28	9.87
309	2020-11-04	110.28	32.02	498.11	27.1	224.77	4.11	1047.57	9.91
310	2020-11-05	83.99	120.59	362	28.7	212.2	4.77	1033.51	9.79
311	2020-11-06	69.49	89.4	393.97	26.67	185.9	4.04	1111.93	9.88
312	2020-11-07	41.32	33.21	312.2	25.61	92.61	23.55	988.95	10.27
313	2020-11-08	18.34	2.56	371.17	24.64	18.5	1.02	973.22	9.58
314	2020-11-09	71.73	60.05	515.71	26.29	117.73	2.74	738.25	9.68
315	2020-11-10	128.39	63.14	489.39	26.24	206.09	4.88	405.08	9.8
316	2020-11-11	55.26	88.87	571.91	26.53	167.2	4.7	1061.5	9.99
317	2020-11-12	16.84	77.22	545.88	26.92	26.44	4.31	986.62	9.88
318	2020-11-13	15.42	69.39	413.97	27.24	18.55	4.11	1259.43	9.91
319	2020-11-14	14.81	59.4	414.65	26.92	17.36	3.97	1465.96	9.96
320	2020-11-15	13.99	78.3	243.58	28.33	16.98	3.53	1293.21	9.93
321	2020-11-16	14.11	131.49	214.82	29.83	17.46	3.49	1208.61	9.91
322	2020-11-17	35.08	30.01	425.87	27.91	61.08	8.26	983.55	10.01
323	2020-11-18	27.98	12.89	885.81	28.14	37.34	12.32	864.51	10.03
324	2020-11-19	21.46	12.17	768.63	28.93	25.41	11.59	853.64	9.99
325	2020-11-20	20.9	13.4	732.69	31.59	26.26	11.46	760.2	9.91
326	2020-11-21	21.56	12.5	708.22	31.46	29.37	10.42	969.61	9.97
327	2020-11-22	21.83	10.6	840.85	29.03	24.56	9.63	687.36	10
328	2020-11-23	22.17	9.19	944.71	27.64	21.78	8.84	558.06	10.28
329	2020-11-24	15.8	12.86	876.05	28.5	15.78	7.66	548.71	10.44
330	2020-11-25	10.26	43.33	554.55	30.04	9.01	13.25	247.68	10.24
331	2020-11-26	6.54	5.05	576.92	29.66	6.43	3.44	353.76	10.34
332	2020-11-27	7.87	10.38	217.48	31.67	8.2	3.08	287.03	11.33

S. No.	Date	Stack01_CDU_I_2F1				Stack02_CDU_I_2F2-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
333	2020-11-28	9.55	7.31	591.87	32.28	10.17	5.45	272.04	10.62
334	2020-11-29	0.02	18.1	554.63	42.64	0.15	9.69	267.58	10.59
335	2020-11-30	8.89	8.31	1063.13	37.51	29.76	8.26	354.49	10.8
336	2020-12-01	22.55	8.22	1303.18	38.99	13.12	7.34	416.02	10.88
337	2020-12-02	19.15	6.73	1069.13	38.22	10.55	6.65	370	10.9
338	2020-12-03	15.83	6.62	905.19	40.44	9.92	5.75	337.98	10.88
339	2020-12-04	12.55	6.97	558.76	23.39	9.11	6.13	216.8	10.26
340	2020-12-05	13.98	3.79	9.78	0	9.27	3.44	5.39	9.77
341	2020-12-06	20.87	4.77	120.86	0	9.91	0.07	34.35	10.51
342	2020-12-07	17.3	7.24	1204.66	0.42	13.21	6.3	325.1	5.41
343	2020-12-08	15.03	12.4	1295.69	0	15.11	11.7	412.67	0
344	2020-12-09	15.2	11.11	917.24	0	15.24	11.01	348.68	3.01
345	2020-12-10	206.1	7.22	578.9	12.86	27.44	7.19	199.25	10.31
346	2020-12-11	631.53	4.65	405.18	21.55	29.06	3.95	107.34	10.73
347	2020-12-12	444.96	6.37	642.6	20.53	37.74	6.66	162.92	10.06
348	2020-12-13	164.88	9.44	839.82	20.9	1.37	9.3	208.31	10.19
349	2020-12-14	116.14	8.72	985.98	23.81	2.15	8.55	249.91	10.35
350	2020-12-15	80.04	8.48	716.66	24.16	64.63	7.67	624.33	10.25
351	2020-12-16	110.53	6.68	681.22	24.31	214.59	6.68	1150.49	10.14
352	2020-12-17	120.06	6.22	717.54	24.1	284.52	6.04	1429.35	10.07
353	2020-12-18	92.6	8.69	778.48	27.04	294.16	5.57	1481.51	10.22
354	2020-12-19	87.59	5.33	736.77	24.81	257.42	5.06	1500.4	10.06
355	2020-12-20	92.48	4.39	849.43	24.43	186.4	4.61	1573.71	10.12
356	2020-12-21	79.37	3.69	975.21	24.71	121.91	3.89	1323.41	9.94
357	2020-12-22	66.25	5.85	679.13	25.11	110.75	6.06	734.32	9.68
358	2020-12-23	64.98	6.57	707.04	25.16	132.36	6.73	1107.45	9.75
359	2020-12-24	63.17	6.44	587.52	25.36	148.92	6.49	1379.11	9.61
360	2020-12-25	57.18	7.2	743.81	25.76	142.03	7.16	1442.8	9.48
361	2020-12-26	70.09	10.79	953.52	26.34	133.49	7.64	1480.67	9.93
362	2020-12-27	46.98	8.73	802.84	26.69	82.25	7.84	1505.91	9.76
363	2020-12-28	18.25	7.78	383.95	26.77	25.93	7.87	465.79	9.23
364	2020-12-29	10.04	12.72	183.97	27.88	11.83	7.6	206.26	9.07
365	2020-12-30	45.09	7.22	722.59	23.08	89.81	7.23	1122.68	8.45
366	2020-12-31	40.08	6.9	797.03	22.55	35.78	11.34	396.04	9.31
367	2021-01-01	35.57	6.93	810.86	25.09	0.16	5.4	22.69	9.48
368	2021-01-02	68.24	6.2	941.29	26.77	7.09	3.73	38.31	9.29
369	2021-01-03	158.5	6.6	1069.1	29.11	27.56	4.88	103.3	9.45
370	2021-01-04	182.06	5.22	1289.49	31.66	429.73	2.72	1722.3	9.26
371	2021-01-05	182.11	5.33	1284.76	30.29	379.6	4.31	1379.34	8.84
372	2021-01-06	64.44	9.11	370.53	30.62	346.28	6.22	1527.23	4.66
373	2021-01-07	60.55	24.04	185.73	31.67	372.88	5.41	1009.02	4.83
374	2021-01-08	87.57	3.79	380.61	32.79	312.7	4.88	1090.54	9.27
375	2021-01-09	78.1	2.85	465	33.81	245.48	3.9	958.58	9.13
376	2021-01-10	82.88	3.98	825.45	34.04	261.43	4.71	1732.25	9.83
377	2021-01-11	79.25	3.63	1036.88	33.97	172.77	4.79	1949	9.67
378	2021-01-12	31.29	2.41	825.47	34.47	68.55	3.4	1733.47	9.97
379	2021-01-13	16.34	6.18	802.47	35.04	41.42	6.92	1608.72	10.68
380	2021-01-14	0.03	6.79	667.33	35.24	7.55	7.5	1583.4	11.12
381	2021-01-15	0.03	10.54	176.85	35.73	0.16	8.13	905.76	10.85
382	2021-01-16	3.2	7.17	231.19	36.36	3.53	8.02	1117.7	12.63
383	2021-01-17	8.68	6.45	526.93	37.02	8.11	7.38	1761.76	14.52
384	2021-01-18	16.53	6.12	320.99	37.15	16.69	6.92	1246.73	13.85
385	2021-01-19	46.04	5.43	518.85	37.44	82.56	6.32	1416.35	14.81
386	2021-01-20	114.52	5.93	614.59	38.15	236.25	6.38	1466.65	15.54
387	2021-01-21	101.65	5.8	667.3	37.82	229.13	6.59	1502.85	16.71
388	2021-01-22	83.51	5.19	668.67	37.88	186	5.96	1537.77	16.98
389	2021-01-23	58.48	4.45	753.49	38.08	141.31	5.5	1734.56	18.37
390	2021-01-24	33.35	36.6	959.7	38.56	80.37	5.57	1786.99	22.47
391	2021-01-25	113.86	7.16	712.55	39.08	205.89	5.66	1738.94	26.56
392	2021-01-26	183.35	3.53	810.58	38	319.47	4.61	1784.68	33.5
393	2021-01-27	155.15	4.05	901.75	37.19	295.85	5.1	1847.73	40.32
394	2021-01-28	134.53	3.6	1036.7	37.6	294.58	4.78	1888.66	46.98
395	2021-01-29	144.48	4.13	1177.6	37.17	289.93	4.27	1619.97	35.96
396	2021-01-30	149.51	3.14	1320.83	37.77	291.69	3.22	1254.53	5.48
397	2021-01-31	162.71	5.66	1125.34	37.68	114.1	5.57	532.18	8.91
398	2021-02-01	164.04	5.02	935.69	37.82	91.51	5.24	618.4	9.77
399	2021-02-02	174.6	4.62	731.28	38.79	11.38	4.7	971.41	12.73

S. No.	Date	Stack01_CDU_I_2F1				Stack02_CDU_I_2F2-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
400	2021-02-03	166.87	5.17	609.64	38.84	11.44	4.21	169.98	16.76
401	2021-02-04	138.77	5.62	591.74	38.72	11.38	3.87	86.49	17.29
402	2021-02-05	39.02	3.52	614.64	38.03	8.54	4.71	59.97	17.87
403	2021-02-06	32.23	17.76	641.72	38.18	11.66	3.1	39.23	19.01
404	2021-02-07	31.09	2.8	651.19	38.07	10.68	2.73	35.49	21.07
405	2021-02-08	28.45	5.2	549.18	38.6	9.69	2.41	36.12	27.69
406	2021-02-09	24.11	3.95	688.56	38.9	12.31	2.9	49.19	34.33
407	2021-02-10	24.72	13.96	706.2	39.88	37.61	5.4	613.25	37.41
408	2021-02-11	19.52	13.37	202.57	43.05	60.78	5.08	1360.28	36.67
409	2021-02-12	18.85	4.93	132.06	41.53	59.49	22.68	1359.15	39.25
410	2021-02-13	41.87	7.18	574.57	41.31	76.59	9.74	1331.96	43.92
411	2021-02-14	65.66	4.31	1368.52	40.7	117.78	18.45	1358.95	48.04
412	2021-02-15	56.56	4.28	1363.27	41.15	110.42	4.98	1357.96	49.7
413	2021-02-16	42.99	5.28	1046.86	41.64	109.59	43.38	1349.48	53.32
414	2021-02-17	36.88	4.08	751.73	41.35	115.27	4.28	1328.25	58.96
415	2021-02-18	31.66	4.24	261.01	41.91	95.29	4.43	902.22	61.99
416	2021-02-19	36	4.36	141.45	42.35	111.83	4.74	549.23	66.47
417	2021-02-20	38.4	5.6	507.22	43.3	128.1	5.11	1021.73	39.23
418	2021-02-21	63.53	12.2	1339.97	43.16	127.65	13.16	1336.13	13.3
419	2021-02-22	61.11	6.94	1349.51	44.45	119.21	7.51	1338.22	12.85
420	2021-02-23	64.98	6.39	1351.67	44.74	122.18	5.67	1340.6	13.63
421	2021-02-24	54.31	7.93	1309.64	44.88	113.1	9.22	1342.15	11.77
422	2021-02-25	51.8	6.89	1282.52	45.14	105.6	6.72	1340.35	12.76
423	2021-02-26	35.56	5.94	709.36	45.84	117.61	5.54	1341.81	13.34
424	2021-02-27	29.96	6.37	575.52	46.14	116.73	6.08	1331.76	14.74
425	2021-02-28	36.37	8.73	239.16	47.47	315.58	17.15	1130.9	12.21
426	2021-03-01	23.43	5.37	209.01	46.36	181.89	8.3	1125.95	19.59
427	2021-03-02	26.02	3.6	69.09	46.45	203.97	3.01	1388.12	33.92
428	2021-03-03	28.91	3.62	80.14	46.54	246.42	3.16	1476.45	43.31
429	2021-03-04	30.72	3.18	73.84	45.15	273.38	2.67	1406.19	78.58
430	2021-03-05	29.1	3.27	63.91	45.29	237.36	2.63	1621	30.16
431	2021-03-06	19.5	5.78	24.93	45.89	19.72	17.81	1063.42	14.74
432	2021-03-07	19.77	8.9	27.05	46.41	34.3	24.88	1983.27	16.8
433	2021-03-08	26.56	4.69	39.27	46.78	26.33	3.56	1897.01	13.12
434	2021-03-09	27.27	2.87	24.89	47.33	91.66	3.02	1310.3	14.42
435	2021-03-10	10.86	3.51	36.56	47.85	44.3	3.57	841.93	15.98
436	2021-03-11	22.78	10.52	35.13	48.13	30.4	6.99	21.88	81.38
437	2021-03-12	22.44	3.84	42.09	48.9	26.1	3.99	116.33	86.73
438	2021-03-13	22.3	5.02	67.51	48.27	21.57	6.99	18.97	22.23
439	2021-03-14	22.23	5.15	69.8	47.65	22.24	8.51	17.22	17.8
440	2021-03-15	71.92	14.14	268.4	55.2	49.64	6.64	394.78	4.77
441	2021-03-16	68.35	19.24	550.5	44.78	26.77	24.59	179.33	16.81
442	2021-03-17	187.73	11.67	1687.91	45.35	18.93	55.78	615.41	14.06
443	2021-03-18	222.89	8.05	1757.18	45.48	18	99.63	688.21	13.45
444	2021-03-19	228.36	5.88	1754.63	45.74	173.96	5.15	1242.8	13.25
445	2021-03-20	234.06	5.71	1885.19	45.75	304.8	7.29	1874.2	13.72
446	2021-03-21	204.65	5.42	1807.15	46.05	292.77	5.98	1779.38	13.24
447	2021-03-22	176.93	9.1	1914.51	46.81	313.63	6.45	1819.62	14.52
448	2021-03-23	193.37	11.39	245.49	47.4	332.43	6.02	342.01	8.37
449	2021-03-24	172.94	40.43	159.83	49.8	316.13	5.27	271.77	7.96
450	2021-03-25	162.28	18.66	179.41	49.32	307.82	11.09	290.12	7.65
451	2021-03-26	146.56	40.33	171.37	50.27	296.27	10.67	261.31	6.83
452	2021-03-27	110.55	13.28	110.35	44.93	276.25	5.04	216.29	6.35
453	2021-03-28	0.29	1.09	7.97	22.89	265.83	5.2	175.65	7.38
454	2021-03-29	73.36	9.36	106.9	24.08	293.91	6.14	221.45	7.78
455	2021-03-30	148.52	19	298.51	25.23	291.87	9.13	369.11	8.06
456	2021-03-31	141.14	33.71	251.4	27.18	303.98	4.76	251.35	7.91
457	2021-04-01	160.83	13.64	216.97	25.85	308.59	4.91	217.35	8.19
458	2021-04-02	201.34	5	370.28	24.53	328.46	4.51	364.18	8.05
459	2021-04-03	166.84	6.44	290.53	24.96	324.02	4.68	262.31	8.58
460	2021-04-04	122.08	26.72	422.21	26.86	284.68	4.69	419.34	8.76
461	2021-04-05	116.67	35.57	264.01	27.89	326.84	5.26	262.14	9.02
462	2021-04-06	107.22	44.3	211.01	28.21	307.33	2.97	184.58	9.27
463	2021-04-07	126.13	17.67	204.66	26.95	314.69	1.5	190.17	9.44
464	2021-04-08	135.5	8.44	200.66	26.44	312.28	1.29	190.97	9.55
465	2021-04-09	104.15	47.4	203.21	27.37	294.8	1.19	190.29	9.67
466	2021-04-10	120.62	20.55	196.58	26.66	311.91	0.69	220.92	9.8

S. No.	Date	Stack01_CDU_I_2F1				Stack02_CDU_I_2F2-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
467	2021-04-11	119.72	29.47	211.16	27.07	317.37	0.41	215.69	9.98
468	2021-04-12	105.8	81.92	228.28	27.96	306.27	2.94	220.39	10.04
469	2021-04-13	NA	NA	NA	NA	NA	NA	NA	NA
470	2021-04-14	112.73	28.59	220.65	27.02	309.4	2.05	226.41	10.02
471	2021-04-15	110.77	53.49	219.56	28.08	282.95	2.53	191.59	10.13
472	2021-04-16	100.19	80.21	231.81	28.88	285.25	3.1	189.56	10.28
473	2021-04-17	133.07	12.91	213.53	27.48	301.27	3.85	221.47	10.29
474	2021-04-18	124.59	16.48	220.32	27.47	306.45	2.38	223.99	10.28
475	2021-04-19	130.98	17.67	195.55	27.68	282.35	6.22	253.56	10.31
476	2021-04-20	114.14	29.43	310.22	27.97	230.49	5.88	336.9	10.29
477	2021-04-21	89.64	42.64	215.59	28.57	230.23	5.01	242.59	10.4
478	2021-04-22	113.22	32.43	235.05	28.53	235.44	4.71	243.47	10.4
479	2021-04-23	113.73	30.13	215.87	28.62	241.21	5.14	225.63	10.4
480	2021-04-24	107.63	21.24	208.45	28.56	243.85	3.82	199.8	10.3
481	2021-04-25	90.61	61.9	217.11	29.46	241.74	3.47	211.66	10.26
482	2021-04-26	73.76	127.63	207.21	32.32	225.47	3.08	223.45	10.28
483	2021-04-27	89.88	35.67	203.39	29.14	223.21	3.5	244.74	10.44
484	2021-04-28	80.66	100.12	237.44	31.33	226.76	3.5	203.72	10.46
485	2021-04-29	76.77	61.71	214.19	27.75	217.58	7.77	186.49	10.79
486	2021-04-30	94.95	32.07	221.75	25.55	222.19	14.47	216.62	11.2
487	CFO Standards	-	-	-	100	-	-	-	100
488	Maximum Value	631.53	162.49	1914.51	75.27	624.09	99.63	1983.27	86.73
489	Maximum Value on	2020-12-11	2020-09-29	2021-03-22	2020-10-31	2020-10-06	2021-03-18	2021-03-07	2021-03-12
490	Average	72.59	26.19	356.67	35.44	111.81	16.02	469.60	20.67
491		442	442	442	436	442	442	439	431
492	Total Data Points	486	486	486	486	486	486	486	486
493	Data Availablity %	90.95	90.95	90.95	90.95	90.95	90.95	90.95	90.95
494	Pollutant Load (Tons/day)	0.058	0.021	0.283	0.028	0.043	0.006	0.182	0.008
495	Pollutnat Load as per CFO (Tons/day)				0.079				0.039

PFS

Stack Monitroing Data (CEMS) - From 01.01.2020 to 30.04.2021

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

S. No.	Date	Stack03_CDU_I_2F4-				Stack04_CDU_II_11F1-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
1	2020-01-01	64.12	30.18	155.39	15.11	0	67.3	248.89	47.72
2	2020-01-02	47.81	33.65	175.62	15.11	40.33	67.59	252.28	48.37
3	2020-01-03	8.88	34.8	80.31	15.43	78.99	67.86	246.91	48.42
4	2020-01-04	11.63	33.98	244.51	16.25	78.6	67.96	285.58	48.89
5	2020-01-05	0	34.51	315.95	15.7	79.23	68.11	321.96	49.22
6	2020-01-06	22.13	33.86	309.95	15.39	78.71	68.34	288.99	48.96
7	2020-01-07	17.52	32.96	215.24	15.57	78.68	68.63	262.99	48.91
8	2020-01-08	0	30.93	248.67	16.68	79.13	68.85	260.25	48.64
9	2020-01-09	23.71	32.36	195.49	16.94	79.44	70.49	262.58	49.98
10	2020-01-10	28.3	32.22	178.77	32.94	79.68	69.64	274.69	49.56
11	2020-01-11	83.25	29.73	208.41	29.77	78.58	69.99	270.09	48.94
12	2020-01-12	80.31	33.89	235.28	15.67	78.97	69.95	333.07	48.44
13	2020-01-13	22.78	33.57	103.29	15.82	79.56	70.77	359.79	48.04
14	2020-01-14	0	33.6	58.97	16.72	79.44	72.67	398.68	48.68
15	2020-01-15	0	32.34	64.76	16.36	80.17	71.62	417.08	48.1
16	2020-01-16	33.56	31.78	88.63	17.48	80.16	71.56	364.74	47.53
17	2020-01-17	68.57	31.56	417.7	16.56	81.24	71.69	401.43	48.13
18	2020-01-18	57.38	31.9	77.43	16.16	81.27	72.08	514.19	48.25
19	2020-01-19	57.44	31.14	105.9	18.89	81.08	71.82	382.61	47.72
20	2020-01-20	57.49	31.47	112.08	16.31	81.39	72.09	378.9	48.53
21	2020-01-21	57.4	31.51	112.95	18.81	81.5	71.83	697.59	49.22
22	2020-01-22	57.12	31.55	104.79	16.25	81.62	72.86	1575.95	49.6
23	2020-01-23	57.22	31.51	106.6	16.3	81.29	73.63	1414.63	50.22
24	2020-01-24	57.31	30.08	126.85	16.12	81.56	75.29	271.26	48.86
25	2020-01-25	57.58	33.85	124.31	16.08	82.65	74.28	820.09	48.52
26	2020-01-26	57.64	33.57	117.71	15.8	84.22	75.86	634.68	47.8
27	2020-01-27	57.65	33.63	124.42	15.49	84.63	73.86	691.7	49.51
28	2020-01-28	57.77	33.72	127.59	15.59	83.52	74.54	509.45	48.88
29	2020-01-29	NA	NA	NA	NA	NA	NA	NA	NA
30	2020-01-30	NA	NA	NA	NA	NA	NA	NA	NA
31	2020-01-31	NA	NA	NA	NA	NA	NA	NA	NA
32	2020-02-01	NA	NA	NA	NA	NA	NA	NA	NA
33	2020-02-02	NA	NA	NA	NA	NA	NA	NA	NA
34	2020-02-03	NA	NA	NA	NA	NA	NA	NA	NA
35	2020-02-04	NA	NA	NA	NA	NA	NA	NA	NA
36	2020-02-05	NA	NA	NA	NA	NA	NA	NA	NA
37	2020-02-06	NA	NA	NA	NA	NA	NA	NA	NA
38	2020-02-07	NA	NA	NA	NA	NA	NA	NA	NA
39	2020-02-08	NA	NA	NA	NA	NA	NA	NA	NA
40	2020-02-09	NA	NA	NA	NA	NA	NA	NA	NA
41	2020-02-10	NA	NA	NA	NA	NA	NA	NA	NA
42	2020-02-11	NA	NA	NA	NA	NA	NA	NA	NA
43	2020-02-12	NA	NA	NA	NA	NA	NA	NA	NA
44	2020-02-13	NA	NA	NA	NA	NA	NA	NA	NA
45	2020-02-14	NA	NA	NA	NA	NA	NA	NA	NA
46	2020-02-15	NA	NA	NA	NA	NA	NA	NA	NA
47	2020-02-16	NA	NA	NA	NA	NA	NA	NA	NA
48	2020-02-17	NA	NA	NA	NA	NA	NA	NA	NA
49	2020-02-18	NA	NA	NA	NA	NA	NA	NA	NA
50	2020-02-19	NA	NA	NA	NA	NA	NA	NA	NA
51	2020-02-20	NA	NA	NA	NA	NA	NA	NA	NA
52	2020-02-21	NA	NA	NA	NA	NA	NA	NA	NA
53	2020-02-22	NA	NA	NA	NA	NA	NA	NA	NA
54	2020-02-23	NA	NA	NA	NA	NA	NA	NA	NA
55	2020-02-24	NA	NA	NA	NA	NA	NA	NA	NA
56	2020-02-25	NA	NA	NA	NA	NA	NA	NA	NA
57	2020-02-26	NA	NA	NA	NA	NA	NA	NA	NA
58	2020-02-27	NA	NA	NA	NA	NA	NA	NA	NA
59	2020-02-28	NA	NA	NA	NA	NA	NA	NA	NA
60	2020-02-29	NA	NA	NA	NA	NA	NA	NA	NA
61	2020-03-01	NA	NA	NA	NA	NA	NA	NA	NA
62	2020-03-02	NA	NA	NA	NA	NA	NA	NA	NA
63	2020-03-03	NA	NA	NA	NA	NA	NA	NA	NA
64	2020-03-04	NA	NA	NA	NA	NA	NA	NA	NA
65	2020-03-05	NA	NA	NA	NA	NA	NA	NA	NA

S. No.	Date	Stack03_CDU_I_2F4-					Stack04_CDU_II_11F1-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
66	2020-03-06	NA	NA	NA	NA		NA	NA	NA	NA
67	2020-03-07	NA	NA	NA	NA		NA	NA	NA	NA
68	2020-03-08	NA	NA	NA	NA		NA	NA	NA	NA
69	2020-03-09	NA	NA	NA	NA		NA	NA	NA	NA
70	2020-03-10	NA	NA	NA	NA		NA	NA	NA	NA
71	2020-03-11	NA	NA	NA	NA		NA	NA	NA	NA
72	2020-03-12	59.58	34.86	0	14.61		129.24	82.17	414.96	28.55
73	2020-03-13	68	35.22	157.73	14.93		124.35	83.44	399.03	28.2
74	2020-03-14	76.74	35.24	270.49	14.96		117.1	82.72	961.59	29.31
75	2020-03-15	76.78	35.33	252.18	15.12		117.82	82.94	1120	28.59
76	2020-03-16	76.62	35.52	252.46	15.04		121.47	83.53	640.42	28.5
77	2020-03-17	76.8	35.75	252.91	15.08		116.79	83.54	575.77	28.06
78	2020-03-18	76.87	36.32	252.87	15.12		106.35	85	353.27	28.52
79	2020-03-19	76.91	36.72	252.14	14.86		63.69	56.98	298.05	19.21
80	2020-03-20	75.18	36.38	251.95	15.2		0	0	0	0
81	2020-03-21	70.35	30.91	249.17	15.58		0	0	0	0
82	2020-03-22	70.36	31.46	247.97	16.63		0	0	0	0
83	2020-03-23	70.45	31.48	368.15	14.58		0	0	0	0
84	2020-03-24	54.02	27.49	282.94	14.36		29.87	11.41	135.21	0
85	2020-03-25	25.14	20.58	140.38	15.11		116.08	30.7	521.36	0
86	2020-03-26	25.17	21.15	140.79	15.13		115.53	30.68	548.79	0
87	2020-03-27	25.24	21.4	141.22	15.29		116.85	30.01	560.33	0
88	2020-03-28	25.27	21.08	141.97	15.47		124.49	33.17	1090.33	0
89	2020-03-29	25.24	21.02	142.21	15.71		126.65	31.7	616.83	0
90	2020-03-30	25.32	21.41	142.65	15.95		42.28	12.58	263.08	0
91	2020-03-31	25.31	21.48	143.06	15.74		0	0	0	0
92	2020-04-01	25.36	21.52	143.44	10.38		0	0	0	0
93	2020-04-02	25.44	21.32	143.16	4.82		0	0	0	0
94	2020-04-03	25.49	21.52	143.77	15.85		4.1	1.55	15.69	0
95	2020-04-04	25.51	21.55	158.15	15.62		0	0	0	0
96	2020-04-05	25.49	21.1	194.45	15.74		0	0	0	0
97	2020-04-06	25.6	21.37	195.19	16.06		67.57	18.97	246.09	21.11
98	2020-04-07	25.73	21.45	196.05	15.38		109.37	32.05	368.7	34.74
99	2020-04-08	25.71	21.82	190.29	15.09		106.99	31.61	196.74	35.08
100	2020-04-09	25.61	21.24	187.15	16.74		102.39	31.1	234.15	34.22
101	2020-04-10	25.58	21.42	187.92	16.65		105.06	31.86	357.67	33.89
102	2020-04-11	25.65	21.57	187.78	15.3		106.65	31.94	266.05	34.49
103	2020-04-12	25.87	22.25	189.04	16.83		109.43	28.97	113.41	36
104	2020-04-13	23.6	12.7	226.54	15.73		113.31	32.02	296.43	36.36
105	2020-04-14	24.67	0.03	99.44	14.49		110.38	32.89	511.1	36.32
106	2020-04-15	24.77	1.49	99.16	14.46		111.15	33.04	218.91	36.78
107	2020-04-16	24.93	15.02	99.08	14.52		110.79	33.42	273.13	40.86
108	2020-04-17	25	16.28	99.13	14.51		109.22	33.49	246.53	38.08
109	2020-04-18	25.08	15.19	74.1	14.57		108.63	33.25	230.12	36.91
110	2020-04-19	25.12	18.2	87.37	15.27		109.99	33.71	287.22	35.92
111	2020-04-20	25.12	17.32	87.01	15.59		108.32	33.34	255.39	36.15
112	2020-04-21	25.15	16.94	97.61	15.67		92.71	34.61	169.54	35.96
113	2020-04-22	25.13	16.29	97.95	15.59		80.54	34.58	98.22	35.63
114	2020-04-23	25.1	17.83	98.23	15.89		80.75	35.37	75.45	36.45
115	2020-04-24	25.11	16.9	98.54	16.33		81.4	35.23	74.79	37.18
116	2020-04-25	25.14	16.82	96.71	16.74		81.39	35.33	75.08	43.79
117	2020-04-26	25.17	16.97	97.64	18.6		82.28	35.8	73.4	45.77
118	2020-04-27	25.16	17.02	97	19.12		82.04	36.03	72.46	44.98
119	2020-04-28	25.16	16.87	97.7	18.11		81.14	36.03	71.67	33.87
120	2020-04-29	22.83	8.35	97.87	17.98		81.28	35.92	88.52	34.34
121	2020-04-30	24.92	0.04	96.77	18.37		82.59	36.37	142.94	36.59
122	2020-05-01	24.89	0.04	96.55	17.93		82.74	37.61	133.53	42.54
123	2020-05-02	24.88	0.05	95.44	17.87		82.59	38.32	128.41	34.57
124	2020-05-03	24.92	0.04	95.35	17.83		82.46	38.19	125.97	35.86
125	2020-05-04	24.89	0.04	95.95	17.51		82.39	38.3	134.33	35.28
126	2020-05-05	24.88	0.04	97.27	17.53		82.63	38.52	138.76	34.89
127	2020-05-06	24.89	0.04	87.07	17.11		82.16	37.86	128.96	35.52
128	2020-05-07	24.89	0.04	67.98	18.2		83.18	37.88	129.24	34.15
129	2020-05-08	24.98	1.04	76.83	19.16		82.49	38.61	139.14	34.75
130	2020-05-09	25.09	2.32	83.75	17.83		83.48	38.73	106.31	34.16

S. No.	Date	Stack03_CDU_I_2F4-				Stack04_CDU_II_11F1-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
131	2020-05-10	17.05	1.68	53.72	24.13	82.77	39.46	129.84	34
132	2020-05-11	12.3	0.03	35.63	23.66	82.35	38.82	128.37	34.65
133	2020-05-12	25.23	0.05	59.84	18.19	81.87	38.87	167.94	34.86
134	2020-05-13	25.19	0.04	119.96	18.36	81.98	39.2	189.78	34.45
135	2020-05-14	25.22	0.04	205.23	18.35	83.16	39.16	204.51	34.5
136	2020-05-15	25.2	0.04	133.69	18.54	84.17	39.26	210.78	34.46
137	2020-05-16	25.24	0.04	63.98	18.2	83.94	39.22	229.68	34.56
138	2020-05-17	25.25	0.04	14.64	18.32	83.95	39.12	278.43	34.9
139	2020-05-18	25.21	0.04	14.9	18.47	82.87	39.47	233.44	34.61
140	2020-05-19	25.17	0.04	25.38	18.76	81.69	40.26	182.8	35.11
141	2020-05-20	25.2	0.04	34.43	12.23	83.59	41.56	230.99	34.93
142	2020-05-21	25.2	0.04	35.25	45.83	86.46	41.87	92.37	35.05
143	2020-05-22	25.21	0.04	118.84	105.63	85.96	19.9	76.28	35.73
144	2020-05-23	25.2	0.04	119.07	18.86	84.53	0	70.04	35.49
145	2020-05-24	25.21	0.04	119.47	18.68	84.17	0	67.44	17.16
146	2020-05-25	25.29	8.79	119.75	19.07	42.34	0	35.85	0
147	2020-05-26	25.33	22.51	117.45	19.03	0	0	0	0
148	2020-05-27	25.31	22.64	119.27	19.7	0	0	0	0
149	2020-05-28	25.32	22.69	118.99	19.5	0	0	0	0
150	2020-05-29	148.77	17.61	179.54	14.85	0	0	0	0
151	2020-05-30	156.73	3.9	119.72	0	0	0	0	0
152	2020-05-31	15.6	0.04	0	0.04	0	0	0	0
153	2020-06-01	82.49	2.91	13.61	10.71	0	0	0	0
154	2020-06-02	111.94	0.05	30.56	19.21	0	0	0	0
155	2020-06-03	124.41	20.77	123.09	19.9	0	0	0	0
156	2020-06-04	54.79	36.29	327.32	19.97	0	0	0	0
157	2020-06-05	28.89	36.25	284.69	20.61	0	0	0	0
158	2020-06-06	25.33	34.99	215.54	20.02	0	0	0	0
159	2020-06-07	25.34	34.87	149.36	19.46	0	0	0	0
160	2020-06-08	25.35	35.75	148.35	19.51	31.77	0.12	0.01	0
161	2020-06-09	32.69	33.45	208.37	19.68	9.99	10.24	24.01	38.06
162	2020-06-10	25.51	32.34	187.47	21.28	0	14.51	30.63	77.71
163	2020-06-11	85.86	31.72	206.21	20.08	0	7.74	122.64	79.04
164	2020-06-12	54.18	31.09	137.04	18.43	0	8.5	63.2	24.44
165	2020-06-13	40.05	31.13	172.92	18.93	0	0	0	0
166	2020-06-14	25.52	27.58	229.25	11.48	0	0	0	0
167	2020-06-15	25.64	26.28	197.75	5.34	0	0	0	0
168	2020-06-16	25.73	23.35	198.13	16.05	1.13	0.26	52.15	41.27
169	2020-06-17	25.74	23.19	175.73	28.7	10.87	0	112.37	77.26
170	2020-06-18	18.71	22.71	160.51	20.39	97.06	12.21	124.92	69.88
171	2020-06-19	7.45	22.19	147.54	25.76	97.75	21.63	133.11	72.05
172	2020-06-20	15.15	22.39	151.99	20.58	97.75	21.7	131.53	68.84
173	2020-06-21	48.19	24.44	171.14	20.62	97.72	21.56	128.19	67.5
174	2020-06-22	25.49	22.01	144.15	20.15	82.51	21.43	127.86	67.9
175	2020-06-23	7.19	20.97	168.45	20.37	98.14	21.57	55.52	69.27
176	2020-06-24	6.59	20.12	176.35	19.55	74.95	19.48	67.87	69.01
177	2020-06-25	6.38	20.31	173.81	19.33	56.84	20.9	68.92	69.21
178	2020-06-26	6.21	20.35	152.74	19.46	56.79	20.86	134.82	68.62
179	2020-06-27	5.85	20.48	130.69	19.56	56.72	20.94	133.9	67.63
180	2020-06-28	5.52	19.48	143.14	19.72	56.7	20.66	135.06	67.29
181	2020-06-29	4.99	19.06	96.97	19.94	56.66	20.4	134.88	68.28
182	2020-06-30	6.15	18.37	161.71	20.11	43.76	20.56	132.62	68.87
183	2020-07-01	7.03	18.9	178.19	20.26	5.81	2.18	13.86	7.45
184	2020-07-02	7.08	19.27	177.6	20.26	0	0	0	0
185	2020-07-03	6.07	19.46	179.35	20.12	17.14	1.78	41.68	0
186	2020-07-04	5.95	19.48	166.47	19.86	55	21.26	131.78	41.42
187	2020-07-05	5.79	20.14	147.38	20.56	54.92	18.59	130.91	77.85
188	2020-07-06	15.63	21.93	178.43	22.75	54.93	21.12	130.55	78.63
189	2020-07-07	45.14	22.82	183.59	22.29	54.87	20.16	130.67	79.6
190	2020-07-08	54.79	24.56	201.05	22.85	54.91	21.17	127.94	79.12
191	2020-07-09	58.55	24.79	194.06	22.7	54.71	21.09	128.72	79.04
192	2020-07-10	39.49	25.31	148.49	22.95	54.52	20.62	126.88	79.26
193	2020-07-11	47.19	28.06	141.89	22.92	54.62	20.77	128.65	79.57
194	2020-07-12	53	29.6	141.62	22.14	54.74	20.71	129.38	83.03
195	2020-07-13	55.18	31.47	140.07	22.34	54.86	20.54	139.07	84.05

S. No.	Date	Stack03_CDU_I_2F4-					Stack04_CDU_II_11F1-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
196	2020-07-14	61.21	33.51	137.34	23.56		54.89	20.49	139.18	90.76
197	2020-07-15	70.03	33.21	138.69	22.68		36.51	20.44	125.83	80.22
198	2020-07-16	69.77	33.54	141.47	22.3		0.05	20.31	125.58	40.89
199	2020-07-17	56.82	35.12	141.35	23.71		0	20.9	243.23	30.43
200	2020-07-18	57.6	35.57	143.56	24		0	20.67	173.26	82.06
201	2020-07-19	56.11	36.46	142.26	24		0	20.58	131.45	84.29
202	2020-07-20	40.28	32.83	154.41	23.34		22.97	11.84	127.02	84.63
203	2020-07-21	40.35	27.2	156.98	23.4		60.73	5.87	158.73	84.62
204	2020-07-22	23.58	33.49	149.45	23.9		64.13	10.96	183.21	84.61
205	2020-07-23	48.8	34.45	159.64	24.15		63.98	11.26	173.39	83.02
206	2020-07-24	50.6	36.36	189.07	23.89		63.99	11.49	170.58	84.12
207	2020-07-25	63.44	34.31	155.69	24.18		63.98	11.26	170.07	84.46
208	2020-07-26	120.57	37.63	153.31	26.47		63.96	7.26	173.21	84.9
209	2020-07-27	60.1	38.08	152.45	29.64		63.98	11.32	173.29	84.8
210	2020-07-28	77.15	38.59	162.35	26.08		39.61	11.1	173.89	85.05
211	2020-07-29	40.12	40.43	146.47	19.93		0	8.86	170.81	84.92
212	2020-07-30	30.92	40.23	148.33	30.32		2.59	3.75	126.17	60.5
213	2020-07-31	34.97	39.65	143.76	28.31		8.3	0	181.85	84.71
214	2020-08-01	34.79	40.38	143.91	28.68		8.33	3.79	179.88	84.96
215	2020-08-02	35.01	42.66	143.38	29.53		8.35	6.08	180.16	84.93
216	2020-08-03	33.73	52.47	145.68	29.7		4.99	9.84	175.3	85.78
217	2020-08-04	33.15	49.59	145.78	30.46		2.33	16.52	166.88	86.3
218	2020-08-05	36.75	41.75	160.41	116.55		0.56	15.85	163.38	86.86
219	2020-08-06	34.01	46.17	189.7	96.97		4.41	15.67	165.36	87.86
220	2020-08-07	11.75	40.15	203.88	21.5		14.4	16.41	172.17	87.02
221	2020-08-08	5.57	50.01	202.03	22.34		11.49	18	174.07	87.12
222	2020-08-09	4.7	52.11	201.34	22.84		0	17.45	171.93	86.62
223	2020-08-10	5.81	50.27	171.84	22.9		7.35	18.74	171.68	87.18
224	2020-08-11	10.76	48.82	166.51	23.68		17.91	20.31	173.06	87.29
225	2020-08-12	9.71	41.52	150.67	24.96		17.91	19.95	170.27	87.35
226	2020-08-13	7.63	41.7	135.53	26.41		17.91	19.22	170.08	87.14
227	2020-08-14	8.01	41.77	136.87	22.71		17.9	18.4	171.86	87.82
228	2020-08-15	8.76	41.57	140.19	20.19		17.91	18.15	170.56	90.03
229	2020-08-16	9.15	41.42	140.08	20.91		17.93	18.16	169.71	92.2
230	2020-08-17	72.34	41.52	142.03	24.87		17.95	18.35	168.65	92.14
231	2020-08-18	136.85	42.61	143.33	26.42		18.05	18.29	168.03	91.73
232	2020-08-19	104.48	44.7	144.49	27.3		18.04	18.2	167.56	91.38
233	2020-08-20	126.19	41.07	171.08	24.6		18.05	18.22	168.33	91.62
234	2020-08-21	71.59	36.26	175.96	22.92		17.96	18.42	168.51	92.14
235	2020-08-22	42.68	36.93	184.32	10.95		17.92	18.13	168.58	91.62
236	2020-08-23	42.48	37.34	187.52	0		17.96	18.14	168.96	92.58
237	2020-08-24	39.36	36.72	186.29	15.21		17.99	18.31	169.16	92.19
238	2020-08-25	60.96	46.19	248.25	24.44		21.28	23.16	173.84	91.76
239	2020-08-26	18.55	35.43	190.58	25.06		17.98	24.66	165.76	91.49
240	2020-08-27	18.27	35.07	184.53	25.18		18.1	24.34	166.05	91.88
241	2020-08-28	35.4	35.93	182.9	24.72		18.02	24.76	169.6	92.04
242	2020-08-29	28.03	35.72	176.95	24.9		17.98	24.71	167.94	91.97
243	2020-08-30	37.19	36.25	185.1	25.13		17.96	25.04	169.79	92.08
244	2020-08-31	24.32	35.55	188.41	27.04		17.97	25.14	169.75	92.05
245	2020-09-01	17.52	36.08	189.24	31.65		17.95	24.68	168.73	92.11
246	2020-09-02	3.92	36.21	176.18	27.84		17.98	24.36	168	92.57
247	2020-09-03	13.08	29.57	161.5	27.42		18.17	23.36	166.79	92.62
248	2020-09-04	18.1	28.7	179.92	30.54		18.12	24.12	168.05	92.51
249	2020-09-05	89.06	31.14	238.53	26.2		18.1	24.02	166.28	92.21
250	2020-09-06	303.68	20.29	358.08	25.66		18.04	24.1	168.26	92.39
251	2020-09-07	152.18	19.62	192.83	25.2		17.04	24.59	167.16	91.89
252	2020-09-08	254.85	19.19	300.35	25.02		60.75	24.59	250.97	92.49
253	2020-09-09	204.55	18.34	203.37	24.43		89.55	24.68	232.85	44.69
254	2020-09-10	189.49	18.77	366.17	24.52		77.85	25.21	91	0.26
255	2020-09-11	112.58	19.35	478.94	23.52		51.97	17.12	57.92	0

CO-2

S. No.	Date	Stack03_CDU_I_2F4-					Stack04_CDU_II_11F1-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
256	2020-09-12	15.18	19.27	393.24	22.86		9.65	2.95	43.73	0.23
257	2020-09-13	0	18.9	231.71	22.53		30.01	8.96	88.52	0
258	2020-09-14	256.18	19.87	103.32	20.8		29.97	8.06	373.88	23.84
259	2020-09-15	56.38	19.4	63.82	21.99		54.34	10.82	504.25	37.44
260	2020-09-16	29.26	19.76	51.38	22.37		78.2	17.24	382.32	16.98
261	2020-09-17	113.92	24.71	112.08	22.6		75.49	16.02	285.38	7.97
262	2020-09-18	180.15	28.87	163.79	26.96		76.41	14	347.02	15.6
263	2020-09-19	180.15	28.87	163.79	22.67		67.49	14.35	346.63	15.62
264	2020-09-20	180.14	28.87	163.79	22.48		68.98	14.58	367.13	16.31
265	2020-09-21	180.14	28.87	163.79	23.64		66.94	15.5	294.08	16.12
266	2020-09-22	263.1	34.59	278.18	24.57		56.1	16.22	113.8	15.86
267	2020-09-23	405.55	29.21	355.22	26.13		53.95	16.18	71.85	15.35
268	2020-09-24	399.94	3.33	376.96	28.99		47.92	16.03	111.4	15.56
269	2020-09-25	400.89	3.27	505.58	28.65		48.05	15.76	107.02	15.57
270	2020-09-26	407.04	3.83	497.16	27.07		57.3	16.02	61.12	15.26
271	2020-09-27	350.03	18.27	253.48	24.77		76.43	16.7	53.07	15.96
272	2020-09-28	423.24	3.02	252.27	23.27		56.3	19.45	77.64	7.93
273	2020-09-29	384.8	3.44	266	25.82		22.05	11.46	93.13	0
274	2020-09-30	360.48	18.28	367.82	30.14		22.09	10.94	148.08	0
275	2020-10-01	326.82	13.36	538.96	27.93		68.07	31.07	418.77	8.15
276	2020-10-02	260.52	9.24	577.28	30.36		65.93	47.02	548.97	15.63
277	2020-10-03	301.39	4.09	957.2	29.86		49.67	47.52	627.51	18.29
278	2020-10-04	315.26	4.85	1109.19	31.15		40.43	47.02	431.72	19.85
279	2020-10-05	445.99	4.78	918.54	25.41		59.58	46.92	221.67	8.38
280	2020-10-06	614.16	4.42	909.43	18.93		73.44	46.25	330.87	0
281	2020-10-07	516.99	4.14	774.71	10.11		64.3	46.43	237.61	0
282	2020-10-08	412.93	3.69	626.61	24.33		54.06	46.7	283.71	11.7
283	2020-10-09	445.68	5.79	569.17	26.44		57.72	48.84	216.27	16.44
284	2020-10-10	445.7	8.2	603.8	27.08		44.85	39.7	221.89	16.31
285	2020-10-11	337.97	3.12	540.88	29.19		27.66	22.56	129.78	17.8
286	2020-10-12	360.55	2.86	504.72	30.14		28.13	23.57	202.68	1.01
287	2020-10-13	317.88	3.09	573.28	20.92		51.68	25.38	337.74	0
288	2020-10-14	321.32	3.45	470.85	27.43		87.48	23.04	318.73	0
289	2020-10-15	308.2	3.77	554.77	20.68		110.7	23.33	460.04	0
290	2020-10-16	328.83	4	302.21	21.04		140.88	24.57	687.77	6.31
291	2020-10-17	222.45	4.28	365.89	20.78		106.59	39.76	440.39	17.07
292	2020-10-18	328.99	4.27	311.08	22.75		32.42	25.04	33.18	17.35
293	2020-10-19	295.47	4.24	298.99	28.88		102.16	22.44	123.44	17.57
294	2020-10-20	282.81	4.15	285.22	29.05		162.56	32.53	425.19	18.25
295	2020-10-21	273.78	4.89	191.94	27.65		138.19	19.92	519.33	17.3
296	2020-10-22	241.7	4.8	238.63	20.21		231.69	20.43	609.67	17.27
297	2020-10-23	194.92	6.79	268.22	21.89		225.7	20.44	590.79	17.22
298	2020-10-24	161.52	5.76	356.37	22.23		191.63	20.57	407.42	17.25
299	2020-10-25	107.42	5.43	456.23	22.72		83.99	20.53	40.5	17.2
300	2020-10-26	73.8	9.85	394.3	22.7		203.39	20.55	622.65	17.35
301	2020-10-27	69.17	5.39	413.3	22.45		272.32	36.11	670	17.35
302	2020-10-28	65	27.38	73.58	24.57		155.73	94.12	417.83	18.87
303	2020-10-29	56.86	24.44	804.4	32.03		150.09	23.11	53.53	5.49
304	2020-10-30	56.68	4.48	1361.06	18.2		248.33	25.87	279.27	0
305	2020-10-31	102.73	3.51	938.49	33.13		163.14	36.55	402.09	0
306	2020-11-01	200.92	2.57	1228.54	34.99		146.04	22.65	204.25	0
307	2020-11-02	216.8	6.69	629.35	25.06		89.77	35.14	201.75	5.15
308	2020-11-03	175.7	2.04	1091.38	19.68		65.82	23.82	156.31	17.57
309	2020-11-04	120.65	0.05	1506.31	20.85		123.16	21.61	144.63	9.24
310	2020-11-05	146.67	4.16	957.86	18.83		243.28	20.56	154.5	0
311	2020-11-06	136.44	7.24	335.79	17.25		252.14	20.7	141.57	0
312	2020-11-07	73.46	12.48	261.01	50.99		242.88	24.18	72.25	13.7
313	2020-11-08	18.2	4.82	338.39	38.18		299.96	27.07	70.26	43.63
314	2020-11-09	88.16	5.21	478.73	17.7		150.72	27.13	163.53	44.58
315	2020-11-10	191.58	6.74	540.64	16.58		158.86	46.99	233.11	38.78

S. No.	Date	Stack03_CDU_I_2F4-					Stack04_CDU_II_11F1-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
316	2020-11-11	94.21	6.36	691.41	16.76		132.98	13.17	119.97	19.91
317	2020-11-12	22.07	6.86	594.11	17.98		62.49	19.08	139.47	19.38
318	2020-11-13	16.71	7.15	433.34	21.51		24.37	24.94	348.86	17.21
319	2020-11-14	15.88	7.25	547.81	25.59		37.69	25.32	66.41	17.19
320	2020-11-15	15.33	7.4	487.61	22.08		37.7	32.59	75.89	17.36
321	2020-11-16	15.56	7.49	401.14	25.33		37.4	26.09	169.17	17.16
322	2020-11-17	45.67	9.86	620.34	37.38		33.42	24.29	188.88	16.97
323	2020-11-18	35.65	12.2	807.77	40.26		37.62	21.59	336.95	19.03
324	2020-11-19	24.18	11.77	678.38	41.1		37.68	25.29	159.35	17.26
325	2020-11-20	24.2	11.39	1000.35	13.56		36.07	23.76	306.84	17.22
326	2020-11-21	24.8	10.41	1021.66	22.51		36.18	22.86	715.06	17.16
327	2020-11-22	25.16	9.67	1080.73	21.71		37.67	22.62	1600.93	19.13
328	2020-11-23	25	8.91	933.94	16.66		41.49	22.52	763.14	18.62
329	2020-11-24	16.12	10.26	1244.91	19.41		49.97	23.13	1408.72	21.2
330	2020-11-25	11.3	6.06	904.8	19.82		34.18	15.32	759.37	12.49
331	2020-11-26	8.57	5.22	1192.74	43.76		52.11	23.55	1572.52	18.45
332	2020-11-27	9.37	6.25	1017.99	31.99		52.22	23.2	1385.98	23.82
333	2020-11-28	15.42	13.49	1164.15	22.12		52.18	22.7	1417.19	17
334	2020-11-29	0	10.92	692.16	24.22		52.14	22.73	653.78	17.15
335	2020-11-30	9.15	8.28	1120.36	18.97		61.32	18.74	712.37	16.83
336	2020-12-01	22.33	7.38	1022.87	21.33		134.7	22.75	581.49	22.67
337	2020-12-02	18.42	6.63	1030.33	23.93		248.86	15.01	582.12	21.71
338	2020-12-03	16.66	5.78	984.53	21.01		315.16	14.07	512.53	19.37
339	2020-12-04	12.68	6.27	577.26	12.89		9.43	7.04	4.26	7.12
340	2020-12-05	16.31	4.86	23.58	0		22.2	17.16	0	7.18
341	2020-12-06	27.49	0.03	169.66	0		118.77	17.25	220.21	0
342	2020-12-07	19.52	6.75	1453.23	0		175.18	20.73	306.41	9
343	2020-12-08	15.02	11.7	992.65	8.77		179.74	24.6	292.54	28.43
344	2020-12-09	15.43	10.93	853.99	15.99		225.51	21.82	250.05	23.67
345	2020-12-10	213.63	6.87	496.74	38.62		239.22	0.16	295	22.5
346	2020-12-11	633.8	4.1	699.36	36.96		218.35	0	248.05	23.61
347	2020-12-12	484.22	6.69	1368.33	37.8		233.29	4.49	203.63	24.4
348	2020-12-13	231.12	9.77	1523.4	38.39		239.01	7.82	191.88	25.08
349	2020-12-14	191.03	8.8	1595.63	38.78		209.09	7.04	227.79	25.67
350	2020-12-15	127.19	7.68	1262.42	40.57		158.94	4.67	118.82	26.76
351	2020-12-16	161.04	6.56	1079.17	42.68		177.21	22.25	381.94	28.28
352	2020-12-17	200.99	6.06	1535.27	42.84		238.61	4.47	763.99	27.83
353	2020-12-18	187.46	5.55	1488.42	42.69		250.18	4.59	867.12	27.87
354	2020-12-19	150.77	5.24	1386.09	43.32		202.83	4.84	495.59	28.38
355	2020-12-20	121.67	4.54	1608.49	42.81		88.1	5.16	68.1	27.83
356	2020-12-21	105.92	4	1748.57	42.87		95.17	4.87	195.36	27.34
357	2020-12-22	118.28	5.92	1702.1	42.53		161.16	3.53	254.74	27.4
358	2020-12-23	108.28	6.57	1577.15	42.49		134.2	59.06	89.08	29.11
359	2020-12-24	108.28	6.46	1501.79	42.57		169.22	64.43	163.52	30.32
360	2020-12-25	102.5	7.38	1834.09	42.53		166.08	102.95	224.3	29.4
361	2020-12-26	106.09	7.59	1622.14	42.32		167.05	30.33	159.09	30.22
362	2020-12-27	21.86	7.6	463.27	42.28		131.86	10.62	56.41	30.81
363	2020-12-28	9.95	7.67	145.48	41.64		75.58	14.99	34.37	30.31
364	2020-12-29	10.77	7.78	271.86	42.46		136.15	27.17	100.55	31.18
365	2020-12-30	84.68	7.27	1326.25	41.94		222	53.62	211.07	23.19
366	2020-12-31	101.3	8.81	1613.83	74.13		274.43	5.27	275.28	12.75
367	2021-01-01	91.56	9	1668.18	75.2		195.99	61.27	152.46	14.39
368	2021-01-02	157.61	8.35	1639.28	73.24		213.54	3.6	105.87	13.03
369	2021-01-03	348.55	6.53	1258.73	73.27		44.34	7.45	17.98	12.84
370	2021-01-04	374.28	5.94	1046.15	73.9		303	4.75	118.55	12.7

S. No.	Date	Stack03_CDU_I_2F4-					Stack04_CDU_II_11F1-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
371	2021-01-05	374.08	5.91	1043.72	74.62		298.78	4.27	132.11	12.68
372	2021-01-06	230.43	9.94	387.19	84.55		311.36	4.04	95.62	12.68
373	2021-01-07	205.38	8.26	168.53	56.35		218.39	3.28	68.6	12.82
374	2021-01-08	168.14	6.89	299.23	36.62		52.04	3.33	77.3	12.61
375	2021-01-09	104.12	5.16	276.53	37.04		29.33	4.32	57.57	12.62
376	2021-01-10	81.63	10.12	556.86	38.37		49.49	4.58	732.36	12.58
377	2021-01-11	13.44	12.57	147.73	39.37		58.89	5.18	755.1	12.52
378	2021-01-12	16.99	10.92	864	41.04		95.43	8.67	240.34	12.46
379	2021-01-13	25.92	7.77	1612.1	40.86		102.62	9.9	96.89	12.54
380	2021-01-14	3.36	8.97	1414.92	42.32		108.53	10.54	75.31	12.65
381	2021-01-15	0	21.65	1010.02	43		113.86	10.67	82.32	12.45
382	2021-01-16	2.84	7.76	1336.56	42.87		98.53	9.34	63.45	12.35
383	2021-01-17	8.17	7.24	1747.93	43.33		95.6	7.93	102.18	12.36
384	2021-01-18	15.8	6.72	1403.63	43.46		101.65	8.53	79.69	12.49
385	2021-01-19	63.88	6.36	1382.25	44.12		113.23	8.67	108.24	13.23
386	2021-01-20	142.45	6.4	1369.53	44.96		96.92	9.99	153.07	12.39
387	2021-01-21	162.98	6.65	1267.53	45.45		104.77	8.54	282.2	12.4
388	2021-01-22	148.9	6.11	1104.61	46.32		127.64	15.06	540.51	12.52
389	2021-01-23	99.54	5.87	1256.58	45.8		147.33	19.6	562.54	12.42
390	2021-01-24	54.62	6.03	1429.84	45.57		111.31	16.96	395.05	14.33
391	2021-01-25	115.95	8.18	1245.46	45.63		101.29	15.42	343.33	12.77
392	2021-01-26	187.2	4.55	1173.62	45.41		103.34	14.66	443.3	12.62
393	2021-01-27	9.65	4.38	23.67	45.48		162.34	13.74	452.01	12.57
394	2021-01-28	9.41	3.1	26.04	46.16		46.45	13.42	322.56	12.65
395	2021-01-29	93	5.98	494.11	46.38		7.17	13.32	170.53	12.62
396	2021-01-30	232.17	3.34	1340.22	46.28		46.95	15.5	243.25	12.58
397	2021-01-31	242.59	6.32	1362.52	47.03		60.65	0	178.51	12.68
398	2021-02-01	271.19	5.72	1288.37	83.97		42.72	10.61	145.22	12.67
399	2021-02-02	268.3	5.27	1047.87	96.21		53.49	25.86	202.68	13.37
400	2021-02-03	289.16	5.06	848.48	83.81		75.66	19.62	231.81	12.71
401	2021-02-04	254.8	4.63	799.45	58.63		53.25	18.09	174.71	12.83
402	2021-02-05	69.94	4.32	931.42	46.86		56.27	16.56	265.77	12.92
403	2021-02-06	52.35	3.78	1004.61	46.73		37.52	10.88	216.16	13.1
404	2021-02-07	56.32	3.45	964.06	45.81		21.13	0	233.78	13.16
405	2021-02-08	51.95	3.06	842.58	43.94		26.18	6.23	179.11	13.28
406	2021-02-09	51.44	3.66	1116.71	45.08		83.51	10.6	375.28	13.16
407	2021-02-10	56.6	5.58	1342.06	50.44		121.52	9.51	602.99	13.16
408	2021-02-11	52.05	7.07	1362.23	55.32		56	8.51	547.02	13
409	2021-02-12	54.37	5.71	1364.15	55.56		144.13	7.78	443.16	13.17
410	2021-02-13	71.74	4.75	1343.27	37.51		168.08	7.31	332.07	13.67
411	2021-02-14	118.21	5.26	1361.44	0.18		197.26	6.98	264.82	13.04
412	2021-02-15	110.95	4.82	1360.49	22.43		125.63	6.84	279.09	13.08
413	2021-02-16	105.42	10.85	1348.45	23.27		53.61	15.73	324.45	13.19
414	2021-02-17	99.66	4.25	1335.33	23.82		116.55	23.9	277.83	13.27
415	2021-02-18	19.53	4.22	132.7	25.68		131.3	22.88	243.11	13.47
416	2021-02-19	20.68	4.19	100.69	24.18		165.5	23.83	244.52	13.47
417	2021-02-20	22.15	3.88	102.35	24.75		178.49	24.34	296	13.5
418	2021-02-21	19.24	6.22	128.03	26.07		281.17	24.47	665.61	13.25
419	2021-02-22	22	5.24	123.3	25.46		309.13	25.33	672.46	13.32
420	2021-02-23	27.04	4.27	127.66	25.21		361.86	26.1	818.64	13.1
421	2021-02-24	31.06	5.66	127	25.67		359.77	26.21	574.62	13.34
422	2021-02-25	29.68	5.06	141.07	27.93		309.98	27.04	488.51	13.07
423	2021-02-26	38.11	4.06	131.13	34.93		306.08	26.39	935.52	13.43
424	2021-02-27	41.79	4.29	130.63	38.39		319.05	27.31	861.44	13.28
425	2021-02-28	90.53	8.33	124.71	29.79		348.99	25.72	896.48	13.33
426	2021-03-01	49.51	3.03	96.67	30.87		280.73	25.79	769.73	13.03
427	2021-03-02	62.16	0.77	27.64	32.23		181.27	20.93	693.56	13.17
428	2021-03-03	70.15	0.35	148.7	33.4		123.84	3.14	951.01	13.16
429	2021-03-04	66.99	0.65	233.52	34.08		114.92	4.43	682.15	16.14
430	2021-03-05	75.86	1.98	605.99	34.74		47.27	3.64	293.51	13.09
431	2021-03-06	19.36	9.04	293.97	34.48		32.97	2.99	19.04	19.64
432	2021-03-07	19.43	19.96	385.39	37.36		33.16	3.15	20.97	12.92
433	2021-03-08	25.67	2.97	356.91	36.82		41.6	3.87	321.56	19.95
434	2021-03-09	28.22	2.56	184.98	35.78		45.97	4.14	627.2	18.43
435	2021-03-10	9.25	3.5	199.76	38.95		26.63	3.84	186.78	17.84

S. No.	Date	Stack03_CDU_I_2F4-					Stack04_CDU_II_11F1-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
436	2021-03-11	28.33	4.44	136.07	37.38		26.18	5.84	175.97	14.23
437	2021-03-12	28.64	4.14	973.48	37.34		26.63	6.41	169.83	13.75
438	2021-03-13	86.41	3.04	1755.39	37.81		28.02	2.61	192.55	13.4
439	2021-03-14	151.94	0.05	1700.16	38.78		27.82	2.51	191.4	13.53
440	2021-03-15	81.96	4.75	687	36.38		28.25	5.61	210.51	13.94
441	2021-03-16	26.07	12.61	98.95	38.6		27.77	12.53	213.3	15.21
442	2021-03-17	18.91	119.18	641.02	39.87		28.88	9.14	197.93	14.67
443	2021-03-18	17.32	149.68	694.23	43.54		29.52	3.66	149.7	13.39
444	2021-03-19	39.52	5.16	892.57	73.17		19.58	5.28	66.2	13.54
445	2021-03-20	86.68	12.22	1855.68	67.13		25.48	11.25	107.67	13.82
446	2021-03-21	97.64	5.99	1963.98	29.6		35.13	16.37	254.04	13.18
447	2021-03-22	91.48	4.39	1877.63	29.93		93.97	12.36	476.71	6.99
448	2021-03-23	47.46	4.33	873.29	27.06		164.29	19.28	663.43	7.88
449	2021-03-24	54.01	2.62	313.2	24.06		164	25.06	283.22	13.9
450	2021-03-25	185.49	1.18	145.86	21.34		142.31	13.64	248.42	13.7
451	2021-03-26	284.07	0.36	61.94	20.49		94.7	4.15	251.68	13.59
452	2021-03-27	195.96	2.72	84.77	20.9		93.82	5.39	231.38	13.59
453	2021-03-28	152.41	4.86	742.91	22.72		82.47	5.52	573.07	15.05
454	2021-03-29	88.47	4.48	744.54	23.69		49.58	5.57	616.06	14.22
455	2021-03-30	120.6	4.11	547.96	25.6		71.67	5.67	817.34	13.45
456	2021-03-31	186.2	5.17	653.15	25.37		64.3	5.64	219.94	14.31
457	2021-04-01	193.23	9.88	942.86	25.74		51.87	6.79	85.56	6.7
458	2021-04-02	187.2	12.72	961.64	30.13		12.33	0.86	20.01	0
459	2021-04-03	144.42	10.8	883.27	32.92		78.03	12.83	83.29	12.78
460	2021-04-04	177.61	10.05	994.09	34.06		134.36	16.94	279.13	13.42
461	2021-04-05	193.75	9.96	750.5	33.58		151.91	16.97	175.91	12.01
462	2021-04-06	199.62	10.1	525.92	32.7		156.21	23.24	126.67	13.29
463	2021-04-07	197.03	9.76	533.65	32.82		119.02	24.96	165.51	14.31
464	2021-04-08	180.05	10.03	410.3	37.67		77.5	4.92	100.04	13.21
465	2021-04-09	150.23	10.33	279.89	36.47		55.06	3.77	63.24	9.95
466	2021-04-10	108.07	10.23	257.19	35.17		45.76	1.34	50.02	5.78
467	2021-04-11	76.7	10.72	125	36.44		75.9	5.61	99.17	13.14
468	2021-04-12	64.61	10.94	294.82	40.63		61.86	3.61	81.29	13.58
469	2021-04-13	NA	NA	NA	NA		NA	NA	NA	NA
470	2021-04-14	55.53	8.84	139.95	47.38		60.07	3.92	114.15	14.19
471	2021-04-15	58.36	9.15	576.82	33.24		64.98	3.94	123.65	13.72
472	2021-04-16	53.58	9.67	805.73	37.16		81.85	5.51	211.56	13.61
473	2021-04-17	71.66	8.66	979.8	44.06		79.93	6.51	213.64	13.83
474	2021-04-18	119.11	9.58	882.81	46.89		49.62	8.18	128.87	14.81
475	2021-04-19	88.51	7.09	710.49	45.75		51.28	8.29	114.58	14.76
476	2021-04-20	138.21	5.23	854.7	43.18		54.04	7.97	301.19	15.09
477	2021-04-21	240.94	5.31	950.3	16.95		64.05	8.27	208.09	16.08
478	2021-04-22	279.07	5.04	1091.85	10.34		98.04	8.74	121.1	17.8
479	2021-04-23	323.54	2.7	1013.32	21.94		145.96	3.64	115.59	11.59
480	2021-04-24	308.52	3.18	819.67	30.62		79.43	3.57	67.04	6.34
481	2021-04-25	287.08	3.11	861.66	43.94		20.53	3.98	47.61	13.04
482	2021-04-26	204.72	3.05	933.9	45.57		86.98	9.34	254.65	13.67
483	2021-04-27	85.73	4.11	679.66	45.63		171.26	12.95	711.41	13.11
484	2021-04-28	95.08	9.72	261.39	40.53		140.48	18.82	584.71	14.04
485	2021-04-29	213.71	7.78	228.54	34.19		138.71	4.93	461.22	12.98
486	2021-04-30	227.49	2.27	770.72	48.14		106.05	4.33	857.37	13.09
487	CFO Standards	-	-	-	100		-	-	-	100
488	Maximum Value	633.8	149.68	1963.98	116.55		361.86	102.95	1600.93	92.62
489	Maximum Value on	2020-12-11	2021-03-18	2021-03-21	2020-08-05		2021-02-23	2020-12-25	2020-11-22	2020-09-03
490	Average	94.37	16.66	468.64	27.99		90.51	24.55	283.26	35.24
491		435	442	440	437		407	408	415	389
492	Total Data Points	486	486	486	486		486	486	486	486
493	Data Availablity %	90.95	90.95	90.95	90.95		90.95	90.95	90.95	90.95
494	Pollutant Load (Tons/day)	0.055	0.010	0.275	0.016		0.173	0.047	0.543	0.068
495	Pollutnat Load as per CFO (Tons/day)				0.059					0.192

Stack Monitroing Data (CEMS) - From 01.01.2020 to 30.04.2021

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

S. No.	Date	Stack05_CDU_II_12F1-					Stack06_CDU_III_42F1-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
1	2020-01-01	0	244.92	67.4	29.39		0.02	0.07	0.46	0.03
2	2020-01-02	41.92	247.77	67.41	29.15		0.02	0.07	0.46	0
3	2020-01-03	78.91	245.76	67.9	34.19		37.38	29.07	192.07	0.26
4	2020-01-04	78.53	284.05	66.28	32.56		77.03	52.98	343.58	0.16
5	2020-01-05	79.15	328.12	68.06	28.92		77.04	52.97	148.65	0.02
6	2020-01-06	78.65	286.11	68.19	29.11		77.04	53.03	176.99	15.59
7	2020-01-07	78.64	262.74	68.69	29.17		66.08	53.45	156.34	25.57
8	2020-01-08	78.99	257.95	68.64	29.54		53.77	53.79	199.35	25.62
9	2020-01-09	79.38	260.86	70.42	29.8		46.32	53.13	225.7	25.68
10	2020-01-10	79.66	272.7	69.46	29.05		29.67	53.63	166.86	25.71
11	2020-01-11	78.53	271.22	69.81	29		16.03	52.49	213.8	25.66
12	2020-01-12	79	325.19	69.97	28.57		12.34	52.2	426.09	25.52
13	2020-01-13	79.5	351.25	70.63	29.45		11.26	52.5	544.45	25.62
14	2020-01-14	79.35	389.49	72.77	29.66		10.14	52.76	892.97	25.83
15	2020-01-15	80.1	403.32	71.6	29.38		9.87	52.47	1174.7	25.69
16	2020-01-16	80.06	360.69	71.32	29.44		9.98	52.63	711.76	25.71
17	2020-01-17	81.1	401.35	71.61	29.25		27.59	53.29	676.94	26.75
18	2020-01-18	81.28	515.66	71.74	29.36		46.08	53.9	361.85	25.71
19	2020-01-19	81.01	377.21	71.72	29.39		45.89	54.53	342.51	25.74
20	2020-01-20	81.31	379.41	72	29.27		46.18	54.95	384.2	25.74
21	2020-01-21	81.41	694.32	71.76	28.81		46.42	55.76	251.96	28.82
22	2020-01-22	81.59	1598.14	72.62	30.39		46.36	55.54	269.5	30.44
23	2020-01-23	81.28	1427.96	73.29	31.41		47.03	55.13	232.84	30.19
24	2020-01-24	81.51	270.68	75.5	29.52		47.76	55.25	303.17	30.44
25	2020-01-25	82.6	826.98	74.25	29.24		47.42	55.7	306.02	30.39
26	2020-01-26	84.49	638.4	75.8	30.03		46.68	56.47	354	31.57
27	2020-01-27	84.71	695	73.97	29.13		47.3	56.06	412.77	32.59
28	2020-01-28	83.41	515.91	74.38	30.03		47.68	55.76	448.58	31.88
29	2020-01-29	NA	NA	NA	NA		NA	NA	NA	NA
30	2020-01-30	NA	NA	NA	NA		NA	NA	NA	NA
31	2020-01-31	NA	NA	NA	NA		NA	NA	NA	NA
32	2020-02-01	NA	NA	NA	NA		NA	NA	NA	NA
33	2020-02-02	NA	NA	NA	NA		NA	NA	NA	NA
34	2020-02-03	NA	NA	NA	NA		NA	NA	NA	NA
35	2020-02-04	NA	NA	NA	NA		NA	NA	NA	NA
36	2020-02-05	NA	NA	NA	NA		NA	NA	NA	NA
37	2020-02-06	NA	NA	NA	NA		NA	NA	NA	NA
38	2020-02-07	NA	NA	NA	NA		NA	NA	NA	NA
39	2020-02-08	NA	NA	NA	NA		NA	NA	NA	NA
40	2020-02-09	NA	NA	NA	NA		NA	NA	NA	NA
41	2020-02-10	NA	NA	NA	NA		NA	NA	NA	NA
42	2020-02-11	NA	NA	NA	NA		NA	NA	NA	NA
43	2020-02-12	NA	NA	NA	NA		NA	NA	NA	NA
44	2020-02-13	NA	NA	NA	NA		NA	NA	NA	NA
45	2020-02-14	NA	NA	NA	NA		NA	NA	NA	NA
46	2020-02-15	NA	NA	NA	NA		NA	NA	NA	NA
47	2020-02-16	NA	NA	NA	NA		NA	NA	NA	NA
48	2020-02-17	NA	NA	NA	NA		NA	NA	NA	NA
49	2020-02-18	NA	NA	NA	NA		NA	NA	NA	NA
50	2020-02-19	NA	NA	NA	NA		NA	NA	NA	NA
51	2020-02-20	NA	NA	NA	NA		NA	NA	NA	NA
52	2020-02-21	NA	NA	NA	NA		NA	NA	NA	NA
53	2020-02-22	NA	NA	NA	NA		NA	NA	NA	NA
54	2020-02-23	NA	NA	NA	NA		NA	NA	NA	NA
55	2020-02-24	NA	NA	NA	NA		NA	NA	NA	NA
56	2020-02-25	NA	NA	NA	NA		NA	NA	NA	NA
57	2020-02-26	NA	NA	NA	NA		NA	NA	NA	NA
58	2020-02-27	NA	NA	NA	NA		NA	NA	NA	NA
59	2020-02-28	NA	NA	NA	NA		NA	NA	NA	NA
60	2020-02-29	NA	NA	NA	NA		NA	NA	NA	NA
61	2020-03-01	NA	NA	NA	NA		NA	NA	NA	NA
62	2020-03-02	NA	NA	NA	NA		NA	NA	NA	NA
63	2020-03-03	NA	NA	NA	NA		NA	NA	NA	NA
64	2020-03-04	NA	NA	NA	NA		NA	NA	NA	NA
65	2020-03-05	NA	NA	NA	NA		NA	NA	NA	NA
66	2020-03-06	NA	NA	NA	NA		NA	NA	NA	NA

S. No.	Date	Stack05_CDU_II_12F1-					Stack06_CDU_III_42F1-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
67	2020-03-07	NA	NA	NA	NA		NA	NA	NA	NA
68	2020-03-08	NA	NA	NA	NA		NA	NA	NA	NA
69	2020-03-09	NA	NA	NA	NA		NA	NA	NA	NA
70	2020-03-10	NA	NA	NA	NA		NA	NA	NA	NA
71	2020-03-11	NA	NA	NA	NA		NA	NA	NA	NA
72	2020-03-12	129.15	421.34	82.36	31.5		82.47	65.79	753.02	31.45
73	2020-03-13	124.49	393.03	83.42	32.19		82.44	66.39	773.15	31.35
74	2020-03-14	116.98	948.61	82.95	32.15		81.49	67.24	768.54	31.7
75	2020-03-15	117.81	1120.25	83.19	31.81		80.87	68.76	747.9	30.65
76	2020-03-16	121.37	622.13	83.38	32.04		81.45	69.34	764.48	31.29
77	2020-03-17	116.74	584.28	83.64	32.18		81.26	67.63	778.98	32.55
78	2020-03-18	106.41	351.29	84.8	32.9		81.2	69.21	747.83	34.54
79	2020-03-19	63.75	297.46	57.1	21.09		81.47	68.75	824.49	35.48
80	2020-03-20	0	0	0	0		80.03	70.17	775.67	35.79
81	2020-03-21	0	0	0	0		81.72	71.43	809.93	35.7
82	2020-03-22	0	0	0	0		79.6	73.56	724.93	37.1
83	2020-03-23	0	0	0	0		79.56	72.84	645.43	37.57
84	2020-03-24	36.06	153.55	11.54	0		81.34	73.85	808.81	36.34
85	2020-03-25	115.92	519.94	30.75	0		83.77	67.63	954.8	61.41
86	2020-03-26	115.25	552.44	30.72	0		83.33	69.12	819.8	66.36
87	2020-03-27	116.31	568.73	30.81	13.01		83.88	70.6	669.53	69.35
88	2020-03-28	123.73	1081.48	32.72	32.69		83.01	70.7	684.04	92.84
89	2020-03-29	126.38	619.28	31.4	34.43		84.71	71.34	703.83	98.54
90	2020-03-30	45.89	316.9	12.64	32.46		84.22	73.18	720.86	101.35
91	2020-03-31	0	0	0	33.05		84.69	74.69	787.89	103.31
92	2020-04-01	0	0	0	33.03		84.67	76.49	914.52	108.51
93	2020-04-02	0	0	0	33.17		84.81	76.41	1221.08	113.09
94	2020-04-03	3.43	10.4	1.36	32.79		79.9	77.66	1066.13	106.55
95	2020-04-04	0	0	0	32.76		78.76	74.46	744.38	110.16
96	2020-04-05	0	0	0	33.01		78.7	72.66	508.3	105.6
97	2020-04-06	69.2	247.09	18.88	32.41		78.71	78.06	466.39	104.27
98	2020-04-07	109.28	357.95	31.28	32.95		78.69	77.38	432.9	99.16
99	2020-04-08	106.96	192.27	31.04	31.77		78.66	77.04	419.36	118.39
100	2020-04-09	102.32	229.58	31.25	32.01		78.58	78.51	415.07	101.13
101	2020-04-10	105.32	356.31	32.72	31.3		78.62	78.01	472.8	105.98
102	2020-04-11	106.46	262.98	32.2	32.99		78.61	78.24	499.97	112.58
103	2020-04-12	109.02	112.13	28.71	32.64		78.63	78.22	488.88	118.07
104	2020-04-13	112.72	294.5	32.14	32.36		78.61	76.82	472.85	121.88
105	2020-04-14	110.59	495.13	32.8	32.53		78.59	76.73	496.33	119.27
106	2020-04-15	110.66	211.49	33.01	32.32		78.56	77.69	473.06	97.88
107	2020-04-16	110.48	266.2	33.87	32.51		78.49	45.22	284.81	71.59
108	2020-04-17	109.22	248.42	33.3	32.98		78.45	8.29	42.34	74.49
109	2020-04-18	108.69	224.43	33.23	32.78		78.37	8.52	46.62	79.07
110	2020-04-19	110	288.22	33.68	32.33		78.31	8.54	53.6	73.98
111	2020-04-20	108.33	257.23	33.91	32.5		78.3	8.77	54.53	84.66
112	2020-04-21	92.47	159.03	34.91	32.33		78.31	9.01	55.06	89.49
113	2020-04-22	80.56	94.51	34.22	32.35		78.32	8.81	53.77	94.72
114	2020-04-23	80.69	74.67	35.28	32.46		78.32	8.91	52.87	96.37
115	2020-04-24	81	74.14	35.3	32.26		78.27	8.88	55.53	105.03
116	2020-04-25	81.39	74.46	35.38	31.99		78.09	9.15	57.99	125.04
117	2020-04-26	82.18	72.83	35.6	32.93		78.13	8.97	58.31	149.34
118	2020-04-27	81.84	71.92	35.9	32.18		47.35	8.52	50.82	93.68
119	2020-04-28	81.09	70.99	35.89	32.77		36.67	8.54	49.94	0
120	2020-04-29	81.23	88.52	35.79	33.48		79.74	8.65	55.38	0
121	2020-04-30	82.6	143.5	36.41	32.97		80.17	8.67	57.99	0
122	2020-05-01	82.64	133.52	37.49	32.79		78.33	8.68	58.62	0
123	2020-05-02	82.52	128.73	37.73	32.77		76.5	8.64	60.2	0
124	2020-05-03	82.44	127.15	38.05	35.52		78.29	8.62	60.9	0
125	2020-05-04	82.38	134.63	39.08	32.96		83.74	8.71	60.25	0
126	2020-05-05	82.55	139.43	38.44	32.71		93.9	8.54	60.58	0
127	2020-05-06	82.14	132.52	37.78	144.68		85.7	8.46	60.46	0
128	2020-05-07	83.09	138.33	38.02	80.78		77.23	8.69	60.12	14
129	2020-05-08	82.46	149.03	38.44	24.67		76.25	9.12	59.72	33.02
130	2020-05-09	83.46	111.8	38.56	24.77		76.1	9.81	59.67	32.84
131	2020-05-10	82.68	134.77	39.47	24.39		76.15	9.86	59.28	34.48
132	2020-05-11	82.28	128.67	38.97	24.09		76.18	9.71	59.27	33.24
133	2020-05-12	81.78	165.77	38.94	24.21		76.23	9.94	65.76	32.78
134	2020-05-13	81.95	190.76	39.02	24.21		76.1	10.18	87.72	32.8

P32

S. No.	Date	Stack05_CDU_II_12F1-					Stack05_CDU_III_42F1-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
135	2020-05-14	83.08	202.71	39.15	24.76		76.23	10.18	96.5	33.12
136	2020-05-15	84.09	213.2	39.16	24.08		76.22	10.25	100.33	32.98
137	2020-05-16	83.85	229.03	39.3	24.1		76.47	10.28	98.07	32.52
138	2020-05-17	83.87	276.31	39.31	24.17		76.49	10.33	96.25	32.15
139	2020-05-18	82.82	234.27	39.39	24.32		76.77	10.28	91.81	31.98
140	2020-05-19	81.61	185.46	40.08	24.36		77.47	10.46	95.08	32.36
141	2020-05-20	83.54	229.86	41.35	24.61		78.17	10.39	83.99	35.49
142	2020-05-21	86.35	90.34	41.76	24.91		77.08	9.93	66.3	36.04
143	2020-05-22	85.91	75.34	21.17	24.24		76.9	9.9	62.44	33.5
144	2020-05-23	84.53	69.04	0	24.34		77.44	4.88	60.46	33.01
145	2020-05-24	84.11	67.29	0	25.4		77.75	0.07	59.55	33.39
146	2020-05-25	40.73	34.12	0	25.41		79.35	0.07	58.94	33.39
147	2020-05-26	0	0	0	25.36		82.14	0.07	58.59	33.41
148	2020-05-27	0	0	0	25.45		79.75	2.88	28.03	35.02
149	2020-05-28	0	0	0	25.3		57.59	9.03	0.47	35.17
150	2020-05-29	0	0	0	25.43		NA	NA	NA	NA
151	2020-05-30	0	0	0	25.65		NA	NA	NA	NA
152	2020-05-31	0	0	0	25.33		NA	NA	NA	NA
153	2020-06-01	0	0	0	12.59		NA	NA	NA	NA
154	2020-06-02	0	0	0	0		NA	NA	NA	NA
155	2020-06-03	0	0	0	0		NA	NA	NA	NA
156	2020-06-04	0	0	0	0		NA	NA	NA	NA
157	2020-06-05	0	0	0	0		NA	NA	NA	NA
158	2020-06-06	0	0	0	0		NA	NA	NA	NA
159	2020-06-07	0	0	0	0		NA	NA	NA	NA
160	2020-06-08	31.92	0	0.18	9.61		NA	NA	NA	NA
161	2020-06-09	9.9	241.26	0	25.07		NA	NA	NA	NA
162	2020-06-10	0	516.01	0	21.99		NA	NA	NA	NA
163	2020-06-11	0	369.56	7.23	22.46		NA	NA	NA	NA
164	2020-06-12	0	62.89	8.48	8.41		NA	NA	NA	NA
165	2020-06-13	0	0	0	0		NA	NA	NA	NA
166	2020-06-14	0	0	0	0		NA	NA	NA	NA
167	2020-06-15	0	0	0	0		NA	NA	NA	NA
168	2020-06-16	10.98	41.6	0	0		NA	NA	NA	NA
169	2020-06-17	8.29	111.53	0	11.2		NA	NA	NA	NA
170	2020-06-18	96.98	119.66	11.11	22.81		NA	NA	NA	NA
171	2020-06-19	97.65	132.64	21.84	22.65		NA	NA	NA	NA
172	2020-06-20	97.63	130.57	21.55	22.34		NA	NA	NA	NA
173	2020-06-21	97.64	127.6	21.56	22.63		NA	NA	NA	NA
174	2020-06-22	81.22	127.26	21.35	22.87		25.76	34.04	220.93	40.16
175	2020-06-23	98.07	59.34	21.4	22.4		25.9	27.22	169.75	41.31
176	2020-06-24	78.81	57.84	20.25	22.28		26.04	25.06	158.4	41.54
177	2020-06-25	56.76	71.04	20.94	22.32		26.55	25.07	160.12	41.5
178	2020-06-26	56.73	134.28	19.54	22.51		26.64	25.15	159.12	41.83
179	2020-06-27	56.64	133.47	20.98	23.03		27.25	25.31	158.36	42.26
180	2020-06-28	56.61	134.64	20.69	23.12		28.23	24.85	159.47	42.21
181	2020-06-29	56.59	134.51	20.47	22.83		24.04	25.3	157	42.7
182	2020-06-30	43.72	131.78	20.51	22.74		26.34	25.4	157.12	41.98
183	2020-07-01	5.73	13.54	2.15	2.39		27.33	25.3	156.11	43.03
184	2020-07-02	0	0	0	0		28.41	25.48	159.73	43.29
185	2020-07-03	17.02	41.24	9.4	0		23.81	25.84	155.63	43.13
186	2020-07-04	52.8	131.49	22.09	0		35.75	26.23	154.67	49.25
187	2020-07-05	54.83	130.36	19.45	0		72.13	26.37	154.8	52.69
188	2020-07-06	54.8	129.75	20.89	0		72.36	26.59	152.98	71.42
189	2020-07-07	54.8	131.4	20.56	1.12		36.59	28.8	169.37	44.49
190	2020-07-08	54.82	127.83	20.99	0		39.69	28.57	160.21	44.15
191	2020-07-09	54.62	127.9	21.12	0		46.19	29	158.44	43.12
192	2020-07-10	54.46	126.59	20.63	0		45.96	28.52	157.14	43.64
193	2020-07-11	54.55	128.09	20.7	0		45.91	29.02	156.22	42.85
194	2020-07-12	54.65	129.33	20.7	0		52.02	29.03	183.07	43.57
195	2020-07-13	54.77	134.28	20.63	0		61	28.85	157.73	45.75
196	2020-07-14	54.8	136.57	20.41	0		45.82	29.54	160.04	46.54
197	2020-07-15	37.29	125.56	20.38	0		45.66	29.95	181.33	44.4
198	2020-07-16	0	125.35	20.24	0		45.7	30.07	156.96	44.43
199	2020-07-17	0	123.12	20.52	0		45.46	31.19	171.04	45.35
200	2020-07-18	0	124.21	20.83	0		45.04	31.2	184.19	43.53
201	2020-07-19	0	124.21	20.83	0		45.22	31.84	176.11	42.89
202	2020-07-20	0	124.21	20.83	0		43.25	33.95	172.65	43.88

S. No.	Date	Stack05_CDU_II_12F1-					Stack06_CDU_III_42F1-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
203	2020-07-21	36.51	158.71	14.77	0		44.2	41.95	204.85	44.75
204	2020-07-22	64.05	182.73	10.89	21.15		43.69	43.36	210.43	43.93
205	2020-07-23	63.93	173.85	11.27	43.1		43.69	43.36	210.43	43.61
206	2020-07-24	63.93	169.66	11.33	42.76		43.69	43.36	210.43	42.7
207	2020-07-25	63.93	169.66	11.3	42.26		43.69	43.36	210.43	41.87
208	2020-07-26	63.91	172.26	6.96	41.37		43.66	43.34	210.38	41.86
209	2020-07-27	63.91	172.22	11.34	39.14		43.67	43.35	210.4	41.7
210	2020-07-28	40.46	172.3	11.33	38.71		43.69	43.35	210.43	40.78
211	2020-07-29	0	170.38	8.81	38.6		56.25	43.91	180.89	40.76
212	2020-07-30	2.85	126.49	3.36	27.39		108.82	45.69	117.65	41.03
213	2020-07-31	8.28	181.58	0	37.84		104.82	47.13	118.39	41.44
214	2020-08-01	8.29	179.35	3.97	37.41		104	47.15	118.46	41.47
215	2020-08-02	8.31	179.47	6.01	37.33		104.06	47.44	126.57	41.8
216	2020-08-03	5.56	174.74	10.17	39		103.5	47.74	114.77	41.34
217	2020-08-04	2.22	166.07	16.69	38.85		103.49	48.2	111.61	53.63
218	2020-08-05	0.62	163.17	15.87	41.43		104.84	48.69	111.6	62.76
219	2020-08-06	4.49	163.31	15.63	41.08		103.87	49.48	111.83	45.53
220	2020-08-07	17.95	171.6	16.74	40.36		168.52	49.62	111.48	43.96
221	2020-08-08	11.98	172.9	17.55	39.51		332.69	49.16	109.89	41.73
222	2020-08-09	0	171.25	17.3	39.85		233.32	49.84	108.54	43.01
223	2020-08-10	6.96	171.08	18.66	39.59		218.53	50.14	108.14	43.25
224	2020-08-11	17.87	172.84	20.22	39.41		291.19	50.35	107.02	50.19
225	2020-08-12	17.87	169.37	20.16	39.25		127.45	51.39	105.5	53.52
226	2020-08-13	17.86	169.95	19.3	42.05		34.4	52.36	108.43	59.58
227	2020-08-14	17.86	171.65	18.32	44.21		34.86	52.72	108.76	63.81
228	2020-08-15	17.87	170.13	18.11	45.7		34.56	53.06	109.1	80.99
229	2020-08-16	17.87	169.42	18.12	45.48		34.07	54.26	109.37	59.68
230	2020-08-17	17.92	168.21	18.15	43.73		32.83	54	109.58	50.28
231	2020-08-18	17.93	167.29	18.16	43.31		33.1	54.56	109.49	48.71
232	2020-08-19	17.99	166.71	18.38	42.25		17.62	55.11	109.29	56.75
233	2020-08-20	17.98	167.86	18.26	44.8		8.66	55.44	109.47	73.95
234	2020-08-21	17.89	168.53	18.32	44.51		8.64	55.69	108.95	58.22
235	2020-08-22	17.88	168.55	18.2	44.04		8.64	56.22	109.39	51.66
236	2020-08-23	17.89	167.88	18.03	43.46		8.62	56.61	110.23	49.89
237	2020-08-24	17.88	168.66	18.39	44.54		0.05	57.59	110.3	50.69
238	2020-08-25	17.31	160	20.63	42.71		7.34	57.4	111.89	50.74
239	2020-08-26	17.96	164.69	24.73	42.24		18.22	50.32	111.92	50.75
240	2020-08-27	18.08	164.82	24.19	42.33		26.95	38.96	112.53	51.57
241	2020-08-28	17.96	168.82	24.68	42.33		26.92	39.31	113.14	49.23
242	2020-08-29	17.98	166.86	24.61	42.81		26.98	39.23	112.66	50.72
243	2020-08-30	17.91	169.13	24.81	42.78		26.99	39.87	113.66	49.46
244	2020-08-31	17.91	168.12	25.3	42.19		27.02	40.27	113.87	50.08
245	2020-09-01	17.91	167.66	24.58	43.33		45.04	38.96	468.55	50.68
246	2020-09-02	17.93	166.37	24.1	43.66		58.75	38.76	826.15	49.42
247	2020-09-03	18.07	165.01	23.05	43.93		27.14	37.85	656.92	49.69
248	2020-09-04	18.03	165.48	24.41	42.99		42.31	38.81	415.19	59.29
249	2020-09-05	18.29	163.71	24.24	42.49		69.91	39.64	379.62	50.14
250	2020-09-06	18.02	165.67	24.01	42.23		77.38	40.6	382.09	22.32
251	2020-09-07	16.86	164.73	24.2	42.28		41.7	39.88	403.18	26.8
252	2020-09-08	59.35	240.63	24.47	42.34		43.86	40.11	426.37	23.44
253	2020-09-09	89.74	233.33	24.43	41.87		48.07	31.42	414.9	22
254	2020-09-10	80.2	91.23	24.51	41.61		34.02	22.48	147.77	23.4
255	2020-09-11	50.53	56.56	16.88	26.52		14.65	22.58	18.74	26.56
256	2020-09-12	10.14	43.9	3.89	14.34		13.9	22.62	69.26	19.03
257	2020-09-13	29.95	89.62	8.94	44.69		4.73	22.61	84.59	18.96
258	2020-09-14	29.92	368.02	8.05	42.78		23.02	22.67	85.62	24.15
259	2020-09-15	53	515.63	10.9	42.71		33.36	22.78	128.84	26.16
260	2020-09-16	79.06	384.03	17.31	44.38		33.33	29.67	177.47	33.66
261	2020-09-17	69.96	255.71	14.34	47.92		33.29	34.69	179.53	20.21
262	2020-09-18	68.53	237.44	10.41	47.77		33.29	34.69	179.54	22.6
263	2020-09-19	68.53	237.45	10.41	47.96		33.29	34.69	179.53	24.16
264	2020-09-20	68.53	237.45	10.42	48.77		33.29	34.69	179.54	20.54
265	2020-09-21	63.27	200.26	13.54	48.74		33.31	29.54	151.04	22.52
266	2020-09-22	56.36	113.96	16.44	48.75		33.59	24.87	126.19	29.53
267	2020-09-23	53.79	71.05	16.38	48.46		33.63	25.5	125.49	22.74
268	2020-09-24	48.27	106.9	15.84	47.8		35.32	25.32	125.9	20.84
269	2020-09-25	48.21	110.02	15.73	48.51		38.23	25.28	126.16	22.7
270	2020-09-26	56.18	62.11	16.47	48.49		38.24	25.6	125.24	21.6

IPS

S. No.	Date	Stack05_CDU_II_12F1-					Stack06_CDU_III_42F1-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
271	2020-09-27	73.63	52.53	16.95	49.17		38.41	26.45	124.78	20.57
272	2020-09-28	57.61	82.95	19.15	30.07		38.37	25.48	124.58	21.4
273	2020-09-29	21.93	92.45	12.04	0		38.23	26.16	123.36	20.67
274	2020-09-30	21.25	153.96	7.36	20.59		38.34	26.15	122.89	23.07
275	2020-10-01	63.59	389.03	32.5	48.52		38.46	26.02	122.11	22.01
276	2020-10-02	66.43	539.54	47.43	47.59		38.45	26.23	122.01	20.82
277	2020-10-03	48.14	614.77	47.37	47.6		38.45	26.51	121.56	27.64
278	2020-10-04	40.77	420.1	46.97	47.31		38.45	26.27	120.61	26.05
279	2020-10-05	59.99	214.53	46.37	26.28		42.53	29.18	184.63	28.43
280	2020-10-06	73.72	300.35	46.69	0		45.93	32.18	238.42	22.85
281	2020-10-07	64.85	233.51	46.61	25.19		45.95	32.13	237.35	21.81
282	2020-10-08	55.89	292.45	46.8	48.33		45.94	32.32	238.17	26.08
283	2020-10-09	57.49	217.44	48.7	48.39		45.96	32.68	239.7	31.16
284	2020-10-10	39.75	206.75	39.52	48.37		46.41	34.49	243.8	30.04
285	2020-10-11	27.58	127.62	22.14	49.23		47.24	37.16	247.58	43.58
286	2020-10-12	29.28	199.37	22.46	23.76		47.25	37.18	253.92	53.04
287	2020-10-13	51.08	388.6	25.47	49.85		47.84	37.46	235.98	51.85
288	2020-10-14	87.28	323.99	23.13	48.8		48.93	37.65	215.78	37.15
289	2020-10-15	110.54	457.78	23.25	48.22		48.94	37.64	220.72	39
290	2020-10-16	137.71	672.26	24.46	48.69		48.94	37.64	220.71	38.84
291	2020-10-17	112.31	457.02	27.39	48.96		48.94	37.64	220.71	40.91
292	2020-10-18	32.47	32.76	24.11	48.85		48.93	37.64	220.71	43.04
293	2020-10-19	96.86	121	22.13	49.06		48.93	37.64	220.71	39.24
294	2020-10-20	153.08	425.07	39.41	48.83		48.94	37.64	220.71	40.94
295	2020-10-21	140.57	521.34	20.09	48.42		48.93	37.64	220.71	38.54
296	2020-10-22	222.29	605.19	20.19	48.62		48.93	37.64	220.71	42.48
297	2020-10-23	219.56	593.16	20.54	48.13		48.93	37.64	220.71	42.48
298	2020-10-24	158.78	415.92	20.53	47.91		48.93	37.64	220.71	38.82
299	2020-10-25	71	40.06	20.56	48.21		48.93	37.64	220.71	38.86
300	2020-10-26	203.53	642.24	20.54	47.96		48.93	37.64	220.71	38.29
301	2020-10-27	274.31	691.43	26.1	47.7		48.93	37.64	220.71	38.32
302	2020-10-28	156.02	400.33	99.26	47.68		48.93	37.64	220.71	39.8
303	2020-10-29	155.25	41.87	29.59	15.72		189.51	19.94	318.48	39.6
304	2020-10-30	246.34	287.01	35.24	0		268.33	5.51	268.27	41.43
305	2020-10-31	165.98	391.9	23.61	0		226.81	5.82	290.28	49.04
306	2020-11-01	150.22	208.53	22.65	0		205.99	6.19	472.72	50.6
307	2020-11-02	77.6	197.28	29.68	0		62.33	2.61	407.5	46.43
308	2020-11-03	65.41	155.76	23.84	1.74		5.92	0.07	419.8	45.59
309	2020-11-04	119.39	144.99	20.69	19.3		2.56	2.9	183.29	45.45
310	2020-11-05	242.01	150.87	20.54	38.95		7.98	5.23	61.11	45.67
311	2020-11-06	252.13	143.35	20.67	24.93		10.68	9.12	157.57	45.4
312	2020-11-07	253.89	74.87	23.98	23.78		63.99	14.78	266.28	45.34
313	2020-11-08	303.74	70.95	27.03	24.9		64.4	14.77	279.59	45.63
314	2020-11-09	151.49	168.04	27.11	25.32		147.28	14.4	593.13	47.59
315	2020-11-10	135.05	205.91	42.12	25.21		242.07	13.89	1068.81	47.06
316	2020-11-11	123.98	113.53	12.89	26.16		203.04	13.11	1180.66	49.65
317	2020-11-12	67.58	167.78	20.1	25.43		183.46	16.89	1416.81	58.71
318	2020-11-13	24.61	352.01	30.28	25.27		237.76	14.24	1074.38	56
319	2020-11-14	37.66	65.26	28.46	25.34		256.28	14.8	492.54	52.65
320	2020-11-15	37.63	75.28	24.97	25.5		270.83	14.74	460.39	52.04
321	2020-11-16	37.63	164.45	26.33	25.3		301.39	14.76	601.69	52.11
322	2020-11-17	32.65	195.26	24.44	25.68		246.67	14.87	731.98	62.35
323	2020-11-18	36.17	308.71	26.68	25.43		82.94	14.74	74.26	54.69
324	2020-11-19	37.64	158.06	26.73	25.68		37.19	14.75	73.42	54.43
325	2020-11-20	35.79	301.47	23.17	25.71		112.43	15.32	267.56	54.3
326	2020-11-21	37.65	714.65	22.82	25.75		276.75	15.29	781.03	54.61
327	2020-11-22	37.63	1609.1	22.59	26.38		332.62	15.22	808.61	55.58
328	2020-11-23	43.28	793.4	22.49	26.22		290.45	10.55	369.23	53.95
329	2020-11-24	51.54	1404.18	23.06	25.92		342.82	5.61	552.92	53.85
330	2020-11-25	33.81	760.3	15.18	15.91		337.73	6.01	314.57	53.33
331	2020-11-26	52.03	1570.47	23.42	26.13		111.52	6.1	29.51	55.79
332	2020-11-27	52.15	1482.79	23.33	25.97		37.95	6.12	29.66	54.91
333	2020-11-28	51.68	1415.4	22.67	14.57		37.43	6.33	45.51	59.26
334	2020-11-29	52.07	655.04	22.72	9.72		37.43	6.45	71.92	58.76
335	2020-11-30	69.14	661.32	18.44	9.91		174.98	7.33	335.82	55.07
336	2020-12-01	87.67	689.01	22.82	9.89		221.43	7.88	667.95	47.82
337	2020-12-02	249.81	589.95	14.97	11.35		232.93	7.64	635.86	39.14
338	2020-12-03	316.98	500.41	14.08	10.08		271.85	7.76	587.21	45.68

S. No.	Date	Stack05_CDU_II_12F1-					Stack06_CDU_III_42F1-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
339	2020-12-04	8.97	0	6.62	5.22		159.81	7.95	348.67	43.82
340	2020-12-05	22.21	0	17.09	9.67		38.99	7.83	2.77	47.28
341	2020-12-06	118.61	215.09	17.29	0		38.12	7.73	41.28	39.65
342	2020-12-07	173.62	315.53	20.66	0		38.04	7.94	96.96	41.73
343	2020-12-08	179.91	287.76	24.24	0		38.14	8.28	102.6	36.78
344	2020-12-09	241.56	282.47	24.98	4.16		40.45	8.72	110.11	38.86
345	2020-12-10	237.82	299.19	0.22	8.11		143.1	8.85	502.06	34.99
346	2020-12-11	218.82	248.07	0	8.8		176.82	9.02	745.82	35.17
347	2020-12-12	234.56	201.21	4.57	8.35		64.51	8.72	426.48	34.07
348	2020-12-13	238.54	196.29	7.64	8.72		37.34	8.36	607.29	34.23
349	2020-12-14	208.81	229.79	5.98	9.72		84.73	8.78	431.02	34.68
350	2020-12-15	159.47	118.44	4.65	10.11		77.46	9.01	161.77	36.68
351	2020-12-16	172.35	376.91	12.04	9.47		109.15	8.89	275.38	33.95
352	2020-12-17	238.11	748.88	4.76	10.19		207.1	9.22	368.96	35.91
353	2020-12-18	250.95	847.47	4.61	9.48		262.78	9.61	528.58	35.02
354	2020-12-19	200.71	489.54	4.8	10.44		237.87	10.15	1115.04	37.71
355	2020-12-20	87.99	68.39	5.17	10		337.96	10.59	1335.27	104.63
356	2020-12-21	90.9	183.51	4.94	8.36		227.34	10.85	1270.6	58.15
357	2020-12-22	164.27	255.77	3.48	7.69		111.75	11.22	1395.39	24.56
358	2020-12-23	126.7	82.75	72.5	8.68		99.01	11.36	1430.77	23.53
359	2020-12-24	169.42	164.75	72.97	10.88		88.89	11.55	1224.65	22.42
360	2020-12-25	168.02	219.5	85.77	11.41		106.2	10	524.85	23.58
361	2020-12-26	163.72	154.14	26.68	10.61		66.47	8.93	249.35	28.8
362	2020-12-27	134.14	55.45	10.53	11.58		67.36	8.89	248.9	29.63
363	2020-12-28	69.02	53.06	14.61	11.67		41.48	4.28	124.44	23.29
364	2020-12-29	129.77	97.82	33.29	16.45		23.68	5.06	149.69	27.51
365	2020-12-30	215.89	196.89	67.88	6.57		42.04	15.07	713.78	23.93
366	2020-12-31	272.53	272.79	5.22	1.94		38.21	18.22	1145.72	22.77
367	2021-01-01	188.8	153.71	92.12	1.86		41.39	19.12	1316.14	22.97
368	2021-01-02	218.43	103.6	3.9	2.12		102.51	20.07	1391.35	23.99
369	2021-01-03	46.9	17.98	8.09	2.08		323.86	20.28	1513.4	24.03
370	2021-01-04	302.34	116.98	4.24	1.87		365.76	19.84	805.57	29.38
371	2021-01-05	298.91	128.63	4.26	1.69		400.24	14.83	865.1	29.92
372	2021-01-06	310.9	100.77	4.04	1.76		223.37	9.99	753.63	28.85
373	2021-01-07	218.33	69.24	3.19	1.87		97.39	10.49	424.15	28.95
374	2021-01-08	53.04	76.02	3.27	1.87		48.17	10.48	127.33	29.4
375	2021-01-09	28.71	55.33	4.4	1.84		45.57	11.24	186.32	30.83
376	2021-01-10	49.04	724.22	4.44	1.77		16.34	11.73	0.5	30.55
377	2021-01-11	36.49	458.34	2.28	1.96		16.34	11.73	0.5	30.57
378	2021-01-12	36.2	11	15.63	2.19		16.34	11.73	0.5	31.75
379	2021-01-13	94.77	37.99	34.2	2.11		105.06	12.22	352.74	33.1
380	2021-01-14	77.55	42.43	29.46	2.15		445.58	13.51	1042.01	31.72
381	2021-01-15	105.96	67.56	36.84	1.96		409.88	13.34	1160.42	39.28
382	2021-01-16	112.71	84.74	35.49	1.97		228.73	13.54	1301.59	30.81
383	2021-01-17	116.68	105.65	32.67	1.98		94.86	13.36	1253.37	29.72
384	2021-01-18	116.02	65.92	8.99	2.04		83	13.27	631.41	30.08
385	2021-01-19	131.07	122.11	8.56	2.01		63.32	13.82	401.4	29.9
386	2021-01-20	161.05	107.75	8.41	1.98		52.63	106.01	463.76	35.58
387	2021-01-21	94.47	61.1	8.73	1.96		65.85	107.38	137.36	33.81
388	2021-01-22	149.78	267.49	26.25	2.13		73.18	23.41	780.36	30.79
389	2021-01-23	224.84	488.69	101.61	2.11		77.67	56.06	753.94	32.37
390	2021-01-24	226.23	371.11	55.29	1.98		0.04	0.06	0.5	32.96
391	2021-01-25	252.33	547.04	32.78	2.11		67.22	8.5	566.16	32.94
392	2021-01-26	277.25	683.43	41.23	2.08		109.29	12.45	631.03	32.94
393	2021-01-27	271.26	488.56	41.52	2.1		30.16	9.6	96.42	35
394	2021-01-28	89.57	463.12	41.08	2.49		51.69	10.47	593.34	34.04
395	2021-01-29	6.71	465.72	76.87	2.15		39.16	9.05	277.98	36.52
396	2021-01-30	80.25	365.9	89.26	2.16		24.81	9.33	112.5	42.78
397	2021-01-31	246.68	296.86	60.02	2.19		NA	NA	NA	NA
398	2021-02-01	248.16	316.99	99.95	2.1		56.68	11.29	160.77	40.54
399	2021-02-02	273.75	313.15	84.93	6.2		32.32	16.24	870.43	32.35
400	2021-02-03	242.84	261.84	69.96	9.15		38.24	28.61	863.39	27.77
401	2021-02-04	205.1	206.79	75.89	8.73		126.97	12.28	717.58	28.23
402	2021-02-05	132.18	225.98	138.14	8.44		241.27	12.16	1810.04	27.85
403	2021-02-06	105.17	253.51	152.97	8.62		184.64	11.92	1543.34	38.21
404	2021-02-07	81.19	323.14	97.56	9.4		289.48	12.16	1644.57	27.18
405	2021-02-08	98.46	257.97	89.07	9.24		267.12	11.09	1245.87	25.53
406	2021-02-09	153.81	248.04	10.47	9.5		187.51	10.95	1035.66	25.77

S. No.	Date	Stack05_CDU_II_12F1-					Stack06_CDU_III_42F1-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
407	2021-02-10	144.72	228.22	10.13	8.3		109.54	11.12	440.5	25.83
408	2021-02-11	50.74	165.8	9.1	8.21		273.28	11.55	1072.12	25.72
409	2021-02-12	149.03	142.37	8.11	8.44		256.48	11.95	1142.92	25.75
410	2021-02-13	194.28	149.52	7.34	8.22		238.69	11.81	589.24	26.05
411	2021-02-14	234.85	164.05	6.63	8.35		120.51	12.38	146.55	26.19
412	2021-02-15	154.25	169.12	6.86	8.15		83.31	13.56	78.02	26.08
413	2021-02-16	70.33	212.15	15.29	8.17		176.37	13.15	619.79	26.36
414	2021-02-17	181.99	137.61	23.59	8.7		296.46	12.13	919.63	25.88
415	2021-02-18	225.9	137.62	23.66	8.9		300.32	13.31	405.31	28.33
416	2021-02-19	252.95	142.37	22.83	9.08		125.57	13.43	286.41	28.99
417	2021-02-20	269.85	115.7	23.68	8.38		171.55	14.01	570.99	28.04
418	2021-02-21	163.8	48.2	24.31	7.26		183.68	14.82	989.01	25.78
419	2021-02-22	186.96	103.04	25.17	7.5		159.49	14.84	609.61	27.92
420	2021-02-23	184.94	257.51	27.31	7.91		173.54	13.27	848.68	26.32
421	2021-02-24	150.42	193.21	26.11	8.67		253.39	12.75	1319.89	26.47
422	2021-02-25	225.85	186.9	26.59	9.35		122.9	15.9	696.41	26.75
423	2021-02-26	394.04	219.95	26.17	8.54		86.34	41.49	646.33	26.71
424	2021-02-27	466.64	250.8	27.02	8.77		189.76	5.29	1619.94	26.81
425	2021-02-28	452.77	255.47	25.79	8.94		109.24	139.73	178.1	28.2
426	2021-03-01	403.2	216.1	28.44	8.12		83.96	18.73	1041.48	26.87
427	2021-03-02	299.24	202.31	21.22	8.1		42.8	8.46	1675.86	26.99
428	2021-03-03	130.33	271.57	3.53	8.08		39.77	14.42	1364.18	26.95
429	2021-03-04	61	240.86	3.85	7.91		213.17	11.63	936.6	26.89
430	2021-03-05	26.98	84.7	3.67	7.71		333.91	9.71	658.88	26.91
431	2021-03-06	30.19	0	3.21	8.12		240.72	12.92	783	33.13
432	2021-03-07	30.11	0	3.15	7.61		6.38	13.64	121.59	28.09
433	2021-03-08	37.82	83.84	4	7.44		14.15	13.06	153.78	28.2
434	2021-03-09	43.74	339.93	4.07	7.61		51.19	13.42	750.3	28.36
435	2021-03-10	26.92	186.93	3.83	7.34		82.94	13.75	1999.08	28.52
436	2021-03-11	68.67	184.04	39.68	8.64		186.23	13.55	934.12	28.58
437	2021-03-12	105.14	138	69.23	7.66		126.41	13.32	456.85	29.15
438	2021-03-13	152.6	162.46	52.67	8.15		169.78	12.9	550.87	29.88
439	2021-03-14	172.16	174.65	46.99	8.29		186.16	11.71	1999.09	29.91
440	2021-03-15	203.71	205.67	45.72	8.12		89.92	43.59	1590.06	30.72
441	2021-03-16	215.01	233.5	42.98	8.03		55.07	11.29	711.18	32.4
442	2021-03-17	242.97	304.41	53.17	7.4		20.13	7.97	72.84	33.42
443	2021-03-18	248.98	316.22	53.45	7.46		58.04	9.34	674.38	33.41
444	2021-03-19	253.73	298.23	49.95	7.35		102.67	11.14	925.94	33.54
445	2021-03-20	281.26	341.19	50.18	8.05		40.86	4.67	562.3	33.18
446	2021-03-21	262.96	342.1	75.63	7.74		26.47	6.74	528.15	33.67
447	2021-03-22	284.14	370.88	92.41	4.03		34.88	4.73	652.79	34.04
448	2021-03-23	245.69	276.12	167.29	4.28		58.24	6.77	855.44	32.89
449	2021-03-24	274.63	314.82	32.25	7.84		131.02	5.79	483.04	32.57
450	2021-03-25	189.13	274.51	19.71	7.91		207.81	4.77	330.89	32.91
451	2021-03-26	192	284.37	20	7.87		213.82	5.16	303.99	32.97
452	2021-03-27	190.36	285.95	20.72	7.77		208.62	4.3	281.8	33.03
453	2021-03-28	179.06	299.61	76.09	8.53		204.65	3.18	277.74	33.35
454	2021-03-29	179.29	316.01	99.95	7.86		213.73	3.02	311	33.44
455	2021-03-30	184.76	416.23	94.58	8.51		203.03	2.95	320.61	33.69
456	2021-03-31	198.32	315.97	40.61	8.48		194.07	2.67	324.53	33.87
457	2021-04-01	200.34	256.47	39.5	8.13		207.22	2.27	331.75	34.05
458	2021-04-02	21.93	30.81	7.17	1.8		225.12	2.05	431.29	34.25
459	2021-04-03	130.52	200.76	46.22	6.08		216.48	2.31	388.99	35.31
460	2021-04-04	190.21	339.44	54.54	7.35		206.09	2.16	517.44	34.71
461	2021-04-05	173.93	289.17	45.8	6.22		199.51	3.61	358.21	34.88
462	2021-04-06	177.72	295.52	55.28	6.36		202.02	11.03	315.7	35.72
463	2021-04-07	177.65	289.68	45.83	6.79		200.37	1.59	329.91	35.4
464	2021-04-08	192.78	342.35	50.39	6.83		193.23	1.22	331.18	35.62
465	2021-04-09	137.68	239.79	37.41	5.47		201.19	1.13	323.56	35.63
466	2021-04-10	89.8	148.24	22.28	2.88		208.7	1.21	337.61	35.66
467	2021-04-11	189.67	326.48	49.03	7.28		211.98	1.02	337.35	35.77
468	2021-04-12	173.72	326.06	55.54	6.92		210.5	2.41	366.9	36.42
469	2021-04-13	NA	NA	NA	NA		NA	NA	NA	NA
470	2021-04-14	171.95	310.68	52.21	6.19		206.28	3.56	352.7	36.02
471	2021-04-15	188.22	305.75	56.03	5.97		209.13	3.71	366	36.22
472	2021-04-16	195.73	294.86	68.16	5.89		210.37	5.36	354.66	36.32
473	2021-04-17	189.82	356.92	70.09	6.13		216.11	3.19	405.38	36.81
474	2021-04-18	205.75	380.91	68.42	6.69		227.69	2.38	427.52	36.95

S. No.	Date	Stack05_CDU_II_12F1-					Stack06_CDU_III_42F1-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
475	2021-04-19	207.99	384.82	76.25	6.64		222.49	2.18	424.24	36.98
476	2021-04-20	160.92	471.37	84.63	6.7		185.62	1.85	485.75	37.17
477	2021-04-21	120.38	330.06	81.64	6.29		153.54	4.32	426.44	36.89
478	2021-04-22	111.23	301.96	75.47	6.07		120.64	3.78	399.82	37.23
479	2021-04-23	97.84	255.8	69.49	5.5		116.11	3.71	393.75	37.01
480	2021-04-24	89.35	262.6	70.39	5.56		112.44	3.82	381.54	36.91
481	2021-04-25	74.39	230.36	65.3	5.79		114.81	3.56	364.77	37.07
482	2021-04-26	56.73	203.55	47.11	5.37		103.87	3.74	362.21	36.85
483	2021-04-27	52.1	237.96	36.82	5.41		105.02	3.74	391.39	36.77
484	2021-04-28	64.5	269.89	15.27	6		103.03	3.7	403.31	36.96
485	2021-04-29	56.04	198.9	11.3	5.14		101.44	3.84	385.4	37.09
486	2021-04-30	46.26	223.16	72.4	5.26		102.06	3.71	377.92	37.07
487	CFO Standards	-	-	-	100		-	-	-	100
488	Maximum Value	466.64	1609.1	167.29	144.68		445.58	139.73	1999.09	149.34
489	Maximum Value on	2021-02-27	2020-11-22	2021-03-23	2020-05-06		2021-01-14	2021-02-28	2021-03-14	2020-04-26
490	Average	106.95	268.38	33.46	23.56		96.95	26.98	401.13	41.66
491		405	411	407	397		417	417	417	407
492	Total Data Points	486	486	486	486		486	486	486	486
493	Data Availablity %	90.95	90.95	90.95	90.95		85.8	85.8	85.8	85.8
494	Pollutant Load (Tons/day)	0.066	0.166	0.021	0.015		0.133	0.037	0.552	0.057
495	Pollutnat Load as per CFO (Tons/day)				0.062					0.138

Stack Monitroing Data (CEMS) - From 01.01.2020 to 30.04.2021

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

S. No.	Date	Stack07_CDU_III_42F2-				Stack08_VBU_46F1-			
		NOx	CO	SO2	PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
1	2020-01-01	0	0	0	19.93	0	0	0	0.96
2	2020-01-02	0	0	0	0.94	0	0	0	1.04
3	2020-01-03	35.59	30.86	210.62	1.07	0	0	0	1.24
4	2020-01-04	76.82	52.68	318.9	1.9	0	0	0	1.62
5	2020-01-05	76.82	52.75	141.28	4.68	0	0	0	1.2
6	2020-01-06	76.8	53.04	188.28	1.62	0	0	0	1.07
7	2020-01-07	71.22	53.6	155.11	1.67	0	0	0	0.93
8	2020-01-08	52.91	53.57	219.08	0.06	0	0	0	0.85
9	2020-01-09	46.56	53.23	237.51	0.07	0	0	0	0.78
10	2020-01-10	30.06	53.15	179.31	0.07	0	0	0	1.28
11	2020-01-11	15.99	52.54	195.89	0.13	0	0	0	1.63
12	2020-01-12	12.42	52.23	432.33	0.07	0	0	0	0.88
13	2020-01-13	11.07	52.4	586.23	0.05	0	0	0	0.9
14	2020-01-14	10.08	52.52	947.47	0.04	0	0	0	1.11
15	2020-01-15	9.74	52.67	1223.39	0.08	0	0	0	0.98
16	2020-01-16	9.88	52.75	762.04	0.04	0	0	0	0.97
17	2020-01-17	28.56	53.51	693.87	0.05	0	0	0	1.08
18	2020-01-18	45.93	54	373.53	0.1	0	0	0	1.07
19	2020-01-19	45.8	54.47	351.46	1.84	0	0	0	0.96
20	2020-01-20	45.95	54.74	414.06	0.08	0	0	0	1.08
21	2020-01-21	46.21	55.51	255.34	0.08	0	0	0	2.52
22	2020-01-22	46.16	55.06	284.93	0.06	0	0	0	3.67
23	2020-01-23	46.76	55.58	254.32	0.07	0	0	0	3.71
24	2020-01-24	47.58	54.95	312.55	0.12	0	0	0	5.97
25	2020-01-25	47.36	55.7	295.26	0.15	0	0	0	11.33
26	2020-01-26	46.52	55.97	357.94	0.09	0	0	0	59.27
27	2020-01-27	47.14	56.18	417.18	0.04	0	0	0	7.6
28	2020-01-28	47.5	55.59	466.94	0.02	0	0	0	10.37
29	2020-01-29	NA	NA	NA	NA	NA	NA	NA	NA
30	2020-01-30	NA	NA	NA	NA	NA	NA	NA	NA
31	2020-01-31	NA	NA	NA	NA	NA	NA	NA	NA
32	2020-02-01	NA	NA	NA	NA	NA	NA	NA	NA
33	2020-02-02	NA	NA	NA	NA	NA	NA	NA	NA
34	2020-02-03	NA	NA	NA	NA	NA	NA	NA	NA
35	2020-02-04	NA	NA	NA	NA	NA	NA	NA	NA
36	2020-02-05	NA	NA	NA	NA	NA	NA	NA	NA
37	2020-02-06	NA	NA	NA	NA	NA	NA	NA	NA
38	2020-02-07	NA	NA	NA	NA	NA	NA	NA	NA
39	2020-02-08	NA	NA	NA	NA	NA	NA	NA	NA
40	2020-02-09	NA	NA	NA	NA	NA	NA	NA	NA
41	2020-02-10	NA	NA	NA	NA	NA	NA	NA	NA
42	2020-02-11	NA	NA	NA	NA	NA	NA	NA	NA
43	2020-02-12	NA	NA	NA	NA	NA	NA	NA	NA
44	2020-02-13	NA	NA	NA	NA	NA	NA	NA	NA
45	2020-02-14	NA	NA	NA	NA	NA	NA	NA	NA
46	2020-02-15	NA	NA	NA	NA	NA	NA	NA	NA
47	2020-02-16	NA	NA	NA	NA	NA	NA	NA	NA
48	2020-02-17	NA	NA	NA	NA	NA	NA	NA	NA
49	2020-02-18	NA	NA	NA	NA	NA	NA	NA	NA
50	2020-02-19	NA	NA	NA	NA	NA	NA	NA	NA
51	2020-02-20	NA	NA	NA	NA	NA	NA	NA	NA
52	2020-02-21	NA	NA	NA	NA	NA	NA	NA	NA
53	2020-02-22	NA	NA	NA	NA	NA	NA	NA	NA
54	2020-02-23	NA	NA	NA	NA	NA	NA	NA	NA
55	2020-02-24	NA	NA	NA	NA	NA	NA	NA	NA
56	2020-02-25	NA	NA	NA	NA	NA	NA	NA	NA
57	2020-02-26	NA	NA	NA	NA	NA	NA	NA	NA
58	2020-02-27	NA	NA	NA	NA	NA	NA	NA	NA
59	2020-02-28	NA	NA	NA	NA	NA	NA	NA	NA
60	2020-02-29	NA	NA	NA	NA	NA	NA	NA	NA
61	2020-03-01	NA	NA	NA	NA	NA	NA	NA	NA
62	2020-03-02	NA	NA	NA	NA	NA	NA	NA	NA
63	2020-03-03	NA	NA	NA	NA	NA	NA	NA	NA
64	2020-03-04	NA	NA	NA	NA	NA	NA	NA	NA
65	2020-03-05	NA	NA	NA	NA	NA	NA	NA	NA
66	2020-03-06	NA	NA	NA	NA	NA	NA	NA	NA
67	2020-03-07	NA	NA	NA	NA	NA	NA	NA	NA
68	2020-03-08	NA	NA	NA	NA	NA	NA	NA	NA
69	2020-03-09	NA	NA	NA	NA	NA	NA	NA	NA
70	2020-03-10	NA	NA	NA	NA	NA	NA	NA	NA
71	2020-03-11	NA	NA	NA	NA	NA	NA	NA	NA
72	2020-03-12	82.26	66.24	741.44	0.08	0	0	0	0
73	2020-03-13	82.16	66.15	774.84	0.07	0	0	0	0
74	2020-03-14	81.27	66.75	773.21	0.05	0	0	0	0
75	2020-03-15	80.6	68.19	744.58	0.03	0	0	0	0
76	2020-03-16	81.19	69.57	762.08	0.05	0	0	0	0
77	2020-03-17	81.02	66.84	779.44	0.06	0	0	0	0

S. No.	Date	Stack07_CDU_III_42F2-					Stack08_VBU_46F1-			
		NOx	CO	SO2	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
78	2020-03-18	80.9	68.36	748.39	0.59		0	0	0	0
79	2020-03-19	81.26	69.32	810.27	2.22		0	0	0	0
80	2020-03-20	79.79	68.87	769.66	1.21		0	0	0	0
81	2020-03-21	81.48	71.51	805.3	1.03		0	0	0	0
82	2020-03-22	79.33	73.18	715.87	0.21		0	0	0	0
83	2020-03-23	79.17	72.55	644.06	0.28		0	0	0	0
84	2020-03-24	81.01	73.85	801.03	1.39		0	0	0	0
85	2020-03-25	83.54	68	954.6	0.16		0	0	0	0
86	2020-03-26	83.12	68.19	805.17	2.02		0	0	0	0
87	2020-03-27	83.56	71.67	670.35	0.8		0	0	0	0
88	2020-03-28	82.69	69.73	688.52	0.21		0	0	0	0
89	2020-03-29	84.41	71.81	697.55	0.27		0	0	0	0
90	2020-03-30	84	72.6	724.18	1.61		0	0	0	0
91	2020-03-31	84.45	74.53	785.15	0.37		0	0	0	0
92	2020-04-01	84.39	78.22	900.52	0.27		0	0	0	0
93	2020-04-02	84.51	76.56	1211.7	0.24		0	0	0	0
94	2020-04-03	79.66	77.02	1042.15	0.26		0	0	0	0
95	2020-04-04	78.52	73.83	743.08	1.5		0	0	0	0
96	2020-04-05	78.48	72.3	508.78	0.44		0	0	0	0
97	2020-04-06	78.48	76.71	461.97	0.41		0	0	0	0
98	2020-04-07	78.47	77.16	429.59	0.24		0	0	0	0
99	2020-04-08	78.41	77.59	422.01	0.23		0	0	0	0
100	2020-04-09	78.35	78.18	413.27	0.25		0	0	0	0
101	2020-04-10	78.38	78.61	471.83	0.29		0	0	0	0
102	2020-04-11	78.38	78.32	501.72	0.21		0	0	0	0
103	2020-04-12	78.36	77.76	489.42	0.18		0	0	0	0
104	2020-04-13	78.4	76.93	470.26	0.13		0	0	0	0
105	2020-04-14	78.36	76.52	494.76	0.09		0	0	0	0
106	2020-04-15	78.35	77.83	469.64	0.11		0	0	0	0
107	2020-04-16	78.3	47	296.46	0.92		0	0	0	0
108	2020-04-17	78.17	8.37	42.22	1.03		0	0	0	0
109	2020-04-18	78.14	8.12	45.31	0.2		0	0	0	0
110	2020-04-19	78.06	8.61	52.04	0.14		0	0	0	0
111	2020-04-20	78.07	9.01	53.38	0.15		0	0	0	0
112	2020-04-21	78.06	8.61	54.13	0.14		0	0	0	0
113	2020-04-22	78.11	8.72	53.29	0.09		0	0	0	0
114	2020-04-23	78.09	8.84	52.56	0.09		0	0	0	0
115	2020-04-24	78.07	8.86	54.66	0.1		0	0	0	0
116	2020-04-25	77.91	8.67	57.1	0.52		0	0	0	0.86
117	2020-04-26	77.9	8.84	56.53	0.34		0	0	0	0.01
118	2020-04-27	78.07	8.86	52.17	0.75		0	0	0	1.08
119	2020-04-28	78.4	9.42	54.19	0.29		0	0	0	0
120	2020-04-29	78.4	9.42	54.18	0.3		0	0	0	0
121	2020-04-30	78.4	9.42	54.18	0.27		0	0	0	0
122	2020-05-01	78.4	9.42	54.18	0.51		0	0	0	0.44
123	2020-05-02	78.4	9.42	54.19	0.24		0	0	0	0
124	2020-05-03	78.4	9.42	54.18	0.39		0	0	0	0.03
125	2020-05-04	78.4	9.42	54.19	1.33		0	0	0	0
126	2020-05-05	78.4	9.42	54.18	0.78		0	0	0	0
127	2020-05-06	78.4	9.42	54.18	0.62		0	0	0	0
128	2020-05-07	78.4	9.42	54.19	0.23		0	0	0	0
129	2020-05-08	78.4	9.42	54.19	14.19		0	0	0	0
130	2020-05-09	78.4	9.43	54.2	33.39		0	0	0	0.04
131	2020-05-10	78.4	9.43	54.21	33.76		0	0	0	0.1
132	2020-05-11	78.4	9.42	54.2	32.88		0	0	0	0
133	2020-05-12	78.39	9.42	54.17	32.6		0	0	0	0
134	2020-05-13	78.36	9.41	54.1	32.69		0	0	0	0
135	2020-05-14	78.36	9.41	54.1	32.34		0	0	0	0
136	2020-05-15	78.36	9.41	54.09	32.23		0	0	0	0
137	2020-05-16	78.36	9.41	54.1	31.9		0	0	0	0
138	2020-05-17	78.36	9.41	54.1	31.79		0	0	0	0
139	2020-05-18	78.37	9.42	54.11	31.41		0	0	0	0
140	2020-05-19	78.37	9.41	54.08	30.18		0	0	0	0
141	2020-05-20	78.38	9.42	54.13	33.41		0	0	0	0
142	2020-05-21	78.4	9.42	54.18	33.65		0	0	0	0
143	2020-05-22	78.4	9.42	54.18	33.36		0	0	0	0
144	2020-05-23	78.4	9.42	54.18	33.04		0	0	0	0
145	2020-05-24	78.4	9.42	54.18	33.72		0	0	0	0
146	2020-05-25	78.4	9.42	54.19	33.89		0	0	0	0
147	2020-05-26	78.4	9.42	54.19	33.86		0	0	0	0
148	2020-05-27	76.07	8.67	32.2	33.72		0	0	0	0
149	2020-05-28	76.45	8.73	0	34.43		0	0	0	0
150	2020-05-29	NA	NA	NA	NA		NA	NA	NA	NA
151	2020-05-30	NA	NA	NA	NA		NA	NA	NA	NA
152	2020-05-31	NA	NA	NA	NA		NA	NA	NA	NA
153	2020-06-01	NA	NA	NA	NA		NA	NA	NA	NA
154	2020-06-02	NA	NA	NA	NA		NA	NA	NA	NA
155	2020-06-03	NA	NA	NA	NA		NA	NA	NA	NA
156	2020-06-04	NA	NA	NA	NA		NA	NA	NA	NA
157	2020-06-05	NA	NA	NA	NA		NA	NA	NA	NA

S. No.	Date	Stack07_CDU_III_42F2-				Stack08_VBU_46F1-			
		NOx	CO	SO2	PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
158	2020-06-06	NA	NA	NA	NA	NA	NA	NA	NA
159	2020-06-07	NA	NA	NA	NA	NA	NA	NA	NA
160	2020-06-08	NA	NA	NA	NA	NA	NA	NA	NA
161	2020-06-09	NA	NA	NA	NA	NA	NA	NA	NA
162	2020-06-10	NA	NA	NA	NA	NA	NA	NA	NA
163	2020-06-11	NA	NA	NA	NA	NA	NA	NA	NA
164	2020-06-12	NA	NA	NA	NA	NA	NA	NA	NA
165	2020-06-13	NA	NA	NA	NA	NA	NA	NA	NA
166	2020-06-14	NA	NA	NA	NA	NA	NA	NA	NA
167	2020-06-15	NA	NA	NA	NA	NA	NA	NA	NA
168	2020-06-16	NA	NA	NA	NA	NA	NA	NA	NA
169	2020-06-17	NA	NA	NA	NA	NA	NA	NA	NA
170	2020-06-18	NA	NA	NA	NA	NA	NA	NA	NA
171	2020-06-19	NA	NA	NA	NA	NA	NA	NA	NA
172	2020-06-20	NA	NA	NA	NA	NA	NA	NA	NA
173	2020-06-21	NA	NA	NA	NA	NA	NA	NA	NA
174	2020-06-22	25.5	32.7	217.97	34.76	0	0	0	0
175	2020-06-23	25.82	27.4	169.08	33.42	0	0	0	0
176	2020-06-24	26.01	24.93	156.65	32.69	0	0	0	0
177	2020-06-25	26.39	25.02	158.12	32.98	0	0	0	0.05
178	2020-06-26	26.56	25	158.54	33.65	0	0	0	0.06
179	2020-06-27	27.03	25.21	156.9	34.39	0	0	0	0
180	2020-06-28	28.68	24.12	157.82	33.88	0	0	0	0.27
181	2020-06-29	25.41	24.64	156.02	33.98	0	0	0	0.11
182	2020-06-30	26.1	24.99	155.46	33.75	0	0	0	0
183	2020-07-01	26.28	25.07	154.85	34.53	0	0	0	0.52
184	2020-07-02	27.47	25.35	157.45	34.79	0	0	0	1.34
185	2020-07-03	24.94	25.7	154.25	33.95	0	0	0	0.46
186	2020-07-04	33.74	26.04	153.21	35.97	0	0	0	0.86
187	2020-07-05	71.83	26.21	153.28	36.84	0	0	0	2.91
188	2020-07-06	72.18	26.59	152.19	37.16	0	0	0	0.8
189	2020-07-07	37.65	28.54	164.01	34.17	0	0	0	0.14
190	2020-07-08	37.34	28.32	158.64	36.35	0	0	0	0.44
191	2020-07-09	45.96	28.74	157.58	37.43	0	0	0	0.7
192	2020-07-10	45.75	28.41	156.56	34.55	0	0	0	0.32
193	2020-07-11	45.71	28.95	155.63	35.13	0	0	0	0.29
194	2020-07-12	51.77	28.92	181.34	36.64	0	0	0	0.65
195	2020-07-13	60.47	28.87	156.22	35.12	0	0	0	1.48
196	2020-07-14	45.63	29.55	160.22	35.81	0	0	0	3.33
197	2020-07-15	45.41	29.75	186.94	35.28	0	0	0	1.42
198	2020-07-16	45.5	30.08	156.39	35.88	0	0	0	1.09
199	2020-07-17	45.25	31.21	169.92	35.05	0	0	0	1.21
200	2020-07-18	44.86	31.13	183.56	34.37	0	0	0	0.83
201	2020-07-19	44.99	32.02	172.67	34.24	0	0	0	0.66
202	2020-07-20	44.15	34.14	174.44	34.44	0	0	0	1.13
203	2020-07-21	44.23	41.19	201.22	34.73	0	0	0	1.73
204	2020-07-22	44.12	41.65	165.57	35.01	14.82	14.47	73.55	1.41
205	2020-07-23	45.28	41.67	118.57	35.35	43.48	42.08	216.41	1.55
206	2020-07-24	45.28	42.27	116.77	34.95	43.48	42.08	216.42	1.14
207	2020-07-25	45.38	42.69	117.53	33.96	43.48	42.08	216.42	1.03
208	2020-07-26	72.32	42.19	118.69	33.5	43.46	42.07	216.34	1.06
209	2020-07-27	55.17	42.71	116.17	33.11	43.47	42.07	216.38	0.51
210	2020-07-28	46.11	44.5	117.17	32.19	43.48	42.07	216.42	0.51
211	2020-07-29	57.67	44.47	118.93	32.51	56.75	42.92	188.28	0.65
212	2020-07-30	108.63	45.63	116.75	32.58	108.82	45.66	116.92	0.58
213	2020-07-31	104.54	46.6	117.52	33.62	104.7	46.92	117.72	0.43
214	2020-08-01	103.78	47.21	117.24	33.83	103.87	47.33	117.79	0.45
215	2020-08-02	103.66	47.25	122.49	34.05	103.94	47.4	127.31	0.7
216	2020-08-03	103.32	47.69	113.84	35.03	103.48	47.82	113.97	0.65
217	2020-08-04	103.22	48.06	110.68	36.4	103.45	48.13	110.81	0.92
218	2020-08-05	104.61	48.51	110.54	36.17	104.82	48.67	110.58	2.27
219	2020-08-06	103.61	48.99	110.62	34.8	103.75	49.16	111.16	1.15
220	2020-08-07	168.06	49.26	110.64	34.59	169.15	49.5	110.79	1.6
221	2020-08-08	332.08	49.08	108.88	34.95	332.92	49.24	109.08	0.27
222	2020-08-09	233.56	49.59	107.57	33.9	234.02	49.91	107.93	0.87
223	2020-08-10	218.12	50.02	107.29	35.4	218.48	50.02	107.45	1.01
224	2020-08-11	290.85	50.26	105.9	34.74	291.21	50.27	105.96	0.58
225	2020-08-12	132.89	51.39	104.46	35.53	136.91	51.14	104.77	1.31
226	2020-08-13	34.24	52.28	107.39	35.45	34.32	52.39	107.7	5.82
227	2020-08-14	34.62	52.6	108.01	38.35	34.72	52.77	108.09	9.98
228	2020-08-15	34.38	52.8	107.98	38.89	34.5	52.91	108.22	8.51
229	2020-08-16	33.88	54.61	107.95	37.33	33.94	54.05	108.18	3.71
230	2020-08-17	32.57	53.8	108.52	35.87	32.72	53.86	108.68	1.59
231	2020-08-18	32.94	54.32	108.39	36	33.07	54.41	108.22	1.68
232	2020-08-19	16.94	54.82	107.62	36.11	18.55	54.95	108.31	1.49
233	2020-08-20	8.51	55.34	108.3	37.59	8.6	55.66	108.28	2.72
234	2020-08-21	8.47	55.54	107.78	39.88	8.58	55.51	108.2	3.92
235	2020-08-22	8.47	56.11	108.31	36.08	8.54	56.28	108.55	4
236	2020-08-23	8.45	56.31	109.1	36.24	8.53	56.49	109.37	1.83
237	2020-08-24	0	58.3	109.91	35.69	5.36	56.92	109.53	2.2

S. No.	Date	Stack07_CDU_III_42F2-					Stack08_VBU_46F1-			
		NOx	CO	SO2	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
238	2020-08-25	7.61	57.41	111.46	34.29		7.6	57.59	111.72	2.56
239	2020-08-26	18.43	50.64	110.74	35.88		8.2	35.85	68.42	2.35
240	2020-08-27	26.78	38.42	111.35	36.5		0	0	0	1.91
241	2020-08-28	26.8	39.23	112.19	36.05		0	0	0	2.13
242	2020-08-29	26.78	39.02	112.14	36.73		0	0	0	2.41
243	2020-08-30	26.8	39.6	112.33	35.3		0	0	0	1.8
244	2020-08-31	26.82	39.91	113.07	34.98		0	0	0	2.16
245	2020-09-01	51.89	38.57	215.7	33.92		0	0	0	2.86
246	2020-09-02	87.08	41.12	392.27	32.59		0	0	0	3.71
247	2020-09-03	70.42	39.44	594.4	32.37		0	0	0	2.4
248	2020-09-04	77.89	40.09	403.04	32.67		0	0	0	1.58
249	2020-09-05	70.92	39.44	370.02	33.97		0	0	0	1.79
250	2020-09-06	76.23	40.59	380.36	33.92		0	0	0	1.77
251	2020-09-07	41.5	39.79	390.47	34.84		0	0	0	1.68
252	2020-09-08	40.41	39.95	426.24	34.41		0	0	0	1.53
253	2020-09-09	47.43	30.57	363.23	34.56		0	0	0	1.57
254	2020-09-10	34.27	22.38	150.26	34.88		0	0	0	1.59
255	2020-09-11	14.22	22.41	17.26	34.03		0	0	0	1.61
256	2020-09-12	12.47	22.49	68.15	33.67		0	0	0	2.89
257	2020-09-13	4.32	22.49	83.65	33.49		0	0	0	5.09
258	2020-09-14	22.97	22.52	84.2	33.25		0	0	0	3.87
259	2020-09-15	33.18	22.61	130.85	32.79		0	0	0	2.91
260	2020-09-16	33.17	24.08	144.14	35.37		0	0	0	3.27
261	2020-09-17	33.16	24.96	120.99	34.79		0	0	0	2.34
262	2020-09-18	33.13	25.01	120.39	34.23		0	0	0	2.31
263	2020-09-19	33.13	24.85	119.96	33.4		0	0	0	3
264	2020-09-20	33.13	25.01	119.99	35.74		0	0	0	4.09
265	2020-09-21	33.14	24.98	122.92	38.26		0	0	0	5.07
266	2020-09-22	33.36	24.72	124.82	40.07		0	0	0	3.97
267	2020-09-23	33.4	25.24	124.65	38.39		0	0	0	5.7
268	2020-09-24	33.17	23.75	118.09	37.89		0	0	0	3.84
269	2020-09-25	38.07	25.22	124.81	38.72		0	0	0	4.44
270	2020-09-26	38.07	25.62	123.74	36.73		0	0	0	4.79
271	2020-09-27	38.24	26	123.58	34.7		0	0	0	3.36
272	2020-09-28	38.2	25.42	123.06	34.49		0	0	0	2.78
273	2020-09-29	38.03	26.05	122.59	34.67		0	0	0	2.89
274	2020-09-30	38.15	25.92	121.81	33.48		0	0	0	10.55
275	2020-10-01	38.28	25.83	121.03	32.65		0	0	0	5.13
276	2020-10-02	38.27	26.07	120.59	34.99		0	0	0	2.69
277	2020-10-03	38.27	26.31	120.05	33.69		0	0	0	3.4
278	2020-10-04	38.28	26.08	119.47	36		0	0	0	4.9
279	2020-10-05	42.13	29.01	181.09	35.96		0	0	0	5.58
280	2020-10-06	45.71	31.99	237.14	35.51		0	0	0	8.64
281	2020-10-07	45.7	32.02	236.7	35.63		0	0	0	5.95
282	2020-10-08	45.73	32.16	237.27	34.77		0	0	0	4.91
283	2020-10-09	45.75	32.54	238.53	34.34		0	0	0	8.26
284	2020-10-10	46.16	34.28	241.84	34.01		0	0	0	7.51
285	2020-10-11	47.03	37.05	245.68	34.83		0	0	0	19.34
286	2020-10-12	47.03	37.1	252.09	34.54		0	0	0	63.52
287	2020-10-13	47.6	37.14	235.69	35.57		0	0	0	43.13
288	2020-10-14	27.71	21.29	130.8	34.78		0	0	0	31.62
289	2020-10-15	0	0	0	36.21		0	0	0	36.6
290	2020-10-16	0	0	0.06	36.11		0	0	0	35.18
291	2020-10-17	17.25	0	41.32	35.1		0	0	0	33.27
292	2020-10-18	48.44	0	165.22	33.39		0	0	0	28.95
293	2020-10-19	274.06	0	243.54	36.18		0	0	0	34.58
294	2020-10-20	624.15	1.77	82.26	37.24		0	0	0	30.71
295	2020-10-21	623.97	4.94	86.87	33.77		0	0	0	27.7
296	2020-10-22	645.28	5.51	76.31	37.46		0	0	0	26.27
297	2020-10-23	692.12	5.6	73.17	36.68		0	0	0	24.38
298	2020-10-24	690.01	5.51	69.28	34.92		0	0	0	24.19
299	2020-10-25	665.25	5.31	41.85	35.96		0	0	0	24.58
300	2020-10-26	438.06	6.25	78.87	34.47		0	0	0	23.65
301	2020-10-27	364.39	5	93.04	34.15		0	0	0	19.72
302	2020-10-28	341.64	5.24	84	34.68		0	0	0	16.91
303	2020-10-29	312.27	5.32	227.05	34.97		0	0	0	16.61
304	2020-10-30	271.86	5.49	253.74	34.85		0	0	0	16.57
305	2020-10-31	219.41	5.68	276.34	35.38		0	0	0	17.12
306	2020-11-01	208.13	5.88	454.96	34.57		0	0	0	17.28
307	2020-11-02	63.86	2.65	403.02	35.33		0	0	0	21.04
308	2020-11-03	5.76	0	417.92	35.93		0	0	0	24.33
309	2020-11-04	2.81	2.54	193.13	35.32		0	0	0	30.31
310	2020-11-05	7.57	5.11	59.82	36.07		0	0	0	33.05
311	2020-11-06	7.82	9.66	163.87	34.92		0	0	0	35.19
312	2020-11-07	59.67	14.68	280	35.66		0	0	0	26.8
313	2020-11-08	66.39	14.59	274.7	34.54		0	0	0	19.66
314	2020-11-09	142.29	14.27	610.99	36.63		0	0	0	19.58
315	2020-11-10	270.68	14.17	1055.44	37.01		0	0	0	20.12
316	2020-11-11	203.3	13.02	1191.56	38.23		0	0	0	56.32
317	2020-11-12	170.32	18.57	1432.57	40.79		0	0	0	37.96

PP-5

S. No.	Date	Stack07_CDU_III_42F2-					Stack08_VBU_46F1-			
		NOx	CO	SO2	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
318	2020-11-13	234.08	13.86	1014.06	36.99		0	0	0	22.22
319	2020-11-14	275.08	14.73	503.57	37.22		0	0	0	22.87
320	2020-11-15	262.12	14.61	457.53	38.48		0	0	0	27.32
321	2020-11-16	305.09	14.57	630.71	37.01		0	0	0	29.94
322	2020-11-17	264.76	14.77	751.99	35.36		0	0	0	29.2
323	2020-11-18	77.95	14.62	73.48	35.69		0	0	0	28.08
324	2020-11-19	37.95	14.63	72.28	36.51		0	0	0	28.68
325	2020-11-20	126.53	15.21	281.36	36.96		0	0	0	34.36
326	2020-11-21	275.85	15.15	770.42	37.02		0	0	0	30.33
327	2020-11-22	334.18	15.1	797.08	37.17		0	0	0	33.15
328	2020-11-23	287.23	10.03	365.55	37.79		171.52	2.99	325.89	34.26
329	2020-11-24	341.85	5.6	594.71	37.5		340.6	5.34	589.36	40.05
330	2020-11-25	334.38	5.96	328.97	38.38		337.14	5.94	303.14	43.27
331	2020-11-26	113.39	6.03	28.34	38.99		114.8	6.17	28.66	52.48
332	2020-11-27	37.26	6.01	28.65	38.2		37.51	6.02	28.93	45.62
333	2020-11-28	37.22	6.21	42.99	39.67		37.35	6.27	45.41	26.83
334	2020-11-29	37.23	6.28	70.05	38.06		37.34	6.38	72	25.49
335	2020-11-30	170.84	7.25	343.09	35.95		176.4	7.13	340.32	24.19
336	2020-12-01	227.77	7.75	675.36	36.52		232.62	7.68	667.87	16.72
337	2020-12-02	268.9	7.47	627.66	32.97		249.04	7.49	626.96	13.75
338	2020-12-03	272.28	7.67	592.71	33.31		164.28	4.89	388.15	19.96
339	2020-12-04	163.05	7.81	347.31	32.27		0	0	0	19.45
340	2020-12-05	38.71	7.75	1.61	29.49		0	0	0	17.94
341	2020-12-06	37.83	7.67	39.98	28.59		0	0	0	14.6
342	2020-12-07	37.8	7.86	94.18	28.84		0	0	0	14.5
343	2020-12-08	38.06	8.21	101.7	29		0	0	0	14.17
344	2020-12-09	40.38	8.61	106.46	29.49		0	0	0	13.04
345	2020-12-10	143.01	8.79	505.87	33.35		0	0	0	12.59
346	2020-12-11	160.19	8.95	741.46	33.04		0	0	0	12.72
347	2020-12-12	65.07	9.01	403.87	32.81		0	0	0	12.24
348	2020-12-13	157.8	9.46	393.97	33.62		0	0	0	12.37
349	2020-12-14	159.72	9.23	258.82	32.07		0	0	0	12.98
350	2020-12-15	75.83	8.92	175.65	31.04		0	0	0	15.24
351	2020-12-16	118.71	8.81	233.19	30.85		0	0	0	16.14
352	2020-12-17	205.51	9.12	365.6	30.99		0	0	0	15.77
353	2020-12-18	279.7	9.48	570.37	30.78		0	0	0	15.32
354	2020-12-19	223.54	10.05	1044.82	30.92		0	0	0	14.94
355	2020-12-20	335.03	10.47	1334.61	31.73		0	0	0	13.08
356	2020-12-21	230.16	10.7	1234.83	32.3		0	0	0	12.67
357	2020-12-22	77.71	11.11	1403.12	32.83		0	0	0	12.49
358	2020-12-23	79.6	11.28	1413.37	32.52		0	0	0	12.49
359	2020-12-24	66.28	11.37	1159	32.69		0	0	0	12.85
360	2020-12-25	103.39	9.88	554.11	32.8		0	0	0	13.26
361	2020-12-26	67.15	8.81	247.37	32.88		0	0	0	13.85
362	2020-12-27	67.13	8.79	245.43	32.68		0	0	0	14.08
363	2020-12-28	41.87	4.36	125.29	32.53		0	0	0	13.8
364	2020-12-29	28.84	6.14	134.8	32.67		0	0	0	13.44
365	2020-12-30	42.42	15.03	690.01	31.92		0	0	0	14.03
366	2020-12-31	41.17	18.56	1104.24	31.76		0	0	0	12.91
367	2021-01-01	41.2	19.12	1293.9	32.03		0	0	0	14.08
368	2021-01-02	103.68	19.71	1379.84	33.51		0	0	0	14.19
369	2021-01-03	318.2	20.31	1468.08	32.29		0	0	0	14.54
370	2021-01-04	373.11	19.94	846.4	34.83		0	0	0	0.87
371	2021-01-05	395.09	14.5	874.4	35.74		0	0	0	0.88
372	2021-01-06	221.18	11	778.82	35.37		0	0	0	0.88
373	2021-01-07	97.51	10.71	421.81	37.64		0	0	0	2.32
374	2021-01-08	47.96	10.53	123.23	48.1		0	0	0	5.78
375	2021-01-09	73.41	11.1	504.85	43.48		0	0	0	4.49
376	2021-01-10	89.58	11.93	1151.04	35.22		0	0	0	1.94
377	2021-01-11	21.54	12.38	1190.3	33.57		0	0	0	0
378	2021-01-12	22.96	12.67	1138.25	34.66		0	0	0	0.49
379	2021-01-13	188.2	13.8	1128.93	39.79		0	0	0	0.1
380	2021-01-14	442.24	13.22	1044.02	36.16		0	0	0	2.37
381	2021-01-15	419.27	13.19	1144.97	34.16		0	0	0	0.35
382	2021-01-16	213.29	12.9	1311.37	33.65		0	0	0	0
383	2021-01-17	94.22	13.39	1284.18	33.43		0	0	0	0.49
384	2021-01-18	84.06	13.38	669.64	32.67		0	0	0	0.01
385	2021-01-19	61.18	13.81	381.44	33.55		0	0	0	0
386	2021-01-20	52.78	105.06	390.35	35.38		0	0	0	0
387	2021-01-21	65.36	106.46	132.38	33.31		0	0	0	0.01
388	2021-01-22	71.6	24.12	711.4	36.65		0	0	0	1.93
389	2021-01-23	82.51	45.66	901.18	38.47		0	0	0	0
390	2021-01-24	0	0.02	0	33.67		0	0	0	0.06
391	2021-01-25	61.09	7.35	545.18	33.09		0	0	0	0.14
392	2021-01-26	109.52	12.16	613.52	36.33		0	0	0	0
393	2021-01-27	31.57	9.52	86.08	48.68		0	0	0	0
394	2021-01-28	51.29	9.97	541.21	41.53		0	0	0	0.02
395	2021-01-29	40.11	8.85	274.59	33.43		0	0	0	0.02
396	2021-01-30	23.31	9.46	112.46	32.76		0	0	0	0
397	2021-01-31	NA	NA	NA	NA		NA	NA	NA	NA

S. No.	Date	Stack07_CDU_III_42F2-					Stack08_VBU_46F1-			
		NOx	CO	SO2	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
398	2021-02-01	56.31	11.46	159.62	35.31		0	0	0	0.11
399	2021-02-02	32.89	14.34	855.14	33.99		0	0	0	0.33
400	2021-02-03	34.63	34.56	884.53	34.93		23.05	4.77	108.22	48.99
401	2021-02-04	139.8	12.18	705.86	34.72		131.26	12.13	715.76	0.11
402	2021-02-05	242.79	12.03	1829.29	35.85		233.62	12.04	1826.65	0.05
403	2021-02-06	178.71	11.97	1610.1	36.59		33.4	5.65	797.93	0.04
404	2021-02-07	288.94	11.88	1623.48	35.98		0	0	0	0.23
405	2021-02-08	269.62	10.98	1268.37	35.98		0	0	0	0.03
406	2021-02-09	189.31	10.72	1075.37	36.04		0	0	0	0.05
407	2021-02-10	111.94	10.95	403.9	38.21		0	0	0	0.04
408	2021-02-11	276.36	11.23	1087.83	37.32		0	0	0	0.04
409	2021-02-12	264.76	11.29	1118.29	37.55		0	0	0	0.04
410	2021-02-13	238.3	11.63	590.27	38.11		0	0	0	0.03
411	2021-02-14	126.21	12.24	150.13	38.32		0	0	0	0.05
412	2021-02-15	85.87	13.47	78.94	38.77		0	0	0	0.03
413	2021-02-16	173.61	12.89	601.53	38.88		0	0	0	0.03
414	2021-02-17	293.06	12.33	924.83	39.69		0	0	0	0.05
415	2021-02-18	297.86	13.22	419.33	40.74		0	0	0	0.03
416	2021-02-19	126.93	13.47	284.3	40.38		0	0	0	0.04
417	2021-02-20	167.71	13.88	582.35	40.1		0	0	0	0.04
418	2021-02-21	183.28	14.61	966.87	38.94		0	0	0	0.03
419	2021-02-22	160.64	14.62	634.24	43.01		0	0	0	0.03
420	2021-02-23	156.71	14.59	845.56	55.04		0	0	0	0.04
421	2021-02-24	240.18	14.4	1307.1	56.81		0	0	0	0.03
422	2021-02-25	135.42	14.7	704.31	55.44		0	0	0	0.03
423	2021-02-26	78	14.09	597.32	46.78		0.85	0.2	8.11	0.04
424	2021-02-27	187.03	5.26	1639.06	32.4		0	0	0	0.04
425	2021-02-28	98.83	146.24	174.31	33.95		0	0	0	0.06
426	2021-03-01	85.52	16.19	1051.81	31.03		0	0	0	0.03
427	2021-03-02	42.49	8.52	1668.62	30.97		0	0	0	0.03
428	2021-03-03	0.86	10.01	1672.69	30.66		0	0	0	0.04
429	2021-03-04	174.72	25.82	1337.94	32.55		0	0	0	0.05
430	2021-03-05	331.51	8.71	636.51	30.9		0	0	0	0.04
431	2021-03-06	243.76	18.99	771.61	34.39		0	0	0	0.03
432	2021-03-07	7.11	13.51	128.1	40.8		0	0	0	0.05
433	2021-03-08	13.68	13.13	150.3	34.88		0	0	0	0.04
434	2021-03-09	49.89	13.2	787.26	33.54		0	0	0	0.05
435	2021-03-10	82.17	13.54	1994.98	37.17		0	0	0	0.05
436	2021-03-11	185.52	13.39	864.02	36.53		0	0	0	0.04
437	2021-03-12	123.32	13.15	570.62	36.06		0	0	0	0.04
438	2021-03-13	148.96	12.8	541.5	33.93		0	0	0	0.04
439	2021-03-14	177.22	11.78	1994.94	37.49		0	0	0	0
440	2021-03-15	88.93	62.83	1562.81	46.75		0	0	0	0.03
441	2021-03-16	59.24	10.56	828.56	38.9		0	0	0	0.81
442	2021-03-17	17.28	4.39	60.08	56.15		0	0	0	0
443	2021-03-18	51.84	9.45	600.67	28.58		0	0	0	0.05
444	2021-03-19	101.56	11.39	972.6	28.88		0	0	0	0.02
445	2021-03-20	41.81	4.41	529.33	21.08		0	0	0	0.06
446	2021-03-21	26.24	6.53	529.61	34.99		0	0	0	0.04
447	2021-03-22	35.26	4.9	660.93	19.44		0	0	0	0.03
448	2021-03-23	57.52	6.24	841.8	21.02		0	0	0	0.03
449	2021-03-24	64.68	11.57	523.44	20.75		0	0	0	0.01
450	2021-03-25	90.59	27.98	264.78	20.56		0	0	0	0.03
451	2021-03-26	144.33	124.6	382.13	23.34		0	0	0	0.02
452	2021-03-27	168.02	70.65	394.1	23.56		0	0	0	0.03
453	2021-03-28	173.64	5.62	423.96	24.3		0	0	0	0
454	2021-03-29	170.36	10.58	406.24	25.32		5.05	1.45	6.79	0.03
455	2021-03-30	188.41	20.17	407.23	25.34		9.03	0.69	12.08	0.03
456	2021-03-31	182.09	7.35	423.98	27.4		9.05	2.16	12.55	0.03
457	2021-04-01	193.73	6.1	398.84	27.51		9.02	4.11	11.95	0.02
458	2021-04-02	211.7	22.79	491.44	28.26		8.99	2.85	10.78	0
459	2021-04-03	195.43	12.42	466.52	28.65		8.62	1.03	11.89	0.07
460	2021-04-04	198.21	1.17	549.84	28.78		8.99	1.15	10.34	0.05
461	2021-04-05	187.22	6.47	425.64	29.1		9	5.35	10.12	0.02
462	2021-04-06	193.25	3.03	380.56	29		8.99	2.88	10.05	0.05
463	2021-04-07	191.32	12.64	435.06	32.02		9.01	2.84	9.79	0.03
464	2021-04-08	196.41	1.56	397.58	30.84		3.78	1.17	3.61	0.03
465	2021-04-09	184.8	3.45	427.27	31.66		0	0	0	0.03
466	2021-04-10	193.62	3.44	359.35	31.73		0	0	0	0.06
467	2021-04-11	206.52	3.03	315.31	31.66		0	0	0	0.04
468	2021-04-12	189.04	3.91	288.67	30.24		0	0	0	0.1
469	2021-04-13	NA	NA	NA	NA		NA	NA	NA	NA
470	2021-04-14	198.99	7.09	315.19	32.61		0	0	0	0
471	2021-04-15	187.86	11.2	333.49	34.17		0	0	0	0.05
472	2021-04-16	195.19	7.17	339.49	33.5		0	0	0	0.03
473	2021-04-17	219.27	3.01	356.18	33.66		0	0	0	0.03
474	2021-04-18	219.94	3.07	357.59	34.1		0	0	0	0.05
475	2021-04-19	220.15	2.64	314.31	34.82		0	0	0	0.03
476	2021-04-20	175.65	3.06	291.66	35.49		0	0	0	7.84
477	2021-04-21	153.04	8.27	312.1	34.48		0	0	0	18.69

S. No.	Date	Stack07_CDU_III_42F2-					Stack08_VBU_46F1-			
		NOx	CO	SO2	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
478	2021-04-22	110.93	6.19	374.4	34.65		0	0	0	0.05
479	2021-04-23	108.41	4.61	376.83	35.14		0	0	0	0.05
480	2021-04-24	108.76	6.63	400.65	36.05		0	0	0	0.03
481	2021-04-25	109.41	4	393.22	36.42		0	0	0	0.04
482	2021-04-26	97.7	5.08	427.24	36.81		0	0	0	0.05
483	2021-04-27	97.85	4.94	372.83	36.31		2.07	1.03	5.62	0.05
484	2021-04-28	100.92	4.63	363.65	36.54		0	0	0	0.05
485	2021-04-29	93.36	7.43	341.33	37.34		0	0	0	0.03
486	2021-04-30	88.75	4.72	320.89	36.71		0	0	0	0.03
487	CFO Standards	-	-	-	100		-	-	-	100
488	Maximum Value	692.12	146.24	1994.98	56.81		340.6	57.59	1826.65	63.52
489	Maximum Value on	2020-10-23	2021-02-28	2021-03-10	2021-02-24		2020-11-24	2020-08-25	2021-02-05	2020-10-12
490	Average	109.64	26.97	408.23	27.77		81.94	29.19	181.29	7.61
491		411	409	412	417		64	64	64	328
492	Total Data Points	486	486	486	486		486	486	486	486
493	Data Availablity %	85.8	85.8	85.8	85.8		85.8	85.8	85.8	85.8
494	Pollutant Load (Tons/day)	0.040	0.010	0.150	0.010		0.062	0.022	0.137	0.006
495	Pollutnat Load as per CFO (Tons/day)				0.037					0.076

Stack Monitroing Data (CEMS) - From 01.01.2020 to 30.04.2021

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

S. No.	Date	Stack09_FCCU_I_4F51-				Stack10_FCCU_I_4F52-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
1	2020-01-01	10.83	76.57	61.93	26.55	7.34	0.09	0	0
2	2020-01-02	12.07	85.84	46.94	26.52	7.34	0.09	0	0
3	2020-01-03	12.27	158.33	32.41	27.04	7.34	0.09	0	0
4	2020-01-04	9.92	201.21	30.76	35.07	7.34	0.09	0	0
5	2020-01-05	9.43	86.47	28.86	29.25	7.34	0.09	0	0
6	2020-01-06	9.39	72.03	29.11	26.49	7.34	0.09	0	0
7	2020-01-07	10.68	37.11	29.15	26.69	7.34	0.09	0	0
8	2020-01-08	11.12	83.47	29.2	26.41	7.34	0.09	0	0
9	2020-01-09	11.49	83.23	29.46	26.73	7.34	0.09	0	0
10	2020-01-10	12.03	73.3	29.84	27.14	7.34	0.09	0	0
11	2020-01-11	11.82	50.14	28.94	26.93	7.34	0.09	0	0
12	2020-01-12	13.03	101.74	29.16	26.51	7.34	0.09	0	0
13	2020-01-13	12.51	123.12	29.31	26.62	7.34	0.09	0	0
14	2020-01-14	12.15	175.71	30.22	26.73	7.34	0.09	0	0
15	2020-01-15	11.72	192.25	30.09	26.71	7.34	0.09	0	0
16	2020-01-16	11.26	108.45	29.7	26.85	7.34	0.09	0	0
17	2020-01-17	11.59	169.05	29.94	27.43	7.34	0.1	0	0
18	2020-01-18	11.45	204.82	30.3	27.2	7.34	0.1	0	0
19	2020-01-19	10.95	181.91	29.65	27.31	7.34	0.09	0	0
20	2020-01-20	7.8	111.92	30.22	27.99	7.34	0.09	0	0
21	2020-01-21	6.34	0	31.02	30.84	7.34	0.1	0	0
22	2020-01-22	6.34	37.6	31.32	29.91	7.34	0.1	0	0
23	2020-01-23	7.57	65.27	32.3	27.95	7.34	0.1	0	0
24	2020-01-24	9.03	72.41	34.07	28.91	7.34	0.1	0	0
25	2020-01-25	6.25	77.1	33.7	29.21	7.34	0.1	0	0
26	2020-01-26	6.26	88.97	32.09	28.15	7.35	0.11	0	0
27	2020-01-27	6.27	96.53	32.27	28.08	7.35	0.11	0	0
28	2020-01-28	6.33	103.47	32.53	28.02	7.35	0.11	0	0
29	2020-01-29	NA	NA	NA	NA	NA	NA	NA	NA
30	2020-01-30	NA	NA	NA	NA	NA	NA	NA	NA
31	2020-01-31	NA	NA	NA	NA	NA	NA	NA	NA
32	2020-02-01	NA	NA	NA	NA	NA	NA	NA	NA
33	2020-02-02	NA	NA	NA	NA	NA	NA	NA	NA
34	2020-02-03	NA	NA	NA	NA	NA	NA	NA	NA
35	2020-02-04	NA	NA	NA	NA	NA	NA	NA	NA
36	2020-02-05	NA	NA	NA	NA	NA	NA	NA	NA
37	2020-02-06	NA	NA	NA	NA	NA	NA	NA	NA
38	2020-02-07	NA	NA	NA	NA	NA	NA	NA	NA
39	2020-02-08	NA	NA	NA	NA	NA	NA	NA	NA
40	2020-02-09	NA	NA	NA	NA	NA	NA	NA	NA
41	2020-02-10	NA	NA	NA	NA	NA	NA	NA	NA
42	2020-02-11	NA	NA	NA	NA	NA	NA	NA	NA
43	2020-02-12	NA	NA	NA	NA	NA	NA	NA	NA
44	2020-02-13	NA	NA	NA	NA	NA	NA	NA	NA
45	2020-02-14	NA	NA	NA	NA	NA	NA	NA	NA
46	2020-02-15	NA	NA	NA	NA	NA	NA	NA	NA
47	2020-02-16	NA	NA	NA	NA	NA	NA	NA	NA
48	2020-02-17	NA	NA	NA	NA	NA	NA	NA	NA
49	2020-02-18	NA	NA	NA	NA	NA	NA	NA	NA
50	2020-02-19	NA	NA	NA	NA	NA	NA	NA	NA
51	2020-02-20	NA	NA	NA	NA	NA	NA	NA	NA
52	2020-02-21	NA	NA	NA	NA	NA	NA	NA	NA
53	2020-02-22	NA	NA	NA	NA	NA	NA	NA	NA
54	2020-02-23	NA	NA	NA	NA	NA	NA	NA	NA
55	2020-02-24	NA	NA	NA	NA	NA	NA	NA	NA
56	2020-02-25	NA	NA	NA	NA	NA	NA	NA	NA
57	2020-02-26	NA	NA	NA	NA	NA	NA	NA	NA
58	2020-02-27	NA	NA	NA	NA	NA	NA	NA	NA
59	2020-02-28	NA	NA	NA	NA	NA	NA	NA	NA
60	2020-02-29	NA	NA	NA	NA	NA	NA	NA	NA
61	2020-03-01	NA	NA	NA	NA	NA	NA	NA	NA
62	2020-03-02	NA	NA	NA	NA	NA	NA	NA	NA
63	2020-03-03	NA	NA	NA	NA	NA	NA	NA	NA
64	2020-03-04	NA	NA	NA	NA	NA	NA	NA	NA
65	2020-03-05	NA	NA	NA	NA	NA	NA	NA	NA

S. No.	Date	Stack09_FCCU_I_4F51-					Stack10_FCCU_I_4F52-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
66	2020-03-06	NA	NA	NA	NA		NA	NA	NA	NA
67	2020-03-07	NA	NA	NA	NA		NA	NA	NA	NA
68	2020-03-08	NA	NA	NA	NA		NA	NA	NA	NA
69	2020-03-09	NA	NA	NA	NA		NA	NA	NA	NA
70	2020-03-10	NA	NA	NA	NA		NA	NA	NA	NA
71	2020-03-11	NA	NA	NA	NA		NA	NA	NA	NA
72	2020-03-12	6.75	77.47	63.63	27.7		7.34	0.09	0	0
73	2020-03-13	6.8	77.58	66.53	28.81		7.35	0.09	0	0
74	2020-03-14	6.74	76.97	65.38	27.96		7.35	0.09	0	0
75	2020-03-15	6.8	76.01	64.96	27.67		7.35	0.1	0	0
76	2020-03-16	6.83	74.82	65.39	28.09		7.35	0.1	0	0
77	2020-03-17	6.82	75.35	66.73	27.82		7.35	0.1	0	0
78	2020-03-18	6.64	75.87	67.83	27.56		7.35	0.1	0	0
79	2020-03-19	6.68	75.83	67.68	26.05		7.35	0.1	0	0
80	2020-03-20	6.71	75.48	67.83	26.66		7.35	0.1	0	0
81	2020-03-21	6.64	76.02	67.6	26.66		7.35	0.1	0	0
82	2020-03-22	6.7	75.39	67.37	26.74		7.36	0.1	0	0
83	2020-03-23	6.65	77.5	68.6	26.61		7.35	0.09	0	0
84	2020-03-24	6.58	47.01	55.51	26.45		7.35	0.1	0	0
85	2020-03-25	6.34	0	35.59	26.41		7.36	0.1	0	0
86	2020-03-26	6.35	0.01	35.95	25.88		7.36	0.1	0	0
87	2020-03-27	6.39	0.01	40.11	26.13		7.36	0.1	0	0
88	2020-03-28	6.34	0.01	40.14	25.53		7.36	0.1	0	0
89	2020-03-29	6.4	0.05	39.02	25.51		7.36	0.1	0	0
90	2020-03-30	6.43	0.09	39.61	26		7.36	0.1	0	0
91	2020-03-31	6.47	0.07	38.23	26.66		7.35	0.1	0	0
92	2020-04-01	6.52	0.17	39.07	27.48		7.35	0.1	0	0
93	2020-04-02	6.56	0.12	44.26	27.17		7.36	0.1	0	0
94	2020-04-03	6.64	0.13	41.86	26.86		7.35	0.1	0	0
95	2020-04-04	6.8	0.45	42.51	25.88		7.35	0.1	0	0
96	2020-04-05	6.83	0.5	47.28	25.55		7.35	0.1	0	0
97	2020-04-06	6.94	0.45	41.28	25.99		7.35	0.1	0	0
98	2020-04-07	6.9	0.44	41.07	26.34		7.35	0.1	0	0
99	2020-04-08	6.96	0.54	42.25	26.13		7.36	0.1	0	0
100	2020-04-09	6.85	0.33	43.61	25.56		7.36	0.1	0	0
101	2020-04-10	6.96	0.55	45.07	25.63		7.35	0.1	0	0
102	2020-04-11	7.11	14.37	43.8	25.82		7.35	0.1	0	0
103	2020-04-12	6.84	24.82	46.03	25.84		7.35	0.1	0	0
104	2020-04-13	6.93	24.81	44.21	25.98		7.35	0.1	0	0
105	2020-04-14	7.1	24.83	44.45	26		7.35	0.1	0	0
106	2020-04-15	7.6	24.53	45.48	25.68		7.35	0.1	0	0
107	2020-04-16	9.93	24.24	50.11	26.8		7.35	0.1	0	0
108	2020-04-17	11.24	24.37	48.9	29.18		7.35	0.1	0	0
109	2020-04-18	11.42	24.36	48.5	26.93		7.35	0.1	0	0
110	2020-04-19	10.82	24.41	47.05	26.01		7.35	0.1	0	0
111	2020-04-20	10.77	24.85	51.95	26.54		7.35	0.1	0	0
112	2020-04-21	11.95	25.28	45.98	25.86		7.35	0.1	0	0
113	2020-04-22	6.54	14.54	20.63	25.67		4.15	0.05	0	0
114	2020-04-23	3.21	12.35	158.41	25.88		3.48	0.05	0	0
115	2020-04-24	6.59	24.49	137.67	25.77		7.36	0.11	0	0
116	2020-04-25	6.63	25.14	42.09	28.45		7.36	0.11	0	0
117	2020-04-26	6.63	25.37	43.54	26.85		7.35	0.1	0	0
118	2020-04-27	6.64	25.47	54.49	27.72		7.34	0.09	0	0
119	2020-04-28	6.64	24.45	41.01	26.62		7.35	0.1	0	0
120	2020-04-29	6.65	24.92	36.26	26.65		7.36	0.1	0	0
121	2020-04-30	6.64	24.6	30.22	26.26		7.36	0.1	0	0
122	2020-05-01	6.65	24.34	33.53	26.03		7.36	0.11	0	0
123	2020-05-02	6.63	24.81	34.88	26.02		7.35	0.1	0	0
124	2020-05-03	6.63	24.93	34.02	26.28		7.36	0.11	0	0
125	2020-05-04	6.55	26.66	39.52	26.2		7.34	0.09	0	0
126	2020-05-05	6.53	26.64	43.91	26.96		7.34	0.09	0	0
127	2020-05-06	3.62	15.87	17.46	28.85		4.17	0.05	0	0
128	2020-05-07	0	0	0	28.25		0	0	0	0
129	2020-05-08	0	0	0	27.93		0	0	0	0
130	2020-05-09	4.23	16.36	17.31	27.26		4.26	0.06	0	0
131	2020-05-10	7	26.96	8.94	26.85		7.34	0.09	0	0
132	2020-05-11	7.02	27.11	15.43	27.35		7.35	0.1	0	0

S. No.	Date	Stack09_FCCU_I_4F51-					Stack10_FCCU_I_4F52-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
133	2020-05-12	7.01	28.53	25.12	27		7.34	0.09	0	0
134	2020-05-13	7.04	29.18	13.6	26.03		7.34	0.1	0	0
135	2020-05-14	6.99	29.41	13.95	26.04		7.34	0.09	0	0
136	2020-05-15	6.95	30.3	12.7	26.12		7.34	0.09	0	0
137	2020-05-16	6.98	32.01	10.89	26.02		7.34	0.09	0	0
138	2020-05-17	7.03	32.27	16.25	25.81		7.34	0.09	0	0
139	2020-05-18	6.83	32.36	12.54	26.1		7.21	0.09	0	0
140	2020-05-19	6.92	33.26	11.96	26.04		7.34	0.09	0	0
141	2020-05-20	4.64	13.78	5.55	24.96		4.94	0.06	0	0
142	2020-05-21	2.5	0	14.84	25		2.76	0.03	0	0
143	2020-05-22	7.66	7.16	124.66	25.7		30.54	2.13	71.23	0
144	2020-05-23	7.12	0	285.34	25.67		54.39	5.29	55.68	0
145	2020-05-24	7.16	0	285.95	25.89		53.06	0.11	60.66	0
146	2020-05-25	7.16	0	285.95	25.93		38.64	7.66	104.52	0
147	2020-05-26	7.15	0	285.95	25.78		0	0.58	71.12	0
148	2020-05-27	2.94	0	117.64	25.58		0	17.6	0	0
149	2020-05-28	0	0	0	25.93		0	36.81	0	0
150	2020-05-29	0	0	0	26.32		0	1.17	51.96	0
151	2020-05-30	0	0	0	26.01		0	0.13	0	0
152	2020-05-31	0	0	0	26.21		0	0.11	0	0
153	2020-06-01	0	0	0	26.25		0.01	0.11	0	0
154	2020-06-02	0	0	0	26.75		0	0.11	0	0
155	2020-06-03	20.49	58.23	18.06	25.79		8.73	191	36.01	9.64
156	2020-06-04	0	0	0	26.74		16.99	300.01	60.37	27.8
157	2020-06-05	0	0	0	26.64		76.86	60.99	96.29	71.95
158	2020-06-06	0	0	0	26.3		114.4	22.45	150.83	132.01
159	2020-06-07	0	0	0	27.23		0	0.11	0	135.53
160	2020-06-08	0	0	0	27.97		0	10.07	99.86	114.14
161	2020-06-09	0	0	0	29.16		0	12.63	100.07	1.85
162	2020-06-10	3.46	4.84	2.02	31.65		39.03	5.65	39.17	3.84
163	2020-06-11	0	0	0	32.58		0	8.29	48.99	4.78
164	2020-06-12	0	0	0	33.4		0	0.22	0	9.11
165	2020-06-13	0	0	0	29.02		0	0.1	0	10.17
166	2020-06-14	0	0	0	28.36		0	1.22	0	67.27
167	2020-06-15	0.06	0	0.11	27.47		3.23	0.33	0	92.79
168	2020-06-16	0.53	0	0	28.82		0	0.18	0	0
169	2020-06-17	0	0	0	27.98		6.03	0.11	0	0
170	2020-06-18	0	0	0	29.22		9.99	0.12	0	6.47
171	2020-06-19	3.89	15.15	6.77	30.43		8.32	0.85	20.97	41.84
172	2020-06-20	12.67	64.48	4.07	26.72		19.88	0.48	11.52	79.87
173	2020-06-21	23.76	115.88	4.29	26.78		38.71	0.11	0	137.37
174	2020-06-22	24.45	128.32	3.41	26.71		22.12	0.11	13.39	129.63
175	2020-06-23	28.1	114.68	7.58	27.22		0	0.11	0	40.39
176	2020-06-24	23.43	115.09	8.31	26.86		0	0.11	0	19.45
177	2020-06-25	27.92	115.26	8.57	26.76		0	0.11	0	23.37
178	2020-06-26	21.72	115.49	6.82	26.74		0	0.11	0	42.1
179	2020-06-27	27.89	117.49	3.78	26.63		0	0.1	0	38.98
180	2020-06-28	27.93	115.9	10.5	27.75		0	0.11	0	37.07
181	2020-06-29	27.95	115.72	10.54	27.36		0	0.11	0	34.54
182	2020-06-30	27.96	115.92	10.62	27.7		0	0.11	0	33.72
183	2020-07-01	27.95	115.61	10.67	27.68		0	0.11	0	28.97
184	2020-07-02	27.96	114.25	10.74	28.07		0	0.11	0	31.36
185	2020-07-03	21.81	110.51	11.76	27.75		0	0.11	0	26.56
186	2020-07-04	25.53	111.58	10.85	29.97		0	0.11	0	29.3
187	2020-07-05	27.58	124.12	10.42	28.94		0	0.11	0	25.6
188	2020-07-06	19.82	64.82	7.68	29.24		0.8	0.08	0	18.12
189	2020-07-07	16.45	54.12	10.02	27.66		7.18	1.33	0.03	0
190	2020-07-08	26.13	90.07	15.1	27.41		8.35	3.09	0	0
191	2020-07-09	26.02	90.04	18.62	27.81		8.35	3.09	0	0
192	2020-07-10	21.84	110.41	20.95	27.29		22.83	10.63	81.93	0
193	2020-07-11	18.97	158.03	19.12	27.22		30.98	14.8	127.26	0
194	2020-07-12	18.93	158.28	19.14	27.84		30.98	14.8	127.26	0
195	2020-07-13	19.1	158.91	19.08	27.22		30.98	14.8	127.26	20.7
196	2020-07-14	18.09	147.03	17.66	28.19		28.72	13.72	117.96	57.46
197	2020-07-15	11.73	99.1	11.93	28.12		17.6	8.41	72.3	83.99
198	2020-07-16	23.13	185.02	18.93	27.74		30.98	14.8	127.26	72.75
199	2020-07-17	15.68	133.85	14.61	27.43		30.98	14.8	127.26	10.59

S. No.	Date	Stack09_FCCU_I_4F51-					Stack10_FCCU_I_4F52-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
200	2020-07-18	3.08	23.19	6.8	27.85		17.39	8.35	71.24	47.24
201	2020-07-19	0	0	0	27.24		0	0.11	0	0
202	2020-07-20	0.22	0	0.15	27.75		2.27	3.24	0	0
203	2020-07-21	7.82	56.41	20.88	27.51		10.89	0.54	1.5	0
204	2020-07-22	16.14	117.15	37.16	27.6		14.26	0.11	0	0
205	2020-07-23	16.11	117.66	34.29	27.55		14.26	0.11	0	0
206	2020-07-24	16.12	118.21	30.15	27.19		14.26	0.11	0	0
207	2020-07-25	16.09	118.03	25.43	26.93		14.26	0.11	0	0
208	2020-07-26	16.03	117.97	25.23	26.99		14.26	0.11	0	0
209	2020-07-27	16.04	117.75	25.24	26.9		14.26	0.11	0	0
210	2020-07-28	16.1	117.14	25.96	27.58		14.26	0.11	0	0
211	2020-07-29	16.08	115.88	25.62	28		14.26	0.11	0	14.76
212	2020-07-30	9.21	116.28	25.57	27.52		8.24	0.11	0	0
213	2020-07-31	0	118.07	26.64	27.23		0	0.11	0	0
214	2020-08-01	0	117.3	26.52	28.03		0	0.11	0	0
215	2020-08-02	0	116.69	26.19	27.85		0	0.11	0	0
216	2020-08-03	0	116.56	26.08	29.09		12.17	0.11	0	0
217	2020-08-04	10.32	116.74	27.38	29.53		25.57	0.11	0	0
218	2020-08-05	18.5	117.3	30.73	29.54		27.79	0.11	0	0
219	2020-08-06	20.63	117.48	34.06	28.75		27.79	0.11	0	0
220	2020-08-07	20.65	117.97	35.82	28.89		27.79	0.11	0	0
221	2020-08-08	20.67	118.52	37.21	27.55		27.79	0.11	0	0
222	2020-08-09	20.67	118.86	36.65	28.4		27.79	0.11	0	0
223	2020-08-10	20.65	119.13	32.32	28.83		27.79	0.11	0	0
224	2020-08-11	13.87	119.1	29.06	29.46		27.79	0.11	0	0
225	2020-08-12	0	119.15	28.79	29.72		27.79	0.11	0	0
226	2020-08-13	0	118.91	28.75	30.17		27.79	0.11	0	0
227	2020-08-14	8.77	118.23	28.99	32.02		27.79	0.11	0	0
228	2020-08-15	20.63	118.53	28.95	31.91		27.79	0.11	0	0
229	2020-08-16	20.86	118.47	29.18	30.83		27.79	0.11	0	0
230	2020-08-17	20.66	118.5	29.49	30.7		27.79	0.11	0	0
231	2020-08-18	20.66	118.98	29.72	30.08		27.79	0.11	0	0
232	2020-08-19	20.66	116.89	29.49	29.47		27.79	0.11	0	0
233	2020-08-20	20.48	119	29.17	30.39		27.54	0.11	0	0
234	2020-08-21	10.88	64.23	15.85	28.75		17.08	0.07	0	0
235	2020-08-22	20.64	120.34	30.18	29.3		27.79	0.11	0	0
236	2020-08-23	20.64	120.62	29.93	29.2		27.79	0.11	0	0
237	2020-08-24	21.55	123.19	30.96	29.28		27.79	0.11	0	0
238	2020-08-25	20.67	121.2	30.68	29.27		27.79	0.11	0	0
239	2020-08-26	20.65	121.87	30.5	29.18		27.79	0.11	0	0
240	2020-08-27	20.65	122.02	30.54	28.73		27.79	0.11	0	0
241	2020-08-28	20.63	122.75	30.72	28.72		27.79	0.11	0	0
242	2020-08-29	20.63	122.5	30.41	29.85		27.79	0.11	0	0
243	2020-08-30	20.63	122.05	30.79	28.7		27.79	0.11	0	0
244	2020-08-31	20.55	122.17	30.67	28.38		27.63	0.11	0	0
245	2020-09-01	20.59	122.75	27.49	28.81		27.79	0.11	0	0
246	2020-09-02	20.89	121.04	27.08	29.49		27.79	0.11	0	0
247	2020-09-03	20.63	117.09	26.37	29.9		27.79	0.11	0	0
248	2020-09-04	20.59	113.14	26.25	30.16		27.79	0.11	0	0
249	2020-09-05	20.62	110.92	26.17	30.14		27.79	0.11	0	0
250	2020-09-06	20.62	112.38	26.21	29.6		27.79	0.11	0	0
251	2020-09-07	20.62	112.42	26.06	29.28		27.79	0.11	0	0
252	2020-09-08	28.83	147.6	26.06	29.02		27.79	0.11	0	0
253	2020-09-09	32.92	164.95	26.03	28.95		27.79	0.11	0	0
254	2020-09-10	32.9	166.56	26.2	28.83		27.79	0.11	0	0
255	2020-09-11	32.91	165.52	26.12	28.84		27.79	0.11	0	0
256	2020-09-12	32.91	165.08	26.08	29.05		27.79	0.11	0	0
257	2020-09-13	32.92	166.03	26.07	29.93		27.79	0.11	0	0
258	2020-09-14	32.86	163.05	28.08	40.93		27.73	0.11	0	0
259	2020-09-15	34.49	165.02	29.06	33.81		27.79	0.11	0	0
260	2020-09-16	40.25	166.91	28.92	31.03		27.79	0.11	0	0
261	2020-09-17	42.4	170.06	28.05	29.31		27.79	0.11	0	0
262	2020-09-18	44.96	171.49	27.7	29.13		27.79	0.11	0	0
263	2020-09-19	48.47	169.3	22.34	28.96		27.04	0.1	0	0
264	2020-09-20	41.76	172.6	26.04	29.63		27.79	0.11	0	0
265	2020-09-21	40.78	172.79	27.11	30.64		27.79	0.11	0	0
266	2020-09-22	NA	NA	NA	NA		27.79	0.11	0	0

205

S. No.	Date	Stack09_FCCU_I_4F51-					Stack10_FCCU_I_4F52-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
267	2020-09-23	42.3	116.64	30.2	28.31		27.79	0.11	0	0
268	2020-09-24	41.66	116.33	29.66	29.89		NA	NA	NA	NA
269	2020-09-25	NA	NA	NA	NA		NA	NA	NA	NA
270	2020-09-26	35.63	117.6	29.15	31.75		27.79	0.11	0	0
271	2020-09-27	37.36	117.5	29.23	30.6		27.79	0.11	0	0
272	2020-09-28	NA	NA	NA	NA		NA	NA	NA	NA
273	2020-09-29	40.75	118.76	29.56	29.02		27.79	0.11	0	0
274	2020-09-30	40.36	116.61	28.99	33.03		27.79	0.11	0	0
275	2020-10-01	38.02	109.05	28.83	34.12		27.79	0.11	0	0
276	2020-10-02	37.17	104.62	28.76	29.96		27.79	0.11	0	0
277	2020-10-03	35.48	103.86	28.91	28.86		27.79	0.11	0	0
278	2020-10-04	35.34	103.88	28.93	31.75		27.79	0.11	0	0
279	2020-10-05	39.5	123.31	33.44	34.06		27.79	0.11	0	0
280	2020-10-06	41.91	136.83	37.06	32.28		27.79	0.11	0	0
281	2020-10-07	42.09	137.35	37.12	32.02		27.79	0.11	0	0
282	2020-10-08	41.63	137.22	36.31	31.05		27.79	0.11	0	0
283	2020-10-09	41.18	137.57	36.42	30.58		27.79	0.11	0	0
284	2020-10-10	41.81	137.89	37.54	30.54		27.79	0.11	0	0
285	2020-10-11	41.4	139.24	38.82	35.33		27.79	0.11	0	0
286	2020-10-12	41.38	142.53	38.82	43.63		27.79	0.11	0	0
287	2020-10-13	40.22	140.49	39.19	34.58		27.79	0.11	0	0
288	2020-10-14	40.24	139.54	39.52	30.89		27.79	0.11	0	0
289	2020-10-15	40.17	138.71	28.57	32.33		27.79	0.11	0	0
290	2020-10-16	40.19	138.19	21.09	31.87		27.79	0.11	0	0
291	2020-10-17	40.19	138.04	27.77	31.11		27.79	0.11	0	0
292	2020-10-18	40.19	137.77	27.22	30.12		27.79	0.11	0	0
293	2020-10-19	17.54	60.46	11.99	30.99		27.79	0.11	0	0
294	2020-10-20	0	0	0	30.83		27.79	0.11	0	0
295	2020-10-21	0	0	0	30.06		27.79	0.11	0	0
296	2020-10-22	0	0	0	30.33		27.79	0.11	0	0
297	2020-10-23	0	0	0	29.92		27.79	0.11	0	0
298	2020-10-24	0	0	0	29.88		14.64	0.06	0	0
299	2020-10-25	0	0	0	29.75		0	0	0	0
300	2020-10-26	0	0	0	29.02		0	0	0	0
301	2020-10-27	0	0	0	30.33		15.8	0.06	0	0
302	2020-10-28	0	0	0	33.29		27.79	0.11	0	0
303	2020-10-29	0	0	0	31.67		27.79	0.11	0	0
304	2020-10-30	27.54	109.27	17.81	29.46		27.79	0.11	0	0
305	2020-10-31	47.45	157.44	31.52	29.18		27.79	0.11	0	0
306	2020-11-01	47.47	133.41	32.5	29.85		27.79	0.11	0	0
307	2020-11-02	47.47	132.96	33.25	32.72		27.79	0.11	0	0
308	2020-11-03	47.46	134.93	33.59	33.16		27.79	0.11	0	0
309	2020-11-04	47.47	135.95	34.26	32.94		27.79	0.11	0	0
310	2020-11-05	47.46	138.03	35.43	32.44		27.79	0.11	0	0
311	2020-11-06	47.46	141.33	36.43	29.66		27.79	0.11	0	0
312	2020-11-07	47.45	139.97	37.34	31.79		27.79	0.11	0	0
313	2020-11-08	47.46	136.51	37.4	39.9		27.79	0.11	0	0
314	2020-11-09	47.47	136.57	38.12	71.14		27.79	0.11	0	0
315	2020-11-10	50.61	188	38.42	41.15		27.79	0.11	0	0
316	2020-11-11	54.97	267.83	38.99	53.52		27.79	0.11	0	0
317	2020-11-12	61.84	230.02	29.22	53.71		27.79	0.11	0	0
318	2020-11-13	68.95	256.19	33.63	39.67		27.76	0.1	0	0
319	2020-11-14	75.26	354.88	32.28	28.38		27.78	0.09	0	0
320	2020-11-15	71.99	303.49	21.61	30.09		27.78	0.09	0	0
321	2020-11-16	68.32	265.85	8.53	30.95		27.79	0.1	0	0
322	2020-11-17	68.33	101.78	18.22	31.87		27.79	0.11	0	0
323	2020-11-18	68.31	71.33	8.5	30.18		27.79	0.11	0	0
324	2020-11-19	68.31	45.31	1.67	30.31		27.79	0.11	0	0
325	2020-11-20	68.32	25.04	9.34	30.41		27.79	0.11	0	0
326	2020-11-21	68.32	69.09	18.71	30.82		27.79	0.11	0	0
327	2020-11-22	68.32	113.3	18.63	30.53		27.79	0.11	0	0
328	2020-11-23	68.36	105.98	14.63	32.39		27.79	0.11	0	0
329	2020-11-24	68.34	56.52	9.35	31.62		27.79	0.11	0	0
330	2020-11-25	69.01	64.64	9.84	30.99		27.79	0.11	0	0
331	2020-11-26	68.35	52.82	9.94	37.12		27.79	0.1	0	0
332	2020-11-27	68.32	52.9	10.45	35.28		27.79	0.1	0	0
333	2020-11-28	68.33	61.32	11.16	29.52		27.79	0.1	0	0

S. No.	Date	Stack09_FCCU_I_4F51-					Stack10_FCCU_I_4F52-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
334	2020-11-29	68.36	66.1	25.91	28.84		27.79	0.11	0	0
335	2020-11-30	72.65	90.25	10.98	44.47		27.79	0.11	0	0
336	2020-12-01	78.15	121.42	11.89	28.76		27.79	0.11	0	0
337	2020-12-02	89.31	101.56	11.91	33.34		27.79	0.1	0	0
338	2020-12-03	97.34	107.57	11.93	36.97		27.79	0.11	0	0
339	2020-12-04	67.88	64.22	8.6	36.39		27.02	0.11	0	0
340	2020-12-05	23.66	0	3.58	38.61		27.79	0.11	0	0
341	2020-12-06	25	0	3.96	37.76		27.79	0.1	0	0
342	2020-12-07	42.78	61.66	7.87	34.84		27.51	0.1	0	0
343	2020-12-08	69.59	213.97	14.15	34.82		27.79	0.11	0	0
344	2020-12-09	69.58	120.74	14.37	34.42		27.79	0.11	0	0
345	2020-12-10	69.57	67.85	14.35	34.5		27.79	0.11	0	0
346	2020-12-11	71.05	83.95	14.5	35.57		26.24	0.1	0	0
347	2020-12-12	90.43	90.96	16.9	34.79		27.79	0.11	0	0
348	2020-12-13	94.35	87.05	17.58	38.21		27.79	0.11	0	0
349	2020-12-14	94.33	92.71	17.69	51.95		27.79	0.11	0	0
350	2020-12-15	94.33	89.43	17.25	42.53		27.79	0.11	0	0
351	2020-12-16	94.31	188.21	15.65	38.17		27.79	0.11	0	0
352	2020-12-17	94.33	248.43	14.34	36		27.79	0.11	0	0
353	2020-12-18	90.96	235.71	13.84	37.84		27.1	0.11	0	0
354	2020-12-19	71.55	242.48	14.52	41.22		27.79	0.11	0	0
355	2020-12-20	96.39	245.24	14.53	40.24		27.79	0.11	0	0
356	2020-12-21	94.92	247.06	14.89	40.65		27.79	0.1	0	0
357	2020-12-22	94.93	245.64	14.97	39.11		27.79	0.1	0	0
358	2020-12-23	94.8	260.39	15.16	34.15		27.79	0.1	0	0
359	2020-12-24	85.84	245.98	15.31	35.86		27.79	0.1	0	0
360	2020-12-25	105.59	245.79	15.95	36.92		27.79	0.1	0	0
361	2020-12-26	78.57	366.08	16.11	36.41		27.79	0.1	0	0
362	2020-12-27	42.87	208.94	16.27	46.19		27.79	0.1	0	0
363	2020-12-28	40.66	78.78	11.74	38.25		27.79	0.1	0	0
364	2020-12-29	40.56	274.14	11.87	33.86		27.79	0.1	0	0
365	2020-12-30	47.33	878.19	18.27	33.34		27.79	0.1	0	0
366	2020-12-31	40.22	176.45	19.81	32.39		27.79	0.11	0	0
367	2021-01-01	38	144.72	18.27	32.53		27.79	0.1	0	0
368	2021-01-02	38.01	144.25	18.34	33.34		27.79	0.1	0	0
369	2021-01-03	38.02	147.07	18.45	32.82		27.79	0.1	0	0
370	2021-01-04	38.02	141.83	18.43	33.02		27.79	0.1	0	0
371	2021-01-05	38.02	192.12	21.28	37		27.79	0.11	0	0
372	2021-01-06	38.02	241.59	23.56	40.38		27.79	0.11	0	0
373	2021-01-07	37.12	192.44	23.75	40.81		27.79	0.11	0	0
374	2021-01-08	37.98	192.36	24.25	42.41		27.79	0.11	0	0
375	2021-01-09	37.98	192.62	24.14	49.58		27.79	0.11	0	0
376	2021-01-10	38	191.74	24.14	52.55		27.79	0.11	0	0
377	2021-01-11	28.89	139.74	18.47	44.14		27.79	0.11	0	0
378	2021-01-12	5.98	0	4.43	43.52		27.79	0.11	0	0
379	2021-01-13	20.84	37.84	9.06	42.31		27.79	0.11	0	0
380	2021-01-14	52.28	118.5	18.23	41.93		27.79	0.11	0	0
381	2021-01-15	52.26	118.33	18.19	43.99		27.79	0.11	0	0
382	2021-01-16	52.24	118.13	18.36	41.36		27.79	0.11	0	0
383	2021-01-17	52.25	118.41	18.44	40.95		27.79	0.11	0	0
384	2021-01-18	52.26	118.94	18.51	40.01		27.79	0.11	0	0
385	2021-01-19	59.08	581.57	14.61	40.52		27.79	0.11	0	0
386	2021-01-20	67.39	1186.41	10.77	45.2		27.79	0.11	0	0
387	2021-01-21	82.77	935.49	13.99	45.04		27.79	0.11	0	0
388	2021-01-22	114.54	853.59	30.85	44.59		27.79	0.11	0	0
389	2021-01-23	69.95	778.91	11.99	38.75		27.79	0.11	0	0
390	2021-01-24	86.11	1173.24	20.4	39.64		27.79	0.11	0	0
391	2021-01-25	96.07	1200.42	13.95	39.57		27.79	0.11	0	0
392	2021-01-26	72.85	1200.97	8.79	38.08		27.79	0.11	0	0
393	2021-01-27	51.47	1199.35	9.52	38.82		27.79	0.11	0	0
394	2021-01-28	38.42	1311.19	8.51	39.22		27.79	0.11	0	0
395	2021-01-29	22.61	1364.59	15.41	38.79		27.79	0.11	0	0
396	2021-01-30	41.93	923.8	17.59	39.97		27.79	0.11	0	0
397	2021-01-31	42.04	0	19.34	39.94		27.79	0.11	0	0
398	2021-02-01	44.31	625.79	16.93	39		27.79	0.11	0	0
399	2021-02-02	77.79	1495.07	13.32	38.34		27.79	0.11	0	0
400	2021-02-03	160.17	1493.41	16.68	36.16		27.79	0.11	0	0

305

S. No.	Date	Stack09_FCCU_I_4F51-					Stack10_FCCU_I_4F52-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
401	2021-02-04	174.69	1497.09	15.31	32.63		27.79	0.11	0	0
402	2021-02-05	195.04	1495.99	18.69	32.56		27.79	0.11	0	0
403	2021-02-06	139.95	1364.44	15.73	32.62		27.79	0.11	0	0
404	2021-02-07	21.5	750.5	14.43	32.68		27.79	0.11	0	0
405	2021-02-08	54.13	447.33	23.86	32.8		27.79	0.11	0	0
406	2021-02-09	87.68	809.12	40.14	32.84		27.79	0.11	0	0
407	2021-02-10	61.19	241.1	43.46	33.03		27.79	0.11	0	0
408	2021-02-11	100.58	884.56	161.05	33.01		27.79	0.11	0	0
409	2021-02-12	140.9	1053.36	268.75	33.24		27.79	0.11	0	0
410	2021-02-13	124.24	540.61	160.24	33.14		27.79	0.11	0	0
411	2021-02-14	142.95	1484.87	499.14	33.29		27.79	0.11	0	0
412	2021-02-15	151.19	1482.37	232.14	33.04		27.79	0.11	0	0
413	2021-02-16	160.57	1483.35	29.82	33.05		27.79	0.11	0	0
414	2021-02-17	158.28	1449.59	31.12	33.08		27.79	0.11	0	0
415	2021-02-18	55.25	140.08	32.16	32.68		26.94	0.11	0	0
416	2021-02-19	53.85	165.68	36.29	32.92		27.79	0.11	0	0
417	2021-02-20	147.27	858.73	38.21	32.97		27.79	0.11	0	0
418	2021-02-21	197.78	1479.4	40.34	32.84		27.79	0.11	0	0
419	2021-02-22	227.15	1478.03	27.72	32.55		27.79	0.11	0	0
420	2021-02-23	207.92	774.74	6.96	32.41		27.79	0.1	0	0
421	2021-02-24	187.82	277.51	10.02	32.51		27.79	0.1	0	0
422	2021-02-25	153.32	182.08	17.28	33.35		27.79	0.1	0	0
423	2021-02-26	131.75	756.15	22.17	32.87		27.78	0.09	0	0
424	2021-02-27	38.37	694.05	28.98	33.81		27.79	0.09	0	0
425	2021-02-28	1.38	39.86	2.04	33.71		2.06	0.01	0	0
426	2021-03-01	18.45	578.68	24.74	32.57		16.79	0.06	0	0
427	2021-03-02	26.1	636.4	45.62	32.38		27.79	0.1	0	0
428	2021-03-03	46.67	243.93	52.11	32.28		27.79	0.1	0	0
429	2021-03-04	41.89	641.77	41.12	33.04		27.79	0.1	0	0
430	2021-03-05	32.97	1196.15	19.05	32.59		25.25	0.09	0	0
431	2021-03-06	32.61	832.54	19.64	32.75		23.73	0.08	0	0
432	2021-03-07	46.06	958.33	30.36	33.33		27.79	0.09	0	0
433	2021-03-08	46.39	738.33	23.22	33.82		27.79	0.1	0	0
434	2021-03-09	45.84	857.97	10.5	33.59		27.79	0.11	0	0
435	2021-03-10	45.71	847.77	15.02	33.61		27.79	0.11	0	0
436	2021-03-11	193.21	817.3	16.86	33.59		27.79	0.11	0	0
437	2021-03-12	405.07	646.6	12.68	32.98		27.79	0.11	0	0
438	2021-03-13	144.89	174.89	15.75	32.39		27.79	0.11	0	0
439	2021-03-14	37.9	33.03	17.12	33.05		27.8	0.11	0	0
440	2021-03-15	36.1	52.43	20.71	32.6		27.8	0.11	0	0
441	2021-03-16	37.13	84.36	22.88	32.76		27.8	0.11	0	0
442	2021-03-17	38.75	59.47	25.81	33.04		27.8	0.11	0	0
443	2021-03-18	34.98	191.87	15.05	31.43		27.8	0.11	0	0
444	2021-03-19	33.16	236.46	11.55	32.15		27.8	0.11	0	0
445	2021-03-20	40.9	355.73	14.5	31.97		27.8	0.11	0	0
446	2021-03-21	24.61	502.35	16.77	32.36		27.8	0.11	0	0
447	2021-03-22	26.09	280.54	12.24	31.97		27.8	0.11	0	0
448	2021-03-23	21.57	72.89	5.59	30.67		27.8	0.11	0	0
449	2021-03-24	0	0	2.44	30.65		27.8	0.11	0	0
450	2021-03-25	0	0	6.31	30.56		27.8	0.11	0	0
451	2021-03-26	0	0	7.63	30.58		27.8	0.11	0	0
452	2021-03-27	0	0	8.05	30.96		27.8	0.11	0	0
453	2021-03-28	0	0	9.5	31.52		27.8	0.11	0	0
454	2021-03-29	0	0	4.21	31.62		27.8	0.11	0	0
455	2021-03-30	0	0	0	31.58		27.8	0.11	0	0
456	2021-03-31	0	0	0	31.81		27.8	0.12	0	0
457	2021-04-01	0	0	0	18.62		23.39	0.09	0	0
458	2021-04-02	0	0	0	0.36		27.79	0.1	0	0
459	2021-04-03	0	0	0	0.36		24.13	0.1	0	0
460	2021-04-04	0	0	0	0		27.8	0.11	0	0
461	2021-04-05	0	0	0	0.07		27.8	0.11	0	0
462	2021-04-06	0	0	0	0.08		23.36	0.09	0	0
463	2021-04-07	0	0	0	0.1		27.36	0.11	0	0
464	2021-04-08	0	0	0	0.09		27.81	0.11	0	0
465	2021-04-09	0	0	0	0.07		27.81	0.11	0	0
466	2021-04-10	0	0	0	0		27.81	0.11	0	0
467	2021-04-11	0	0	0	0.01		27.8	0.11	0	0

S. No.	Date	Stack09_FCCU_I_4F51-					Stack10_FCCU_I_4F52-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
468	2021-04-12	0	0	0	0		27.81	0.12	0	0
469	2021-04-13	NA	NA	NA	NA		NA	NA	NA	NA
470	2021-04-14	0	0	0	0		27.81	0.12	0	0
471	2021-04-15	0	0	0	0		27.8	0.11	0	0
472	2021-04-16	0	0	0	0		18.93	0.08	0	0
473	2021-04-17	0	0	0	0		16.49	0.07	0	0
474	2021-04-18	0	0	0	0		27.81	0.12	0	0
475	2021-04-19	0	0	0	0.04		27.81	0.12	0	0
476	2021-04-20	0	0	0	0.01		27.81	0.11	0	0
477	2021-04-21	0	0	0	0.22		27.8	0.11	0	0
478	2021-04-22	0	0	0	0.05		27.81	0.12	0	0
479	2021-04-23	0.28	0.47	160.65	0		27.45	0.11	0	0
480	2021-04-24	1.74	6.24	250.84	0		27.82	0.12	0	0
481	2021-04-25	1.65	0.44	2.14	0.18		27.82	0.13	0	0
482	2021-04-26	4.8	0	2.22	0.21		27.82	0.12	0	0
483	2021-04-27	12.99	0	5.5	0.3		27.82	0.12	0	0
484	2021-04-28	8	1.76	4.2	0.28		27.82	0.12	0	0
485	2021-04-29	1.14	3.96	2.45	0.74		27.82	0.12	0	0
486	2021-04-30	4.92	5.42	3.52	0.6		14.3	0.66	8.29	0
487	CFO Standards	-	-	-	100		-	-	-	100
488	Maximum Value	405.07	1497.09	499.14	71.14		114.4	300.01	150.83	137.37
489	Maximum Value on	2021-03-12	2021-02-04	2021-02-14	2020-11-09		2020-06-06	2020-06-04	2020-06-06	2020-06-21
490	Average	38.56	224.04	33.25	29.77		21.96	1.96	71.8	46.49
491		373	362	384	429		403	435	29	39
492	Total Data Points		486	486	486		486	486	486	486
493	Data Availablity %	90.33	90.33	90.33	90.33		90.33	90.33	90.33	90.33
494	Pollutant Load (Tons/day)	0.020	0.116	0.017	0.015		0.045	0.004	0.146	0.094
495	Pollutnat Load as per CFO (Tons/day)				0.052					0.203

Stack Monitroing Data (CEMS) - From 01.01.2020 to 30.04.2021

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

S. No.	Date	Stack11_FCCU_I_FGD1-				Stack12_FCCU_II_14F1-			
		NOx (mg/Nm3)	SOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
1	2020-01-01	57.94	33.97	50.7	30.35	48.43	81.11	152.37	149.6
2	2020-01-02	82.82	113.95	45.24	27.21	50.01	81.94	56.1	76.64
3	2020-01-03	165.01	74.97	38.78	35.27	51.38	82.49	62.38	8.6
4	2020-01-04	448.12	37.28	47.06	50.45	50.03	83.76	124.96	8.7
5	2020-01-05	323.27	72.58	48.3	44.24	47.76	84.37	179.2	8.93
6	2020-01-06	42.23	149.24	40.1	25.26	44.78	84.7	156.54	8.93
7	2020-01-07	100.11	143.69	47.09	28.08	40.94	84.47	73.24	9.21
8	2020-01-08	44.48	151.97	46.16	19.78	40.91	85.14	83.24	9.17
9	2020-01-09	37.88	141.46	46.8	18.21	39.57	84.44	68.39	9.74
10	2020-01-10	41.59	173.36	38.21	18.96	32.24	85.26	72.76	10.12
11	2020-01-11	31.4	181.1	47.19	21.24	30.27	85.37	78.66	9.72
12	2020-01-12	34.58	204.34	39.58	19.52	30.47	85.78	72.1	10.16
13	2020-01-13	58.74	220.97	45.08	20.81	29.37	85.46	84.55	10.48
14	2020-01-14	40.12	227.07	47.85	22.92	30.61	84.7	119.89	11.38
15	2020-01-15	51.1	270.08	39.5	26.92	30.86	85.6	107.14	11.27
16	2020-01-16	64.35	174.54	45.36	21.21	30.1	86.18	127.72	10.04
17	2020-01-17	33.45	269.27	52.31	19.95	33.03	86.35	274.74	9.5
18	2020-01-18	77.49	257.42	56.64	21.29	35.19	86.75	405.83	9.99
19	2020-01-19	62.85	178.08	77.08	19.47	33.01	86.86	200.36	9.91
20	2020-01-20	54.65	207.88	74.6	22.2	32.73	86.67	219.19	10.47
21	2020-01-21	33.58	126.5	75.9	20.05	32.8	87.09	328.93	11.09
22	2020-01-22	32.01	84.09	77.25	22.02	28.89	86.01	799.36	10.55
23	2020-01-23	33.81	83.35	56.08	24.59	26.61	87.37	1027.74	10
24	2020-01-24	29.29	191.94	76.57	27.48	27.93	90.89	251.04	10.14
25	2020-01-25	31.51	124.74	57.21	25.61	30.22	97.03	264.57	10.3
26	2020-01-26	28.17	130.03	47.51	27.37	35.38	114.75	30.66	10.66
27	2020-01-27	24.91	105.37	40.1	27.12	32.73	108.28	30.16	10.87
28	2020-01-28	23.8	49.96	95.91	29.29	32.05	121.09	30.09	11.62
29	2020-01-29	24.82	42.36	40.71	30.79	NA	NA	NA	NA
30	2020-01-30	26.25	44	58.11	29.87	NA	NA	NA	NA
31	2020-01-31	173.25	27.54	32.97	45.81	NA	NA	NA	NA
32	2020-02-01	187.02	26.77	63.9	45.37	NA	NA	NA	NA
33	2020-02-02	25.74	54.15	60.96	27.05	NA	NA	NA	NA
34	2020-02-03	66.75	66.29	34.76	32.94	NA	NA	NA	NA
35	2020-02-04	61.59	90.74	36.01	42.6	NA	NA	NA	NA
36	2020-02-05	23.37	59.05	34.42	27.44	NA	NA	NA	NA
37	2020-02-06	34.48	48.01	54.36	32.46	NA	NA	NA	NA
38	2020-02-07	24.13	58.35	35.81	24.97	NA	NA	NA	NA
39	2020-02-08	21.51	53.97	147.39	25	NA	NA	NA	NA
40	2020-02-09	17.84	69.9	122.96	21.07	NA	NA	NA	NA
41	2020-02-10	14.43	71.13	29.69	22.15	NA	NA	NA	NA
42	2020-02-11	17.72	141.58	138.72	15.76	NA	NA	NA	NA
43	2020-02-12	24.16	67.3	75.42	22.42	NA	NA	NA	NA
44	2020-02-13	22.45	63.5	76.96	20.89	NA	NA	NA	NA
45	2020-02-14	17.67	82.82	39.28	21.83	NA	NA	NA	NA
46	2020-02-15	23.78	99.41	95.1	21.7	NA	NA	NA	NA
47	2020-02-16	85.87	111.43	91.19	27.4	NA	NA	NA	NA
48	2020-02-17	56.76	116.05	52.16	27.34	NA	NA	NA	NA
49	2020-02-18	85.78	107.07	51.84	28.24	NA	NA	NA	NA
50	2020-02-19	51	66.33	44.41	26.68	NA	NA	NA	NA
51	2020-02-20	145.56	81.42	50.67	35.97	NA	NA	NA	NA
52	2020-02-21	320.01	47.04	37.88	52.61	NA	NA	NA	NA
53	2020-02-22	65.01	41.68	33.49	36.92	NA	NA	NA	NA
54	2020-02-23	21.52	39.47	34.04	27.84	NA	NA	NA	NA
55	2020-02-24	31.84	36.82	39.66	35.2	NA	NA	NA	NA
56	2020-02-25	43.64	37.53	30.96	35.37	NA	NA	NA	NA
57	2020-02-26	50.05	37.98	39.12	32.36	NA	NA	NA	NA
58	2020-02-27	131.57	35.22	38.14	38.01	NA	NA	NA	NA
59	2020-02-28	245.98	37.18	35.19	53.61	NA	NA	NA	NA
60	2020-02-29	318.7	36.52	37.11	60.54	NA	NA	NA	NA
61	2020-03-01	329.47	30.69	37.51	55.04	NA	NA	NA	NA
62	2020-03-02	332.68	29.95	34.66	57.32	NA	NA	NA	NA
63	2020-03-03	109.21	29.22	30.95	39.52	NA	NA	NA	NA
64	2020-03-04	210.57	35.25	37.86	48.46	NA	NA	NA	NA
65	2020-03-05	317.62	44.99	33.63	62.89	NA	NA	NA	NA
66	2020-03-06	255.04	49.51	20.16	31.95	NA	NA	NA	NA

S. No.	Date	Stack11_FCCU_I_FGD1-					Stack12_FCCU_II_14F1-			
		NOx (mg/Nm3)	SOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
67	2020-03-07	194.72	45.26	15.54	18.84		NA	NA	NA	NA
68	2020-03-08	215.82	42.17	17	31.32		NA	NA	NA	NA
69	2020-03-09	107.08	36.16	6.66	29.57		NA	NA	NA	NA
70	2020-03-10	50.45	34.93	4.14	25.24		NA	NA	NA	NA
71	2020-03-11	49.51	35.51	5.36	19.34		NA	NA	NA	NA
72	2020-03-12	88.36	37.13	7.7	25.54		14.71	97.94	157.25	33.85
73	2020-03-13	440.32	37.7	27.66	25.55		14.51	97.99	155.43	35.1
74	2020-03-14	550.54	9.73	30.61	25.54		14.21	98.45	142.25	35.78
75	2020-03-15	505.45	6.91	30.14	25.54		14.08	98.84	134.95	35.74
76	2020-03-16	332.63	9.6	23.4	25.54		14.24	98.47	141.19	35.13
77	2020-03-17	282.02	11.03	19.6	25.54		14.27	98.04	143.15	35.56
78	2020-03-18	148.19	6.98	12.39	25.53		14.24	97.7	143.05	35.61
79	2020-03-19	380.8	16.66	27.25	25.53		14.34	97.85	145.2	35.97
80	2020-03-20	145.38	6.47	9.94	25.45		13.93	98.44	129.56	36.75
81	2020-03-21	150.18	7.37	11.56	25.44		14.4	98.45	143.3	36.79
82	2020-03-22	70.48	5.01	5.33	25.28		13.83	98.8	127.9	37.75
83	2020-03-23	66.71	4.94	10.16	23.41		13.75	99.13	119.54	37.95
84	2020-03-24	54.02	4.49	6.39	21		14.23	98.14	138.8	37.63
85	2020-03-25	112.16	7.27	0.36	25.52		15	97.64	174.86	37.82
86	2020-03-26	181.7	9.32	5.63	25.53		14.96	98.02	167.89	38.25
87	2020-03-27	136.99	9.05	8.34	25.53		15	97.81	172.62	38.52
88	2020-03-28	263.95	15.45	22.38	25.54		15.11	95.21	183.96	38.85
89	2020-03-29	258.53	14.32	21.6	25.54		15.45	96.29	186.5	39.18
90	2020-03-30	210.65	15.54	21.66	25.37		15.22	96.67	178.04	41.63
91	2020-03-31	168.86	12.45	18.45	24.24		15.43	95.97	183.9	40.86
92	2020-04-01	101.84	9.22	19.54	20.93		15.41	94.68	183.72	41.08
93	2020-04-02	114.37	9.31	21.42	22.11		15.49	94.51	186.9	41.6
94	2020-04-03	122.95	10.26	18.29	23.99		15.31	92.16	180.19	41.44
95	2020-04-04	194.72	13.56	21.8	25.52		15.16	87.49	176.9	41.79
96	2020-04-05	203.17	16.81	24	25.53		15.3	87.7	178.54	41.88
97	2020-04-06	145.68	11.85	19.01	24.52		15.42	84.62	181.91	42.8
98	2020-04-07	86.72	9.64	14.63	18.84		15.43	85.53	181.42	43.57
99	2020-04-08	118.44	10.73	12.79	21.1		15.31	83.67	171.31	44.11
100	2020-04-09	131.18	11.4	14.37	24.55		14.87	89.96	153.69	44.23
101	2020-04-10	35.16	8.44	27.79	12.73		15.27	86.65	167.31	44.6
102	2020-04-11	39.31	8.79	20.99	12.93		15.39	65.21	169.94	45.4
103	2020-04-12	82.36	10.15	18.61	22.9		15.55	81.81	173.81	45.57
104	2020-04-13	45.87	9.13	19.93	14.48		15.72	82.3	179.36	46.19
105	2020-04-14	122.86	11.58	18.86	23.61		15.61	80.5	178.17	47.68
106	2020-04-15	109	11.43	19.4	25.39		15.62	79.49	176.94	47.82
107	2020-04-16	88.7	10.21	30.83	24.14		15.63	76.68	176.79	48.01
108	2020-04-17	29.82	9.32	15.18	19.77		15.55	71.4	175.41	48.16
109	2020-04-18	134.23	11.95	15.06	25.04		15.56	72.37	173.87	48.26
110	2020-04-19	144.77	14.23	17.85	25.44		15.67	70.81	175.43	48.93
111	2020-04-20	193.17	15.27	20.63	25.39		15.68	73.09	175.87	49.86
112	2020-04-21	132.17	14.38	13.39	25.26		15.74	77.54	175.73	50.48
113	2020-04-22	158.41	14.83	14.71	25.31		16.03	85.44	178.56	52.33
114	2020-04-23	87.39	13.54	15.87	23.01		16.2	87.53	185.06	52.47
115	2020-04-24	41.38	11.24	16.37	11.81		15.99	84.72	178.38	52.51
116	2020-04-25	150.35	14.35	29.59	24.03		15.36	83.61	168.94	22.09
117	2020-04-26	74.2	12.4	20.01	20.93		15.22	79.47	161.19	0
118	2020-04-27	27.18	11.66	31.5	17.01		14.4	80.01	136.96	0
119	2020-04-28	9.45	11.62	6.28	12.47		14.38	78.44	112.14	0
120	2020-04-29	32.09	12.24	17.94	14.17		1.94	69.32	87.85	0
121	2020-04-30	102.92	14.49	18.32	22.56		0	78.9	112.79	0
122	2020-05-01	81.17	13.74	13.3	23.9		0	78.1	116.11	0
123	2020-05-02	62.52	13.4	11.29	24.92		0	80.24	105.48	0
124	2020-05-03	82.61	13.9	11.13	25.41		0	77.38	114.08	0
125	2020-05-04	62.67	13.72	8.97	25.47		0	73.08	116.91	0
126	2020-05-05	101.66	14.43	10.55	25.22		0	75.65	121.91	0
127	2020-05-06	110.8	15.32	11.84	25.18		0	77.44	114.66	0
128	2020-05-07	158.33	17	16.04	25.24		5.26	84.29	123.33	0
129	2020-05-08	123.05	16.84	12.93	25.19		14.59	83.94	181.96	0
130	2020-05-09	113.3	16.35	10	25.44		15.23	82.45	239.36	0
131	2020-05-10	133.28	18.12	11.01	25.51		14.59	79.69	215.61	0
132	2020-05-11	193.11	19.89	17.48	25.51		14.84	73.09	225.1	0
133	2020-05-12	303.99	19.12	28.95	25.39		15.49	78.71	237.44	10.62
134	2020-05-13	446.09	21.94	37.64	25.54		18.95	94.77	317.79	10.16

S. No.	Date	Stack11_FCCU_I_FGD1-					Stack12_FCCU_II_14F1-			
		NOx (mg/Nm3)	SOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
135	2020-05-14	158.24	19.41	17.65	25.48		19.6	92.01	329.25	12.13
136	2020-05-15	161.41	19.95	13.88	25.52		16.52	77.4	269.29	13.53
137	2020-05-16	79.78	17.75	14.81	24.3		14.9	56.8	223.15	14.6
138	2020-05-17	108.96	16.97	0.03	24.31		14.93	61.24	227.83	15.63
139	2020-05-18	86.71	17.08	0.06	24.66		9.31	47.32	136.78	9.51
140	2020-05-19	107.86	17.09	0.02	21.01		7.26	63.68	84.29	74.73
141	2020-05-20	5.51	16.17	0.86	6.3		13.57	149.34	157.41	98.27
142	2020-05-21	0	15.75	0	5.59		14.02	142.68	149.66	8.9
143	2020-05-22	0	15.57	0	5.89		14.11	52.3	132.13	9.59
144	2020-05-23	0	15.98	0	5.86		14.08	48.46	133.38	11.01
145	2020-05-24	0	16.42	0	5.95		14.07	46.89	133.29	11.8
146	2020-05-25	0	16.18	0	5.99		14.15	48.83	135.72	12.46
147	2020-05-26	0.02	18.41	0	6		14.13	53.06	134.64	13.04
148	2020-05-27	8.41	17.32	10.33	7.62		14.17	68.33	135.57	13.35
149	2020-05-28	73.58	42.32	22.01	15.15		14.35	67.21	141.38	14.7
150	2020-05-29	49.13	47.22	33.77	16.75		9.82	48.64	137.23	15.58
151	2020-05-30	0	25.51	0.04	24.59		0	0	0	15.76
152	2020-05-31	0	23.95	0.02	23.76		0	0	0	16.93
153	2020-06-01	0	23.17	0.02	15.2		0	31.02	32.06	93.54
154	2020-06-02	0.14	22.92	0	12.94		16.62	209.57	62.02	98.1
155	2020-06-03	0	21.2	0	12.57		10.83	233.24	60.7	10.07
156	2020-06-04	0	20.77	0	17.88		0	50.08	385.02	10.68
157	2020-06-05	0	20.44	0.44	25.55		0	66.77	776.61	12.18
158	2020-06-06	0	20.85	1.1	25.55		0	79.46	334.77	13.02
159	2020-06-07	0	20.19	0.34	25.56		0	81.97	88.79	13.53
160	2020-06-08	0	19.04	0.48	25.56		0	37.51	61.3	15.46
161	2020-06-09	0	15.91	0.26	25.56		0	0	197.56	16.4
162	2020-06-10	0	17.35	1.27	25.54		0	17.88	287.41	16.91
163	2020-06-11	0	15.41	0.04	25.41		9.24	41.18	243.74	18.51
164	2020-06-12	0	15.14	0.02	25.54		54.69	32.55	254.67	20.11
165	2020-06-13	0	15.82	0	25.55		75.45	29.97	693.56	18.38
166	2020-06-14	0	15.81	0	25.56		79.97	31.1	739.94	18.19
167	2020-06-15	0	16.21	0.07	22.01		48.86	29.71	191.98	18.73
168	2020-06-16	0	15.95	0	7.56		28.14	30.19	5.81	19.17
169	2020-06-17	0	16.11	0	7.53		28.82	30.24	6.29	19.7
170	2020-06-18	0	15.56	0	7.42		31.37	29.85	9.26	19.59
171	2020-06-19	4.49	27.08	6.34	7.08		38.02	30.6	13.66	19.45
172	2020-06-20	4.77	38.87	11.99	7.09		37.52	29.58	13.66	19.54
173	2020-06-21	2.9	38.75	11.42	7.12		32.8	30.07	11.56	19.4
174	2020-06-22	2.61	40.06	11.51	7		42.79	30.08	14.35	19.47
175	2020-06-23	5.08	44.83	12.69	7.06		40.1	16.86	383.09	20.73
176	2020-06-24	5.67	41.48	9.47	7.99		15.45	8.12	170.91	22.3
177	2020-06-25	0	27.94	0.18	11.89		5.09	2.28	22.52	23.43
178	2020-06-26	0	21.97	0	25.56		6.12	11.14	18.64	24.78
179	2020-06-27	0	19.91	0	25.56		366.41	34.16	290.53	25.31
180	2020-06-28	0	19.14	0	25.56		72.59	8.09	66.42	5.83
181	2020-06-29	164.28	14.74	11.11	25.57		156.62	20.72	131.41	15.81
182	2020-06-30	281.71	14.09	19.54	25.57		185.87	44.14	217.28	27.26
183	2020-07-01	9.14	0	0.41	25.57		13.94	49.62	95.19	24.22
184	2020-07-02	221.22	2.98	16.45	25.57		3.59	49.71	136.26	28.57
185	2020-07-03	342.29	5.73	25.96	25.57		104.47	51.04	146.92	26.51
186	2020-07-04	354.84	2.28	29.96	25.57		106.37	58.29	31.61	26.59
187	2020-07-05	313.18	1.1	27.37	25.58		29.98	57.84	34.79	27.37
188	2020-07-06	262.09	1.61	28.81	25.58		126.18	58.32	251.38	26.94
189	2020-07-07	131.66	3.13	17.63	25.58		190.47	58.89	1031.74	25.96
190	2020-07-08	202.9	7.74	27.46	25.58		48.15	58.84	1194.42	26.72
191	2020-07-09	174.09	10.28	26.94	25.57		76.82	37.46	1496.06	27.39
192	2020-07-10	147.84	6.52	21.07	25.57		183.11	16.61	1756.69	27.65
193	2020-07-11	265.1	5.15	30.53	25.57		125.95	39.87	1263.52	27.68
194	2020-07-12	241.94	4.63	28.55	25.57		92.31	7.89	314.31	15.51
195	2020-07-13	175.67	27.31	29.85	25.58		69.58	8.22	545.44	17.63
196	2020-07-14	172.05	20.47	37.98	23.23		136.49	26.09	454.71	31.2
197	2020-07-15	0.35	7.76	5.48	10.03		135.51	34.36	138.85	28.91
198	2020-07-16	0.69	0.21	0	9.08		115.05	34.95	210.58	28.13
199	2020-07-17	0.52	0.17	0.16	9.22		47.93	15.71	175.5	28.29
200	2020-07-18	2.35	11.71	4.4	9.09		0	0	13.08	29.78
201	2020-07-19	0.52	17.25	9.29	8.96		0	0	0	30.66
202	2020-07-20	2.8	7	3.61	9.23		0	0	0.05	31.61

S. No.	Date	Stack11_FCCU_I_FGD1-					Stack12_FCCU_II_14F1-			
		NOx (mg/Nm3)	SOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
203	2020-07-21	1.07	0.11	0.79	9.26		0	0	0	32.2
204	2020-07-22	0.9	0.03	0.33	9.15		0	0	0	31.9
205	2020-07-23	0.52	0.01	0.13	9.64		0	0	0	31.86
206	2020-07-24	0.13	0.04	0.02	9.16		0	0	0	32.13
207	2020-07-25	0.12	0.06	0	9.24		0	0	0	32.96
208	2020-07-26	0.2	0.02	0	9.09		0	0	0	35.54
209	2020-07-27	0.24	0.01	0	8.85		9.86	7.92	42.88	35.92
210	2020-07-28	0.15	0.02	0	8.88		22.41	31.61	351.08	38.05
211	2020-07-29	0.13	0.04	0.77	9.14		61.48	24.43	584.91	40.52
212	2020-07-30	69.58	16.9	23.99	18.86		109.68	28.16	467.59	43.56
213	2020-07-31	91	1.36	5.67	25.58		122.54	34.63	166.38	45.02
214	2020-08-01	78.07	6.92	9.08	25.57		118.3	34.67	111.06	44.81
215	2020-08-02	53.93	15.51	13.47	25.57		125.35	34.49	71.05	44.94
216	2020-08-03	54.14	15.55	15.11	25.57		118.51	36.07	104.49	43.8
217	2020-08-04	24.99	15.38	14.64	25.57		74.16	37.33	35.01	42.43
218	2020-08-05	35.68	15.84	81.44	24.8		30.51	37.86	68.23	42.15
219	2020-08-06	25.89	15.91	16.5	25.52		25.87	38.28	140.99	41.87
220	2020-08-07	42.64	16.05	68.32	24.03		29.29	38.15	138.23	42.6
221	2020-08-08	81.07	17.51	40.44	22.59		30.62	38.14	142.24	42.16
222	2020-08-09	166.54	16.63	57.45	25.23		43.46	38.53	172.14	42.49
223	2020-08-10	174.8	16.98	42.03	24.38		54.65	38.44	215.36	42.75
224	2020-08-11	77.32	23.66	17.17	22.02		48.58	38.09	152.06	42.79
225	2020-08-12	56.73	32.93	18.09	23.9		26.12	38.49	52.74	42.76
226	2020-08-13	210.72	36.51	37.06	24.49		0	38.93	0	43.55
227	2020-08-14	253.24	14.08	47.02	25.36		4.04	38.62	50	46.09
228	2020-08-15	246.44	93.45	0	24.73		9.69	39.36	134.37	45.64
229	2020-08-16	255.66	167.06	9.27	24.32		9.65	40.94	129.87	43.43
230	2020-08-17	313.67	26.61	87.44	24.89		9.23	39.79	123.22	42.79
231	2020-08-18	285.4	19.36	42.76	25.39		9.38	40.06	124.55	43.01
232	2020-08-19	251.6	9.02	22.04	25.58		9.96	40.1	128.53	42.75
233	2020-08-20	118.41	9.35	32.13	25.06		10.58	24.77	93.68	25.64
234	2020-08-21	19.21	3.4	5.93	18.32		19.94	39.06	176.74	39.97
235	2020-08-22	126.96	0.44	10.32	25.59		22.54	39.92	183.15	42.69
236	2020-08-23	50.97	0	0.99	25.61		27.29	39.01	218.75	42.51
237	2020-08-24	317.27	4.48	17.08	25.61		21.09	33.45	179.78	36.75
238	2020-08-25	192.73	1.33	15.8	25.61		19.9	34.16	144.96	34.38
239	2020-08-26	207.04	0.83	15.21	25.61		19.58	32.83	135.49	33.41
240	2020-08-27	196.19	0.52	12.96	25.6		14.78	32.95	303.92	43
241	2020-08-28	274.27	3.81	15.04	25.6		68.47	16.65	649.56	43.97
242	2020-08-29	163.31	3.13	15.06	25.58		117.09	18.64	686.98	44.39
243	2020-08-30	20.7	0.05	78.06	25.61		28.09	35.28	133.9	44.76
244	2020-08-31	46.99	0.44	7.23	25.61		27.98	35.23	144.46	45.96
245	2020-09-01	12.89	0.6	77.15	25.6		27.36	35.19	173.69	49.75
246	2020-09-02	10.09	9.04	100.25	25.6		27.38	35.23	176.21	47.81
247	2020-09-03	12.75	16.09	59.23	25.6		27.33	35.23	176.59	47.63
248	2020-09-04	2.46	16.8	172.71	25.5		27.3	35.49	177.09	47.85
249	2020-09-05	6.99	16.4	81.9	24.92		27.34	35.45	178.82	48.36
250	2020-09-06	22.39	17.29	112.41	25.59		27.33	35.63	179.49	50.11
251	2020-09-07	13.11	16.83	135.43	25.6		27.34	35.69	179.75	50.53
252	2020-09-08	10.57	16.66	0.54	17.82		38.64	35.73	145.51	50.81
253	2020-09-09	4.25	7.26	0.28	14.74		44.5	35.81	153.19	52.24
254	2020-09-10	0.17	0.78	0.26	14.67		24.38	20.03	96.45	28.95
255	2020-09-11	0.21	0.71	0.27	14.65		14.22	11.87	56.26	15.88
256	2020-09-12	0.36	0.67	0.32	14.72		44.71	35.85	186.43	51.88
257	2020-09-13	0.27	0.66	0.22	17.17		44.82	35.86	190.11	51.78
258	2020-09-14	349.62	3.71	18.63	25.61		44.83	36.07	190.71	50.5
259	2020-09-15	377.02	4.33	48.46	25.56		44.82	36.31	188.82	50.83
260	2020-09-16	484.91	5.33	25.64	25.61		44.8	36.85	189.48	51.35
261	2020-09-17	612.49	56.24	160.24	25.6		44.8	36.95	189.86	52.13
262	2020-09-18	360.35	49.44	136.88	25.6		44.76	37.05	189.7	52.07
263	2020-09-19	183.64	46.95	138.54	25.59		44.75	36.97	190.18	41.31
264	2020-09-20	86.38	48.36	204.63	25.58		44.79	37.27	192.35	33.07
265	2020-09-21	55.68	44.91	120.3	25.6		44.85	37.54	192.6	33.29
266	2020-09-22	4.54	43.35	NA	18.93		44.81	37.21	190.64	32.74
267	2020-09-23	NA	NA	NA	20.21		47.47	32.75	226.71	33.29
268	2020-09-24	NA	NA	NA	25.62		50.82	25.84	272.51	32.87
269	2020-09-25	NA	NA	NA	NA		50.61	33.74	225.68	33.13
270	2020-09-26	NA	NA	NA	25.03		43.3	34.67	194.54	33.06

215

S. No.	Date	Stack11_FCCU_I_FGD1-					Stack12_FCCU_II_14F1-			
		NOx (mg/Nm3)	SOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
271	2020-09-27	104.53	0	68.03	25.08		23.32	18.75	101.13	18.16
272	2020-09-28	NA	NA	NA	NA		12.74	10.82	69.35	10.07
273	2020-09-29	34.33	57.74	38.64	25.57		42.52	35.18	244.21	33.66
274	2020-09-30	34.93	46.09	36.19	25.6		42.61	35.19	247.22	33.69
275	2020-10-01	32.19	54.94	28.45	25.6		42.68	35.2	247.14	33.08
276	2020-10-02	30.24	51.01	20.15	25.59		42.58	35.76	244.71	32.35
277	2020-10-03	28.79	44.74	21.18	25.58		42.58	35.97	246.12	31.78
278	2020-10-04	29.95	46	19.71	25.59		42.64	35.74	245.87	31.9
279	2020-10-05	29.86	49.55	19.59	25.6		42.64	35.59	246.75	31.27
280	2020-10-06	30.1	51.46	19	25.61		42.61	35.86	247.64	31.91
281	2020-10-07	29.64	44.6	19.79	25.6		42.61	35.87	246.8	31.3
282	2020-10-08	29.25	32.25	18.79	25.61		42.57	35.99	244.98	32.41
283	2020-10-09	26.84	46.18	18.19	25.61		42.65	36.3	248.03	32.45
284	2020-10-10	26.2	50.63	17.1	25.6		42.6	36.27	246.5	32.11
285	2020-10-11	27.91	40.79	16.52	25.61		42.67	36.18	249.76	31.6
286	2020-10-12	28.94	45.7	15.95	25.63		42.75	36.36	255.15	34.28
287	2020-10-13	29.38	50.01	17.51	25.63		42.64	36.44	247.41	34.07
288	2020-10-14	28.47	46.32	19.52	25.62		42.66	36.62	247.21	32.39
289	2020-10-15	29.04	48.16	23.98	25.63		42.7	37.06	247.06	31.8
290	2020-10-16	29.4	51.03	26.08	24.26		42.66	36.92	245.84	31.49
291	2020-10-17	93.35	46.73	25.19	21.13		42.65	36.61	245.19	30.13
292	2020-10-18	131.57	48.29	41	21.12		42.62	36.66	244.07	28.19
293	2020-10-19	122.56	40.11	37.77	20.37		42.68	36.82	243.25	26.97
294	2020-10-20	66.23	23.69	17.66	19.81		42.66	36.97	243.38	25.37
295	2020-10-21	1.21	26.44	17.63	21.16		42.6	37.74	243.09	25.24
296	2020-10-22	94.34	19.85	8.11	21.06		42.59	38.69	242.93	25.46
297	2020-10-23	142.27	16.74	0.2	24.37		42.65	38.53	239.82	25.28
298	2020-10-24	137.79	14.19	6.99	21.85		42.6	38.46	225.14	24.69
299	2020-10-25	129.41	20.19	25.93	24.05		42.63	37.87	226.77	23.77
300	2020-10-26	154.68	18.59	15.82	24.27		42.78	37.39	229.63	21.93
301	2020-10-27	0.67	18.19	53.9	21.26		43.03	37.56	235.03	19.88
302	2020-10-28	2.51	17.6	51.32	18.92		43.01	37.76	234.32	18.37
303	2020-10-29	9.66	18.14	115.93	22.08		45.74	37.56	237	17.03
304	2020-10-30	37.66	17.73	16.13	23.78		46.02	37.61	250.91	15.04
305	2020-10-31	77.85	20.84	23.18	25.39		46.03	37.81	252.27	13.66
306	2020-11-01	232.27	37.27	29.4	25.26		46.06	37.81	252.18	12.51
307	2020-11-02	464.99	41.09	23.03	25.58		46.16	38.04	250.1	12.12
308	2020-11-03	445.27	40.31	40.22	25.58		46.46	41.11	231.55	11.8
309	2020-11-04	535.2	27.47	54.69	25.59		46.82	46.19	200.98	12.28
310	2020-11-05	533.88	24.07	42.74	25.59		46.68	46.74	211.59	11.41
311	2020-11-06	505.12	27.19	39.74	25.59		46.66	46.81	219.62	10.44
312	2020-11-07	459.89	24.38	30.72	25.59		46.67	46.74	222.5	9.5
313	2020-11-08	403.99	23.67	42.82	25.58		46.66	46.25	223.28	8.78
314	2020-11-09	327.6	22.67	22.54	25.57		46.66	46.45	224.62	8.53
315	2020-11-10	302.29	19.32	27.19	25.57		46.7	46.29	227.22	8.15
316	2020-11-11	221.89	17.26	22.54	25.58		46.64	46.2	226.32	9.33
317	2020-11-12	198.33	17.56	17.31	25.58		30.33	29.73	145.99	8.94
318	2020-11-13	184.9	21.89	24.59	25.58		16.04	21.64	245.12	8
319	2020-11-14	162.25	26.79	21.08	25.57		47.5	47.21	748.69	7.57
320	2020-11-15	180.37	21.29	20.43	25.58		49.22	47.05	770.81	7.34
321	2020-11-16	270.3	100.92	21.28	25.58		48.78	27.47	689.66	7.2
322	2020-11-17	331.56	150.43	25.08	25.58		53.81	9.4	419.78	7.23
323	2020-11-18	202.38	42.61	26.44	25.58		24.47	8.2	135.05	7.16
324	2020-11-19	150.65	279.28	15.99	25.59		14.71	5.62	5.56	7.49
325	2020-11-20	123.37	24.57	7.24	25.59		11.34	1.89	0	17.72
326	2020-11-21	176.14	6.48	8.02	25.59		11.27	0	0	15.53
327	2020-11-22	78.06	0.63	3.62	25.59		10.79	0	0	7.63
328	2020-11-23	205.4	0.72	8.14	25.59		12.69	3.5	9.19	7.49
329	2020-11-24	241.56	4.27	11.1	25.58		32.53	10.9	152.19	7.28
330	2020-11-25	289.76	42.6	14.33	25.58		47.48	11.07	251.81	7.29
331	2020-11-26	406.48	13.1	20.79	25.59		41.22	11.33	235.67	9.01
332	2020-11-27	340.94	3.26	21	25.59		46.21	11.21	125.06	8.16
333	2020-11-28	288.7	186.83	17.93	25.59		34.72	11.12	99.27	7.84
334	2020-11-29	66.72	11.7	65.2	25.59		37.02	11.3	955.95	7.37
335	2020-11-30	275.09	512.21	27.89	25.57		35.51	11.65	1091.46	7.16
336	2020-12-01	474.45	1383.23	31.08	25.31		42.19	11.68	681.69	7.28
337	2020-12-02	380.1	981.18	28.23	25.21		43.25	11.99	425.66	7.1
338	2020-12-03	424.26	662.17	29.08	25.21		36.85	12.42	478.59	7.35

S. No.	Date	Stack11_FCCU_I_FGD1-					Stack12_FCCU_II_14F1-			
		NOx (mg/Nm3)	SOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
339	2020-12-04	230.39	258.74	20.35	21.26		30.63	9.31	262.51	7.23
340	2020-12-05	75.82	8.02	39.13	17.9		17.62	0	38.8	8.43
341	2020-12-06	172.25	302.74	21.26	24.98		17.62	0	0	7.17
342	2020-12-07	226.84	701.67	92.27	25.16		30.48	4.11	124.24	6.9
343	2020-12-08	277.5	357.49	44.14	24.45		35.2	11.4	162.94	6.86
344	2020-12-09	283.22	624.9	43.52	24.4		50.01	8.74	366.4	6.76
345	2020-12-10	217.47	393.58	33.92	24.89		79.11	4.54	723.29	6.85
346	2020-12-11	214.94	695.03	29.41	23.86		85.68	12.85	990.52	6.97
347	2020-12-12	221.27	497.47	44.98	25.09		74.64	35.95	934.55	7.1
348	2020-12-13	260.51	291.43	17.24	25.19		79.45	10.32	1163.72	7.15
349	2020-12-14	310.72	298.57	17.21	25.2		99.63	6.91	1053.36	7.13
350	2020-12-15	347.14	56.43	29.11	25.2		126.99	3.85	809.11	7.03
351	2020-12-16	276.95	62	41.69	23.05		128.99	4.87	775.23	7.13
352	2020-12-17	306.69	56.4	40.04	25.21		122.97	4.71	821.89	6.96
353	2020-12-18	338.8	53.97	46.95	25.23		119.47	4.75	916.81	6.99
354	2020-12-19	333.32	40.2	30.11	25.22		92.01	5.61	854.07	7.11
355	2020-12-20	325.94	505.58	58.28	25.21		101.76	6.88	865.96	6.91
356	2020-12-21	347.96	1429.29	55.5	25.21		86.75	17.47	784.73	6.85
357	2020-12-22	384.66	105.04	27.28	25.21		106.28	19.81	502.51	7.04
358	2020-12-23	78.81	23.93	11.51	15.45		106.37	19.03	437.32	7.06
359	2020-12-24	164.38	74.23	86.24	23.71		76.6	19.04	332.65	7.31
360	2020-12-25	302.74	150.68	151.17	25.09		81.91	19.6	465.26	7.38
361	2020-12-26	267.88	107.56	175.04	24.78		81.67	19.63	629.56	7.38
362	2020-12-27	201.08	8.61	98.17	25.14		0.83	19.67	681.58	7.49
363	2020-12-28	117.74	7.1	45.91	24.38		0	19.65	374.83	7.3
364	2020-12-29	73.03	6.04	23.74	22.38		12.11	20.25	263.99	8.55
365	2020-12-30	212.94	55.3	28.68	25.21		37.42	22.16	517.84	8.34
366	2020-12-31	200.15	47.16	33.52	25.19		37.62	123.51	795.61	7.65
367	2021-01-01	181.13	4.87	39.91	25.18		37.81	289.73	809.17	7.59
368	2021-01-02	94.09	2.59	63.19	25.21		81.48	175.49	821.35	7.82
369	2021-01-03	189.39	4.09	47.41	25.21		178.15	12.34	809.9	8.02
370	2021-01-04	247.21	2.98	44.71	25.21		143.97	12.25	509.32	8.2
371	2021-01-05	169.87	1.59	26.9	28.51		85.41	8.73	309.4	27.05
372	2021-01-06	348.81	29.53	47.41	31.49		55.36	10.26	361.07	114.43
373	2021-01-07	95.06	48.31	94.36	23.32		61.8	14.54	597.56	149.29
374	2021-01-08	185.68	44.12	97.46	27.31		53.02	18.67	499.19	71.44
375	2021-01-09	238.66	45.84	136.27	30.21		49.44	26.56	680.82	6.77
376	2021-01-10	375.19	41.21	185.5	31.28		47.24	41	1122.81	6.89
377	2021-01-11	249.31	113.43	117.73	23.81		47.27	55.25	1161.93	6.94
378	2021-01-12	209.58	20.72	153.6	25.37		47.3	89.79	1046.05	6.98
379	2021-01-13	53.77	18.44	145.87	20.86		48.61	70.5	826.7	7.01
380	2021-01-14	52.45	20.57	146.08	23.11		58.18	33.4	519.23	7.12
381	2021-01-15	51.61	18.09	195.48	22.17		58.09	35.9	466.46	7.4
382	2021-01-16	30.49	12.3	200.15	20.1		57.94	30.41	451.67	7.52
383	2021-01-17	108.26	8.81	126.57	24.52		57.88	22.71	581.56	7.58
384	2021-01-18	43.72	9.06	70.34	19.15		58.23	12.44	410	7.66
385	2021-01-19	116.15	8.31	115.09	23.85		89.21	11.67	490.34	7.61
386	2021-01-20	103.55	11.94	76.83	23.93		128.53	24.62	413.16	7.63
387	2021-01-21	63.6	202.82	16.89	19.67		124.92	45.17	437.09	7.68
388	2021-01-22	103.65	888.63	13.24	24.72		160.72	54.96	875.43	7.61
389	2021-01-23	81.81	922.99	47.09	22.76		162.13	66.46	1064.6	7.82
390	2021-01-24	187.03	92.52	77.26	28.89		171.53	70.79	1040.34	7.79
391	2021-01-25	133.11	216.88	74.39	28.48		111.05	76.07	859.53	7.8
392	2021-01-26	18.86	276.12	127.49	18.49		75.5	74.84	757.67	7.68
393	2021-01-27	26.23	873.2	178.76	17.53		75.72	67.64	712.23	7.55
394	2021-01-28	15.41	221.24	76.51	14.7		75.58	66.74	679.79	7.72
395	2021-01-29	0	0	1.08	8.72		81.2	64.47	561.91	7.75
396	2021-01-30	0	0	0.79	8.79		70.77	56.27	386.85	7.79
397	2021-01-31	0	0	0.45	8.77		41.78	43.22	332.48	7.84
398	2021-02-01	0	0	0.46	8.79		45.96	54.09	679.95	7.79
399	2021-02-02	0	0	0.17	8.79		52.2	53.52	530.18	7.87
400	2021-02-03	20.39	24.8	20.06	25.06		57.08	56.5	509.93	7.82
401	2021-02-04	360.47	88.98	141.82	50.06		40.06	60.94	440.32	7.56
402	2021-02-05	572.74	92.44	152.65	50.07		8.57	49.98	316.13	7.34
403	2021-02-06	562.69	74.15	76.28	49.94		5.31	28.75	339	7.3
404	2021-02-07	527.11	46.61	84.26	49.94		0	22.91	325.69	7.19
405	2021-02-08	498.37	36.3	85.07	49.95		11.97	31.26	407.68	7.23
406	2021-02-09	470.47	56.72	83.22	49.93		19.85	34.76	368.35	7.14

216

S. No.	Date	Stack11_FCCU_I_FGD1-					Stack12_FCCU_II_14F1-			
		NOx (mg/Nm3)	SOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
407	2021-02-10	483.39	62.27	50.52	49.81		28.65	34.9	237.65	7.19
408	2021-02-11	557.19	44.86	65.36	49.98		44.92	37.68	187.34	7.27
409	2021-02-12	554.64	55.69	65.81	49.97		51.47	41.23	192.93	7.38
410	2021-02-13	553.82	52.66	25.28	49.98		53.08	29.73	250.43	7.25
411	2021-02-14	564.73	49.31	28.25	50		56.84	20.62	323.56	7.29
412	2021-02-15	583.13	42.01	32.04	49.99		57.07	24.3	274.05	7.24
413	2021-02-16	580.33	67.09	35.91	50		58.83	30.42	271.03	7.1
414	2021-02-17	587.45	79.24	47.48	50.01		60.1	22.27	276.43	7.07
415	2021-02-18	139.36	34.33	66.28	42.29		60.26	30.29	221.33	7.18
416	2021-02-19	30.45	14.21	38.89	34.84		60.37	35.65	222.31	7.3
417	2021-02-20	221.38	43.72	37.04	42.72		60.09	39.33	279.87	7.26
418	2021-02-21	524.92	94.18	68.51	49.96		60.09	37.43	281.1	7.32
419	2021-02-22	475.52	94.78	86.99	49.79		60.11	37.49	282.53	7.21
420	2021-02-23	475.66	92.09	102.73	50.01		60.52	38.79	254.29	7.31
421	2021-02-24	399.97	122.43	75.4	49.87		75.57	37.35	212.53	7.01
422	2021-02-25	285.11	165.56	118.22	46.31		71.82	36.46	179.9	6.87
423	2021-02-26	382.47	119.03	102.54	43.46		77.85	36.7	171.78	6.05
424	2021-02-27	330.34	117.41	95.89	37.56		85.63	37.46	208.62	5.92
425	2021-02-28	113.21	25.1	42.07	33.07		74.92	36.9	287.04	6.04
426	2021-03-01	289.71	186.83	95.64	37.41		73.93	36.96	280.09	5.92
427	2021-03-02	249.64	267.74	85.49	37.58		47.84	38.97	256.04	7.03
428	2021-03-03	269.47	129.65	66.38	37.55		26.88	35.27	321.48	4.99
429	2021-03-04	239.25	192.67	83.18	36.77		26.5	34.16	226.68	5.12
430	2021-03-05	294.66	148.9	96.45	37.43		23.07	35.33	304.14	6.02
431	2021-03-06	357.39	96.33	77.98	37.55		24.46	35.93	481.75	6.02
432	2021-03-07	318.59	38.51	77.52	37.54		22.09	37.64	308.93	5.99
433	2021-03-08	286.58	42.87	92.54	37.55		24.64	36.28	303.43	5.84
434	2021-03-09	176.53	20.72	56.15	37.53		22.62	35.03	303.23	6.13
435	2021-03-10	32.7	5.46	24.53	37.43		20.82	37.93	309.49	6.24
436	2021-03-11	25.63	5.96	22.01	37.56		19.49	35.01	324.25	6.5
437	2021-03-12	113.56	24.19	34.51	37.58		21.33	35.86	363.83	6.43
438	2021-03-13	200.94	69.38	59.81	37.52		20.33	35.09	395.47	6.46
439	2021-03-14	171.84	105.92	64.99	37.31		15.45	34.77	347.81	6.6
440	2021-03-15	234.2	155	81.04	37.54		17.18	37.16	368.11	6.57
441	2021-03-16	236	191.78	74.97	37.44		15.16	35.49	321.56	6.64
442	2021-03-17	180.74	152.24	51.69	42.36		25.4	33.71	216	6.46
443	2021-03-18	158.7	173.13	48.83	40.44		30.25	34.02	193.78	6.32
444	2021-03-19	131.82	226.07	45.76	41.03		22.36	33.72	206.11	6.26
445	2021-03-20	155.49	236.04	46.28	39.33		26.42	33.14	264.7	6.11
446	2021-03-21	171.96	320.16	39.83	44.43		20.51	34.14	321.68	6.44
447	2021-03-22	194.78	223.85	32.26	43.93		18.49	32.64	419.89	6.76
448	2021-03-23	53.97	13.33	15.32	16.7		23.43	34.69	384.95	6.72
449	2021-03-24	42.97	11.74	39.94	11.69		24.63	34.23	329.98	6.73
450	2021-03-25	4.16	10.45	14.36	10.88		20.81	31.88	133.35	6.88
451	2021-03-26	NA	NA	NA	10.14		13.52	76.98	36.21	6.85
452	2021-03-27	NA	NA	NA	10.25		10.35	128.97	30.14	7
453	2021-03-28	NA	NA	NA	11.78		10.04	197.38	19.79	7.06
454	2021-03-29	NA	NA	NA	11.35		30.09	116.98	63.76	76.22
455	2021-03-30	NA	NA	NA	7.4		40.96	251.58	274.29	76.82
456	2021-03-31	NA	NA	NA	3.85		54.02	457.58	231.8	5.76
457	2021-04-01	NA	NA	NA	3.89		69.04	166.96	73.94	6.97
458	2021-04-02	NA	NA	NA	3.86		72.32	104.67	279.91	7.63
459	2021-04-03	NA	NA	NA	0.84		106.23	40.09	131.18	10.35
460	2021-04-04	NA	NA	NA	0.08		107.06	41.49	200.02	11.15
461	2021-04-05	NA	NA	NA	0.11		108.8	34.38	156.13	13.53
462	2021-04-06	NA	NA	NA	0.14		103.36	114.04	130.82	16.78
463	2021-04-07	0	0.31	1.08	0.14		96.11	123.15	105.89	17.7
464	2021-04-08	0	0.29	1	0.08		84.44	168.92	90.44	18.5
465	2021-04-09	0	0.35	0.75	0.08		78.44	79.41	82.57	20.18
466	2021-04-10	0	0.41	0.49	0.05		80.53	86.12	81.34	23.94
467	2021-04-11	0	0.57	0.47	0.13		82.36	92.34	81.41	25.01
468	2021-04-12	0	0.54	0.79	0.19		53.25	65.52	56.97	27.08
469	2021-04-13	NA	NA	NA	NA		NA	NA	NA	NA
470	2021-04-14	0	1.13	0.59	0.05		87.04	73.03	113.17	28.1
471	2021-04-15	0	1.49	0.75	0.07		86.87	82.1	105.6	28.4
472	2021-04-16	0	1.43	0.3	0.12		89.43	90.43	107.87	29.24
473	2021-04-17	0	1.52	0.23	0.14		98.66	82.45	135.94	30.85
474	2021-04-18	0	1.66	0.29	0.15		83.04	189.72	112.55	32.97

S. No.	Date	Stack11_FCCU_I_FGD1-					Stack12_FCCU_II_14F1-			
		NOx (mg/Nm3)	SOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
475	2021-04-19	0	1.75	0.38	0.17		67.04	68.46	72.2	33.35
476	2021-04-20	0	2.01	0.55	0.18		79.66	109.56	328.21	34.86
477	2021-04-21	0	2.01	0.39	0.24		79.57	78.21	148.25	36.28
478	2021-04-22	0	2.07	0.32	0.25		87.34	28.11	150.28	36.81
479	2021-04-23	0	2.3	0.24	0.2		88.8	12.08	111.85	37.61
480	2021-04-24	0	2.2	0.3	0.19		89.42	8.14	126.35	39.06
481	2021-04-25	0	1.74	0.45	0.27		85.71	15.77	107.51	42.97
482	2021-04-26	0	1.79	0.21	0.24		75.54	21.79	111.92	43.43
483	2021-04-27	0	1.88	0.17	0.27		75.03	28.43	221.79	43.64
484	2021-04-28	0	1.92	0.08	0.26		76.87	25.57	197.55	44.17
485	2021-04-29	8.14	23.99	4.43	0.31		80.01	11.92	105.91	45.68
486	2021-04-30	NA	NA	NA	0.28		64.35	64.71	109.32	47.62
487	CFO Standards	-	-	-	50		-	-	-	100
488	Maximum Value	612.49	1429.29	204.63	62.89		366.41	457.58	1756.69	149.6
489	Maximum Value on	2020-09-17	2020-12-21	2020-09-20	2020-03-05		2020-06-27	2021-03-31	2020-07-10	2020-01-01
490	Average	158.74	69.61	38.1	23.88		46.92	53.05	283.34	23.98
491		413	459	443	483		413	426	428	426
492	Total Data Points	486	486	486	486		486	486	486	486
493	Data Availablity %	96.09	96.09	95.88	99.38		90.95	90.95	90.95	90.95
494	Pollutant Load (Tons/day)	0.420	0.184	0.101	0.063		0.023	0.026	0.139	0.012
495	Pollutnat Load as per CFO (Tons/day)				0.132					0.049

Stack Monitroing Data (CEMS) - From 01.01.2020 to 30.04.2021

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

S. No.	Date	Stack13_FCCU_II_14F3-				Stack14_FCCU_II_FGD2-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
1	2020-01-01	0.16	0.17	0	0	163.2	3.21	103.01	28.63
2	2020-01-02	0.16	0.17	0.22	0	146.64	0.45	76.53	28.65
3	2020-01-03	0.16	0.17	0.35	0	114.29	2.81	102.97	28.65
4	2020-01-04	0.16	0.17	1.52	0	109.24	9.28	120.64	28.66
5	2020-01-05	0.16	0.17	0.54	0	94.94	12.24	187.98	28.57
6	2020-01-06	0.16	0.17	0.74	0	91.49	17.31	176.23	28.61
7	2020-01-07	0.16	0.17	0.39	0	135.8	12.47	105.79	28.53
8	2020-01-08	0.16	0.17	0	0	105.92	10.74	128.35	28.53
9	2020-01-09	0.16	0.17	0	0	96.38	11.25	104.12	28.56
10	2020-01-10	0.16	0.17	0	0	75.27	10.95	131.62	28.68
11	2020-01-11	0.16	0.17	0	0	82.13	21.18	121.55	28.68
12	2020-01-12	0.16	0.17	3.77	0	97.29	29.23	68.03	28.64
13	2020-01-13	0.17	0.17	0.45	0	119.26	7.77	70.73	28.68
14	2020-01-14	0.17	0.17	0.67	0	99.85	6.21	164.58	28.46
15	2020-01-15	0.17	0.17	0.25	0	103.6	8.85	174.12	28.6
16	2020-01-16	0.17	0.17	0.11	0	103.14	0.78	108.52	28.65
17	2020-01-17	0.16	0.17	0.54	0	77.5	0.95	173.18	28.53
18	2020-01-18	0.16	0.17	0.82	0	73.01	0	211.12	28.67
19	2020-01-19	0.16	0.17	0.76	0	52.78	0	192.22	28.68
20	2020-01-20	0.16	0.17	0.24	0	70.21	0	184.72	28.66
21	2020-01-21	0.16	0.17	0.6	0	123.06	0	139.91	28.41
22	2020-01-22	0.16	0.17	2.36	0	141.03	0.88	175.93	27.91
23	2020-01-23	0.16	0.17	0.95	0	140.65	18.3	228.93	27.83
24	2020-01-24	0.16	0.17	0.02	0	135.05	47.17	180.27	27.85
25	2020-01-25	0.17	0.17	0	0	128.93	28.6	179.76	27.79
26	2020-01-26	0.16	0.17	0.27	0	105.52	27.49	164.66	27.85
27	2020-01-27	0.17	0.17	0.92	0	99.59	26.06	177.88	27.93
28	2020-01-28	0.17	0.17	0	0	112.29	23.78	171.45	27.93
29	2020-01-29	NA	NA	NA	NA	118.93	21.51	107.08	NA
30	2020-01-30	NA	NA	NA	NA	103.88	22.79	182.95	NA
31	2020-01-31	NA	NA	NA	NA	106.64	26.84	159.45	NA
32	2020-02-01	NA	NA	NA	NA	92.76	23.16	194.84	NA
33	2020-02-02	NA	NA	NA	NA	91.66	32.1	164.23	NA
34	2020-02-03	NA	NA	NA	NA	86.93	36.94	192.71	NA
35	2020-02-04	NA	NA	NA	NA	100.86	31.09	124.98	NA
36	2020-02-05	NA	NA	NA	NA	105.32	20.96	113.76	NA
37	2020-02-06	NA	NA	NA	NA	106.51	38.57	114.48	NA
38	2020-02-07	NA	NA	NA	NA	91.71	25.57	177.35	NA
39	2020-02-08	NA	NA	NA	NA	98.53	25.62	105.41	NA
40	2020-02-09	NA	NA	NA	NA	90.49	30.88	136.61	NA
41	2020-02-10	NA	NA	NA	NA	100.29	26.09	113.82	NA
42	2020-02-11	NA	NA	NA	NA	83.59	27.41	166.84	NA
43	2020-02-12	NA	NA	NA	NA	84.08	30.05	167.8	NA
44	2020-02-13	NA	NA	NA	NA	80.94	33.01	185.79	NA
45	2020-02-14	NA	NA	NA	NA	79.39	40.11	220.96	NA
46	2020-02-15	NA	NA	NA	NA	83.48	34.44	237.19	NA
47	2020-02-16	NA	NA	NA	NA	85.86	31.86	219.21	NA
48	2020-02-17	NA	NA	NA	NA	108.42	30.01	111.81	NA
49	2020-02-18	NA	NA	NA	NA	103.71	30.01	135.65	NA
50	2020-02-19	NA	NA	NA	NA	94.07	35.79	228.15	NA
51	2020-02-20	NA	NA	NA	NA	79.71	25.41	221.62	NA
52	2020-02-21	NA	NA	NA	NA	82.06	18.17	188.48	NA
53	2020-02-22	NA	NA	NA	NA	90.44	16.83	176.78	NA
54	2020-02-23	NA	NA	NA	NA	82.35	16.92	221.05	NA
55	2020-02-24	NA	NA	NA	NA	87.61	14.15	180.16	NA
56	2020-02-25	NA	NA	NA	NA	100.7	11.83	121.88	NA
57	2020-02-26	NA	NA	NA	NA	95.28	12.39	140.02	NA
58	2020-02-27	NA	NA	NA	NA	88.02	16.21	175.89	NA
59	2020-02-28	NA	NA	NA	NA	93.96	15.5	180.55	NA
60	2020-02-29	NA	NA	NA	NA	110.48	12.04	102.22	NA
61	2020-03-01	NA	NA	NA	NA	96.64	14.33	141.49	NA
62	2020-03-02	NA	NA	NA	NA	107.67	13.96	117.31	NA
63	2020-03-03	NA	NA	NA	NA	129.45	10.76	87.81	NA
64	2020-03-04	NA	NA	NA	NA	131.49	10.12	56.25	NA
65	2020-03-05	NA	NA	NA	NA	125.73	11.82	61.99	NA
66	2020-03-06	NA	NA	NA	NA	122	22.9	77.8	NA

32.0

S. No.	Date	Stack13_FCCU_II_14F3-				Stack14_FCCU_II_FGD2-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
67	2020-03-07	NA	NA	NA	NA	122.52	22.8	155.03	NA
68	2020-03-08	NA	NA	NA	NA	118.59	16.31	102.71	NA
69	2020-03-09	NA	NA	NA	NA	36.28	9.18	18.38	NA
70	2020-03-10	NA	NA	NA	NA	35.99	9.37	20.03	NA
71	2020-03-11	NA	NA	NA	NA	36.98	10.46	22.64	NA
72	2020-03-12	NA	NA	NA	NA	38.02	10.44	26.23	24.1
73	2020-03-13	NA	NA	NA	NA	40.41	11.2	29.09	24.11
74	2020-03-14	NA	NA	NA	NA	39.92	12.26	27.37	24.25
75	2020-03-15	NA	NA	NA	NA	39.94	13.09	25.12	24.34
76	2020-03-16	NA	NA	NA	NA	39.44	12.79	23.86	24.33
77	2020-03-17	NA	NA	NA	NA	120.89	38.17	58.04	30.02
78	2020-03-18	NA	NA	NA	NA	157.54	24.46	90.08	32.67
79	2020-03-19	NA	NA	NA	NA	148.83	26.71	94.91	32.59
80	2020-03-20	NA	NA	NA	NA	153.4	25.63	46.67	32.53
81	2020-03-21	NA	NA	NA	NA	146	22.54	32.96	32.57
82	2020-03-22	NA	NA	NA	NA	158.15	21.79	42.84	32.6
83	2020-03-23	NA	NA	NA	NA	159.01	20.61	36.18	32.74
84	2020-03-24	NA	NA	NA	NA	154.18	21.04	103	32.67
85	2020-03-25	NA	NA	NA	NA	163.24	20.83	119.78	32.59
86	2020-03-26	NA	NA	NA	NA	169.29	35.91	103.69	32.65
87	2020-03-27	NA	NA	NA	NA	156.65	44.52	172.14	32.47
88	2020-03-28	NA	NA	NA	NA	173.56	29.09	192.17	32.61
89	2020-03-29	NA	NA	NA	NA	183.65	30.19	221.72	32.53
90	2020-03-30	NA	NA	NA	NA	197.36	27.91	185.62	32.59
91	2020-03-31	NA	NA	NA	NA	233.71	25.65	128.36	32.52
92	2020-04-01	NA	NA	NA	NA	224.2	25.28	125.75	32.55
93	2020-04-02	NA	NA	NA	NA	202.74	31.02	201.63	32.48
94	2020-04-03	NA	NA	NA	NA	210.41	29.97	150.29	32.58
95	2020-04-04	NA	NA	NA	NA	233.43	26.57	117.95	32.59
96	2020-04-05	NA	NA	NA	NA	216.51	28.9	122.26	32.66
97	2020-04-06	NA	NA	NA	NA	197	28.53	162.25	32.71
98	2020-04-07	NA	NA	NA	NA	190.62	31.85	184.66	32.7
99	2020-04-08	NA	NA	NA	NA	215.21	32.71	170.26	32.74
100	2020-04-09	NA	NA	NA	NA	228.71	35.51	141.2	32.59
101	2020-04-10	NA	NA	NA	NA	246.65	34.23	151.76	32.68
102	2020-04-11	NA	NA	NA	NA	241.43	34.53	185.46	32.64
103	2020-04-12	NA	NA	NA	NA	201.01	37.21	225.78	32.69
104	2020-04-13	NA	NA	NA	NA	211.54	39.2	220.81	32.64
105	2020-04-14	NA	NA	NA	NA	231.07	35.92	181.35	32.63
106	2020-04-15	NA	NA	NA	NA	233.98	35.28	130.57	32.66
107	2020-04-16	NA	NA	NA	NA	193.29	37.47	166.84	32.62
108	2020-04-17	NA	NA	NA	NA	144.86	40.96	212.53	32.76
109	2020-04-18	NA	NA	NA	NA	137.17	42.2	192.14	32.71
110	2020-04-19	NA	NA	NA	NA	134.63	40.25	153.61	32.75
111	2020-04-20	NA	NA	NA	NA	114.48	41.49	205	32.79
112	2020-04-21	NA	NA	NA	NA	126.23	41.48	158.28	32.82
113	2020-04-22	NA	NA	NA	NA	123.37	40.45	149.8	32.83
114	2020-04-23	NA	NA	NA	NA	97.48	43.05	213.04	32.79
115	2020-04-24	NA	NA	NA	NA	101.48	45.56	220.16	32.8
116	2020-04-25	NA	NA	NA	NA	128.13	45.48	117.11	33.19
117	2020-04-26	NA	NA	NA	NA	137.53	44.47	113.77	33.06
118	2020-04-27	NA	NA	NA	NA	125.11	47.64	119.68	33.31
119	2020-04-28	0.16	0.16	5.76	0	95.67	53.07	175.35	33.2
120	2020-04-29	0.16	0.15	5.58	0	87.42	55.31	216.18	33.22
121	2020-04-30	0.16	0.15	4.83	0	140.82	49.01	34.23	33.13
122	2020-05-01	0.16	0.15	3.94	0	127.69	47.8	58.28	33.38
123	2020-05-02	0.16	0.15	3.89	0	111.23	47.89	54.28	33.17
124	2020-05-03	0.16	0.15	5.77	0	97.25	47.13	87.93	33.41
125	2020-05-04	0.16	0.15	4.76	0	113.49	44.32	42.7	33.22
126	2020-05-05	0.16	0.15	5.26	0	114.63	43.3	74.62	33.25
127	2020-05-06	0.16	0.15	3.72	0	128.59	44.43	65.29	33.36
128	2020-05-07	0.16	0.15	3.65	0	136.46	42.28	34.57	33.23
129	2020-05-08	0.16	0.15	3.4	0	129.07	40.22	27.64	33.23
130	2020-05-09	0.16	0.15	5.81	0	125.62	39.63	30.75	33.22
131	2020-05-10	0.16	0.15	7.22	0	122.29	39.81	42.16	33.45
132	2020-05-11	0.16	0.15	8.34	0	122.1	37.16	30.99	33.33
133	2020-05-12	0.16	0.14	2.31	0	116.1	36.23	32.77	33.3
134	2020-05-13	0.14	0.13	0.17	0	112.95	36.17	36.87	33.32

252

S. No.	Date	Stack13_FCCU_II_14F3-				Stack14_FCCU_II_FGD2-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
135	2020-05-14	0.13	0.13	0.18	0	112.39	34.68	35.81	33.34
136	2020-05-15	0.13	0.13	0.15	0	109.59	33.2	31.37	33.45
137	2020-05-16	0.16	0.14	5.72	0	91.71	32.4	32.01	33.45
138	2020-05-17	0.16	0.15	2.38	0	95.77	31.66	24.38	33.41
139	2020-05-18	0.1	0.09	0.54	0	97.33	33.51	61.51	33.37
140	2020-05-19	0.09	0.08	5.95	0	85.95	37.31	121.41	33.35
141	2020-05-20	0.16	0.15	7.81	0	107.51	34.53	30.05	33.26
142	2020-05-21	0.16	0.15	5.8	0	115.42	30.72	24.61	33.19
143	2020-05-22	0.16	0.15	5.96	0	122.86	30.1	23.59	33.29
144	2020-05-23	0.16	0.15	9.95	0	115.94	29.82	23.46	33.26
145	2020-05-24	0.16	0.15	5.5	0	115.75	29.59	23.42	33.24
146	2020-05-25	0.16	0.15	9.26	0	120.38	29.83	23.9	33.18
147	2020-05-26	0.16	0.15	5.33	0	107.49	33.19	87.31	33.3
148	2020-05-27	0.16	0.15	4.25	0	106.88	33.98	83.33	33.34
149	2020-05-28	0.16	0.15	7.94	0	74.3	36.53	76.03	33.42
150	2020-05-29	0.16	0.15	6.88	0	83.34	40.24	15.33	33.65
151	2020-05-30	0.16	0.15	4.99	0	75.8	41.95	81.12	33.57
152	2020-05-31	0.16	0.15	4.91	0	71.35	41	30.5	33.53
153	2020-06-01	0.16	0.15	6.54	0	71.65	42.5	6.61	33.52
154	2020-06-02	0.16	0.15	6.21	0	75.34	41.87	60.98	33.57
155	2020-06-03	0.16	0.15	12.23	0	122.78	34.96	40.83	33.47
156	2020-06-04	0.15	12.49	173.3	0	153.98	32.92	42.37	33.47
157	2020-06-05	0.16	97.87	369.31	0	188.38	31.56	29.48	33.23
158	2020-06-06	0.16	79.83	184.47	0	164.73	28.35	24.12	33.47
159	2020-06-07	0.16	81.71	103.88	0	171.63	26.98	40.39	33.05
160	2020-06-08	0.16	34.75	41.43	0	22.46	23	15.38	26.95
161	2020-06-09	0.16	0.15	161.07	0	24.69	20.5	14.78	25.85
162	2020-06-10	0.16	19.71	252.52	0	24.34	18.04	13.96	25.65
163	2020-06-11	14.25	41.14	226.77	0	23.84	15.96	13.9	25.98
164	2020-06-12	82.44	32.53	255.22	0	24.5	13.64	14.26	25.78
165	2020-06-13	107.05	30.21	572.68	0	23.41	11.24	13.77	25.11
166	2020-06-14	121.67	31.17	627.44	0	24.22	8.91	13.72	25.18
167	2020-06-15	75.97	30.32	371.95	0	75.6	11.67	21.57	28.17
168	2020-06-16	36.72	30.46	10.12	0	189.77	8.17	21.51	33.71
169	2020-06-17	34.15	30.51	6.12	0	191.21	6.63	20.1	33.71
170	2020-06-18	37.19	30.14	7.21	0	180.55	5.59	22.04	33.63
171	2020-06-19	43.58	30.7	9.68	0	209.53	4.23	56.2	33.62
172	2020-06-20	43.45	29.95	9.1	0	202.26	2.49	63.91	33.74
173	2020-06-21	35.82	30.48	4.08	0	169.96	1.29	60.35	33.62
174	2020-06-22	46.09	30.61	10.9	0	187.15	0.32	52.23	33.56
175	2020-06-23	36.8	28.13	227.29	0	216.03	0	45.87	33.56
176	2020-06-24	14.23	15.85	229.56	0	114.54	9.55	35.36	33.76
177	2020-06-25	4.47	5.37	45.04	0	16.05	21.2	30.05	33.71
178	2020-06-26	238.81	19.94	35.86	0	41.62	19.75	39.69	33.59
179	2020-06-27	685.49	34.66	20.35	0	45.57	18.01	38.12	33.5
180	2020-06-28	132.46	7.42	0.72	0	26.17	15.9	38.73	33.66
181	2020-06-29	279.68	20.49	20.47	0	26.64	14.23	42.95	33.77
182	2020-06-30	330.46	60.3	18.13	0	139.82	5.92	30.87	33.73
183	2020-07-01	32.71	51.34	16.91	0	225.08	0	40.9	33.9
184	2020-07-02	10.18	51.43	11.08	0	244.71	13.11	41.83	34.15
185	2020-07-03	180.29	53.01	35.22	0	276.2	22.55	10.58	33.67
186	2020-07-04	196.54	59.13	41	0	267.82	20.87	8.07	33.62
187	2020-07-05	29.91	59.51	20.94	0	266.17	18.91	7.13	33.79
188	2020-07-06	146.35	59.73	27.34	0	257.26	17.42	6.43	33.79
189	2020-07-07	191.87	59.43	643.01	0	244.18	16.18	11.18	33.66
190	2020-07-08	64.61	64.71	1160.87	0	247.65	14.95	17.98	33.82
191	2020-07-09	85.34	36.53	1500.9	0	243.45	12.97	15.21	33.72
192	2020-07-10	179.33	16.68	1761.08	0	197.74	10.22	10.88	33.7
193	2020-07-11	127.66	44.08	1262.02	0	259.18	26.16	38.46	33.64
194	2020-07-12	92.51	8.11	315.3	0	320.23	19.8	38.32	33.92
195	2020-07-13	68.59	9.08	560.74	0	189.28	18.57	38	33.91
196	2020-07-14	134.96	26.6	467.51	0	188.75	22.65	44.04	33.86
197	2020-07-15	135.47	34.81	141.1	0	237.17	18.34	30.75	33.83
198	2020-07-16	115.89	35.28	209.53	0	245.9	15.8	30.57	33.77
199	2020-07-17	83.27	16.84	467.95	0	247.39	13.08	31.79	33.91
200	2020-07-18	32.22	0.15	376.45	0	242.21	11	32.96	33.76
201	2020-07-19	0.16	0.15	0.6	0	NA	NA	NA	33.8
202	2020-07-20	25.19	0.15	37.16	0	NA	NA	NA	33.76

S. No.	Date	Stack13_FCCU_II_14F3-				Stack14_FCCU_II_FGD2-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
203	2020-07-21	52.15	0.15	82.37	0	NA	NA	NA	33.96
204	2020-07-22	50.63	0.15	75.65	0	NA	NA	NA	33.74
205	2020-07-23	50.65	0.15	77.18	0	NA	NA	NA	33.76
206	2020-07-24	49.19	0.15	77.53	0	NA	NA	NA	33.94
207	2020-07-25	28.52	0.16	58.3	0	69.38	6.49	5.86	33.91
208	2020-07-26	26.02	0.16	82.44	0	69.39	5.83	6.94	33.91
209	2020-07-27	17.81	10.46	73.35	0	71.56	5.02	8.8	33.76
210	2020-07-28	19.17	25.54	152.51	0	76.93	2.6	9.83	34
211	2020-07-29	19.12	25.94	148.46	0	78.51	1.23	9.97	34.09
212	2020-07-30	11.44	15.49	88.57	0	73.16	0.65	18.49	33.98
213	2020-07-31	0.16	0.15	0.6	0	77.67	0.12	14.78	33.8
214	2020-08-01	0.17	0.16	0.61	0	76.59	0.01	14.2	33.85
215	2020-08-02	0.16	0.15	0.6	0	80.45	0	16.09	34.07
216	2020-08-03	75.53	44.32	435.49	0	72.32	0	15.82	33.87
217	2020-08-04	133.62	78.37	770.58	0	68.42	0	16.47	33.9
218	2020-08-05	78.67	46.16	453.52	0	74.01	0	17.47	33.95
219	2020-08-06	0.16	0.15	0.58	0	77.79	0	19.3	33.77
220	2020-08-07	0.16	0.15	0.58	0	83.16	0	22.56	33.7
221	2020-08-08	0.16	0.15	0.58	0	66.78	0	69.83	33.76
222	2020-08-09	0.16	0.15	0.58	0	67.14	0	50.88	33.93
223	2020-08-10	0.16	0.15	0.59	0	71.86	0	25.01	33.77
224	2020-08-11	0.16	0.15	0.59	0	77.57	6.26	28.9	33.78
225	2020-08-12	0.16	0.15	0.58	0	82.06	11.14	26.7	33.83
226	2020-08-13	0.16	0.15	0.58	0	71.48	11.31	26.91	34.17
227	2020-08-14	0.16	0.15	0.58	0	61.83	9.88	27.16	34.19
228	2020-08-15	0.16	0.15	0.59	0	57.6	7.8	27.53	34.01
229	2020-08-16	0.16	0.15	0.59	0	55.59	5.37	28.32	33.71
230	2020-08-17	0.16	0.15	0.59	0	51.89	2.33	28.43	33.8
231	2020-08-18	0.16	0.15	0.59	0	49.54	0.52	29.2	33.86
232	2020-08-19	0.16	0.15	0.6	0	48.71	7.88	29.27	33.96
233	2020-08-20	0.1	0.1	0.38	0	39.09	22.18	32.41	33.29
234	2020-08-21	0.16	0.16	0.59	0	28.07	20.55	17.07	34.08
235	2020-08-22	0.17	0.16	0.61	0	16.48	9.76	14.81	34.15
236	2020-08-23	NA	NA	NA	NA	14.84	3.83	16.63	34.27
237	2020-08-24	0.16	0.16	0.58	0	16.34	9.26	19.9	34.32
238	2020-08-25	0.14	0.13	0.5	0	17.25	11.58	14.31	34.33
239	2020-08-26	0.13	0.13	0.48	0	16.58	9.06	14.06	34.1
240	2020-08-27	0.17	0.15	0.6	0	16.06	6.71	14.41	34.2
241	2020-08-28	0.17	0.16	0.61	0	15.2	3.86	15.26	34.09
242	2020-08-29	0.17	0.16	0.61	0	13.49	9.11	19.99	34.31
243	2020-08-30	0.17	0.15	0.61	0	12.68	14.77	24.37	34.24
244	2020-08-31	0.17	0.15	0.6	0	11.85	12.22	25.23	34.25
245	2020-09-01	0.17	0.16	0.61	0	20.82	16.62	41.34	34.6
246	2020-09-02	0.17	0.15	0.6	0	24.09	22.05	48.93	34.83
247	2020-09-03	0.17	0.16	0.61	0	8.35	19.73	35.93	34.48
248	2020-09-04	0.16	0.15	0.6	0	6.35	17.11	20.64	34.55
249	2020-09-05	0.17	0.16	0.61	0	6.79	15.94	21.14	34.48
250	2020-09-06	0.17	0.15	0.61	0	6.77	15.45	19.41	34.23
251	2020-09-07	0.17	0.15	0.6	0	7.45	13.27	19	34.23
252	2020-09-08	0.17	0.16	0.61	0	6.69	11.03	27.81	34.27
253	2020-09-09	0.17	0.16	0.61	0	6.34	8.55	32.9	34.28
254	2020-09-10	0.09	0.09	0.33	0	5.49	8.86	26.73	34.28
255	2020-09-11	0.05	0.05	0.18	0	3.39	12.88	37.35	34.36
256	2020-09-12	0.16	0.15	0.59	0	4.85	13.97	45.2	34.5
257	2020-09-13	0.16	0.15	0.59	0	3.63	9.96	42.09	34.84
258	2020-09-14	0.16	0.15	0.59	0	7.28	12.56	67.11	34.73
259	2020-09-15	0.16	0.15	0.59	0	10.13	13.36	67.77	34.82
260	2020-09-16	0.16	0.15	0.59	0	10.75	11.49	67.36	34.48
261	2020-09-17	0.17	0.15	0.6	0	10.27	9.8	67.32	34.51
262	2020-09-18	0.17	0.15	0.61	0	9.41	8.23	70.68	34.39
263	2020-09-19	0.16	0.15	0.6	0	22.77	19.1	158.94	34.63
264	2020-09-20	0.17	0.15	0.6	0	1.93	18.61	35.01	34.67
265	2020-09-21	0.17	0.15	0.6	0	7.17	23.35	22.2	34.57
266	2020-09-22	0.17	0.15	0.61	0	22.07	29.97	59.7	34.4
267	2020-09-23	0.17	0.15	0.6	0	28.98	25.88	68.65	34.61
268	2020-09-24	0.17	0.15	0.6	0	37.12	0	70.41	34.8
269	2020-09-25	0.16	0.15	0.59	0	64.36	0	26.74	34.63
270	2020-09-26	0.16	0.15	0.57	0	57.81	0	22.96	34.74

S. No.	Date	Stack13_FCCU_II_14F3-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
271	2020-09-27	0.09	0.08	0.3	0
272	2020-09-28	0.05	0.05	0.18	0
273	2020-09-29	0.17	0.15	0.6	0
274	2020-09-30	0.17	0.15	0.6	0
275	2020-10-01	0.16	0.15	0.6	0
276	2020-10-02	0.17	0.15	0.61	0
277	2020-10-03	0.17	0.16	0.61	0
278	2020-10-04	0.17	0.15	0.61	0
279	2020-10-05	0.17	0.15	0.61	0
280	2020-10-06	0.17	0.15	0.61	0
281	2020-10-07	0.17	0.15	0.61	0
282	2020-10-08	0.17	0.15	0.61	0
283	2020-10-09	0.17	0.15	0.61	0
284	2020-10-10	0.17	0.15	0.61	0
285	2020-10-11	0.17	0.15	0.6	0
286	2020-10-12	0.17	0.15	0.6	0
287	2020-10-13	0.17	0.15	0.6	0
288	2020-10-14	0.17	0.15	0.6	0
289	2020-10-15	0.17	0.15	0.61	0
290	2020-10-16	0.17	0.15	0.61	0
291	2020-10-17	0.17	0.15	0.6	0
292	2020-10-18	0.17	0.15	0.6	0
293	2020-10-19	0.17	0.15	0.6	0
294	2020-10-20	0.17	0.15	0.6	0
295	2020-10-21	0.17	0.15	0.6	0
296	2020-10-22	0.17	0.15	0.6	0
297	2020-10-23	0.17	0.15	0.6	0
298	2020-10-24	0.17	0.15	0.6	0
299	2020-10-25	0.17	0.15	0.6	0
300	2020-10-26	0.17	0.15	0.6	0
301	2020-10-27	0.17	0.15	0.6	0
302	2020-10-28	0.16	0.15	0.59	0
303	2020-10-29	0.16	0.15	0.59	0
304	2020-10-30	0.17	0.15	0.6	0
305	2020-10-31	0.17	0.15	0.61	0
306	2020-11-01	0.17	0.15	0.6	0
307	2020-11-02	0.17	0.15	0.6	0
308	2020-11-03	0.17	0.15	0.6	0
309	2020-11-04	0.17	0.15	0.61	0
310	2020-11-05	0.17	0.15	0.6	0
311	2020-11-06	0.17	0.15	0.6	0
312	2020-11-07	0.17	0.15	0.6	0
313	2020-11-08	0.17	0.15	0.6	0
314	2020-11-09	0.17	0.15	0.59	0
315	2020-11-10	0.17	0.15	0.59	0
316	2020-11-11	0.16	0.15	0.58	0
317	2020-11-12	0.16	0.15	0.58	0
318	2020-11-13	0.16	0.15	0.59	0
319	2020-11-14	0.17	0.15	0.6	0
320	2020-11-15	0.16	0.15	0.59	0
321	2020-11-16	0.16	0.15	0.59	0
322	2020-11-17	0.16	0.15	0.59	0
323	2020-11-18	0.16	0.15	0.58	0
324	2020-11-19	0.16	0.15	0.58	0
325	2020-11-20	0.17	0.15	0.59	0
326	2020-11-21	0.17	0.15	0.6	0
327	2020-11-22	0.17	0.15	0.59	0
328	2020-11-23	0.17	0.15	0.6	0
329	2020-11-24	0.17	0.15	0.6	0
330	2020-11-25	0.17	0.15	0.6	0
331	2020-11-26	0.17	0.16	0.61	0
332	2020-11-27	0.18	0.16	0.61	0
333	2020-11-28	0.17	0.15	0.6	0
334	2020-11-29	0.17	0.15	0.6	0
335	2020-11-30	0.17	0.15	0.6	0
336	2020-12-01	0.17	0.15	0.6	0
337	2020-12-02	0.17	0.15	0.61	0
338	2020-12-03	0.17	0.15	0.6	0

Stack14_FCCU_II_FGD2-			
NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
39.23	0	51.89	34.73
40.69	25.66	34.7	34.66
42.56	87.34	26.75	34.85
123.52	84.63	23.79	35.53
210	77.31	39.81	34.56
203.03	76.84	59.04	34.41
203.45	77.45	56.97	34.4
202.08	75.99	51.32	34.34
209.71	47.29	34.2	34.54
215.22	48.8	37.76	34.8
238.58	92.22	30.77	34.79
233.4	81.09	44.23	34.74
60.73	94.56	36.69	35.04
177.68	140.64	44.58	35.05
192.93	198.89	47.46	35.44
47.34	238.66	27.46	35.75
91.91	225.06	18.9	34.99
107.76	234.64	16.61	34.81
129.93	226.1	15.25	35.1
140.98	220.18	15.51	35.25
91.54	117.45	9.68	35.35
48.46	0	3.58	35.23
53.96	0	3.61	35.48
49.38	0.88	4.3	35.1
75.99	10.32	2.07	35.05
107.67	31.32	0.01	34.95
109.09	18.71	0	34.97
117.5	27.7	52.86	34.92
115.77	48.6	63.77	35
115.23	58.14	41.51	34.84
124.4	33.9	4.44	34.62
128.94	6.74	6.25	34.47
125.08	43.85	17.05	34.35
118.63	76.53	39.92	34.33
113.9	45.67	41.07	34.29
117.62	51.57	21.17	34.14
113.31	86.14	35.43	34.38
108.15	38.71	37.39	34.46
108.78	0.01	36.56	34.62
109.68	0.09	29.84	34.78
107.41	33.79	35.04	34.76
106.73	23.85	37.16	34.75
107.88	0.11	29.69	32.55
106.99	29.45	10.43	25.57
106.77	46.51	11.6	25.61
43.56	17.78	4.87	25.36
0.15	0	0	25.7
7.31	22.41	9.34	25.7
0.21	5.09	20.91	26.1
0.22	3.61	22.76	26.14
2.11	1.65	13.01	26.31
0.4	0	1.94	26.61
0.32	0	1.63	26.85
0.29	0	1.93	26.89
NA	NA	NA	27.17
NA	NA	NA	27.18
NA	NA	NA	27.04
NA	NA	NA	26.87
NA	NA	NA	30.61
NA	NA	NA	35.08
NA	NA	NA	35.75
NA	NA	NA	34.94
NA	NA	NA	25.84
NA	NA	NA	25.85
NA	NA	NA	26.11
NA	NA	NA	26.08
NA	NA	NA	14.93
NA	NA	NA	3.17

S. No.	Date	Stack13_FCCU_II_14F3-				Stack14_FCCU_II_FGD2-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
339	2020-12-04	0.17	0.15	0.6	0	NA	NA	NA	1.83
340	2020-12-05	0.17	0.15	0.59	0	NA	NA	NA	0
341	2020-12-06	0.17	0.15	0.6	0	NA	NA	NA	0
342	2020-12-07	0.17	0.15	0.6	0	NA	NA	NA	0.95
343	2020-12-08	0.17	0.15	0.61	0	NA	NA	NA	0
344	2020-12-09	0.17	0.15	0.61	0	NA	NA	NA	0
345	2020-12-10	0.18	0.16	0.61	0	NA	NA	NA	0
346	2020-12-11	0.18	0.16	0.61	0	NA	NA	NA	0
347	2020-12-12	0.18	0.16	0.61	0	NA	NA	NA	0
348	2020-12-13	0.18	0.16	0.61	0	NA	NA	NA	0
349	2020-12-14	0.18	0.16	0.61	0	NA	NA	NA	0
350	2020-12-15	0.18	0.15	0.61	0	NA	NA	NA	0
351	2020-12-16	0.18	0.16	0.61	0	NA	NA	NA	0
352	2020-12-17	0.18	0.15	0.61	0	NA	NA	NA	0
353	2020-12-18	0.17	0.15	0.61	0	NA	NA	NA	0
354	2020-12-19	0.18	0.16	0.61	0	NA	NA	NA	0
355	2020-12-20	0.18	0.16	0.61	0	NA	NA	NA	0
356	2020-12-21	0.18	0.16	0.61	0	NA	NA	NA	0
357	2020-12-22	0.18	0.16	0.61	0	NA	NA	NA	0
358	2020-12-23	0.18	0.16	0.61	0	NA	NA	NA	0
359	2020-12-24	0.18	0.16	0.61	0	179.68	1.67	29.49	0
360	2020-12-25	0.18	0.16	0.61	0	229.21	11.88	32.22	0
361	2020-12-26	0.18	0.16	0.61	0	154.56	19.28	31.61	2.01
362	2020-12-27	0.18	0.16	0.61	0	0.2	17.09	15.02	6.52
363	2020-12-28	0.18	0.16	0.61	0	6.9	15.52	15.92	5.22
364	2020-12-29	0.18	0.16	0.61	0	62.03	12.36	8.51	4.54
365	2020-12-30	0.18	0.16	0.61	0	57.56	16.68	1.05	6.52
366	2020-12-31	0.18	0.16	0.61	0	87.66	14.37	36.74	6.51
367	2021-01-01	0.18	0.16	0.61	0	5.38	13.76	37.56	6.5
368	2021-01-02	0.18	0.15	0.61	0	3.8	12.85	37.41	6.42
369	2021-01-03	0.17	0.15	0.61	0	2.2	11.14	37.2	6.51
370	2021-01-04	0.18	0.16	0.61	0	31.19	9.45	38.01	24.53
371	2021-01-05	0.12	0.11	0.4	0	2	8.18	16.29	37.66
372	2021-01-06	0.14	0.12	0.48	0	3.89	6.77	15.02	37.08
373	2021-01-07	0.18	0.15	0.61	0	7.73	5.49	20.29	37.1
374	2021-01-08	0.18	0.16	0.61	0	10.09	4.28	19.73	37.06
375	2021-01-09	0.18	0.16	0.61	0	11.19	10.66	19.81	37.08
376	2021-01-10	0.17	0.15	0.6	0	12.72	15.72	19.79	37.16
377	2021-01-11	0.18	0.15	0.61	0	17.43	14.95	19.74	37.04
378	2021-01-12	0.18	0.16	0.61	0	23.01	30.63	35.99	37.08
379	2021-01-13	0.18	0.16	0.61	0	15.68	43.12	49.8	36.99
380	2021-01-14	0.18	0.16	0.61	0	12.55	42.1	49.23	36.95
381	2021-01-15	0.18	0.16	0.61	0	11.65	40.98	49.03	38.08
382	2021-01-16	0.18	0.16	0.61	0	11.94	39.83	48.97	38.3
383	2021-01-17	0.18	0.15	0.61	0	13.41	38.64	48.75	37.07
384	2021-01-18	0.18	0.15	0.61	0	15.36	37.53	48.66	36.89
385	2021-01-19	0.18	0.16	0.61	0	40.99	40.41	45.26	36.9
386	2021-01-20	0.18	0.16	0.61	0	43.89	39.45	29.55	36.99
387	2021-01-21	0.18	0.16	0.61	0	18.17	45.52	17.88	36.88
388	2021-01-22	0.18	0.16	0.61	0	18.14	40.3	17.39	36.78
389	2021-01-23	0.17	0.15	0.6	0	17.65	35.67	17.11	36.86
390	2021-01-24	0.17	0.15	0.59	0	18.34	32.61	17.17	37.22
391	2021-01-25	0.18	0.16	0.61	0	19.92	28.95	17.06	38.18
392	2021-01-26	0.18	0.16	0.61	0	20.64	25.53	16.94	37.87
393	2021-01-27	0.18	0.16	0.61	0	21.17	22.07	16.9	37.23
394	2021-01-28	0.18	0.16	0.61	0	20.86	18.46	16.9	36.85
395	2021-01-29	0.18	0.16	0.61	0	20.41	14.52	16.86	38.57
396	2021-01-30	0.18	0.16	0.61	0	20.4	10.45	17.01	37.09
397	2021-01-31	0.18	0.16	0.61	0	20.49	6.78	17.11	36.81
398	2021-02-01	0.18	0.17	0.61	0	22.01	3.37	17.43	37.03
399	2021-02-02	0.18	0.17	0.61	0	22.57	12.41	17.38	37.02
400	2021-02-03	0.18	0.16	0.61	0	108.26	23.65	50.97	37.59
401	2021-02-04	0.18	0.16	0.61	0	80.44	28	51.12	37.49
402	2021-02-05	0.18	0.16	0.61	0	94.31	29.55	48.77	36.44
403	2021-02-06	0.18	0.16	0.61	0	114.22	31.42	36.78	36.85
404	2021-02-07	0.18	0.16	0.61	0	23.27	28.12	9.76	36.73
405	2021-02-08	0.18	0.16	0.61	0	99.52	28.83	34.22	37.41
406	2021-02-09	0.18	0.16	0.61	0	100.35	29.74	40.76	36.19

S. No.	Date	Stack13_FCCU_II_14F3-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
407	2021-02-10	0.18	0.16	0.61	0
408	2021-02-11	0.18	0.16	0.61	0
409	2021-02-12	0.18	0.16	0.61	0
410	2021-02-13	0.18	0.16	0.61	0
411	2021-02-14	0.18	0.16	0.61	0
412	2021-02-15	0.18	0.16	0.61	0
413	2021-02-16	0.18	0.17	0.61	0
414	2021-02-17	0.18	0.17	0.61	0
415	2021-02-18	0.18	0.17	0.61	0
416	2021-02-19	0.18	0.16	0.61	0
417	2021-02-20	0.18	0.16	0.61	0
418	2021-02-21	0.18	0.16	0.61	0
419	2021-02-22	0.18	0.16	0.61	0
420	2021-02-23	0.18	0.17	0.61	0
421	2021-02-24	0.18	0.17	0.61	0
422	2021-02-25	0.18	0.17	0.61	0
423	2021-02-26	0.18	0.17	0.61	0
424	2021-02-27	0.18	0.17	0.61	0
425	2021-02-28	0.18	0.16	0.61	0
426	2021-03-01	0.18	0.17	0.61	0
427	2021-03-02	0.18	0.17	0.61	0
428	2021-03-03	0.18	0.17	0.61	0
429	2021-03-04	0.18	0.17	0.61	0
430	2021-03-05	0.18	0.17	0.61	0
431	2021-03-06	0.18	0.17	0.61	0
432	2021-03-07	0.18	0.17	0.61	0
433	2021-03-08	0.18	0.17	0.61	0
434	2021-03-09	0.18	0.17	0.61	0
435	2021-03-10	0.18	0.17	0.61	0
436	2021-03-11	0.18	0.17	0.61	0
437	2021-03-12	0.18	0.17	0.61	0
438	2021-03-13	0.18	0.17	0.61	0
439	2021-03-14	0.18	0.17	0.61	0
440	2021-03-15	0.18	0.17	0.61	0
441	2021-03-16	0.18	0.17	0.61	0
442	2021-03-17	0.18	0.17	0.61	0
443	2021-03-18	0.18	0.17	0.61	0
444	2021-03-19	0.18	0.17	0.61	0
445	2021-03-20	0.18	0.17	0.61	0
446	2021-03-21	0.18	0.17	0.61	0
447	2021-03-22	0.18	0.17	0.61	0
448	2021-03-23	0.18	0.17	0.61	0
449	2021-03-24	0.18	0.17	0.61	0
450	2021-03-25	0.18	0.17	0.61	0
451	2021-03-26	0.18	0.17	0.61	0
452	2021-03-27	0.18	0.17	0.61	0
453	2021-03-28	0.18	0.17	0.61	0
454	2021-03-29	0.18	0.17	0.61	0
455	2021-03-30	0.18	0.16	0.61	0
456	2021-03-31	0.18	0.16	0.61	0
457	2021-04-01	0.18	0.16	0.61	0
458	2021-04-02	0.17	0.15	0.57	0
459	2021-04-03	0.16	0.15	0.54	0
460	2021-04-04	0.17	0.15	0.57	0
461	2021-04-05	0.16	0.15	0.54	0
462	2021-04-06	0.16	0.15	0.55	0
463	2021-04-07	0.17	0.15	0.57	0
464	2021-04-08	0.17	0.15	0.57	0
465	2021-04-09	0.17	0.15	0.56	0
466	2021-04-10	0.16	0.15	0.55	0
467	2021-04-11	0.16	0.15	0.55	0
468	2021-04-12	0.16	0.15	0.53	0
469	2021-04-13	NA	NA	NA	NA
470	2021-04-14	0.16	0.15	0.53	0
471	2021-04-15	0.16	0.15	0.55	0
472	2021-04-16	0.16	0.15	0.54	0
473	2021-04-17	0.17	0.16	0.58	0
474	2021-04-18	0.18	0.17	0.61	0

Stack14_FCCU_II_FGD2-			
NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
116.84	27.8	17.14	36.2
130.59	25.92	15.88	36.45
120.47	27.31	16.19	37.07
121.27	20.62	9.06	36.84
25.98	17.66	8.15	37.37
42.16	31.66	11.93	40.39
30.05	37.51	9.16	40.35
38.58	35.19	18.04	36.63
89.92	31.92	8.17	36.11
50.43	29.75	7.05	36.21
39.26	25.4	6.13	36.17
3.67	22.88	5.46	36.11
70.06	21.15	6.24	36.2
4.73	12.45	4.64	36.16
63.48	10.31	5.47	41.08
31.35	8.61	4.71	37.15
70.84	28.14	6.14	38.86
42.75	39.33	7.99	38.38
13.37	34.28	9.45	36.36
72.81	34.1	10.19	37.09
71.54	30.82	14.45	37.58
77.94	29.5	23.38	36.74
42.71	27.5	19.77	40.46
63.65	24.1	22.69	39.19
72.34	31.9	21.01	37.32
20.2	21.85	16.37	36.92
70.8	24.03	24.52	36.93
50.73	20.73	21.82	39.16
58.77	19.44	19.97	42.26
60.13	14.63	13.14	40.52
58.95	10.68	12.04	37.12
43.95	20.65	16.6	37.38
19.64	22.91	17.52	36.87
39.53	27.51	44.45	36.6
44.8	27.74	26.96	36.43
59.84	34.87	27.11	36.12
61.83	25.08	18.83	35.98
59.9	23.73	15.72	36.23
35.87	18.81	11.67	36.06
35.95	16.95	13.89	35.93
39.84	15.4	13.34	36.07
47.44	23.29	10.01	36.1
44.64	30.37	9.94	35.69
51.61	28.09	8.67	35.96
57.67	25.36	7.94	35.92
53.24	23.01	7.2	35.91
30.92	19.2	6.16	35.77
78.51	27.2	6.51	35.81
56.25	14.22	5.22	35.8
101.35	21.43	10.41	35.91
67.52	12.17	6.34	35.89
7.94	6.26	4.17	35.84
52.81	15.7	5.14	36.21
2.93	0.24	3.52	36.07
46.12	24.3	4.61	36.05
89.71	52.02	17.74	36.01
106.05	74.75	32.66	36.07
76	75.65	32.72	36.04
59.08	73.1	50.08	36.05
72.43	78.93	77.18	35.98
18.04	70.8	30.92	35.94
71.16	70.71	58.38	36.25
NA	NA	NA	NA
19.32	56.7	29.96	36.39
70.04	60.82	44.18	36.03
77.45	58.91	40.18	36.12
90.8	50.16	29.42	36.07
21.51	35.65	27.53	36.09

S. No.	Date	Stack13_FCCU_II_14F3-					Stack14_FCCU_II_FGD2-			
		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
475	2021-04-19	0.18	0.17	0.61	0		19.46	29.37	27.56	36.15
476	2021-04-20	0.18	0.17	0.61	0		19.27	24.79	27.67	36.08
477	2021-04-21	0.18	0.17	0.61	0		167.64	43.23	29.53	26.19
478	2021-04-22	0.18	0.17	0.61	0		106.99	44.48	26.37	36.17
479	2021-04-23	0.18	0.17	0.61	0		168.68	41.43	27.17	36.22
480	2021-04-24	0.18	0.17	0.61	0		181.75	39.27	27.53	36.26
481	2021-04-25	0.18	0.17	0.61	0		110.17	35.14	26.18	36.24
482	2021-04-26	0.18	0.17	0.61	0		159.74	32.17	27.44	36.32
483	2021-04-27	0.18	0.17	0.61	0		107.13	27.88	26.53	36.27
484	2021-04-28	0.18	0.17	0.61	0		108.06	23.09	26.47	36.27
485	2021-04-29	4.92	2.93	13.7	0		107.71	18.99	26.16	36.35
486	2021-04-30	0.18	0.17	0.61	0		107.45	15.28	25.98	36.3
487	CFO Standards	-	-	-	100		-	-	-	50
488	Maximum Value	685.49	97.87	1761.08	0		320.23	238.66	237.19	42.26
489	Maximum Value on	2020-06-27	2020-06-05	2020-07-10	2020-01-01		2020-07-12	2020-10-12	2020-02-15	2021-03-10
490	Average	12.71	4.79	41.37	0		91.85	28.99	58.82	32.77
491		394	394	387	0		445	420	443	422
492	Total Data Points	486	486	486	486		486	486	486	486
493	Data Availablity %	81.07	81.07	81.07	81.07		91.56	91.56	91.56	90.95
494	Pollutant Load (Tons/day)	0.029	0.011	0.093	0.000		0.310	0.098	0.199	0.111
495	Pollutnat Load as per CFO (Tons/day)				0.225					0.169

326

Stack Monitroing Data (CEMS) - From 01.01.2020 to 30.04.2021

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

S. No.	Date	Stack15_PP_I_WIL8-					Stack16_PP_1_IBH-			
		PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
1	2020-01-01	NA	NA	NA	NA		103.51	21.49	112.85	6.09
2	2020-01-02	NA	NA	NA	NA		112.24	24.18	127.31	6.05
3	2020-01-03	NA	NA	NA	NA		109.51	24.41	123.43	6.52
4	2020-01-04	NA	NA	NA	NA		113.74	25.57	129.55	7.15
5	2020-01-05	NA	NA	NA	NA		98.63	21.13	107.32	7.72
6	2020-01-06	NA	NA	NA	NA		93.33	24.41	94.39	8.18
7	2020-01-07	NA	NA	NA	NA		88.54	21.71	91.76	7.5
8	2020-01-08	NA	NA	NA	NA		98.09	16.96	108.11	7.09
9	2020-01-09	NA	NA	NA	NA		114.75	20.84	134.58	8.28
10	2020-01-10	NA	NA	NA	NA		121.31	23.55	147.95	6.57
11	2020-01-11	NA	NA	NA	NA		118.01	34.04	134.56	7.4
12	2020-01-12	NA	NA	NA	NA		122.57	27.04	133.56	6.8
13	2020-01-13	NA	NA	NA	NA		123.01	27.9	146.86	7.32
14	2020-01-14	NA	NA	NA	NA		126.81	27.01	155.28	6.86
15	2020-01-15	NA	NA	NA	NA		122.24	26.27	149.56	6.79
16	2020-01-16	NA	NA	NA	NA		127.78	28.65	156.6	6.27
17	2020-01-17	NA	NA	NA	NA		121.03	25.71	145.01	7.23
18	2020-01-18	NA	NA	NA	NA		121.32	29	147.44	7.84
19	2020-01-19	NA	NA	NA	NA		113.67	26.05	132.22	8.45
20	2020-01-20	NA	NA	NA	NA		114.41	26.7	135.36	8.16
21	2020-01-21	NA	NA	NA	NA		96.16	22.81	107.79	7.41
22	2020-01-22	NA	NA	NA	NA		97.34	16.57	115.09	7.45
23	2020-01-23	NA	NA	NA	NA		120.13	22.96	143.13	7.59
24	2020-01-24	NA	NA	NA	NA		118.56	30.49	137.21	6.99
25	2020-01-25	NA	NA	NA	NA		115.19	21.83	133.79	6.68
26	2020-01-26	NA	NA	NA	NA		115.1	25.44	136.54	7.02
27	2020-01-27	NA	NA	NA	NA		124.13	26.6	146.71	7.25
28	2020-01-28	NA	NA	NA	NA		113.88	20.61	129.41	6.26
29	2020-01-29	NA	NA	NA	NA		NA	NA	NA	NA
30	2020-01-30	NA	NA	NA	NA		NA	NA	NA	NA
31	2020-01-31	NA	NA	NA	NA		NA	NA	NA	NA
32	2020-02-01	NA	NA	NA	NA		NA	NA	NA	NA
33	2020-02-02	NA	NA	NA	NA		NA	NA	NA	NA
34	2020-02-03	NA	NA	NA	NA		NA	NA	NA	NA
35	2020-02-04	NA	NA	NA	NA		NA	NA	NA	NA
36	2020-02-05	NA	NA	NA	NA		NA	NA	NA	NA
37	2020-02-06	NA	NA	NA	NA		NA	NA	NA	NA
38	2020-02-07	NA	NA	NA	NA		NA	NA	NA	NA
39	2020-02-08	NA	NA	NA	NA		NA	NA	NA	NA
40	2020-02-09	NA	NA	NA	NA		NA	NA	NA	NA
41	2020-02-10	NA	NA	NA	NA		NA	NA	NA	NA
42	2020-02-11	NA	NA	NA	NA		NA	NA	NA	NA
43	2020-02-12	NA	NA	NA	NA		NA	NA	NA	NA
44	2020-02-13	NA	NA	NA	NA		NA	NA	NA	NA
45	2020-02-14	NA	NA	NA	NA		NA	NA	NA	NA
46	2020-02-15	NA	NA	NA	NA		NA	NA	NA	NA
47	2020-02-16	NA	NA	NA	NA		NA	NA	NA	NA
48	2020-02-17	NA	NA	NA	NA		NA	NA	NA	NA
49	2020-02-18	NA	NA	NA	NA		NA	NA	NA	NA
50	2020-02-19	NA	NA	NA	NA		NA	NA	NA	NA
51	2020-02-20	NA	NA	NA	NA		NA	NA	NA	NA
52	2020-02-21	NA	NA	NA	NA		NA	NA	NA	NA
53	2020-02-22	NA	NA	NA	NA		NA	NA	NA	NA
54	2020-02-23	NA	NA	NA	NA		NA	NA	NA	NA
55	2020-02-24	NA	NA	NA	NA		NA	NA	NA	NA
56	2020-02-25	NA	NA	NA	NA		NA	NA	NA	NA
57	2020-02-26	NA	NA	NA	NA		NA	NA	NA	NA
58	2020-02-27	NA	NA	NA	NA		NA	NA	NA	NA
59	2020-02-28	NA	NA	NA	NA		NA	NA	NA	NA
60	2020-02-29	NA	NA	NA	NA		NA	NA	NA	NA
61	2020-03-01	NA	NA	NA	NA		NA	NA	NA	NA
62	2020-03-02	NA	NA	NA	NA		NA	NA	NA	NA
63	2020-03-03	NA	NA	NA	NA		NA	NA	NA	NA
64	2020-03-04	NA	NA	NA	NA		NA	NA	NA	NA
65	2020-03-05	NA	NA	NA	NA		NA	NA	NA	NA
66	2020-03-06	NA	NA	NA	NA		NA	NA	NA	NA
67	2020-03-07	NA	NA	NA	NA		NA	NA	NA	NA
68	2020-03-08	NA	NA	NA	NA		NA	NA	NA	NA
69	2020-03-09	NA	NA	NA	NA		NA	NA	NA	NA
70	2020-03-10	NA	NA	NA	NA		NA	NA	NA	NA

S. No.	Date	Stack15_PP_I_WIL8-					Stack16_PP_1_IBH-			
		PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
71	2020-03-11	NA	NA	NA	NA		NA	NA	NA	NA
72	2020-03-12	NA	NA	NA	NA		116.84	29.1	220.15	7.29
73	2020-03-13	NA	NA	NA	NA		106.39	29.76	199.28	7.32
74	2020-03-14	NA	NA	NA	NA		101.15	28.76	189.44	6.3
75	2020-03-15	NA	NA	NA	NA		101.61	30.2	188.15	6.21
76	2020-03-16	NA	NA	NA	NA		99.83	30.42	184.4	9.72
77	2020-03-17	NA	NA	NA	NA		107.01	29.8	194.99	7.29
78	2020-03-18	NA	NA	NA	NA		98.42	29.53	182.42	6.54
79	2020-03-19	NA	NA	NA	NA		101.27	31.48	185.67	6.75
80	2020-03-20	NA	NA	NA	NA		108.17	31.37	201	6.08
81	2020-03-21	NA	NA	NA	NA		105.99	30.03	194.53	6.11
82	2020-03-22	NA	NA	NA	NA		95.11	29.26	184.7	6.08
83	2020-03-23	NA	NA	NA	NA		95.47	28.65	174.99	6.16
84	2020-03-24	NA	NA	NA	NA		102.92	28.51	191.39	6.35
85	2020-03-25	NA	NA	NA	NA		113.66	27.74	202.5	6.4
86	2020-03-26	NA	NA	NA	NA		105.4	28.12	191.45	6.97
87	2020-03-27	NA	NA	NA	NA		114.55	29.77	208.12	7.32
88	2020-03-28	NA	NA	NA	NA		108.08	47.38	177.05	6.27
89	2020-03-29	NA	NA	NA	NA		96.99	48.29	163.31	6.4
90	2020-03-30	NA	NA	NA	NA		103.04	48.47	166.77	6.33
91	2020-03-31	NA	NA	NA	NA		105.68	41.66	179.04	6.22
92	2020-04-01	NA	NA	NA	NA		101.48	32.76	178.94	6.2
93	2020-04-02	NA	NA	NA	NA		97.07	30.4	172.5	6.28
94	2020-04-03	NA	NA	NA	NA		99.41	29.61	177.24	6.58
95	2020-04-04	NA	NA	NA	NA		101.4	28.93	180.54	6.46
96	2020-04-05	NA	NA	NA	NA		99.64	28.22	178.11	6.44
97	2020-04-06	NA	NA	NA	NA		102.04	29.04	181.05	6.87
98	2020-04-07	NA	NA	NA	NA		101.75	29.43	180.07	6.31
99	2020-04-08	NA	NA	NA	NA		96.57	28.96	171.08	6.69
100	2020-04-09	NA	NA	NA	NA		97.01	28.06	173.09	6.25
101	2020-04-10	NA	NA	NA	NA		104.27	27.45	184.04	10.68
102	2020-04-11	NA	NA	NA	NA		117.5	28.25	205.49	22.01
103	2020-04-12	NA	NA	NA	NA		115.15	28.45	201.09	16.11
104	2020-04-13	NA	NA	NA	NA		114.31	29.08	198.18	11.91
105	2020-04-14	NA	NA	NA	NA		114.48	29.03	197.02	7.31
106	2020-04-15	NA	NA	NA	NA		115.33	28.57	198.05	9.07
107	2020-04-16	NA	NA	NA	NA		117.27	28.96	200.9	8.85
108	2020-04-17	NA	NA	NA	NA		123.59	29.04	211.11	7.05
109	2020-04-18	NA	NA	NA	NA		102.81	30.89	175.68	9.4
110	2020-04-19	NA	NA	NA	NA		94.54	29.71	163.52	8.22
111	2020-04-20	NA	NA	NA	NA		87.46	30.27	152.5	6.88
112	2020-04-21	NA	NA	NA	NA		84.17	30.77	147.01	9.85
113	2020-04-22	NA	NA	NA	NA		83.15	31.61	144.66	7.47
114	2020-04-23	NA	NA	NA	NA		84.36	31.29	146.12	9.26
115	2020-04-24	NA	NA	NA	NA		104.54	31.29	176.83	14.28
116	2020-04-25	NA	NA	NA	NA		125.26	29.97	211.19	17.06
117	2020-04-26	NA	NA	NA	NA		124.56	29.47	212.9	6.34
118	2020-04-27	NA	NA	NA	NA		122.27	29.68	213.6	8.79
119	2020-04-28	NA	NA	NA	NA		122.45	29.99	210.21	6.18
120	2020-04-29	NA	NA	NA	NA		122.03	32.11	206.92	6.46
121	2020-04-30	NA	NA	NA	NA		123.2	31.25	208.54	6.91
122	2020-05-01	NA	NA	NA	NA		138.32	32.1	233.69	7.21
123	2020-05-02	NA	NA	NA	NA		127.1	31.8	215.51	6.44
124	2020-05-03	NA	NA	NA	NA		129.1	32.21	218.77	6.13
125	2020-05-04	NA	NA	NA	NA		143.03	34.66	241.31	8.28
126	2020-05-05	NA	NA	NA	NA		133.83	32.45	224.44	7.6
127	2020-05-06	NA	NA	NA	NA		126.93	33.54	211.85	9.58
128	2020-05-07	NA	NA	NA	NA		118.68	33.6	198.52	10.02
129	2020-05-08	NA	NA	NA	NA		124.54	34.19	207.38	9.36
130	2020-05-09	NA	NA	NA	NA		116.65	36.1	194.07	7.77
131	2020-05-10	NA	NA	NA	NA		91.09	33.64	155.04	9.15
132	2020-05-11	NA	NA	NA	NA		98.92	34.08	167.04	7.02
133	2020-05-12	NA	NA	NA	NA		98.29	32.94	165.97	9.26
134	2020-05-13	NA	NA	NA	NA		108.41	31.82	182.88	9.61
135	2020-05-14	NA	NA	NA	NA		97.01	33.42	162.8	8.8
136	2020-05-15	NA	NA	NA	NA		85.9	35.83	144.33	9.68
137	2020-05-16	NA	NA	NA	NA		109.4	34.86	180.83	8.76
138	2020-05-17	NA	NA	NA	NA		115.97	33.08	191.95	10.48
139	2020-05-18	NA	NA	NA	NA		110.46	33.23	182.77	8.91
140	2020-05-19	NA	NA	NA	NA		107.27	34.31	177.72	5.97
141	2020-05-20	NA	NA	NA	NA		97.61	35.47	161.3	16.41
142	2020-05-21	NA	NA	NA	NA		115.21	36.97	187.55	33.2
143	2020-05-22	NA	NA	NA	NA		119.3	37.15	193.32	8.94

S. No.	Date	Stack15_PP_1_WIL8-					Stack16_PP_1_IBH-			
		PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
144	2020-05-23	NA	NA	NA	NA		99.11	39.64	162.03	9.37
145	2020-05-24	NA	NA	NA	NA		96.17	41.3	158.4	7.62
146	2020-05-25	NA	NA	NA	NA		92.26	38.45	153.26	9.2
147	2020-05-26	NA	NA	NA	NA		97.07	38.49	161.04	11.69
148	2020-05-27	NA	NA	NA	NA		101.37	39.23	168.6	21.44
149	2020-05-28	NA	NA	NA	NA		104.36	38.11	172.07	16.18
150	2020-05-29	NA	NA	NA	NA		79.92	39.13	136.11	13.4
151	2020-05-30	NA	NA	NA	NA		82.29	35.95	140.78	8.46
152	2020-05-31	NA	NA	NA	NA		97.33	33.17	165.98	7.77
153	2020-06-01	NA	NA	NA	NA		103.7	35.64	175.96	9.05
154	2020-06-02	NA	NA	NA	NA		70.76	19.81	158.72	12.03
155	2020-06-03	NA	NA	NA	NA		32.1	56.88	149.71	14.1
156	2020-06-04	NA	NA	NA	NA		29.26	33.86	157.87	9.59
157	2020-06-05	NA	NA	NA	NA		5.94	33.52	151.21	16.24
158	2020-06-06	NA	NA	NA	NA		90.01	33.62	156.2	22.49
159	2020-06-07	NA	NA	NA	NA		148.19	34.38	133.15	13.71
160	2020-06-08	NA	NA	NA	NA		155.49	34.76	140.1	17.26
161	2020-06-09	NA	NA	NA	NA		146.89	33.62	131.68	17.59
162	2020-06-10	NA	NA	NA	NA		146.53	34.79	128.71	16.05
163	2020-06-11	NA	NA	NA	NA		132.69	35.42	108.7	18.18
164	2020-06-12	NA	NA	NA	NA		132.63	34.48	107.65	14.65
165	2020-06-13	NA	NA	NA	NA		136.41	35.97	108.77	12.38
166	2020-06-14	NA	NA	NA	NA		136.53	35.31	111.1	18.56
167	2020-06-15	NA	NA	NA	NA		174.15	36.45	172.94	12.83
168	2020-06-16	NA	NA	NA	NA		166.3	33.38	161.04	12.51
169	2020-06-17	NA	NA	NA	NA		158.98	32.97	151.34	13.44
170	2020-06-18	NA	NA	NA	NA		152.68	32.26	141.21	11.96
171	2020-06-19	NA	NA	NA	NA		159	32.61	149.89	11.41
172	2020-06-20	NA	NA	NA	NA		168.42	32.51	162.01	7.92
173	2020-06-21	NA	NA	NA	NA		150.16	31.32	136.8	11.95
174	2020-06-22	NA	NA	NA	NA		152.73	32.57	138.24	11.86
175	2020-06-23	NA	NA	NA	NA		162.82	34.47	151.29	15.26
176	2020-06-24	NA	NA	NA	NA		150.19	34.26	130.5	11.55
177	2020-06-25	NA	NA	NA	NA		156.68	32.64	143.64	9.72
178	2020-06-26	NA	NA	NA	NA		144.49	32.87	122.62	10.01
179	2020-06-27	NA	NA	NA	NA		143.35	32.18	121.07	9.31
180	2020-06-28	NA	NA	NA	NA		141.54	31.84	116.29	9.58
181	2020-06-29	NA	NA	NA	NA		145.04	32.81	121.37	11.12
182	2020-06-30	NA	NA	NA	NA		154.4	34.89	135.24	11.72
183	2020-07-01	NA	NA	NA	NA		184.14	41.68	169.64	13.42
184	2020-07-02	NA	NA	NA	NA		188.95	41.48	182.13	7.9
185	2020-07-03	NA	NA	NA	NA		143.64	33.99	124.94	7.41
186	2020-07-04	NA	NA	NA	NA		143.25	31.97	127.04	8.63
187	2020-07-05	NA	NA	NA	NA		143.54	30.21	128.3	11.6
188	2020-07-06	NA	NA	NA	NA		131.06	31.54	108.07	10.49
189	2020-07-07	NA	NA	NA	NA		101.62	34.06	62.45	8.89
190	2020-07-08	NA	NA	NA	NA		139.9	33.15	116.59	4.59
191	2020-07-09	NA	NA	NA	NA		139.94	34.32	116.53	0
192	2020-07-10	NA	NA	NA	NA		139.69	34.9	116.44	0
193	2020-07-11	NA	NA	NA	NA		138.11	35.38	111.1	0
194	2020-07-12	NA	NA	NA	NA		137.41	35.46	112.07	0
195	2020-07-13	NA	NA	NA	NA		NA	NA	NA	NA
196	2020-07-14	NA	NA	NA	NA		NA	NA	NA	NA
197	2020-07-15	NA	NA	NA	NA		148.14	34.51	278.44	NA
198	2020-07-16	NA	NA	NA	NA		146.09	34.24	246.88	NA
199	2020-07-17	NA	NA	NA	NA		148.01	30.3	203.19	0
200	2020-07-18	NA	NA	NA	NA		134.31	30.38	166.17	NA
201	2020-07-19	NA	NA	NA	NA		112.97	23.93	84.99	NA
202	2020-07-20	NA	NA	NA	NA		128.65	26.79	98.35	NA
203	2020-07-21	NA	NA	NA	NA		131.48	26.72	106.1	NA
204	2020-07-22	NA	NA	NA	NA		136.58	28.79	100.79	NA
205	2020-07-23	NA	NA	NA	NA		145.6	27.14	136.7	NA
206	2020-07-24	NA	NA	NA	NA		178.09	24.19	207.01	NA
207	2020-07-25	NA	NA	NA	NA		180.31	17.86	215.25	NA
208	2020-07-26	NA	NA	NA	NA		185.81	17.02	215.62	NA
209	2020-07-27	NA	NA	NA	NA		199.67	28.04	229.89	NA
210	2020-07-28	NA	NA	NA	NA		183.88	22.11	206.59	NA
211	2020-07-29	NA	NA	NA	NA		175.29	16.34	196.47	NA
212	2020-07-30	NA	NA	NA	NA		154.82	0.66	167.86	NA
213	2020-07-31	NA	NA	NA	NA		146.05	0	148.8	NA
214	2020-08-01	NA	NA	NA	NA		126.3	81.55	149.81	NA
215	2020-08-02	NA	NA	NA	NA		65.12	59.01	61.39	NA
216	2020-08-03	NA	NA	NA	NA		119.95	54.45	153.94	NA

S. No.	Date	Stack15_PP_I_WIL8-					Stack16_PP_1_IBH-			
		PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
217	2020-08-04	NA	NA	NA	NA		167.79	53.59	217.75	NA
218	2020-08-05	NA	NA	NA	NA		98.06	54.22	149.37	NA
219	2020-08-06	NA	NA	NA	NA		92.86	48.98	214.32	NA
220	2020-08-07	NA	NA	NA	NA		147.5	46.62	296.75	NA
221	2020-08-08	NA	NA	NA	NA		152.4	39.5	307.65	NA
222	2020-08-09	NA	NA	NA	NA		134.84	45.19	315.23	NA
223	2020-08-10	NA	NA	NA	NA		133.45	50.67	239.25	NA
224	2020-08-11	NA	NA	NA	NA		154.21	34.91	257.66	NA
225	2020-08-12	NA	NA	NA	NA		165.77	30.42	451.68	NA
226	2020-08-13	NA	NA	NA	NA		163.49	36.25	463.32	NA
227	2020-08-14	NA	NA	NA	NA		159.13	33.91	528.8	NA
228	2020-08-15	NA	NA	NA	NA		134.9	48.51	327.86	NA
229	2020-08-16	NA	NA	NA	NA		126.22	51.31	276.98	NA
230	2020-08-17	NA	NA	NA	NA		175.71	61.18	394.95	NA
231	2020-08-18	NA	NA	NA	NA		176.52	8.93	333.39	NA
232	2020-08-19	NA	NA	NA	NA		159.25	8.03	228.66	NA
233	2020-08-20	NA	NA	NA	NA		163.46	4.83	186.45	NA
234	2020-08-21	NA	NA	NA	NA		165.9	8.18	174.4	NA
235	2020-08-22	NA	NA	NA	NA		147.78	0.08	140.23	NA
236	2020-08-23	NA	NA	NA	NA		152.83	0.07	149.91	NA
237	2020-08-24	NA	NA	NA	NA		160.74	5.27	164.56	NA
238	2020-08-25	NA	NA	NA	NA		162.47	2.42	169.99	NA
239	2020-08-26	NA	NA	NA	NA		160.81	3.21	263.12	NA
240	2020-08-27	NA	NA	NA	NA		158.09	21.7	294.93	NA
241	2020-08-28	NA	NA	NA	NA		156.63	41.33	255.1	NA
242	2020-08-29	NA	NA	NA	NA		157.15	45.27	251.74	NA
243	2020-08-30	NA	NA	NA	NA		146.86	62.05	185.19	NA
244	2020-08-31	NA	NA	NA	NA		149.49	58.4	215.85	NA
245	2020-09-01	NA	NA	NA	NA		156.75	43.59	265.15	NA
246	2020-09-02	NA	NA	NA	NA		160.5	38.86	302.59	NA
247	2020-09-03	NA	NA	NA	NA		162.16	40.57	430.13	NA
248	2020-09-04	NA	NA	NA	NA		171.32	37.13	396.69	NA
249	2020-09-05	NA	NA	NA	NA		174.35	35.94	394.72	NA
250	2020-09-06	NA	NA	NA	NA		176.62	45.83	401.42	NA
251	2020-09-07	NA	NA	NA	NA		188.22	45.91	361.31	NA
252	2020-09-08	NA	NA	NA	NA		179.88	41.07	351.67	NA
253	2020-09-09	NA	NA	NA	NA		171.72	36.53	452.67	NA
254	2020-09-10	NA	NA	NA	NA		161.71	50.97	335.95	NA
255	2020-09-11	NA	NA	NA	NA		169.99	56.53	231.24	NA
256	2020-09-12	NA	NA	NA	NA		175.64	48.25	275.9	NA
257	2020-09-13	NA	NA	NA	NA		152.49	56.62	221.64	NA
258	2020-09-14	NA	NA	NA	NA		157.09	54.02	282.59	NA
259	2020-09-15	NA	NA	NA	NA		172.81	49.73	296.49	NA
260	2020-09-16	NA	NA	NA	NA		181.22	43.01	366.06	NA
261	2020-09-17	NA	NA	NA	NA		160.73	49.23	380.34	NA
262	2020-09-18	NA	NA	NA	NA		156	50.56	308.2	NA
263	2020-09-19	NA	NA	NA	NA		172.11	45.31	375.92	NA
264	2020-09-20	NA	NA	NA	NA		190.19	44.43	304.06	NA
265	2020-09-21	NA	NA	NA	NA		171.61	47.03	340.46	NA
266	2020-09-22	NA	NA	NA	NA		152.45	47.83	367.01	NA
267	2020-09-23	NA	NA	NA	NA		155.7	45.88	324.15	NA
268	2020-09-24	NA	NA	NA	NA		157.33	51.31	296.03	NA
269	2020-09-25	NA	NA	NA	NA		161.17	41.9	321.65	NA
270	2020-09-26	NA	NA	NA	NA		165.36	37.25	335.63	NA
271	2020-09-27	NA	NA	NA	NA		180.81	40.93	286.8	NA
272	2020-09-28	NA	NA	NA	NA		186.71	36.66	308.03	NA
273	2020-09-29	NA	NA	NA	NA		165.61	36.59	305.38	NA
274	2020-09-30	NA	NA	NA	NA		153.19	47.5	298.16	NA
275	2020-10-01	NA	NA	NA	NA		145.48	42.91	288.72	NA
276	2020-10-02	NA	NA	NA	NA		139.41	40.85	297.48	NA
277	2020-10-03	NA	NA	NA	NA		147.9	42.29	193.75	NA
278	2020-10-04	NA	NA	NA	NA		128.93	42.67	138.19	NA
279	2020-10-05	NA	NA	NA	NA		157.6	34.4	400.3	NA
280	2020-10-06	NA	NA	NA	NA		153.46	31.56	475.05	NA
281	2020-10-07	NA	NA	NA	NA		159.92	32.82	417.21	NA
282	2020-10-08	NA	NA	NA	NA		171.09	33.53	389.88	NA
283	2020-10-09	NA	NA	NA	NA		149.18	40.56	344.11	NA
284	2020-10-10	NA	NA	NA	NA		147	37.61	335.39	NA
285	2020-10-11	NA	NA	NA	NA		120.72	46.72	203.12	NA
286	2020-10-12	NA	NA	NA	NA		144.51	41.04	331.82	NA
287	2020-10-13	NA	NA	NA	NA		151.69	32.07	410.85	NA
288	2020-10-14	NA	NA	NA	NA		150.08	31.05	359.53	NA
289	2020-10-15	NA	NA	NA	NA		151.13	28.45	365.51	NA

S. No.	Date	Stack15_PP_I_WIL8-					Stack16_PP_1_IBH-			
		PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
290	2020-10-16	NA	NA	NA	NA		148.84	33.51	275.36	NA
291	2020-10-17	NA	NA	NA	NA		135.83	39.85	207.84	NA
292	2020-10-18	NA	NA	NA	NA		117.79	47.67	139.8	NA
293	2020-10-19	NA	NA	NA	NA		130.31	42.85	162.98	NA
294	2020-10-20	NA	NA	NA	NA		190.2	36.22	231.41	NA
295	2020-10-21	NA	NA	NA	NA		250.21	40.28	262.38	NA
296	2020-10-22	NA	NA	NA	NA		250.6	66.23	262.84	NA
297	2020-10-23	NA	NA	NA	NA		260.53	85.49	263.88	NA
298	2020-10-24	NA	NA	NA	NA		252.37	43.06	246.3	NA
299	2020-10-25	NA	NA	NA	NA		225.57	79.82	209	NA
300	2020-10-26	NA	NA	NA	NA		221.55	91.88	227.18	NA
301	2020-10-27	NA	NA	NA	NA		227.36	44.14	245.38	NA
302	2020-10-28	NA	NA	NA	NA		268.74	20.8	301.44	NA
303	2020-10-29	NA	NA	NA	NA		323.1	68.73	395.11	NA
304	2020-10-30	NA	NA	NA	NA		292.89	115.89	381.09	NA
305	2020-10-31	NA	NA	NA	NA		253.37	83.47	351.71	NA
306	2020-11-01	NA	NA	NA	NA		294.29	163.43	293.1	NA
307	2020-11-02	NA	NA	NA	NA		317.74	120.52	417.27	NA
308	2020-11-03	NA	NA	NA	NA		400.1	54.01	549.3	NA
309	2020-11-04	NA	NA	NA	NA		438.57	101.66	508.73	NA
310	2020-11-05	NA	NA	NA	NA		363.04	180.95	412.77	NA
311	2020-11-06	NA	NA	NA	NA		317.53	146.82	347.99	NA
312	2020-11-07	NA	NA	NA	NA		345.6	119.6	390.16	NA
313	2020-11-08	NA	NA	NA	NA		288.86	139.32	306.61	NA
314	2020-11-09	NA	NA	NA	NA		300.02	131.2	296.42	NA
315	2020-11-10	NA	NA	NA	NA		355.54	127.26	311.14	NA
316	2020-11-11	NA	NA	NA	NA		398.67	108.25	363.18	NA
317	2020-11-12	NA	NA	NA	NA		364.5	118.45	334.12	NA
318	2020-11-13	NA	NA	NA	NA		291.95	126.55	271.71	NA
319	2020-11-14	NA	NA	NA	NA		223.22	120.15	194.97	NA
320	2020-11-15	NA	NA	NA	NA		225.99	117.45	200.24	NA
321	2020-11-16	NA	NA	NA	NA		244.14	153.58	342.89	NA
322	2020-11-17	NA	NA	NA	NA		288.13	58.98	459.44	NA
323	2020-11-18	NA	NA	NA	NA		271.71	62.9	497.36	NA
324	2020-11-19	NA	NA	NA	NA		112.19	85.61	412.15	NA
325	2020-11-20	NA	NA	NA	NA		294.36	93.48	464.03	NA
326	2020-11-21	NA	NA	NA	NA		266.07	85.44	421.04	NA
327	2020-11-22	NA	NA	NA	NA		337.28	59.25	258.55	NA
328	2020-11-23	NA	NA	NA	NA		360.8	54.37	256.24	NA
329	2020-11-24	NA	NA	NA	NA		263.42	49.67	440.4	NA
330	2020-11-25	NA	NA	NA	NA		120.9	71.81	369.71	NA
331	2020-11-26	NA	NA	NA	NA		285.32	146.29	311.86	NA
332	2020-11-27	NA	NA	NA	NA		329.45	82.53	413.55	NA
333	2020-11-28	NA	NA	NA	NA		301.09	64.05	395.3	NA
334	2020-11-29	NA	NA	NA	NA		0	48.91	315.38	NA
335	2020-11-30	NA	NA	NA	NA		287.92	43	462.6	NA
336	2020-12-01	NA	NA	NA	NA		525.88	70.07	481.46	NA
337	2020-12-02	NA	NA	NA	NA		475.66	84.88	420.71	NA
338	2020-12-03	NA	NA	NA	NA		575.77	75.45	423.26	NA
339	2020-12-04	NA	NA	NA	NA		246.92	97.07	302.72	NA
340	2020-12-05	NA	NA	NA	NA		481.68	63.88	320.33	NA
341	2020-12-06	NA	NA	NA	NA		329.14	73.91	293.37	NA
342	2020-12-07	NA	NA	NA	NA		393.27	72.88	440.93	NA
343	2020-12-08	NA	NA	NA	NA		195.77	65.36	411.17	NA
344	2020-12-09	NA	NA	NA	NA		270.35	66.71	347.5	NA
345	2020-12-10	NA	NA	NA	NA		305.3	59.61	430.46	NA
346	2020-12-11	NA	NA	NA	NA		419.22	50.81	540.66	NA
347	2020-12-12	NA	NA	NA	NA		466.73	97.95	401.76	NA
348	2020-12-13	NA	NA	NA	NA		261.15	99.88	250.54	NA
349	2020-12-14	NA	NA	NA	NA		348.08	78.85	378.85	NA
350	2020-12-15	NA	NA	NA	NA		204.84	81.2	496.44	NA
351	2020-12-16	NA	NA	NA	NA		295.75	57.2	525.61	NA
352	2020-12-17	NA	NA	NA	NA		288.27	74.93	493.57	NA
353	2020-12-18	NA	NA	NA	NA		235.66	88.89	565.73	NA
354	2020-12-19	NA	NA	NA	NA		260.89	88.25	518.3	NA
355	2020-12-20	NA	NA	NA	NA		424.66	177.49	464.16	NA
356	2020-12-21	NA	NA	NA	NA		242.64	173.94	503.86	NA
357	2020-12-22	NA	NA	NA	NA		361.45	194.88	454.46	NA
358	2020-12-23	NA	NA	NA	NA		441.05	187.17	337.1	NA
359	2020-12-24	NA	NA	NA	NA		407.61	119.67	235.67	NA
360	2020-12-25	NA	NA	NA	NA		417.78	83.46	392.11	NA
361	2020-12-26	NA	NA	NA	NA		400.26	101.74	255.02	NA
362	2020-12-27	NA	NA	NA	NA		488.45	158.2	236.32	NA

372

S. No.	Date	Stack15_PP_I_WIL8-					Stack16_PP_1_IBH-			
		PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
363	2020-12-28	NA	NA	NA	NA		412.24	371.73	304.65	NA
364	2020-12-29	NA	NA	NA	NA		361.54	165.6	300.41	NA
365	2020-12-30	NA	NA	NA	NA		331.93	9.33	374.33	NA
366	2020-12-31	NA	NA	NA	NA		363.88	8.79	552.34	NA
367	2021-01-01	NA	NA	NA	NA		428.61	8.17	285.27	NA
368	2021-01-02	NA	NA	NA	NA		423.68	8.2	244.46	NA
369	2021-01-03	NA	NA	NA	NA		343.32	8.51	270.07	NA
370	2021-01-04	NA	NA	NA	NA		332.85	8.93	363.85	NA
371	2021-01-05	NA	NA	NA	NA		377.48	8.73	411.26	NA
372	2021-01-06	NA	NA	NA	NA		393.13	9.01	531.02	NA
373	2021-01-07	NA	NA	NA	NA		392.79	8.62	340.05	NA
374	2021-01-08	NA	NA	NA	NA		311.06	9.36	228.01	NA
375	2021-01-09	NA	NA	NA	NA		363.11	8.63	412.67	NA
376	2021-01-10	NA	NA	NA	NA		488.86	7.29	367.63	NA
377	2021-01-11	NA	NA	NA	NA		333.68	7.5	437.83	NA
378	2021-01-12	NA	NA	NA	NA		260.5	8.01	350.53	NA
379	2021-01-13	NA	NA	NA	NA		278.26	7.83	354.35	NA
380	2021-01-14	NA	NA	NA	NA		337.45	7.02	406.12	NA
381	2021-01-15	NA	NA	NA	NA		361.79	6.78	426.89	NA
382	2021-01-16	NA	NA	NA	NA		225.93	7.9	313.39	NA
383	2021-01-17	NA	NA	NA	NA		207.33	8.66	308.27	NA
384	2021-01-18	NA	NA	NA	NA		233.91	8.53	351.86	NA
385	2021-01-19	NA	NA	NA	NA		232.92	8.63	365.3	NA
386	2021-01-20	NA	NA	NA	NA		219.48	8.92	313.07	NA
387	2021-01-21	NA	NA	NA	NA		214.17	8.8	313.15	NA
388	2021-01-22	NA	NA	NA	NA		280.94	7.74	386.11	NA
389	2021-01-23	NA	NA	NA	NA		217.63	7.92	347.52	NA
390	2021-01-24	NA	NA	NA	NA		180.72	8.46	286.38	NA
391	2021-01-25	NA	NA	NA	NA		211.01	9.95	381.59	NA
392	2021-01-26	NA	NA	NA	NA		200.35	11.49	312.01	NA
393	2021-01-27	NA	NA	NA	NA		213.99	9.83	381.74	NA
394	2021-01-28	NA	NA	NA	NA		251.15	9.01	456.25	NA
395	2021-01-29	NA	NA	NA	NA		209.18	8.93	338.37	NA
396	2021-01-30	NA	NA	NA	NA		224.8	8.94	418.57	NA
397	2021-01-31	NA	NA	NA	NA		189.46	8.93	299.81	NA
398	2021-02-01	NA	NA	NA	NA		198.82	8.9	387.29	NA
399	2021-02-02	NA	NA	NA	NA		190.69	8.78	436.82	NA
400	2021-02-03	NA	NA	NA	NA		148.37	8.72	411.37	NA
401	2021-02-04	NA	NA	NA	NA		124.45	8.8	289.88	NA
402	2021-02-05	NA	NA	NA	NA		138.65	16.39	193.79	NA
403	2021-02-06	NA	NA	NA	NA		201.93	12.65	131.11	NA
404	2021-02-07	NA	NA	NA	NA		229.41	15.14	148.31	NA
405	2021-02-08	NA	NA	NA	NA		262.14	14.86	239.76	NA
406	2021-02-09	NA	NA	NA	NA		253.39	14.67	333.04	NA
407	2021-02-10	NA	NA	NA	NA		249.48	15.02	318.48	NA
408	2021-02-11	NA	NA	NA	NA		254.12	15.36	171.4	NA
409	2021-02-12	NA	NA	NA	NA		276.8	14.6	212.91	NA
410	2021-02-13	NA	NA	NA	NA		245.43	15.21	196.08	NA
411	2021-02-14	NA	NA	NA	NA		250.09	15.43	202.38	NA
412	2021-02-15	NA	NA	NA	NA		234.14	15.49	179.68	NA
413	2021-02-16	NA	NA	NA	NA		206.89	15.38	344.21	NA
414	2021-02-17	NA	NA	NA	NA		212.72	15.4	822.79	NA
415	2021-02-18	NA	NA	NA	NA		235.47	15.82	499.07	NA
416	2021-02-19	NA	NA	NA	NA		168.93	17.73	255.85	NA
417	2021-02-20	NA	NA	NA	NA		178.67	16.08	312.49	NA
418	2021-02-21	NA	NA	NA	NA		255.53	14.85	322.54	NA
419	2021-02-22	NA	NA	NA	NA		219.62	15.23	417.06	NA
420	2021-02-23	NA	NA	NA	NA		154.73	16.48	342.57	NA
421	2021-02-24	NA	NA	NA	NA		119.41	16.03	254.11	NA
422	2021-02-25	NA	NA	NA	NA		95.68	16.34	183.7	NA
423	2021-02-26	NA	NA	NA	NA		80.41	16.97	201.52	NA
424	2021-02-27	NA	NA	NA	NA		85.65	16.72	181.49	NA
425	2021-02-28	NA	NA	NA	NA		43.41	16.91	97.02	NA
426	2021-03-01	NA	NA	NA	NA		107.27	15.85	219.04	NA
427	2021-03-02	NA	NA	NA	NA		152.03	15.21	254.96	NA
428	2021-03-03	NA	NA	NA	NA		151.83	15.41	316.57	NA
429	2021-03-04	NA	NA	NA	NA		234.97	13.88	353.52	NA
430	2021-03-05	NA	NA	NA	NA		347.74	11.77	397.23	NA
431	2021-03-06	NA	NA	NA	NA		346.84	11.11	371.68	NA
432	2021-03-07	NA	NA	NA	NA		484.06	10.38	478.32	NA
433	2021-03-08	NA	NA	NA	NA		509.64	10.21	484.75	NA
434	2021-03-09	NA	NA	NA	NA		488.36	10.28	467.32	NA
435	2021-03-10	NA	NA	NA	NA		483.91	10.25	460.83	NA

S. No.	Date	Stack15_PP_I_WIL8-					Stack16_PP_1_IBH-			
		PM (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	SO2 (mg/Nm3)	PM (mg/Nm3)
436	2021-03-11	NA	NA	NA	NA		498.61	10.14	472.27	NA
437	2021-03-12	NA	NA	NA	NA		502.84	10.05	467.11	NA
438	2021-03-13	NA	NA	NA	NA		445.95	10.16	404.36	NA
439	2021-03-14	NA	NA	NA	NA		433.48	10.2	407.95	NA
440	2021-03-15	NA	NA	NA	NA		470.88	10.03	434.82	NA
441	2021-03-16	NA	NA	NA	NA		357.96	11.69	377.65	NA
442	2021-03-17	NA	NA	NA	NA		218.81	13.75	282.78	NA
443	2021-03-18	NA	NA	NA	NA		146.69	14.56	248.41	NA
444	2021-03-19	NA	NA	NA	NA		135.86	11.59	224.02	NA
445	2021-03-20	NA	NA	NA	NA		220.78	8.24	276.76	NA
446	2021-03-21	NA	NA	NA	NA		355.03	7.23	369.07	NA
447	2021-03-22	NA	NA	NA	NA		252.52	12.22	310.46	NA
448	2021-03-23	NA	NA	NA	NA		194.03	8.3	217.49	NA
449	2021-03-24	NA	NA	NA	NA		180.48	12.57	213.15	NA
450	2021-03-25	NA	NA	NA	NA		150.89	12.92	182.83	NA
451	2021-03-26	NA	NA	NA	NA		160.04	12.35	201.62	NA
452	2021-03-27	NA	NA	NA	NA		156.74	12.12	196.58	NA
453	2021-03-28	NA	NA	NA	NA		234.51	10.5	298.58	NA
454	2021-03-29	NA	NA	NA	NA		284.07	18.08	346.01	NA
455	2021-03-30	NA	NA	NA	NA		202.33	10.93	256.1	NA
456	2021-03-31	NA	NA	NA	NA		175.31	9.16	219.18	NA
457	2021-04-01	NA	NA	NA	NA		176.24	9.46	223.52	NA
458	2021-04-02	NA	NA	NA	NA		197.83	7.92	238.57	NA
459	2021-04-03	NA	NA	NA	NA		215.39	5.75	270.36	NA
460	2021-04-04	NA	NA	NA	NA		124.36	7.39	156.31	NA
461	2021-04-05	NA	NA	NA	NA		174.34	6	216.62	NA
462	2021-04-06	NA	NA	NA	NA		113.71	6.51	160.71	NA
463	2021-04-07	NA	NA	NA	NA		170.55	5.19	216.68	NA
464	2021-04-08	NA	NA	NA	NA		155.91	7.58	199.75	NA
465	2021-04-09	NA	NA	NA	NA		124.72	23.17	163.82	NA
466	2021-04-10	NA	NA	NA	NA		177.93	13.74	219.8	NA
467	2021-04-11	NA	NA	NA	NA		17.15	16.07	55.32	NA
468	2021-04-12	NA	NA	NA	NA		186.6	13.19	210.17	NA
469	2021-04-13	NA	NA	NA	NA		NA	NA	NA	NA
470	2021-04-14	NA	NA	NA	NA		303.03	12.81	293.38	NA
471	2021-04-15	NA	NA	NA	NA		231.77	12.24	262.06	NA
472	2021-04-16	NA	NA	NA	NA		126.05	11.48	163.69	NA
473	2021-04-17	NA	NA	NA	NA		186.77	8.49	242.65	NA
474	2021-04-18	NA	NA	NA	NA		387.64	7.62	403.15	NA
475	2021-04-19	NA	NA	NA	NA		303.64	4.72	320.55	NA
476	2021-04-20	NA	NA	NA	NA		197.39	25.99	238.1	NA
477	2021-04-21	NA	NA	NA	NA		194.79	12.02	251.35	NA
478	2021-04-22	NA	NA	NA	NA		175.46	9.89	220.38	NA
479	2021-04-23	NA	NA	NA	NA		182.41	17.53	248.66	NA
480	2021-04-24	NA	NA	NA	NA		201.82	9.88	224.2	NA
481	2021-04-25	NA	NA	NA	NA		165.1	16.51	182.33	NA
482	2021-04-26	NA	NA	NA	NA		201.64	15.82	211.1	NA
483	2021-04-27	NA	NA	NA	NA		195.68	15.25	199.4	NA
484	2021-04-28	NA	NA	NA	NA		172.12	15.2	182.36	NA
485	2021-04-29	NA	NA	NA	NA		255.4	12.59	256.25	NA
486	2021-04-30	NA	NA	NA	NA		224.05	12.67	247.98	NA
487	CFO Standards	100	-	-	-		-	-	-	100
488	Maximum Value	NA	NA	NA	NA		575.77	371.73	822.79	33.2
489	Maximum Value on	NA	NA	NA	NA		2020-12-03	2020-12-28	2021-02-17	2020-05-21
490	Average	NA	NA	NA	NA		191.97	38.09	257.69	9.48
491		0	0	0	0		439	439	440	147
492	Total Data Points	486	486	486	486		486	486	486	486
493	Data Availablity %	0	0	0	0		90.53	90.53	90.53	31.28
494	Pollutant Load (Tons/day)						0.203	0.040	0.273	0.010
495	Pollutnat Load as per CFO (Tons/day)									0.106

٦٣٤

Stack Monitroing Data (CEMS) - From 01.01.2020 to 30.04.2021

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

S. No.	Date	Stack17_DHDS_60F1-				Stack_18_DHDS_REFORMER-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	SOx (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
1	2020-01-01	6.36	NA	364.96	3.53	90.35	24.09	12.41	0
2	2020-01-02	6.31	NA	369.52	3.71	78.15	24.29	15.84	0
3	2020-01-03	6.3	NA	261.88	3.54	74.81	21.43	18.63	0
4	2020-01-04	6.23	NA	179.69	7.02	74.2	22.79	14.67	0
5	2020-01-05	6.74	NA	298.25	5.25	74.08	23.07	12.8	0
6	2020-01-06	6.05	NA	235.66	4.52	82.13	24.05	11.75	0
7	2020-01-07	6.25	NA	206.7	6.5	87.56	23.04	23.46	0
8	2020-01-08	6.34	NA	245.61	6.94	88.52	24.3	17.43	0
9	2020-01-09	6.03	NA	197.58	4.45	86.2	23.99	14.52	0
10	2020-01-10	6.15	NA	208.57	4.44	85.66	23.24	15.49	0
11	2020-01-11	6.3	NA	219.89	5.76	84.75	23.29	15.24	0
12	2020-01-12	6.18	NA	179.84	4.93	85.24	24.18	12.39	0
13	2020-01-13	6.3	NA	149.95	12.58	80.76	20.14	10.66	0
14	2020-01-14	15.18	NA	420.77	43.92	184.83	0	6.34	0
15	2020-01-15	8.11	NA	267.78	5.44	176.13	2.66	52.65	0
16	2020-01-16	9.99	NA	59.37	NA	130.69	11.69	10.7	0
17	2020-01-17	10.56	NA	377.45	NA	NA	21.72	0.73	0
18	2020-01-18	6.54	NA	242.81	NA	NA	30.27	5.43	0
19	2020-01-19	6.15	NA	303.2	NA	NA	39.48	10.76	0
20	2020-01-20	6.18	NA	325.95	NA	NA	39.32	13.42	0
21	2020-01-21	6.28	NA	315.94	NA	NA	38.71	13.52	0
22	2020-01-22	6.54	NA	375.68	NA	NA	39.18	13.66	0
23	2020-01-23	6.16	NA	384.78	NA	NA	38.82	14.11	0
24	2020-01-24	6.35	NA	424.74	NA	NA	36.82	12.95	0
25	2020-01-25	6.15	133.64	266.34	3.41	NA	36.24	13.39	0
26	2020-01-26	6.55	96.18	197.15	2.45	NA	37.14	12.85	0
27	2020-01-27	7.3	64.01	226.23	16.01	NA	NA	14.14	0
28	2020-01-28	6.24	116.6	386.34	7.34	NA	NA	10.56	0
29	2020-01-29	6.28	96.07	335.3	4.59	NA	NA	10.9	NA
30	2020-01-30	6.43	144.03	560.92	3.75	NA	NA	11.2	NA
31	2020-01-31	6.57	120.28	392.78	4.11	NA	NA	12.25	NA
32	2020-02-01	4.88	129.67	456.25	4.8	NA	NA	10.82	NA
33	2020-02-02	3.3	136.85	479.6	6.68	NA	NA	13.29	NA
34	2020-02-03	2.82	144.2	356.95	5.59	NA	NA	11.07	NA
35	2020-02-04	2.94	111.88	509.46	7.21	59.1	16.05	9.82	NA
36	2020-02-05	2.93	109.11	471.03	6.73	58.93	15.84	9.26	NA
37	2020-02-06	2.96	122.03	432.87	6.44	58.47	15.74	9.23	NA
38	2020-02-07	2.85	117.52	411.3	5.01	61.85	15.28	9.27	NA
39	2020-02-08	2.95	86.06	354.99	3.08	55.29	14.59	10.25	NA
40	2020-02-09	2.83	163.17	429.99	0.92	53.73	NA	12.23	NA
41	2020-02-10	2.84	163.3	434.68	2.25	53.56	NA	11.24	NA
42	2020-02-11	2.77	112.16	231.17	2.8	53.51	18.26	10.83	NA
43	2020-02-12	2.76	118.52	241.21	2.86	53.62	17.44	10.44	NA
44	2020-02-13	2.87	85.89	196.69	4.18	52.49	17.26	10.1	NA
45	2020-02-14	2.98	95.22	294.5	7.46	52.07	17.87	10.37	NA
46	2020-02-15	2.91	87.23	181.18	8.56	52.86	18.76	10.86	NA
47	2020-02-16	2.71	125.9	223.94	4.03	53.21	21.4	10.48	NA
48	2020-02-17	2.67	126.18	249.99	3.84	54.12	23.76	9.47	NA
49	2020-02-18	2.64	99.82	159.34	3.9	54.08	22.82	9.46	NA
50	2020-02-19	2.66	105.13	317.8	3.96	55.27	19.96	10.09	NA
51	2020-02-20	2.7	111.48	302.52	3.89	54.6	18.41	14.98	NA
52	2020-02-21	2.68	106.22	203.64	4.06	53.45	18.75	15.04	NA
53	2020-02-22	2.92	100.2	171.35	3.9	52.97	19.03	16.11	NA
54	2020-02-23	2.67	101.45	177.92	3.8	52.68	18.64	14.17	NA
55	2020-02-24	2.65	107.83	198.94	3.91	53.88	20.4	13.49	NA
56	2020-02-25	2.66	118.21	228.67	6.06	52.87	24.46	9.99	NA
57	2020-02-26	2.68	141.39	230.18	3.49	52.01	23.38	10	NA
58	2020-02-27	2.86	136.41	199.52	3.35	53.56	22.06	12.76	NA
59	2020-02-28	2.7	131.27	229.08	6.57	60.84	26.22	17.45	NA
60	2020-02-29	3.2	148.14	259.48	19.73	22.56	17.69	12.91	NA
61	2020-03-01	2.67	NA	240.99	2.77	0	0.49	2.08	NA
62	2020-03-02	2.7	NA	241.52	2.66	10.53	2.48	2.4	NA
63	2020-03-03	8.14	NA	94.17	52.61	36.37	0	3.28	NA
64	2020-03-04	5.77	113.87	409.8	14.31	38.26	0	3.43	NA
65	2020-03-05	3.3	125.99	429.23	12.99	38.33	0	3.18	NA
66	2020-03-06	2.75	94.14	318.28	2.47	38.08	0	3.22	NA

S. No.	Date	Stack17_DHDS_60F1-				Stack_18_DHDS_REFORMER-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	SOx (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
67	2020-03-07	2.66	60.15	518.32	6.6	37.87	0	3.17	NA
68	2020-03-08	3.28	10.14	70.07	4.47	37.4	0	3.09	NA
69	2020-03-09	3.03	38.14	74.21	2.24	36.71	0	2.98	NA
70	2020-03-10	6.28	111.46	338.78	NA	36.01	0	2.86	NA
71	2020-03-11	2.97	155.08	244.9	NA	35.67	0	NA	NA
72	2020-03-12	3.03	155.99	276.39	NA	34.66	43.42	NA	0
73	2020-03-13	2.94	146.92	262.12	NA	37.63	72.22	NA	0
74	2020-03-14	3.15	90.45	279.83	NA	36	36.74	NA	0
75	2020-03-15	2.83	65.65	175.56	NA	34.54	32.71	NA	0
76	2020-03-16	2.93	87.98	82.98	NA	33.9	34.14	NA	0
77	2020-03-17	2.86	91.3	75.03	NA	34.29	34.27	NA	0
78	2020-03-18	3.61	117.98	175.63	2.76	34.55	35.96	10.51	0
79	2020-03-19	3.08	73.44	184.83	15.07	34.52	36.25	10.08	0
80	2020-03-20	3.32	115.2	170.37	6.32	33.03	35.09	10.4	0
81	2020-03-21	3.13	118.81	138.41	5.69	32.49	NA	9.31	0
82	2020-03-22	3	133.77	156.73	2.77	32.52	NA	NA	0
83	2020-03-23	3.48	146.61	205.34	2.68	33.18	NA	NA	0
84	2020-03-24	3.24	137.52	189.68	2.58	27.76	NA	NA	0
85	2020-03-25	3.43	111.61	181.21	2.36	19.61	NA	NA	0
86	2020-03-26	3.31	108.74	132.85	1.94	20.3	NA	NA	0
87	2020-03-27	3.19	62.35	67.29	1.93	23.22	NA	NA	0
88	2020-03-28	3.2	51.74	70	2.67	32.08	NA	NA	0
89	2020-03-29	3.26	59.62	102.95	4.52	31.78	NA	NA	0
90	2020-03-30	3.19	61.83	124.88	4.21	31.36	NA	NA	0
91	2020-03-31	3.23	95.53	157.89	2.48	30.29	NA	NA	0
92	2020-04-01	3.31	69.2	76.32	2.01	29.51	NA	NA	0
93	2020-04-02	3.37	91.59	136.88	NA	28.29	NA	NA	0
94	2020-04-03	3.52	86.25	124.21	NA	30.23	NA	NA	0
95	2020-04-04	3.85	101.57	153.86	NA	30.09	NA	NA	0
96	2020-04-05	3.5	128.37	200.19	NA	29.77	NA	NA	0
97	2020-04-06	3.59	130.69	206.28	NA	29.49	NA	NA	0
98	2020-04-07	3.66	112.33	166.71	NA	29.16	NA	NA	0
99	2020-04-08	4.32	90.75	139.49	NA	29.25	NA	NA	0
100	2020-04-09	3.63	115.75	214.15	NA	28.38	NA	NA	0
101	2020-04-10	3.9	126.36	248.19	NA	17.29	NA	NA	0
102	2020-04-11	4.16	117.82	229.24	NA	15.66	NA	NA	0
103	2020-04-12	4.43	117.51	259.27	NA	15.86	NA	NA	0
104	2020-04-13	4.13	121.07	228.83	NA	16.44	NA	NA	0
105	2020-04-14	4.01	117.2	234.53	NA	18.14	NA	NA	0
106	2020-04-15	4.79	113.83	266.76	NA	18.66	NA	NA	0
107	2020-04-16	4.38	98.53	287.35	NA	19.02	NA	NA	0
108	2020-04-17	4.67	115.86	291.88	NA	17.02	NA	NA	0
109	2020-04-18	4.52	118.87	261.4	NA	15.57	NA	NA	0
110	2020-04-19	4.4	103.82	262.76	NA	15.17	NA	NA	0
111	2020-04-20	4.23	103.37	251.74	NA	14.85	NA	NA	0
112	2020-04-21	4.47	69.92	211.29	15.33	14.64	NA	NA	0
113	2020-04-22	4.26	68.51	189.15	4.69	14.15	NA	NA	0
114	2020-04-23	4.4	63.74	162.4	4.38	13.72	NA	NA	0
115	2020-04-24	4.56	60.11	136.92	7.42	13.7	NA	NA	0
116	2020-04-25	7.04	76.59	140.09	12.52	13.96	30.27	9.98	0
117	2020-04-26	5.24	25.45	39.02	5.83	20.98	28.48	9.89	0
118	2020-04-27	10.01	77.75	131.36	7.14	21.32	29.08	10.02	0
119	2020-04-28	5.07	128.77	240.6	9.6	21.46	28.78	13.38	0
120	2020-04-29	5.18	126.9	244.77	11.79	21.57	27.9	14.31	0
121	2020-04-30	5.26	123.71	277.91	16.91	21.45	26.99	14.61	0
122	2020-05-01	6.84	115.56	220.2	15.4	21.18	26.78	14.73	0
123	2020-05-02	5.64	110.31	192.75	8.14	20.77	26.31	14.85	0
124	2020-05-03	5.92	98.45	163.13	4.88	19.88	27.04	14.79	0
125	2020-05-04	6	100.85	188.42	4.23	14.99	29.76	14.71	0
126	2020-05-05	6.06	116.11	207.2	1.13	14.9	31.2	14.77	0
127	2020-05-06	5.63	111.39	212.09	4.49	14.06	31.23	14.81	0
128	2020-05-07	5.24	126.18	236.82	3.87	13.93	31.22	14.85	0
129	2020-05-08	6.1	88.49	214.11	11.36	13.67	31.12	14.9	0
130	2020-05-09	6.87	50.84	114.36	4.05	13.27	30.96	15.04	0
131	2020-05-10	7.45	111.16	175.38	3.67	13.29	32.27	15.15	0
132	2020-05-11	5.97	91.02	166.69	5.1	13.15	32.31	15.15	0
133	2020-05-12	5.76	87.71	156.36	5.48	14.47	32.45	15.08	0
134	2020-05-13	4.04	120.19	237.79	3.56	19.59	31.58	15.5	0

S. No.	Date	Stack17_DHDS_60F1-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)
135	2020-05-14	2.74	109.48	199.36	1.97
136	2020-05-15	2.76	99.51	189.11	2.72
137	2020-05-16	3.08	104	246.97	6.68
138	2020-05-17	2.78	107.66	308.25	2.09
139	2020-05-18	2.79	110.54	391.39	3.6
140	2020-05-19	2.77	124.73	374.4	7.35
141	2020-05-20	2.78	120.43	400.26	7.33
142	2020-05-21	2.78	82.46	551.93	NA
143	2020-05-22	2.88	49.52	336.83	NA
144	2020-05-23	3.03	72.59	201.39	NA
145	2020-05-24	2.86	77.46	229.41	NA
146	2020-05-25	3.16	69.41	234.24	NA
147	2020-05-26	3.03	39.3	167.59	NA
148	2020-05-27	4.53	29.68	137.62	NA
149	2020-05-28	8.33	49.17	218.55	NA
150	2020-05-29	4.6	73.08	364.65	NA
151	2020-05-30	3.51	112.11	356.16	9.27
152	2020-05-31	3.03	98.56	327.45	11.25
153	2020-06-01	3.19	82.98	282.84	11.41
154	2020-06-02	3.1	90.59	285.21	6.28
155	2020-06-03	3	115.77	339.79	1.85
156	2020-06-04	3.1	111.38	358.22	2.21
157	2020-06-05	4.07	82.48	470.04	12.9
158	2020-06-06	3.04	96.32	305.49	2.82
159	2020-06-07	3.02	71.81	249.39	5.16
160	2020-06-08	3.26	84.86	309.21	3.61
161	2020-06-09	3.21	70.81	190.97	2.99
162	2020-06-10	3.91	42.84	101.49	4.24
163	2020-06-11	4.04	66.83	269.25	3.43
164	2020-06-12	3.86	125.24	456.84	4.07
165	2020-06-13	3.62	136.26	515.9	2.64
166	2020-06-14	3.64	119.22	704.05	2.31
167	2020-06-15	3.71	118.5	427.79	2.22
168	2020-06-16	4.22	112.78	664.86	4.43
169	2020-06-17	4.81	93.48	729.54	3.41
170	2020-06-18	3.82	106.06	369.08	1.42
171	2020-06-19	3.66	98.51	444.27	6.69
172	2020-06-20	3.72	135.53	379.07	2.22
173	2020-06-21	3.56	85.69	169.3	2.76
174	2020-06-22	3.63	102.04	236.1	2.71
175	2020-06-23	4.24	41.31	209.13	19.22
176	2020-06-24	7.43	5.65	88.81	14.12
177	2020-06-25	19.86	82.43	447.12	25
178	2020-06-26	3.05	9.9	50.98	3.86
179	2020-06-27	2.96	0.04	0.17	2.16
180	2020-06-28	3.36	37.75	192.26	9.24
181	2020-06-29	3.77	48.71	269.95	62.45
182	2020-06-30	3.29	8.52	27.32	181.89
183	2020-07-01	3.19	5.55	14.64	22.06
184	2020-07-02	3.18	3.52	24.95	3.83
185	2020-07-03	3.35	0.47	4.9	1.18
186	2020-07-04	3.35	0.2	0.12	2.3
187	2020-07-05	3.72	0.06	0.04	3.84
188	2020-07-06	3.55	0.01	0	5.22
189	2020-07-07	3.53	0.67	0	6.47
190	2020-07-08	3.41	0.01	0	7.61
191	2020-07-09	3.45	0.01	0	8.8
192	2020-07-10	3.63	40.49	114.8	20.18
193	2020-07-11	3.39	113.78	331.01	2.18
194	2020-07-12	3.07	115.12	309.7	3.72
195	2020-07-13	3.22	107.31	274.32	3.23
196	2020-07-14	3.49	107.1	307.25	2.98
197	2020-07-15	3.3	83.6	282.86	3.36
198	2020-07-16	3.33	92.28	332.56	8.64
199	2020-07-17	3.41	79.31	294.48	5
200	2020-07-18	3.3	NA	279.15	4.12
201	2020-07-19	3.36	NA	288.46	3.58
202	2020-07-20	3.32	NA	291.91	3.14

Stack_18_DHDS_REFORMER-			
SOx (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
20.31	31.64	15.77	0
21.24	34.35	15.35	0
21.32	32.15	15.43	0
21.01	30.31	15.29	0
20.34	29.58	15.35	0
42.46	33.17	11.91	0
37.52	28.37	6.86	0
36.31	26.29	6.86	0
37.77	25.68	7.81	0
40.61	27.05	7.41	0
44.04	28.51	7.3	0
44.31	27.82	7.17	0
44.27	27.73	7.03	0
39.92	25.92	6.91	0
38.16	25.57	6.89	0
36.97	25.65	6.96	0
39.27	22.92	14.79	0
38.75	23.13	8.62	0
38.68	24.07	6.83	0
39.22	24.66	6.88	0
31.76	25.67	6.77	0
31.18	25.74	6.83	0
31.74	20.92	7.98	0
31.79	24.9	7.03	0
28.91	15.26	5.06	0
10.41	6.19	0.68	0
0	12.11	0.01	0
0	12.79	0	0
0	11.25	0	0
0	7.97	0	0
0	6.45	0	0
0	5.81	0	0
0	6.23	0	0
0	7.95	0.01	0
0	6.74	0	0
0	6.66	0	0
0	5.98	0	0
16.04	32.16	2.95	0
31.85	34.24	6.62	0
33.58	34.61	6.68	0
55.82	22.69	6.81	0
68.61	17.8	6.98	0
69	19.05	6.77	0
69.14	19.44	6.58	0
68.91	19.08	6.51	0
68.18	18.32	6.35	0
58.07	24.89	7.47	0
37.9	22.97	8.07	0
38.94	22.01	7.97	0
37.35	NA	5.95	0
34.61	NA	5.91	0
35.16	NA	5.73	0
35.07	NA	5.62	0
34.92	NA	5.52	0
34.9	NA	5.39	0
34.82	NA	5.29	0
34.26	24.96	5.06	0
34.7	NA	4.93	0
35.05	NA	5.06	0
35.9	NA	5.44	0
34.38	NA	4.59	0
32.03	NA	4.55	0
31.53	NA	4.49	0
30.97	NA	4.32	0
30.36	NA	4.18	0
30.52	NA	4.02	0
30.53	NA	3.84	0
29.99	NA	3.76	0

S. No.	Date	Stack17_DHDS_60F1-				Stack_18_DHDS_REFORMER-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	SOx (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
203	2020-07-21	3.55	NA	363.85	3.3	29.97	NA	3.65	0
204	2020-07-22	3.42	NA	354.61	3.21	29.89	NA	3.51	0
205	2020-07-23	3.43	NA	347.56	3.59	29.82	NA	3.36	0
206	2020-07-24	3.4	NA	331.82	4.51	29.87	NA	3.32	0
207	2020-07-25	3.32	NA	289.54	4.23	47.76	NA	6.09	0
208	2020-07-26	3.36	NA	294.62	3.58	34.83	NA	6.85	0
209	2020-07-27	3.36	NA	278.95	5.5	35.19	NA	6.98	0
210	2020-07-28	3.26	NA	245	8.48	36.2	NA	6.96	0
211	2020-07-29	3.14	NA	255.37	8.71	35.69	NA	6.91	0
212	2020-07-30	2.96	NA	227.26	8	35.75	NA	6.81	0
213	2020-07-31	2.93	NA	187.01	7.74	35.85	NA	6.98	0
214	2020-08-01	2.92	NA	120.11	7.26	35.53	NA	6.59	0
215	2020-08-02	2.87	NA	49.03	7.29	33.84	NA	6.54	0
216	2020-08-03	2.88	NA	27.82	7.46	32.36	NA	6.32	0
217	2020-08-04	2.98	NA	79.31	10.76	27.33	NA	6.14	0
218	2020-08-05	3.24	NA	81.53	8.59	27.31	NA	5.82	0
219	2020-08-06	3.16	NA	179.41	10.87	26.64	NA	5.08	0
220	2020-08-07	3.24	NA	388.86	8.89	27.18	NA	5.1	0
221	2020-08-08	3.04	NA	231.76	9.66	27.4	NA	5.36	0
222	2020-08-09	3.06	NA	73.85	10.56	26.53	NA	5.31	0
223	2020-08-10	3.18	NA	140.05	6.89	26.52	NA	4.43	0
224	2020-08-11	3.05	NA	153.74	3.51	28.27	NA	4.73	0
225	2020-08-12	3.14	NA	198.58	3.17	29.1	NA	4.02	0
226	2020-08-13	5.07	NA	283.71	6.63	32.05	NA	4	0
227	2020-08-14	6.89	NA	265.51	5.77	31	NA	3.79	0
228	2020-08-15	7.73	NA	181.36	6.35	27.34	NA	3.59	0
229	2020-08-16	5.69	NA	15.72	5.96	27.16	NA	3.46	0
230	2020-08-17	3.77	NA	207.35	5.05	27.49	NA	3.28	0
231	2020-08-18	3.7	63.56	323.19	4.18	28.6	25.44	3.18	0
232	2020-08-19	3.7	63.39	304.03	5.31	29.02	25.02	3.15	0
233	2020-08-20	4.04	53.34	284.13	8.54	29.27	25.11	3.13	0
234	2020-08-21	4.17	81.92	339.32	NA	29.02	25.28	3.09	0
235	2020-08-22	4.04	93.46	343.83	NA	28.67	24.1	2.9	0
236	2020-08-23	3.75	110.86	315.45	NA	28.53	24.22	2.74	0
237	2020-08-24	3.83	92.02	320.01	NA	28.48	25.77	2.66	0
238	2020-08-25	3.62	101.12	362.4	NA	28.67	25.56	2.62	0
239	2020-08-26	3.2	89.51	327.73	9.16	28.53	25.27	2.53	0
240	2020-08-27	3.09	69.83	392.94	11.91	35.6	31.06	5.58	0
241	2020-08-28	3.12	27.46	308.33	7.54	25.99	27.69	6.21	0
242	2020-08-29	3.19	73.26	470.02	7.64	25.09	28.23	6.1	0
243	2020-08-30	2.93	97.05	442.82	0.03	24.76	28.8	5.97	0
244	2020-08-31	2.93	91.21	436.82	1.21	24.54	29.02	5.83	0
245	2020-09-01	2.98	91.78	291.78	4.68	24.84	29.24	5.72	0
246	2020-09-02	2.96	91.01	412.71	5.09	31.23	30.55	5.66	0
247	2020-09-03	2.94	93.54	538.16	5.14	30.09	30.31	5.57	0
248	2020-09-04	2.9	68.32	222.64	5.99	28.99	29.9	5.46	0
249	2020-09-05	2.78	70.45	210.19	4.94	30.79	29	5.6	0
250	2020-09-06	2.78	84.06	212.11	3.51	29.82	29.15	5.21	0
251	2020-09-07	2.77	79.25	203.62	3.61	30.47	28.31	5.49	0
252	2020-09-08	2.8	73.18	222.1	4.15	29.9	26.25	5.24	0
253	2020-09-09	2.77	83.77	248.82	4.93	31.01	28.82	5.18	0
254	2020-09-10	2.74	67.42	213.2	6.89	33.08	31.17	5.26	0
255	2020-09-11	2.74	40.98	116.93	5.03	34.29	30.5	5.46	0
256	2020-09-12	2.79	90.1	188.23	5.4	33.4	NA	5.49	0
257	2020-09-13	2.84	97.27	132.58	5.44	32.15	NA	5.74	0
258	2020-09-14	2.88	107.41	179.95	5.81	29.27	NA	5.45	0
259	2020-09-15	2.9	121.96	244.87	5.98	27.47	NA	4.71	0
260	2020-09-16	2.89	113.41	249.41	6.37	28.5	NA	4.95	0
261	2020-09-17	2.91	92.59	221.85	6.96	29.98	NA	5.52	0
262	2020-09-18	2.84	65.46	170.02	6.91	29.47	NA	5.55	0
263	2020-09-19	2.57	39.89	77.24	7.05	29.53	NA	5.55	0
264	2020-09-20	2.65	39.16	80.7	7.08	29.44	NA	5.58	0
265	2020-09-21	2.71	36.86	230.67	15.35	31.23	NA	5.96	0
266	2020-09-22	2.73	59.88	135.99	7.44	31.4	NA	5.42	0
267	2020-09-23	2.92	53.86	85.77	16.71	31.62	NA	5.21	0
268	2020-09-24	2.83	69.58	119.33	7.15	31.54	NA	4.95	0
269	2020-09-25	2.86	71.37	190.07	6.97	31.61	NA	5.31	0
270	2020-09-26	2.88	69.12	134.04	7.75	54.8	NA	8.62	0

S. No.	Date	Stack17_DHDS_60F1-				Stack_18_DHDS_REFORMER-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	SOx (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
271	2020-09-27	2.79	70.02	119.52	8.4	49.39	NA	7.93	0
272	2020-09-28	2.83	79.29	178.74	11.52	50.23	NA	7.64	0
273	2020-09-29	2.82	115.16	272.22	6.6	39.57	NA	7.5	0
274	2020-09-30	4.03	104.07	229.04	7.71	36.45	NA	9.26	0
275	2020-10-01	3	95.53	223.64	6.73	36.28	NA	10.11	0
276	2020-10-02	2.92	73.19	656.24	11.62	36.26	NA	8.83	0
277	2020-10-03	2.98	77.77	798.83	6.85	35.85	NA	8	0
278	2020-10-04	3.01	76.85	379.28	7.32	35.95	NA	8.03	0
279	2020-10-05	3.28	79.86	505.1	7.99	35.32	NA	7.97	0
280	2020-10-06	3.85	81.68	275.73	8.32	36.36	NA	8.79	0
281	2020-10-07	2.98	0	27.26	4.94	39.23	NA	7.25	0
282	2020-10-08	4.42	21.34	194.38	11.91	44.31	NA	7.21	0
283	2020-10-09	3.63	81.41	175.11	8.51	45.74	NA	8.69	0
284	2020-10-10	3.37	77.42	117.2	8.48	46.11	NA	9.06	0
285	2020-10-11	3.95	80.97	161.03	10.06	45.69	NA	8.56	0
286	2020-10-12	7	94.38	178.59	9.15	45.11	NA	8.07	0
287	2020-10-13	7.29	96.25	186.52	9.41	46.01	16.58	7.68	0
288	2020-10-14	3.64	110.25	214.67	8.41	45	14.23	7.89	0
289	2020-10-15	3.71	93.98	210.08	8.83	45.63	15.07	7.71	0
290	2020-10-16	4.05	89.53	223.36	9.06	42.22	13.54	6.72	0
291	2020-10-17	3.67	98.97	174.06	8.26	36.9	13.53	7.06	0
292	2020-10-18	3.59	92.46	161.52	8.24	39.67	13.97	7.98	0
293	2020-10-19	4.1	99.56	210.8	12.27	39.03	15.64	7.99	0
294	2020-10-20	3.78	104.7	273.17	10.26	39.47	NA	7.63	0
295	2020-10-21	3.62	94.81	235.91	9.46	40.09	NA	7.3	0
296	2020-10-22	4.91	31.64	179.43	29.09	44.17	18.39	7.38	0
297	2020-10-23	3.59	115.92	299.33	8.3	48.59	17.12	8	0
298	2020-10-24	3.53	111.16	238.03	8.39	47.71	19.72	8	0
299	2020-10-25	3.57	99.17	315.84	8.5	47	20.62	8.14	0
300	2020-10-26	3.43	99.35	201.3	8.39	45.9	21.23	7.99	0
301	2020-10-27	3.36	94.19	174.56	7.32	50.81	30.61	8.89	0
302	2020-10-28	3.32	97.34	138.17	4.87	46.78	29.94	7.04	0
303	2020-10-29	3.31	99.29	151.24	4.38	45.33	31.76	7.05	0
304	2020-10-30	3.27	91.55	114.46	4.06	46.57	33.52	6.91	0
305	2020-10-31	3.34	76.35	100.73	3.99	47.24	31.1	7.84	0
306	2020-11-01	3.41	108.46	210.78	4.33	49.47	29.95	7.89	0
307	2020-11-02	3.55	121.33	243.16	4.54	50.02	30.61	8.14	0
308	2020-11-03	3.64	118.68	241.34	4.71	50.38	30.91	8.1	0
309	2020-11-04	4.11	119.73	233.26	4.81	50.69	30.94	8.14	0
310	2020-11-05	3.9	125.4	211.76	4.88	50.93	30.02	4.78	0
311	2020-11-06	3.85	124.65	181.96	5.72	50.25	30.62	7.94	0
312	2020-11-07	3.78	133.75	195.05	5.07	49.01	30.72	7.75	0
313	2020-11-08	3.73	122.73	226.83	4.86	48.28	31.9	7.46	0
314	2020-11-09	3.64	127.95	227.17	4.74	48.86	31.44	7.95	0
315	2020-11-10	3.59	113.14	164.45	5.29	47.39	31.02	7.75	0
316	2020-11-11	17.29	109.05	161.75	5.47	48.03	30.45	8.11	0
317	2020-11-12	5.97	115.14	205.01	5.48	48.45	30.47	8.15	0
318	2020-11-13	4.1	120.86	233.84	5.3	45.94	30.49	8.18	0
319	2020-11-14	4.18	127.96	270.34	5.3	39.85	31.14	7.8	0
320	2020-11-15	4.4	87.93	252.11	5.52	39.48	32.4	7.93	0
321	2020-11-16	4.42	89.97	225.96	4.96	39.52	34.21	7.81	0
322	2020-11-17	4.5	133.29	285.63	5.46	39.34	33.33	8.21	0
323	2020-11-18	4.69	182.32	348.52	4.96	39.3	31.24	8.39	0
324	2020-11-19	4.49	181.58	323.33	5.05	39.13	31.12	8.25	0
325	2020-11-20	4.39	29.98	60.96	5.46	39.47	29.67	7.6	0
326	2020-11-21	5.72	88.56	227.58	4.12	43.79	28.91	7.97	0
327	2020-11-22	4.9	189.55	450.35	3.53	47.15	29.42	8.07	0
328	2020-11-23	4.88	202.47	515.21	3.57	47.66	28.35	8.33	0
329	2020-11-24	4.69	206.32	543.87	3.79	47.39	31.39	8.34	0
330	2020-11-25	4.58	211.29	330.91	3.7	47.15	32.77	8.11	0
331	2020-11-26	11.9	210.56	381.54	3.6	45.95	31.93	8.02	0
332	2020-11-27	15.24	199.53	426.7	3.53	47.33	30.49	8.76	0
333	2020-11-28	4.95	129.43	243.63	3.56	46.68	30.71	9.11	0
334	2020-11-29	4.73	120.37	182.14	3.58	34.87	28.15	7.39	0
335	2020-11-30	4.69	138.53	293.3	3.91	35.24	29.8	7.47	0
336	2020-12-01	5.18	102	300.27	13.85	30.3	14.11	10.8	0
337	2020-12-02	4.94	159.2	319.21	4.15	60.17	62.53	17.51	0
338	2020-12-03	5.1	149.14	307.43	3.86	42.51	55.05	5.56	0

S. No.	Date	Stack17_DHDS_60F1-				Stack_18_DHDS_REFORMER-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	SOx (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
339	2020-12-04	5.47	92.52	177.06	2.28	40	15.4	8.01	0
340	2020-12-05	5.39	0	0	0	83.07	34.98	13.2	0
341	2020-12-06	5.11	0	0	0	63.34	30.5	49.58	0
342	2020-12-07	5.27	0	7.54	2.79	51	2.27	92.08	0
343	2020-12-08	5.21	0	41.23	8.5	36.39	76.99	13.23	0
344	2020-12-09	5.59	0	49.37	9.09	47.52	39.84	7.77	0
345	2020-12-10	5.24	14.71	65.39	40.32	42.13	27.6	7.78	0
346	2020-12-11	5.13	0.53	35.01	11.45	39.03	33.86	7.86	0
347	2020-12-12	5.45	0	25.61	5.91	24.58	0.26	28.76	0
348	2020-12-13	5.16	NA	NA	NA	NA	NA	NA	0
349	2020-12-14	5.45	NA	NA	NA	NA	NA	NA	0
350	2020-12-15	5.26	NA	NA	NA	NA	NA	NA	0
351	2020-12-16	5.27	NA	NA	NA	NA	NA	NA	0
352	2020-12-17	5.35	NA	NA	NA	NA	NA	NA	0
353	2020-12-18	5.41	NA	NA	NA	NA	NA	NA	0
354	2020-12-19	5.31	NA	NA	NA	NA	NA	NA	0
355	2020-12-20	5.13	NA	NA	NA	NA	NA	NA	0
356	2020-12-21	5.09	NA	NA	NA	NA	NA	NA	0
357	2020-12-22	5.05	NA	NA	NA	NA	NA	NA	0
358	2020-12-23	5.06	NA	NA	NA	NA	NA	NA	0
359	2020-12-24	5.13	NA	NA	NA	NA	NA	NA	0
360	2020-12-25	5.27	NA	NA	NA	NA	NA	NA	0
361	2020-12-26	5.28	NA	NA	NA	NA	NA	NA	0
362	2020-12-27	5.42	NA	NA	NA	NA	NA	NA	0
363	2020-12-28	5.47	NA	NA	NA	25.04	43.98	6.13	0
364	2020-12-29	5.34	NA	NA	NA	24.86	33.85	6.57	0
365	2020-12-30	5.31	NA	NA	NA	39.54	31.42	7.97	0
366	2020-12-31	3.19	7.88	29.53	3.24	31.44	33.56	7.04	0
367	2021-01-01	2.91	4.91	25.67	69.35	31.71	33.13	7.4	0
368	2021-01-02	4.71	25.21	183.84	30.45	31.9	44.47	6.97	0
369	2021-01-03	14.27	73.92	403.06	14.13	33.21	33.13	7.6	0
370	2021-01-04	4.57	54.87	399.83	31.99	36.47	34.05	8.04	0
371	2021-01-05	3.59	94.15	325.23	13.83	35.81	28.89	8.33	0
372	2021-01-06	3.3	87.12	219.96	6.23	35.36	28.22	8.43	0
373	2021-01-07	3.64	91.86	215.97	4.86	35.12	29.19	8.57	0
374	2021-01-08	3.61	72.44	163.75	4.95	34.64	25.96	NA	0
375	2021-01-09	3.45	70.4	184.44	10.15	34.62	NA	NA	0
376	2021-01-10	3.36	75.75	197.35	8.38	34.73	NA	NA	0
377	2021-01-11	3.33	74.53	154.56	8.88	35.23	NA	NA	0
378	2021-01-12	3.8	72.85	197.85	12.75	37.51	NA	NA	0
379	2021-01-13	3.49	88.26	217.09	NA	37.34	NA	NA	0
380	2021-01-14	3.45	102.62	180.95	NA	36.39	NA	NA	0
381	2021-01-15	3.52	93.18	188.47	NA	36.41	NA	NA	0
382	2021-01-16	3.52	60.31	202.04	NA	36.34	NA	NA	0
383	2021-01-17	3.59	58.96	472.1	NA	35.52	NA	NA	0
384	2021-01-18	3.42	0.1	38.1	8.22	31.37	32.81	4.41	0
385	2021-01-19	9.07	39.2	98.38	7.4	29.23	32.16	4.78	0
386	2021-01-20	3.65	83.65	270.75	12.52	29.3	30.97	5.01	0
387	2021-01-21	3.68	65.22	230.26	24.29	29.01	33.2	5.12	0
388	2021-01-22	4.08	59.25	655.64	26.65	27.71	32.54	5.32	0
389	2021-01-23	3.61	72.26	423.12	9.83	29.14	33.4	5.59	0
390	2021-01-24	3.67	82.65	510.54	9	30.61	33.99	5.69	0
391	2021-01-25	3.62	85.91	233.02	8.39	31.26	33.28	5.92	0
392	2021-01-26	3.61	92.48	473.89	8.21	31.14	33.25	6.23	0
393	2021-01-27	3.6	73.13	336.52	8.86	33.87	32.8	6.42	0
394	2021-01-28	3.7	55.39	126.59	9.8	37.09	31.96	6.54	0
395	2021-01-29	3.71	65.65	128.21	5.32	37.18	33.11	6.75	0
396	2021-01-30	3.76	84.95	176.45	4.95	42.87	35.24	7.77	0
397	2021-01-31	3.74	80.96	125.72	7.08	37.64	37.11	7.07	0
398	2021-02-01	3.82	98.48	228.95	6.89	37.86	38.3	7.26	0
399	2021-02-02	3.78	93.5	251.61	5.77	37.37	37.62	7.59	0
400	2021-02-03	3.78	88.71	184.77	8.62	37.28	39.14	7.65	0
401	2021-02-04	3.74	127.31	264.01	2.31	36.72	35.98	7.99	0
402	2021-02-05	3.92	160.1	319.2	3.42	30.72	36.28	8.39	0
403	2021-02-06	3.77	NA	277.41	1.74	33.13	34.77	8.31	0
404	2021-02-07	3.96	NA	252.55	1.8	30.53	33	8.52	0
405	2021-02-08	3.84	NA	235.66	1.75	29.9	36.41	8.79	0
406	2021-02-09	3.96	NA	230.88	6.1	32.04	36.24	9.1	0

S. No.	Date	Stack17_DHDS_60F1-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)
407	2021-02-10	3.89	NA	201.27	2.21
408	2021-02-11	3.91	101.96	191.82	2.06
409	2021-02-12	5.31	104.93	176.19	2.46
410	2021-02-13	5.86	129.49	262.62	2.63
411	2021-02-14	5.97	133.76	215.23	2.62
412	2021-02-15	7.26	124.61	208.23	2.69
413	2021-02-16	7.66	107.08	256.75	2.88
414	2021-02-17	6.83	98.72	288.3	3.35
415	2021-02-18	8.63	76.05	224.24	25.23
416	2021-02-19	6.6	104.06	256.23	7.53
417	2021-02-20	6.57	147.63	267.47	2.62
418	2021-02-21	6.19	115.33	226.76	2.68
419	2021-02-22	6.03	144.59	256.59	2.45
420	2021-02-23	6.25	143.55	278.43	2.59
421	2021-02-24	6.42	121.77	277.85	3.01
422	2021-02-25	7.23	141.42	293.71	2.82
423	2021-02-26	7.85	145.89	250.39	4.31
424	2021-02-27	9.16	134.22	221.15	3.79
425	2021-02-28	10.29	130.3	274.32	5.98
426	2021-03-01	7.95	105.74	143.96	6.07
427	2021-03-02	8.04	113.62	535.03	6.93
428	2021-03-03	7.17	127.79	486.2	12.77
429	2021-03-04	7.75	83.69	104.84	17.36
430	2021-03-05	7.28	84.01	302.48	3.59
431	2021-03-06	8.16	94.65	558.35	4.49
432	2021-03-07	14.13	88.81	233.58	4.64
433	2021-03-08	19.3	76.92	130.99	4.01
434	2021-03-09	26.19	17.47	8.13	13.63
435	2021-03-10	4.3	47.56	59.58	5.39
436	2021-03-11	4.41	100.17	151.6	2.67
437	2021-03-12	6.58	88.29	153.68	2.27
438	2021-03-13	5.06	93.4	126.59	2.19
439	2021-03-14	4.99	102.33	173.72	3.33
440	2021-03-15	4.91	120.33	137.74	2.39
441	2021-03-16	5.92	119.66	141.23	2.57
442	2021-03-17	7.43	115.95	134.78	1.96
443	2021-03-18	7.26	130.4	172.41	2.88
444	2021-03-19	5.77	103.8	139.52	5.8
445	2021-03-20	6.68	112.57	178.53	3.26
446	2021-03-21	7.83	90.54	166.38	5.68
447	2021-03-22	6.19	89.53	192.23	5.17
448	2021-03-23	6.28	110.04	279.06	4.34
449	2021-03-24	5.9	89.96	211.29	3.74
450	2021-03-25	6	90.64	195.76	5.64
451	2021-03-26	7.54	155.06	165.55	5.29
452	2021-03-27	9.04	168	143	6.43
453	2021-03-28	10.5	212.15	246.99	4.38
454	2021-03-29	13.48	145.46	207.73	6.26
455	2021-03-30	9.11	153.71	296.28	6.87
456	2021-03-31	11.4	143.83	242.52	4.04
457	2021-04-01	13.62	154.99	157.79	3.25
458	2021-04-02	8.1	132.93	188.11	2.16
459	2021-04-03	9.46	143.73	97.33	0.76
460	2021-04-04	8.08	153.85	131.9	2.68
461	2021-04-05	9.85	187.2	180.64	1.64
462	2021-04-06	13.09	210.54	140.47	3.02
463	2021-04-07	13.67	160.08	175.28	9.44
464	2021-04-08	12.17	166.93	143.52	3.57
465	2021-04-09	10.33	157.2	99.68	3.25
466	2021-04-10	8.76	216.78	178.01	3.84
467	2021-04-11	3.55	211.46	202.77	4.16
468	2021-04-12	3.51	218.97	223.91	4.04
469	2021-04-13	NA	NA	NA	NA
470	2021-04-14	3.74	102.4	91.14	4.7
471	2021-04-15	3.94	116.18	127.28	2.8
472	2021-04-16	4.11	202.11	216.47	4.23
473	2021-04-17	5.03	216.9	212.37	3.96
474	2021-04-18	7.12	189.48	221.32	5.19

Stack_18_DHDS_REFORMER-			
SOx (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
31.71	35.33	9.29	0
32.08	34.58	9.45	0
32.44	34.31	9.61	0
32.03	33.68	9.71	0
29.68	33.37	9.83	0
24.52	33.03	9.9	0
24.23	31.4	9.99	0
24.08	31.61	10.06	0
23.95	31.07	10.21	0
23.69	30.83	10.37	0
23.61	28.12	10.77	0
23.7	28.66	10.86	0
26.07	30.05	10.82	0
28.39	30.35	10.79	0
28.6	30.69	11	0
29.4	29.78	11.17	0
32.17	31.59	9.5	0
22.12	29.36	6.18	0
21.31	29.61	6.77	0
21.63	31.72	6.88	0
30.03	32.98	6.71	0
28.94	17.74	5.38	0
16.78	0	1.85	0
22	0.04	3.4	0
11.44	5.03	1.54	0
0	9.62	0.27	0
0	9.85	0.06	0
0	9.93	0.11	0
0	9.44	0.29	0
0	9.38	0.3	0
59.69	7.37	14.7	0
62.97	65.93	15.55	0
63.14	45.82	7.24	0
61.68	22.65	8.31	0
61.44	19.41	8.4	0
60.86	20.96	8.4	0
60.47	21.64	8.19	0
60.64	23.77	8.21	0
60.67	22.19	8.27	0
60.35	21.83	8.22	0
58.67	22.75	8.18	0
58.72	23.68	8.17	0
59.19	21.94	8.45	0
58.95	22.49	8.54	0
59.1	42.47	9.6	0
25.82	48.03	7.58	0
25.32	47.54	7.44	0
26.64	46.31	8.36	0
26.27	44.85	7.99	0
24.89	46.2	7.67	0
23.6	47.01	7.58	0
15.37	4.67	71.01	0
34.81	82.9	10.52	0
26.52	105.69	5.06	0
17.54	0	NA	0
49.67	79.78	NA	0
26.35	87.7	NA	0
24.44	43.67	NA	0
24.58	48.33	NA	0
24.37	47.27	NA	0
23.6	48.54	NA	0
16.47	48.7	NA	0
NA	NA	NA	NA
15.53	48.17	NA	0
15.59	48.05	NA	0
15.39	43.63	7.36	0
15.27	41.58	7.4	0
15.15	43.23	7.43	0

342

S. No.	Date	Stack17_DHDS_60F1-					Stack_18_DHDS_REFORMER-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)		SOx (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
475	2021-04-19	10.2	224.52	236.09	4.18		13.8	43.78	7.27	0
476	2021-04-20	7.26	200.18	369.89	4.61		13.99	44.22	7.19	0
477	2021-04-21	9.69	164.26	290.3	4.88		18.44	45.13	7.27	0
478	2021-04-22	9.73	164.53	258.54	5.12		19.58	44.45	7.34	0
479	2021-04-23	8.69	135.06	142.16	7.8		19.73	44.3	7.42	0
480	2021-04-24	8.29	162.62	144.31	4.66		19.29	41.61	7.46	0
481	2021-04-25	13.64	97.43	23.24	4.48		19.25	42.18	7.36	0
482	2021-04-26	17.52	64.87	28.23	6.53		24.06	38.35	8.39	0
483	2021-04-27	17.36	65.16	205.02	5.48		27.84	29.78	6.53	0
484	2021-04-28	12.66	84.39	276.17	5.95		27.35	29.48	6.49	0
485	2021-04-29	17.92	80.24	250.3	6.67		27.25	29.85	6.46	0
486	2021-04-30	10.98	75.44	228.78	6.4		27.81	30.55	6.5	0
487	CFO Standards	100	-	-	-		-	-	-	100
488	Maximum Value	26.19	224.52	798.83	181.89		184.83	105.69	92.08	0
489	Maximum Value on	2021-03-09	2021-04-19	2020-10-03	2020-06-30		2020-01-14	2021-04-04	2020-12-07	2020-01-01
490	Average	4.93	99.25	239.56	7.26		37.22	28.95	8.66	0
491		485	397	461	410		435	325	400	0
492	Total Data Points	486	486	486	486		486	486	486	486
493	Data Availablity %	99.79	83.13	96.09	84.77		93	69.34	84.16	90.95
494	Pollutant Load (Tons/day)	0.002	0.045	0.108	0.003		0.054	0.042	0.013	0.000
495	Pollutnat Load as per CFO (Tons/day)	0.045								0.146

Stack Monitroing Data (CEMS) - From 01.01.2020 to 30.04.2021

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

S. No.	Date	Stack19_DHDS_HGU_61F1					Stack20_DHDS_SRU_65F001-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
1	2020-01-01	NA	0.01	0	NA		104.38	94.53	NA	220.04
2	2020-01-02	NA	0	0	0.13		2.19	94.48	NA	59.95
3	2020-01-03	NA	0	0	0		255.94	66.8	NA	909.68
4	2020-01-04	NA	0	0	0		3.2	0	NA	17.26
5	2020-01-05	NA	0.01	0	0		0	0	NA	0
6	2020-01-06	NA	0	0	0.01		0	0	NA	0
7	2020-01-07	NA	0	0	0.02		0	0	NA	0
8	2020-01-08	NA	0	0	0.01		0	0	NA	0
9	2020-01-09	NA	0.01	0	0.16		20.35	0	NA	26.95
10	2020-01-10	NA	0	0	0.23		135.94	0	NA	66.52
11	2020-01-11	NA	0	0	0.77		349.11	0	NA	187.3
12	2020-01-12	NA	0	0	0.87		118.94	0	NA	363.72
13	2020-01-13	0.52	0	0	1.63		226.11	0	NA	700.34
14	2020-01-14	0.71	0	0	NA		414.61	0	NA	1245.84
15	2020-01-15	0.77	0	0	NA		523.55	0	NA	1383.89
16	2020-01-16	2.93	0	0	NA		616.54	0	NA	1503.04
17	2020-01-17	2.68	0	0	NA		369.06	0	NA	766.7
18	2020-01-18	3.52	0	0	NA		51.82	392.34	NA	158.46
19	2020-01-19	6.93	0	0	NA		47.99	552.7	NA	221.7
20	2020-01-20	3.06	0	0	NA		46.78	294.27	NA	231.09
21	2020-01-21	0.89	0	0	NA		46.82	0	NA	233.86
22	2020-01-22	0.88	0	0	NA		47.1	0	NA	231.59
23	2020-01-23	0.72	0	0	NA		30.41	0	NA	135.37
24	2020-01-24	0.37	0	0	NA		19.34	0	NA	67.29
25	2020-01-25	0	0	0	NA		21.38	0	NA	88.9
26	2020-01-26	0	0	0	NA		23.75	0	NA	86.72
27	2020-01-27	1.13	0	0	NA		27.93	0	NA	77.1
28	2020-01-28	1.42	0	0	NA		21.24	0	NA	81.91
29	2020-01-29	NA	NA	NA	NA		NA	NA	NA	NA
30	2020-01-30	NA	NA	NA	NA		NA	NA	NA	NA
31	2020-01-31	NA	NA	NA	NA		NA	NA	NA	NA
32	2020-02-01	NA	NA	NA	NA		NA	NA	NA	NA
33	2020-02-02	NA	NA	NA	NA		NA	NA	NA	NA
34	2020-02-03	NA	NA	NA	NA		NA	NA	NA	NA
35	2020-02-04	NA	NA	NA	NA		NA	NA	NA	NA
36	2020-02-05	NA	NA	NA	NA		NA	NA	NA	NA
37	2020-02-06	NA	NA	NA	NA		NA	NA	NA	NA
38	2020-02-07	NA	NA	NA	NA		NA	NA	NA	NA
39	2020-02-08	NA	NA	NA	NA		NA	NA	NA	NA
40	2020-02-09	NA	NA	NA	NA		NA	NA	NA	NA
41	2020-02-10	NA	NA	NA	NA		NA	NA	NA	NA
42	2020-02-11	NA	NA	NA	NA		NA	NA	NA	NA
43	2020-02-12	NA	NA	NA	NA		NA	NA	NA	NA
44	2020-02-13	NA	NA	NA	NA		NA	NA	NA	NA
45	2020-02-14	NA	NA	NA	NA		NA	NA	NA	NA
46	2020-02-15	NA	NA	NA	NA		NA	NA	NA	NA
47	2020-02-16	NA	NA	NA	NA		NA	NA	NA	NA
48	2020-02-17	NA	NA	NA	NA		NA	NA	NA	NA
49	2020-02-18	NA	NA	NA	NA		NA	NA	NA	NA
50	2020-02-19	NA	NA	NA	NA		NA	NA	NA	NA
51	2020-02-20	NA	NA	NA	NA		NA	NA	NA	NA
52	2020-02-21	NA	NA	NA	NA		NA	NA	NA	NA
53	2020-02-22	NA	NA	NA	NA		NA	NA	NA	NA
54	2020-02-23	NA	NA	NA	NA		NA	NA	NA	NA
55	2020-02-24	NA	NA	NA	NA		NA	NA	NA	NA
56	2020-02-25	NA	NA	NA	NA		NA	NA	NA	NA
57	2020-02-26	NA	NA	NA	NA		NA	NA	NA	NA
58	2020-02-27	NA	NA	NA	NA		NA	NA	NA	NA
59	2020-02-28	NA	NA	NA	NA		NA	NA	NA	NA
60	2020-02-29	NA	NA	NA	NA		NA	NA	NA	NA
61	2020-03-01	NA	NA	NA	NA		NA	NA	NA	NA
62	2020-03-02	NA	NA	NA	NA		NA	NA	NA	NA
63	2020-03-03	NA	NA	NA	NA		NA	NA	NA	NA
64	2020-03-04	NA	NA	NA	NA		NA	NA	NA	NA
65	2020-03-05	NA	NA	NA	NA		NA	NA	NA	NA
66	2020-03-06	NA	NA	NA	NA		NA	NA	NA	NA

S. No.	Date	Stack19_DHDS_HGU_61F1					Stack20_DHDS_SRU_65F001-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
67	2020-03-07	NA	NA	NA	NA		NA	NA	NA	NA
68	2020-03-08	NA	NA	NA	NA		NA	NA	NA	NA
69	2020-03-09	NA	NA	NA	NA		NA	NA	NA	NA
70	2020-03-10	NA	NA	NA	NA		NA	NA	NA	NA
71	2020-03-11	NA	NA	NA	NA		NA	NA	NA	NA
72	2020-03-12	0	1.27	0	NA		NA	NA	NA	NA
73	2020-03-13	0	1.39	0	NA		NA	NA	NA	NA
74	2020-03-14	0	1.39	0	NA		NA	NA	NA	NA
75	2020-03-15	0	1.39	0	NA		NA	NA	NA	NA
76	2020-03-16	0	1.53	0	NA		NA	NA	NA	NA
77	2020-03-17	8.4	1.45	0	NA		NA	NA	NA	NA
78	2020-03-18	17.37	1.61	0	0		NA	NA	NA	NA
79	2020-03-19	23.4	1.39	0	0		NA	NA	NA	NA
80	2020-03-20	23.53	NA	0	0		NA	NA	NA	NA
81	2020-03-21	NA	NA	0	0		NA	NA	NA	NA
82	2020-03-22	NA	NA	0	0		NA	NA	NA	NA
83	2020-03-23	NA	NA	0	0		NA	NA	NA	NA
84	2020-03-24	NA	NA	0	0		NA	NA	NA	NA
85	2020-03-25	NA	NA	0	0		NA	NA	NA	NA
86	2020-03-26	NA	NA	0	0		NA	NA	NA	NA
87	2020-03-27	NA	NA	0	0		NA	NA	NA	NA
88	2020-03-28	NA	NA	0	0		NA	NA	NA	NA
89	2020-03-29	NA	NA	0	0		NA	NA	NA	NA
90	2020-03-30	NA	NA	0	0		NA	NA	NA	NA
91	2020-03-31	NA	NA	0	0		NA	NA	NA	NA
92	2020-04-01	NA	NA	0	0		NA	NA	NA	NA
93	2020-04-02	NA	NA	0	0		NA	NA	NA	NA
94	2020-04-03	NA	NA	0	0		NA	NA	NA	NA
95	2020-04-04	NA	NA	0	0		NA	NA	NA	NA
96	2020-04-05	NA	NA	0	0		NA	NA	NA	NA
97	2020-04-06	NA	NA	0	0		NA	NA	NA	NA
98	2020-04-07	NA	NA	0	0		NA	NA	NA	NA
99	2020-04-08	NA	NA	0	0		NA	NA	NA	NA
100	2020-04-09	NA	NA	0	0		NA	NA	NA	NA
101	2020-04-10	NA	NA	0	0		NA	NA	NA	NA
102	2020-04-11	NA	NA	0	0		NA	NA	NA	NA
103	2020-04-12	NA	NA	0	0		NA	NA	NA	NA
104	2020-04-13	NA	NA	0	0		NA	NA	NA	NA
105	2020-04-14	NA	NA	0	0		NA	NA	NA	NA
106	2020-04-15	NA	NA	0	0		NA	NA	NA	NA
107	2020-04-16	NA	NA	0	0		NA	NA	NA	NA
108	2020-04-17	NA	NA	0	0		NA	NA	NA	NA
109	2020-04-18	NA	NA	0	0		NA	NA	NA	NA
110	2020-04-19	NA	NA	0	0		NA	NA	NA	NA
111	2020-04-20	NA	NA	0	0		NA	NA	NA	NA
112	2020-04-21	NA	NA	0	0		NA	NA	NA	NA
113	2020-04-22	NA	NA	0	0		NA	NA	NA	NA
114	2020-04-23	NA	NA	0	0		NA	NA	NA	NA
115	2020-04-24	NA	NA	0	0		NA	NA	NA	NA
116	2020-04-25	22.14	1.73	0	0.08		NA	NA	NA	NA
117	2020-04-26	15.65	1.5	0	0		NA	NA	NA	NA
118	2020-04-27	15.2	1.53	0	0		0	0	NA	16.19
119	2020-04-28	9.79	1.61	0	0		0	0	NA	14.78
120	2020-04-29	8.73	1.7	0	0		0.01	0	NA	16.84
121	2020-04-30	12.25	1.63	0	0		0	0	NA	15.18
122	2020-05-01	11.37	1.65	0	0		0.58	0	NA	15.62
123	2020-05-02	16.98	1.45	0	0		1.91	0	NA	10.9
124	2020-05-03	13.38	1.53	0	0		2.4	0	NA	14.87
125	2020-05-04	10.34	1.57	0	0		2.51	0	NA	15.64
126	2020-05-05	6.34	1.65	0	0		3.2	0	NA	17.15
127	2020-05-06	10.54	1.58	0	0		2.72	0	NA	16.17
128	2020-05-07	10.54	1.55	0	0		4.14	0	NA	17.26
129	2020-05-08	8.9	1.61	0	0		4.02	0	NA	17.8
130	2020-05-09	6.72	1.63	0	0		3.84	0	NA	18.88
131	2020-05-10	10.15	1.54	0	0		0.82	0	NA	14.21
132	2020-05-11	6.78	1.63	0	0		2.08	0	NA	17.76
133	2020-05-12	6.94	1.62	0	0		1.26	0	NA	14.31
134	2020-05-13	8.39	1.61	0	0		0.64	0	NA	13.71

S. No.	Date	Stack19_DHDS_HGU_61F1					Stack20_DHDS_SRU_65F001-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
135	2020-05-14	7.35	1.61	0	0		2.89	0	NA	17.02
136	2020-05-15	7.81	1.65	0	0.67		2.62	0	NA	14.57
137	2020-05-16	13.18	1.6	0	2.2		4.21	0	NA	14.2
138	2020-05-17	10.12	1.59	0	3.02		4.63	0	NA	16.19
139	2020-05-18	13.62	1.54	0	3.17		1.27	0	NA	12.96
140	2020-05-19	6.81	1.4	0	7.92		3.86	0	NA	16.06
141	2020-05-20	0	1.66	0	0		1.45	0	NA	14.97
142	2020-05-21	0	1.78	0	0		0.66	0	NA	13.78
143	2020-05-22	0	1.67	0	0.01		1.29	0	NA	13.75
144	2020-05-23	0	1.77	0	0.02		1.61	0	NA	12.3
145	2020-05-24	0	1.78	0	0		2.26	0	NA	16.2
146	2020-05-25	0	1.72	0	0		1.11	0	NA	13.37
147	2020-05-26	0	1.69	0	0		1.76	0	NA	13.99
148	2020-05-27	0	1.61	0	0		2.89	0	NA	15.74
149	2020-05-28	0	1.58	0	0		1.27	0	NA	13.17
150	2020-05-29	0	1.65	0	0		1.77	0	NA	13.33
151	2020-05-30	0	1.89	0	0		1.46	0	NA	13.57
152	2020-05-31	0	1.7	0	0		3.06	0	NA	14.83
153	2020-06-01	0	1.67	0	0		1.85	0	NA	15.35
154	2020-06-02	0	1.69	0	0		2.27	0	NA	14.38
155	2020-06-03	0	1.69	0	0		1.55	0	NA	15.22
156	2020-06-04	0	1.59	0	0		2.99	0	NA	25.27
157	2020-06-05	0	1.67	0	0		2.21	0	NA	26.92
158	2020-06-06	0	1.62	0	0		4.12	0	NA	18.16
159	2020-06-07	0	1.61	0	0		1.51	0	NA	14.3
160	2020-06-08	0	1.56	0	0		2.14	0	NA	11.68
161	2020-06-09	0	NA	0	0		0	0	NA	0
162	2020-06-10	0	NA	0	0		0	0	NA	0
163	2020-06-11	0	NA	0	0		0	0	NA	0
164	2020-06-12	0	NA	0	0		0	0	NA	0
165	2020-06-13	0	NA	0	0		0	0	NA	0
166	2020-06-14	0	NA	0	0		0	0	NA	0
167	2020-06-15	0	NA	0	0		0	0	NA	0
168	2020-06-16	0	NA	0	0		0	0	NA	0
169	2020-06-17	0	NA	0	0		0	0	NA	0
170	2020-06-18	0	NA	0	0		0	0	NA	0
171	2020-06-19	0	NA	0	0		0	0	NA	0
172	2020-06-20	0	NA	0	0		0	0	NA	0
173	2020-06-21	0	NA	0	0		0	0	NA	0
174	2020-06-22	0	NA	0	0		0	0	NA	0
175	2020-06-23	0	NA	0	0		0	0	NA	0
176	2020-06-24	0	NA	0	0		0	0	NA	0
177	2020-06-25	0	NA	0	0		0	0	NA	0
178	2020-06-26	0	NA	0	0		0	0	NA	0
179	2020-06-27	0	NA	0	0		0	0	NA	0
180	2020-06-28	0	NA	0	0		0	0	NA	0
181	2020-06-29	4.76	NA	0	16.16		0	0	NA	0
182	2020-06-30	0	NA	0	4.35		0	0	NA	0
183	2020-07-01	0	NA	0	2.69		0	0	NA	0
184	2020-07-02	0	NA	0	1.49		0	0	NA	0
185	2020-07-03	0	NA	0	1.91		0	0	NA	0
186	2020-07-04	0	NA	0	2.27		0	0	NA	0
187	2020-07-05	0	NA	0	2.15		0	0	NA	0
188	2020-07-06	0	NA	0	1.54		0	0	NA	0
189	2020-07-07	0	NA	0	0.42		0	0	NA	0
190	2020-07-08	NA	NA	0	0.3		0	0	NA	0
191	2020-07-09	0	1.68	0	0.12		0	0	NA	0
192	2020-07-10	0	NA	0	0		0	0	NA	0
193	2020-07-11	0	NA	0	0.93		0	0	NA	0
194	2020-07-12	0	NA	0	4.01		0	0	NA	0
195	2020-07-13	0	NA	0	4.75		0	0	NA	0
196	2020-07-14	0	NA	0	4.89		0	0	NA	0
197	2020-07-15	0	NA	0	5.16		0	0	NA	0
198	2020-07-16	0	NA	0	4.03		0	0	NA	0
199	2020-07-17	NA	NA	0	NA		0	0	NA	0
200	2020-07-18	NA	NA	0	NA		0	0	NA	0
201	2020-07-19	NA	NA	0	NA		0	0	NA	0
202	2020-07-20	NA	NA	0	NA		0	0	NA	0

S. No.	Date	Stack19_DHDS_HGU_61F1					Stack20_DHDS_SRU_65F001-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
203	2020-07-21	0	3.01	0	3.24		0	0	NA	0
204	2020-07-22	0	2.32	0	0.39		0	0	NA	0
205	2020-07-23	0	NA	0	0		0	0	NA	0
206	2020-07-24	0	NA	0	0		0	0	NA	0
207	2020-07-25	3.13	NA	0	6.28		0	0	NA	0
208	2020-07-26	0.01	NA	0	0		0	0	NA	0
209	2020-07-27	0.09	NA	0	0		0	0	NA	0
210	2020-07-28	0.15	NA	0	0		0	0	NA	0
211	2020-07-29	0.06	NA	0	0		0	0	NA	0
212	2020-07-30	0	NA	0	0		0	0	NA	0
213	2020-07-31	0	NA	0	0		0	0	NA	0
214	2020-08-01	0.07	NA	0	0		0	0	NA	0
215	2020-08-02	0.6	NA	0	0		0	0	NA	0
216	2020-08-03	1.43	NA	0	0		0	0	NA	0
217	2020-08-04	2.56	NA	0	NA		0	0	NA	0
218	2020-08-05	3.25	NA	0	NA		0	0	NA	0
219	2020-08-06	2.61	NA	0	NA		0	0	NA	0
220	2020-08-07	1.61	NA	0	NA		0	0	NA	0
221	2020-08-08	0.64	NA	0	NA		0	0	NA	0
222	2020-08-09	0	NA	0	NA		0	0	NA	0
223	2020-08-10	2.74	NA	0	NA		0	0	NA	0
224	2020-08-11	4.11	NA	0	NA		0	0	NA	0
225	2020-08-12	5.69	NA	0	NA		0	0	NA	0
226	2020-08-13	6.25	NA	0	NA		0	0	NA	0
227	2020-08-14	6.55	NA	0	NA		0	0	NA	0
228	2020-08-15	5.99	NA	0	NA		0	0	NA	0
229	2020-08-16	4.6	NA	0	NA		0	0	NA	0
230	2020-08-17	3.97	NA	0	NA		0	0	NA	0
231	2020-08-18	2.96	1.29	0	3.75		0	0	NA	0
232	2020-08-19	2.28	1.48	0	2.98		0	0	NA	0
233	2020-08-20	3.79	1.42	0	1.68		0	0	NA	0
234	2020-08-21	3.06	1.43	0	1.42		0	0	NA	0
235	2020-08-22	2.71	1.47	0	1.36		0	0	NA	0
236	2020-08-23	2.48	1.46	0	1		NA	NA	NA	NA
237	2020-08-24	2.67	1.47	0	1.33		0	0	NA	0
238	2020-08-25	1.65	1.55	0	2.15		12.69	0	NA	0
239	2020-08-26	1.36	1.63	0	2.94		9.42	0	NA	0
240	2020-08-27	3.49	1.34	0	16.21		27.54	0	NA	80.47
241	2020-08-28	0	1.92	0	0.01		57.43	0	NA	265.07
242	2020-08-29	NA	NA	0	NA		43.15	0	NA	158.13
243	2020-08-30	NA	NA	0	NA		71.44	0	NA	103.46
244	2020-08-31	NA	NA	0	NA		69.47	26.4	NA	100.83
245	2020-09-01	NA	NA	0	NA		118.64	55.42	NA	96.96
246	2020-09-02	0	3.39	0	1.82		65.21	55.25	NA	141.04
247	2020-09-03	0	2.75	0	0.02		65.28	55.23	NA	113.65
248	2020-09-04	0	NA	0	0		68.35	55.21	NA	154.78
249	2020-09-05	0	NA	0	0		68.12	55.23	NA	154.47
250	2020-09-06	0	NA	0	0		67.22	55.24	NA	154.31
251	2020-09-07	0	NA	0	0		66.78	55.26	NA	154.63
252	2020-09-08	0	NA	0	0		66.05	55.32	NA	154.33
253	2020-09-09	0	NA	0	0		65.78	55.43	NA	154.85
254	2020-09-10	0	NA	0	0		65.01	55.22	NA	154.91
255	2020-09-11	0	NA	0	0		63.85	55.15	NA	153.36
256	2020-09-12	0	NA	0	0		63.61	55.11	NA	153.53
257	2020-09-13	0	NA	0	0		63.41	55.12	NA	153.75
258	2020-09-14	0	NA	0	0		62.93	55.13	NA	153.38
259	2020-09-15	0	NA	0	0		66.84	55.13	NA	156.42
260	2020-09-16	0	NA	0	0		44.05	42.66	NA	111.17
261	2020-09-17	0	NA	0	0		3.41	20.84	NA	28.26
262	2020-09-18	0	NA	0	0		3.31	22.16	NA	16.74
263	2020-09-19	0	NA	0	0		3.2	22.08	NA	8.1
264	2020-09-20	0	NA	0	0		3.14	22.09	NA	8.04
265	2020-09-21	0	NA	0	0		3.72	21.94	NA	13.61
266	2020-09-22	0	NA	0	0		4.09	21.9	NA	18.77
267	2020-09-23	0	NA	0	0		4.02	22.03	NA	18.77
268	2020-09-24	0	NA	0	0		3.97	22.15	NA	18.8
269	2020-09-25	0	NA	0	0		3.97	22	NA	18.83
270	2020-09-26	16.91	NA	0	5.08		3.99	22.11	NA	18.77

S. No.	Date	Stack19_DHDS_HGU_61F1					Stack20_DHDS_SRU_65F001-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
271	2020-09-27	14.23	NA	0	1.96		3.97	22.17	NA	18.82
272	2020-09-28	13.69	NA	0	1.1		1.83	22.2	NA	16.86
273	2020-09-29	15.4	NA	0	0		0	22.13	NA	15.52
274	2020-09-30	19.33	NA	0	0		0	21.89	NA	15.57
275	2020-10-01	19.18	NA	0	0		0	22.04	NA	15.54
276	2020-10-02	17.47	NA	0	0		0	22.1	NA	15.38
277	2020-10-03	7.03	NA	0	0		0	22.07	NA	15.42
278	2020-10-04	5.16	NA	0	0		0	22.06	NA	15.43
279	2020-10-05	4.55	NA	0	0		0	22	NA	15.47
280	2020-10-06	13.87	NA	0	NA		0	22.02	NA	15.52
281	2020-10-07	13.01	NA	0	NA		0	22.05	NA	15.51
282	2020-10-08	13.44	NA	0	NA		0	22.07	NA	15.45
283	2020-10-09	15.07	NA	0	NA		0	99.25	NA	1.04
284	2020-10-10	15.36	NA	0	NA		0	1070.6	NA	0
285	2020-10-11	16	NA	0	NA		0	1270.4	NA	0
286	2020-10-12	19.7	NA	0	NA		0	1265.62	NA	0
287	2020-10-13	15.26	NA	0	NA		0	1259.99	NA	0
288	2020-10-14	14.75	NA	0	NA		0	1260.58	NA	0
289	2020-10-15	16.11	NA	0	NA		0	577.01	NA	0
290	2020-10-16	15.58	NA	0	NA		0	0	NA	0
291	2020-10-17	13.65	NA	0	NA		0	0	NA	0
292	2020-10-18	12.76	NA	0	NA		0	0	NA	0
293	2020-10-19	15.53	NA	0	NA		0	0	NA	0
294	2020-10-20	14.47	NA	0	NA		0	0	NA	0
295	2020-10-21	16.05	NA	0	NA		0	0	NA	0
296	2020-10-22	14.42	2.27	0	0.04		0	0	NA	0
297	2020-10-23	13.7	2.22	0	0		0	0	NA	0
298	2020-10-24	13.99	2.23	0	0		0	0	NA	0
299	2020-10-25	15.38	2.22	0	0		0	0	NA	0
300	2020-10-26	14.34	2.2	0	0		0	0	NA	0
301	2020-10-27	10.47	1.61	0	3.58		0	0	NA	0
302	2020-10-28	0	2.2	0	0.14		0	0	NA	0
303	2020-10-29	0.02	2.1	0	0		0	0	NA	0
304	2020-10-30	0.08	2.01	0	0		0	0	NA	0
305	2020-10-31	0.08	2.07	0	NA		0	0	NA	0
306	2020-11-01	0.02	2.21	0	NA		0	0	NA	0
307	2020-11-02	0.02	2.19	0	NA		0	0	NA	0
308	2020-11-03	0.01	2.21	0	NA		0	0	NA	0
309	2020-11-04	0	2.32	0	NA		0	0	NA	0
310	2020-11-05	0	2.52	0	NA		0	0	NA	0
311	2020-11-06	0	2.58	0	NA		0	0	NA	0
312	2020-11-07	0	2.59	0	NA		0	0	NA	0
313	2020-11-08	0	2.5	0	NA		0	0	NA	0
314	2020-11-09	0	2.27	0	NA		0	0	NA	0
315	2020-11-10	0	2.22	0	NA		0	0	NA	0
316	2020-11-11	0	2.39	0	NA		0	0	NA	0
317	2020-11-12	0	2.43	0	NA		0	0	NA	0
318	2020-11-13	0	2.51	0	NA		0	0	NA	0
319	2020-11-14	0	2.5	0	NA		0	0	NA	0
320	2020-11-15	0	2.54	0	NA		0	0	NA	0
321	2020-11-16	0	2.55	0	NA		0	0	NA	0
322	2020-11-17	0	2.56	0	NA		0	0	NA	0
323	2020-11-18	0	2.55	0	NA		0	0	NA	0
324	2020-11-19	0	2.45	0	NA		0	0	NA	0
325	2020-11-20	0	2.16	0	NA		0	0	NA	0
326	2020-11-21	0	2.16	0	NA		0	0	NA	0
327	2020-11-22	0	2.16	0	NA		0	0	NA	0
328	2020-11-23	0	2.14	0	NA		0	0	NA	0
329	2020-11-24	0	2.04	0	NA		0	0	NA	0
330	2020-11-25	0	1.84	0	NA		0	0	NA	0
331	2020-11-26	0	1.77	0	NA		0	0	NA	0
332	2020-11-27	0	2.05	0	NA		0	0	NA	0
333	2020-11-28	32.82	1.3	0	NA		0	0	NA	0
334	2020-11-29	56.99	0.18	0	NA		0	0	NA	0
335	2020-11-30	58.78	NA	0	NA		0	0	NA	0
336	2020-12-01	58.79	NA	0	NA		0	0	NA	0
337	2020-12-02	61.94	NA	0	NA		0	0	NA	0
338	2020-12-03	52.53	NA	0	NA		0	0	NA	0

S. No.	Date	Stack19_DHDS_HGU_61F1					Stack20_DHDS_SRU_65F001-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
339	2020-12-04	32.65	NA	0	NA		0	0	NA	0
340	2020-12-05	0	NA	0	NA		0	0	NA	0
341	2020-12-06	0	NA	0	NA		0	0	NA	0
342	2020-12-07	0	NA	0	NA		0	0	NA	0
343	2020-12-08	0	NA	0	NA		0	0	NA	0
344	2020-12-09	0	0.89	0	NA		0	0	NA	0
345	2020-12-10	0.01	0.61	0	NA		0	0	NA	0
346	2020-12-11	0	0.6	0	NA		0	0	NA	0
347	2020-12-12	0	0.54	0	NA		0	0	NA	0
348	2020-12-13	0	0.32	0	NA		0	0	NA	0
349	2020-12-14	0	0.25	0	NA		0	0	NA	0
350	2020-12-15	0	0.29	0	NA		0	0	NA	0
351	2020-12-16	0	0.23	0	NA		0	0	NA	0
352	2020-12-17	0	0	0	NA		0	0	NA	0
353	2020-12-18	0	0	0	NA		0	0	NA	0
354	2020-12-19	0.25	0	0	NA		0	0	NA	0
355	2020-12-20	1.39	0	0	NA		0	0	NA	0
356	2020-12-21	1.81	0	0	NA		0	0	NA	0
357	2020-12-22	3.5	0	0	NA		0	0	NA	0
358	2020-12-23	5.24	0	0	NA		0	0	NA	0
359	2020-12-24	3.52	0	0	NA		0	0	NA	0
360	2020-12-25	0.21	0	0	NA		0	0	NA	0
361	2020-12-26	0	0	0	NA		0	0	NA	0
362	2020-12-27	0	0	0	NA		0	0	NA	0
363	2020-12-28	0	0	0	NA		0	0	NA	0
364	2020-12-29	0	0	0	NA		0	0	NA	0
365	2020-12-30	4.98	0.7	0	NA		0	0	NA	0
366	2020-12-31	0	3.16	0	NA		0	0	NA	0
367	2021-01-01	0	3.61	0	NA		0	0	NA	0
368	2021-01-02	0	3.69	0	NA		0	0	NA	0
369	2021-01-03	0	3.78	0	NA		0	0	NA	0
370	2021-01-04	0	NA	0	NA		0	0	NA	20.53
371	2021-01-05	NA	NA	0	NA		0	0	NA	0
372	2021-01-06	NA	NA	0	NA		0	0	NA	0
373	2021-01-07	NA	NA	0	NA		0	0	NA	0
374	2021-01-08	NA	NA	0	NA		0	0	NA	0
375	2021-01-09	NA	NA	0	NA		0	0	NA	0
376	2021-01-10	NA	NA	0	NA		0	0	NA	0
377	2021-01-11	NA	NA	0	NA		0	0	NA	0
378	2021-01-12	NA	NA	0	NA		0	0	NA	0
379	2021-01-13	NA	NA	0	NA		0	0	NA	0
380	2021-01-14	NA	NA	0	NA		0	0	NA	0
381	2021-01-15	NA	NA	0	NA		0	0	NA	0
382	2021-01-16	NA	NA	0	NA		0	0	NA	0
383	2021-01-17	NA	NA	0	NA		0	0	NA	0
384	2021-01-18	NA	NA	0	NA		0	0	NA	0
385	2021-01-19	NA	NA	0	NA		0	0	NA	0
386	2021-01-20	NA	NA	0	NA		3.92	5.13	NA	28.23
387	2021-01-21	NA	NA	0	NA		25.43	16.13	NA	43.3
388	2021-01-22	NA	NA	0	NA		30.15	16.43	NA	33.68
389	2021-01-23	NA	NA	0	NA		34.1	16.57	NA	32.24
390	2021-01-24	NA	NA	0	NA		35.36	16.34	NA	31.24
391	2021-01-25	NA	NA	0	NA		31.96	16.43	NA	28.65
392	2021-01-26	NA	NA	0	NA		37.65	16.46	NA	29.6
393	2021-01-27	NA	NA	0	NA		39.53	16.73	NA	31.8
394	2021-01-28	NA	NA	0	NA		37.96	16.81	NA	30.97
395	2021-01-29	NA	NA	0	NA		36.86	16.47	NA	29.64
396	2021-01-30	NA	NA	0	NA		33.24	16.11	NA	26.91
397	2021-01-31	NA	NA	0	NA		32.58	16.14	NA	26.67
398	2021-02-01	NA	NA	0	NA		30.56	16.26	NA	24.49
399	2021-02-02	NA	NA	0	NA		32.41	16.48	NA	25.27
400	2021-02-03	NA	NA	0	NA		31.94	16.61	NA	24.7
401	2021-02-04	NA	NA	0	NA		31.98	16.91	NA	25.94
402	2021-02-05	NA	NA	0	NA		31.6	16.68	NA	25.22
403	2021-02-06	NA	NA	0	NA		34.46	17.11	NA	25.93
404	2021-02-07	NA	NA	0	NA		26.16	17.18	NA	18.5
405	2021-02-08	NA	NA	0	NA		18.92	17.14	NA	12.68
406	2021-02-09	NA	NA	0	NA		35.23	16.53	NA	24.23

S. No.	Date	Stack19_DHDS_HGU_61F1					Stack20_DHDS_SRU_65F001-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
407	2021-02-10	30.18	0	0	0.24		35.06	16.58	NA	24.32
408	2021-02-11	32.65	0	0	1.63		35.22	16.78	NA	22.82
409	2021-02-12	28.86	0.79	0	2.05		38.93	17.01	NA	25.85
410	2021-02-13	28.21	1.06	0	0.62		38.68	16.76	NA	26.96
411	2021-02-14	37.77	0.8	0	0		39.5	16.2	NA	26.05
412	2021-02-15	31.11	0.95	0	0		43.99	16.01	NA	29.69
413	2021-02-16	14.96	1.22	0	1.51		38.3	16.06	NA	26.58
414	2021-02-17	0.5	1.21	0	3.48		37.05	16.49	NA	25.83
415	2021-02-18	0.21	0.95	0	3.4		37.8	16.55	NA	27.64
416	2021-02-19	11.95	0.91	0	3.76		37.55	16.38	NA	26.09
417	2021-02-20	23.62	0.81	0	4.42		35.73	16.02	NA	25.37
418	2021-02-21	35.8	NA	0	4.49		37.91	16.3	NA	25.61
419	2021-02-22	17.01	NA	0	4.67		41.48	16.19	NA	27.31
420	2021-02-23	18.82	NA	0	2.11		45	16.13	NA	36.8
421	2021-02-24	5.7	0.13	0	5.3		39.84	16.26	NA	27.43
422	2021-02-25	0.12	0.05	0	4.77		42.54	16.1	NA	27.87
423	2021-02-26	0.16	0.3	0	0.01		49.18	14.46	NA	30.59
424	2021-02-27	0.3	1.48	0	NA		52.98	16.66	NA	33.61
425	2021-02-28	0.2	1.47	0	NA		54.33	16.89	NA	34.28
426	2021-03-01	1.93	1.4	0	NA		55.99	16.63	NA	36.12
427	2021-03-02	1.72	NA	0	NA		54.03	16.29	NA	33.62
428	2021-03-03	0.39	NA	0	NA		34.51	16.54	NA	27.93
429	2021-03-04	NA	NA	0	NA		9.91	16.48	NA	11.76
430	2021-03-05	1.89	1.9	0	0.04		51.01	16.41	NA	25.06
431	2021-03-06	2.9	1.76	0	0.35		19.95	16.08	NA	42.37
432	2021-03-07	0.64	1.75	0	0.63		35.35	16.17	NA	91.11
433	2021-03-08	0.33	1.77	0	0.55		19.49	15.98	NA	73.89
434	2021-03-09	0.14	1.77	0	0.54		24.15	15.94	NA	94.67
435	2021-03-10	0.04	1.8	0	0.55		55.68	15.75	NA	78.04
436	2021-03-11	0.02	1.78	0	0.15		34.11	15.72	NA	55.6
437	2021-03-12	0.01	3.11	0	0.61		13.91	15.45	NA	31.69
438	2021-03-13	0.86	1.92	0	0.76		15.08	15.93	NA	32.62
439	2021-03-14	1.6	1.82	0	0.38		17.01	16.16	NA	34.77
440	2021-03-15	0.09	2.19	0	0.68		18	15.98	NA	38.93
441	2021-03-16	0.79	2.24	0	0.59		16.54	15.86	NA	37.35
442	2021-03-17	1.48	2.15	0	0		17.2	15.32	NA	8.09
443	2021-03-18	16.63	2.37	0	NA		31.08	16.24	NA	19.48
444	2021-03-19	19.54	2.65	0	NA		35.89	16.31	NA	45.91
445	2021-03-20	24.52	2.65	0	0.96		10.82	16.42	NA	34.73
446	2021-03-21	18.06	2.73	0	0.72		0.1	16.34	NA	35.57
447	2021-03-22	31.89	2.59	0	0.34		2.61	16.39	NA	35.55
448	2021-03-23	40.52	2.57	0	1.22		6.41	16.29	NA	38.21
449	2021-03-24	36.66	2.19	0	1.03		4.42	16.4	NA	37.14
450	2021-03-25	1.96	1.86	0	0		5.45	9.63	NA	38.23
451	2021-03-26	3.84	1.83	0	0		7.93	0	NA	39
452	2021-03-27	NA	NA	0	NA		7.7	0	NA	39.72
453	2021-03-28	NA	NA	0	NA		8.74	0	NA	39.81
454	2021-03-29	NA	NA	0	NA		10.21	0	NA	41.5
455	2021-03-30	0	2.81	0	2.72		14.67	6.08	NA	41.32
456	2021-03-31	0.47	1.86	0	0		14.35	16.05	NA	32.78
457	2021-04-01	1.83	1.73	0	0.19		22.13	15.91	NA	12.74
458	2021-04-02	2.31	1.91	0	0.14		185.34	15.79	NA	0
459	2021-04-03	2.71	4.13	0	0.18		107.86	172.71	NA	17.9
460	2021-04-04	2.71	1.6	0	0.03		96.18	14.57	NA	22.46
461	2021-04-05	3.99	1.41	0	0		117.07	3.48	NA	37.54
462	2021-04-06	6.04	2.8	0	0.31		70.61	3.33	NA	19.93
463	2021-04-07	4.96	1.25	0	4.66		30.62	3.3	NA	12.13
464	2021-04-08	2.2	1.56	0	8.72		33.57	3.35	NA	12.1
465	2021-04-09	1.22	1.62	0	8.77		35.85	3.34	NA	12.87
466	2021-04-10	0.63	1.66	0	9.18		36.98	3.33	NA	13.02
467	2021-04-11	0.57	1.68	0	9.08		33.87	3.26	NA	10.33
468	2021-04-12	0.31	1.7	0	8.55		37.5	3.41	NA	10.96
469	2021-04-13	NA	NA	NA	NA		NA	NA	NA	NA
470	2021-04-14	0.45	1.59	0	8.16		37.57	122.03	NA	12.89
471	2021-04-15	0.16	1.67	0	8.99		33.73	3.43	NA	11.21
472	2021-04-16	0.26	1.63	0	8.82		34.63	3.29	NA	12.87
473	2021-04-17	0.28	1.66	0	8.93		19.19	11.82	NA	18.84
474	2021-04-18	0.1	1.65	0	8.93		5.75	14.12	NA	39.75

S. No.	Date	Stack19_DHDS_HGU_61F1					Stack20_DHDS_SRU_65F001-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
475	2021-04-19	1	1.5	0	5.03		5.76	55.35	NA	38.71
476	2021-04-20	2.18	1.22	0	2.4		5.4	12.23	NA	34.79
477	2021-04-21	1.06	1.35	0	5.99		3.84	15.68	NA	18.09
478	2021-04-22	0.31	1.51	0	8.02		2.57	15.78	NA	25.37
479	2021-04-23	0.97	1.51	0	7.8		6.73	15.74	NA	25.35
480	2021-04-24	1	1.52	0	8.08		34.46	15.87	NA	29.82
481	2021-04-25	0.81	1.53	0	7.92		381.76	15.79	NA	1112.51
482	2021-04-26	0.83	1.59	0	NA		400.62	15.88	NA	1296.22
483	2021-04-27	0.45	1.7	0	NA		251.52	15.71	NA	1110.37
484	2021-04-28	0.3	1.65	0	NA		4.19	15.48	NA	72.53
485	2021-04-29	0.56	1.56	0	NA		21.92	15.56	NA	174.7
486	2021-04-30	0.25	1.65	0	NA		82.04	15.56	NA	457.56
487	CFO Standards	-	-	100	-		-	-	100	-
488	Maximum Value	61.94	4.13	0	16.21		616.54	1270.4	NA	1503.04
489	Maximum Value on	2020-12-02	2021-04-03	2020-01-01	2020-08-27		2020-01-16	2020-10-11	NA	2020-01-16
490	Average	9.14	1.73	0	2.95		46.5	76.83	NA	95.71
491		203	192	0	112		200	148	0	211
492	Total Data Points	486	486	486	486		486	486	486	486
493	Data Availablity %	71.19	47.74	90.95	54.32		81.28	81.28	0	81.28
494	Pollutant Load (Tons/day)	0.000	0.000	0.000	0.000		0.020	0.034	0.000	0.042
495	Pollutnat Load as per CFO (Tons/day)			0.004					0.044	

025

Stack Monitroing Data (CEMS) - From 01.01.2020 to 30.04.2021

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

S. No.	Date	Stack21_DHDS_SRU_79F302-					Stack22_CCR_74_F1toF4-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
1	2020-01-01	53.39	0	NA	128.53		NA	NA	0	NA
2	2020-01-02	53.74	0	NA	129.62		NA	NA	0	NA
3	2020-01-03	54.39	0	NA	131.59		NA	NA	0	NA
4	2020-01-04	54.74	0	NA	131.12		NA	NA	0	NA
5	2020-01-05	55.3	0	NA	96.2		NA	NA	0	NA
6	2020-01-06	55.67	0	NA	136.37		NA	NA	0	NA
7	2020-01-07	56.33	0	NA	135.69		NA	NA	0	NA
8	2020-01-08	56.91	0	NA	133.91		NA	NA	0	NA
9	2020-01-09	25.48	0	NA	134.45		NA	NA	0	NA
10	2020-01-10	0	0	NA	1892.22		NA	NA	0	NA
11	2020-01-11	0	0	NA	1525.03		NA	NA	0	NA
12	2020-01-12	0	0	NA	161.46		NA	NA	0	NA
13	2020-01-13	0	0	NA	109.63		NA	NA	0	NA
14	2020-01-14	0	0	NA	127.47		NA	NA	0	NA
15	2020-01-15	0	0	NA	120.63		NA	NA	0	NA
16	2020-01-16	0	0	NA	115.75		NA	NA	0	NA
17	2020-01-17	0	0	NA	116.83		NA	NA	0	NA
18	2020-01-18	0	0	NA	115.5		NA	NA	0	NA
19	2020-01-19	0	0	NA	110.87		NA	NA	0	NA
20	2020-01-20	0	0	NA	108.92		NA	NA	0	NA
21	2020-01-21	0	0	NA	109.75		NA	NA	0	NA
22	2020-01-22	0	0	NA	110.21		NA	NA	0	NA
23	2020-01-23	0.95	0	NA	110.36		NA	NA	0	NA
24	2020-01-24	10.73	0	NA	108.95		NA	NA	0	NA
25	2020-01-25	14.53	0	NA	108.95		NA	NA	0	NA
26	2020-01-26	15.33	0	NA	108.98		NA	NA	0	NA
27	2020-01-27	15.7	0	NA	109.67		NA	NA	0	NA
28	2020-01-28	16.29	0	NA	110.58		NA	NA	0	NA
29	2020-01-29	NA	NA	NA	NA		NA	NA	NA	NA
30	2020-01-30	NA	NA	NA	NA		NA	NA	NA	NA
31	2020-01-31	NA	NA	NA	NA		NA	NA	NA	NA
32	2020-02-01	NA	NA	NA	NA		NA	NA	NA	NA
33	2020-02-02	NA	NA	NA	NA		NA	NA	NA	NA
34	2020-02-03	NA	NA	NA	NA		NA	NA	NA	NA
35	2020-02-04	NA	NA	NA	NA		NA	NA	NA	NA
36	2020-02-05	NA	NA	NA	NA		NA	NA	NA	NA
37	2020-02-06	NA	NA	NA	NA		NA	NA	NA	NA
38	2020-02-07	NA	NA	NA	NA		NA	NA	NA	NA
39	2020-02-08	NA	NA	NA	NA		NA	NA	NA	NA
40	2020-02-09	NA	NA	NA	NA		NA	NA	NA	NA
41	2020-02-10	NA	NA	NA	NA		NA	NA	NA	NA
42	2020-02-11	NA	NA	NA	NA		NA	NA	NA	NA
43	2020-02-12	NA	NA	NA	NA		NA	NA	NA	NA
44	2020-02-13	NA	NA	NA	NA		NA	NA	NA	NA
45	2020-02-14	NA	NA	NA	NA		NA	NA	NA	NA
46	2020-02-15	NA	NA	NA	NA		NA	NA	NA	NA
47	2020-02-16	NA	NA	NA	NA		NA	NA	NA	NA
48	2020-02-17	NA	NA	NA	NA		NA	NA	NA	NA
49	2020-02-18	NA	NA	NA	NA		NA	NA	NA	NA
50	2020-02-19	NA	NA	NA	NA		NA	NA	NA	NA
51	2020-02-20	NA	NA	NA	NA		NA	NA	NA	NA
52	2020-02-21	NA	NA	NA	NA		NA	NA	NA	NA
53	2020-02-22	NA	NA	NA	NA		NA	NA	NA	NA
54	2020-02-23	NA	NA	NA	NA		NA	NA	NA	NA
55	2020-02-24	NA	NA	NA	NA		NA	NA	NA	NA
56	2020-02-25	NA	NA	NA	NA		NA	NA	NA	NA
57	2020-02-26	NA	NA	NA	NA		NA	NA	NA	NA
58	2020-02-27	NA	NA	NA	NA		NA	NA	NA	NA
59	2020-02-28	NA	NA	NA	NA		NA	NA	NA	NA
60	2020-02-29	NA	NA	NA	NA		NA	NA	NA	NA
61	2020-03-01	NA	NA	NA	NA		NA	NA	NA	NA
62	2020-03-02	NA	NA	NA	NA		NA	NA	NA	NA
63	2020-03-03	NA	NA	NA	NA		NA	NA	NA	NA
64	2020-03-04	NA	NA	NA	NA		NA	NA	NA	NA
65	2020-03-05	NA	NA	NA	NA		NA	NA	NA	NA
66	2020-03-06	NA	NA	NA	NA		NA	NA	NA	NA

S. No.	Date	Stack21_DHDS_SRU_79F302-					Stack22_CCR_74_F1toF4-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
67	2020-03-07	NA	NA	NA	NA		NA	NA	NA	NA
68	2020-03-08	NA	NA	NA	NA		NA	NA	NA	NA
69	2020-03-09	NA	NA	NA	NA		NA	NA	NA	NA
70	2020-03-10	NA	NA	NA	NA		NA	NA	NA	NA
71	2020-03-11	NA	NA	NA	NA		NA	NA	NA	NA
72	2020-03-12	NA	NA	NA	NA		120.32	11.2	0	23.61
73	2020-03-13	NA	NA	NA	NA		127.94	10.74	0	21.65
74	2020-03-14	NA	NA	NA	NA		130.35	10.06	0	24.16
75	2020-03-15	NA	NA	NA	NA		134.63	10.35	0	21.61
76	2020-03-16	NA	NA	NA	NA		140.58	9.73	0	23.42
77	2020-03-17	NA	NA	NA	NA		115.93	9.85	0	24.33
78	2020-03-18	NA	NA	NA	NA		96.5	11.11	0	22.61
79	2020-03-19	NA	NA	NA	NA		99.22	10.51	0	21.98
80	2020-03-20	NA	NA	NA	NA		102.36	11.62	0	23.32
81	2020-03-21	NA	NA	NA	NA		104.05	20.1	0	23.67
82	2020-03-22	NA	NA	NA	NA		77.52	110.66	0	28.56
83	2020-03-23	NA	NA	NA	NA		111.29	11.03	0	26.09
84	2020-03-24	NA	NA	NA	NA		111.07	12.17	0	27.1
85	2020-03-25	NA	NA	NA	NA		108.43	12.02	0	21.48
86	2020-03-26	NA	NA	NA	NA		110.94	11.69	0	22.7
87	2020-03-27	NA	NA	NA	NA		111.57	12.57	0	21.97
88	2020-03-28	NA	NA	NA	NA		102.46	11.72	0	22.35
89	2020-03-29	NA	NA	NA	NA		108.9	12.21	0	23.48
90	2020-03-30	NA	NA	NA	NA		108.35	12.2	0	24.36
91	2020-03-31	NA	NA	NA	NA		111.47	12.06	0	25.76
92	2020-04-01	NA	NA	NA	NA		107.67	12.2	0	22.77
93	2020-04-02	NA	NA	NA	NA		111.9	11.91	0	25.18
94	2020-04-03	NA	NA	NA	NA		111.57	11.42	0	23.91
95	2020-04-04	NA	NA	NA	NA		108.02	11.52	0	23.97
96	2020-04-05	NA	NA	NA	NA		112.19	9.9	0	28.57
97	2020-04-06	NA	NA	NA	NA		108.59	9.54	0	25.19
98	2020-04-07	NA	NA	NA	NA		112.79	9.95	0	24.2
99	2020-04-08	NA	NA	NA	NA		110.85	10.66	0	28.38
100	2020-04-09	NA	NA	NA	NA		117.06	10.8	0	24.28
101	2020-04-10	NA	NA	NA	NA		69.14	10.3	0	27.24
102	2020-04-11	NA	NA	NA	NA		0	10.56	0	30.21
103	2020-04-12	NA	NA	NA	NA		0	9.69	0	24.06
104	2020-04-13	NA	NA	NA	NA		0	10.23	0	24.95
105	2020-04-14	NA	NA	NA	NA		0	10.28	0	27.6
106	2020-04-15	NA	NA	NA	NA		0	10.82	0	27.21
107	2020-04-16	NA	NA	NA	NA		0	11.19	0	25.2
108	2020-04-17	NA	NA	NA	NA		0	10.1	0	31.75
109	2020-04-18	NA	NA	NA	NA		0	11.2	0	29.2
110	2020-04-19	NA	NA	NA	NA		0	11.22	0	NA
111	2020-04-20	NA	NA	NA	NA		0	11.61	0	NA
112	2020-04-21	NA	NA	NA	NA		53.22	11.31	0	NA
113	2020-04-22	NA	NA	NA	NA		101	10.32	0	NA
114	2020-04-23	NA	NA	NA	NA		103.45	10.61	0	NA
115	2020-04-24	NA	NA	NA	NA		111.6	10.32	0	NA
116	2020-04-25	NA	NA	NA	NA		117.19	10.17	0	NA
117	2020-04-26	NA	NA	NA	NA		126.06	9.95	0	NA
118	2020-04-27	6.44	0	NA	14.6		115.94	10.53	0	NA
119	2020-04-28	6.46	0	NA	21.98		113.62	10.53	0	NA
120	2020-04-29	6.39	0	NA	17.68		111.87	10.31	0	NA
121	2020-04-30	6.33	0	NA	24.58		109.07	10.43	0	NA
122	2020-05-01	6.34	0	NA	22.79		108.52	10.72	0	NA
123	2020-05-02	6.42	0	NA	16.55		116.91	10.53	0	NA
124	2020-05-03	6.43	0	NA	13.24		123.37	10.74	0	NA
125	2020-05-04	6.5	0	NA	28.83		113.43	11.12	0	NA
126	2020-05-05	6.49	0	NA	26.79		108.38	11.19	0	NA
127	2020-05-06	6.49	0	NA	1.82		113.31	10.7	0	NA
128	2020-05-07	6.49	0	NA	30.4		118.45	10.72	0	NA
129	2020-05-08	6.46	0	NA	13.02		121.82	12.78	0	NA
130	2020-05-09	6.35	0	NA	13.64		115.59	14.06	0	NA
131	2020-05-10	6.39	0	NA	27.58		116.86	13.36	0	NA
132	2020-05-11	6.4	0	NA	18.13		106.76	13.7	0	NA
133	2020-05-12	6.39	0	NA	28.96		116.7	14.04	0	NA
134	2020-05-13	8.29	0	NA	94.58		120.84	13.62	0	NA

S. No.	Date	Stack21_DHDS_SRU_79F302-					Stack22_CCR_74_F1toF4-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
135	2020-05-14	9.49	0	NA	303.64		113.21	13.32	0	NA
136	2020-05-15	9.49	0	NA	261.74		54.6	19.2	0	NA
137	2020-05-16	9.49	0	NA	258.12		44.27	0.26	0	NA
138	2020-05-17	9.49	0	NA	299		43.74	3.18	0	NA
139	2020-05-18	9.49	0	NA	149.58		45.72	0	0	NA
140	2020-05-19	9.49	0	NA	117.08		8.28	5.51	0	NA
141	2020-05-20	9.49	0	NA	183.32		32.21	6.59	0	NA
142	2020-05-21	9.49	0	NA	191.69		42.74	25.21	0	NA
143	2020-05-22	9.49	0	NA	159.21		16	52.06	0	NA
144	2020-05-23	9.48	0	NA	167.1		0.03	13.71	0	NA
145	2020-05-24	9.45	0	NA	189.25		0	0	0	NA
146	2020-05-25	9.46	0	NA	157.33		0	0	0	NA
147	2020-05-26	9.37	0	NA	154.06		0	0	0	NA
148	2020-05-27	9.37	0	NA	163.26		0	0.07	0	NA
149	2020-05-28	9.37	0	NA	152.37		5.98	12.58	0	NA
150	2020-05-29	9.37	0	NA	146.81		0	26.91	0.46	NA
151	2020-05-30	9.38	0	NA	147.22		0.02	19.7	0	NA
152	2020-05-31	9.38	0	NA	135.03		0	22.04	0	NA
153	2020-06-01	9.38	0	NA	82.73		0	28.24	0	NA
154	2020-06-02	9.37	0	NA	120.25		0	32.42	22.86	NA
155	2020-06-03	9.38	0	NA	142.48		0.04	9.84	46.17	NA
156	2020-06-04	9.38	0	NA	156.58		0.01	0	45.94	NA
157	2020-06-05	9.41	0	NA	113.91		0.04	0	46.11	NA
158	2020-06-06	9.43	0	NA	85.97		0.04	0	46.16	NA
159	2020-06-07	9.34	0	NA	73.48		0.63	0	46.26	NA
160	2020-06-08	9.35	0	NA	175.32		0.39	0	46.04	NA
161	2020-06-09	9.36	0	NA	159.44		0.63	0.49	46.15	NA
162	2020-06-10	9.45	0	NA	110.94		0.25	0	46.03	NA
163	2020-06-11	9.53	0	NA	84.88		0.59	0	46.01	NA
164	2020-06-12	9.5	0	NA	109.02		0.73	0	46.16	NA
165	2020-06-13	9.49	0	NA	217.58		0	0.65	46.18	NA
166	2020-06-14	9.49	0	NA	240.18		0	0	46.23	NA
167	2020-06-15	9.49	0	NA	237.87		0	0	46.2	NA
168	2020-06-16	9.5	0	NA	247.17		0.25	0	46.08	NA
169	2020-06-17	9.49	0	NA	258.85		0.01	0.24	46.11	NA
170	2020-06-18	9.49	0	NA	208.46		0	0	46.15	NA
171	2020-06-19	9.49	0	NA	165.89		0	0.21	46.25	NA
172	2020-06-20	9.49	0	NA	146.44		0	0	46.24	NA
173	2020-06-21	9.5	0	NA	138.02		0.09	0	46.28	NA
174	2020-06-22	9.5	0	NA	170.76		0	0	46.33	NA
175	2020-06-23	9.49	0	NA	184.13		0	0	46.35	NA
176	2020-06-24	9.5	0	NA	141.7		0	0	46.3	NA
177	2020-06-25	9.5	0	NA	199.1		0.01	0	46.31	NA
178	2020-06-26	9.49	0	NA	204.72		0	0	46.34	NA
179	2020-06-27	9.49	0	NA	183.05		0.03	0.03	46.33	NA
180	2020-06-28	9.49	0	NA	186.44		0	0	46.34	NA
181	2020-06-29	9.5	0	NA	121.41		0	0	46.35	NA
182	2020-06-30	9.5	0	NA	162.03		0	0.28	46.34	NA
183	2020-07-01	4.52	0	NA	73.48		9.17	7.5	46.28	NA
184	2020-07-02	0	0	NA	0		13.96	12.94	46.27	NA
185	2020-07-03	0	0	NA	0		14.11	14.86	46.33	NA
186	2020-07-04	0	0	NA	0		16.01	15.22	46.22	NA
187	2020-07-05	0	0	NA	0		15.81	14.23	46.18	NA
188	2020-07-06	0	0	NA	0		15.68	13.29	46.16	NA
189	2020-07-07	0	0	NA	0		17.31	17.84	29.27	NA
190	2020-07-08	0	0	NA	0		17.59	19.13	7.84	NA
191	2020-07-09	0	0	NA	0		17.91	21.73	7.84	NA
192	2020-07-10	0	0	NA	0		38.44	26.87	7.67	NA
193	2020-07-11	0	0	NA	0		50.32	32.46	7.83	NA
194	2020-07-12	0	0	NA	0		51.47	31.81	7.83	NA
195	2020-07-13	0	0	NA	0		50.23	26.67	7.83	NA
196	2020-07-14	0	0	NA	0		51.04	26.03	7.83	18.26
197	2020-07-15	0	0	NA	0		61.18	27.59	7.82	16.64
198	2020-07-16	0	10.13	NA	28.13		60.39	27.04	7.82	17.66
199	2020-07-17	0	17.85	NA	62.14		63.68	32.67	7.82	20.32
200	2020-07-18	0	0.77	NA	0		83.82	34.63	7.83	15.59
201	2020-07-19	0	0.52	NA	0		98.72	37.29	7.83	21.89
202	2020-07-20	0	0.38	NA	0		104.38	38.47	7.82	15.62

S. No.	Date	Stack21_DHDS_SRU_79F302-					Stack22_CCR_74_F1toF4-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
203	2020-07-21	0	0.46	NA	0		64.27	7.56	7.82	21.01
204	2020-07-22	0	0.43	NA	48.4		59.96	4.21	5.51	17.35
205	2020-07-23	0	0.3	NA	0		78.61	9.96	0	14.68
206	2020-07-24	0	0.37	NA	0		91.01	10.39	2.95	16.36
207	2020-07-25	0	0.33	NA	0		94.36	12.49	7.84	17.2
208	2020-07-26	0	0.28	NA	0		93.01	15.41	7.84	15.68
209	2020-07-27	0	0.39	NA	0		88.93	15.9	7.84	15.3
210	2020-07-28	0	0.75	NA	0		89.26	17.58	7.84	15.93
211	2020-07-29	0	0.56	NA	0		88.57	16.44	7.82	16.88
212	2020-07-30	0	0.36	NA	0		86.51	16.66	7.84	22.19
213	2020-07-31	0	0.69	NA	0		80.47	15.87	7.84	16.46
214	2020-08-01	0	0.52	NA	0		77.45	15.21	7.83	15.48
215	2020-08-02	0	0.28	NA	0		79.55	14.7	7.84	18.91
216	2020-08-03	0	0.14	NA	0		79.55	14.36	7.84	14.19
217	2020-08-04	0	0.07	NA	0		80.22	12.85	7.82	13.86
218	2020-08-05	0	0.11	NA	0		74	10.65	7.82	23.52
219	2020-08-06	5.64	1.25	NA	31.28		70.01	13.46	7.82	14.26
220	2020-08-07	14.63	2.25	NA	56.66		66.04	15.63	7.83	14.36
221	2020-08-08	14.63	2.19	NA	53.48		88.67	19.25	7.85	15.56
222	2020-08-09	14.6	2.31	NA	50.89		87.94	17.22	7.84	18.16
223	2020-08-10	14.6	2.26	NA	52.53		86.43	14.25	7.82	19.63
224	2020-08-11	14.62	2.18	NA	54.13		85.64	16.71	7.83	15.46
225	2020-08-12	14.66	2.06	NA	54.16		94.35	16.22	7.82	14.23
226	2020-08-13	14.67	2.09	NA	53.99		93.06	11.47	7.82	13.35
227	2020-08-14	14.66	2.07	NA	54.19		102.44	10.32	7.82	19.37
228	2020-08-15	14.66	2.04	NA	54.17		105.91	11.2	7.82	16.58
229	2020-08-16	14.65	2.11	NA	53.95		93.64	15.77	7.82	22.36
230	2020-08-17	14.68	2.65	NA	186.21		98.63	18.74	7.82	21.08
231	2020-08-18	14.65	3.09	NA	54.79		103.36	21.95	7.83	21.62
232	2020-08-19	14.66	3.11	NA	54.28		105.41	20.63	7.83	18.65
233	2020-08-20	14.64	3.1	NA	57.36		108.68	16.68	7.82	17.61
234	2020-08-21	14.64	3.33	NA	57.96		117.22	17.87	7.82	17.45
235	2020-08-22	14.67	3.18	NA	58.12		85.58	18.51	7.82	18.77
236	2020-08-23	NA	NA	NA	NA		0	20.04	7.82	20.96
237	2020-08-24	14.63	5.41	NA	60.02		38.48	19.94	7.83	18.08
238	2020-08-25	14.63	3.39	NA	58.13		87.24	23.17	7.82	26.4
239	2020-08-26	14.63	3.32	NA	58.03		89.16	22.56	7.83	19.92
240	2020-08-27	14.61	3.3	NA	58.14		90.66	22.71	7.83	18.55
241	2020-08-28	14.59	3.48	NA	58.28		91.26	22.28	7.82	17.71
242	2020-08-29	14.58	31.57	NA	126.08		88.49	26.86	7.82	17.11
243	2020-08-30	14.58	16.04	NA	57.98		92.64	28.64	7.84	18.78
244	2020-08-31	14.58	19.73	NA	85.3		92.58	31.02	7.84	22.52
245	2020-09-01	26.02	68.23	NA	390.49		97.28	27.31	7.82	19.52
246	2020-09-02	39.94	118.26	NA	146.07		99.39	20.03	7.83	23.08
247	2020-09-03	27.29	18.77	NA	763.09		96.2	14	7.84	19.5
248	2020-09-04	38.26	176.52	NA	206.98		96.71	7.05	7.84	14.95
249	2020-09-05	50.93	269.69	NA	417.7		96.71	6.5	7.84	21.22
250	2020-09-06	53.98	300	NA	313.55		93.79	9.66	7.84	20.79
251	2020-09-07	49.77	293.36	NA	173.87		93.34	6.2	7.84	14.33
252	2020-09-08	65.83	288.63	NA	113.29		96.78	5.59	7.84	16.06
253	2020-09-09	72.29	291.51	NA	48.91		55.76	5.53	7.85	15.44
254	2020-09-10	58.42	277.56	NA	973.49		23.06	17.67	7.85	16.88
255	2020-09-11	41.68	257.42	NA	583.66		22.84	19.78	7.85	20.85
256	2020-09-12	40.78	268.38	NA	352.92		22.66	12.97	7.84	18.69
257	2020-09-13	45.25	300	NA	1208.49		21.98	14.79	7.83	16.38
258	2020-09-14	102.12	210.27	NA	1399.06		22.99	11.43	7.84	16.49
259	2020-09-15	118.98	46.66	NA	652.65		50.43	11.06	7.84	16.92
260	2020-09-16	105.95	80.26	NA	315.62		69.38	12.52	7.85	19.01
261	2020-09-17	89.83	211.13	NA	207.49		68.14	11.95	7.84	18.45
262	2020-09-18	71.04	300	NA	143.85		63.75	13.02	7.85	20.59
263	2020-09-19	69.52	296.42	NA	152.52		55.07	13.56	7.84	21.04
264	2020-09-20	68.63	300	NA	170.95		52.89	15	7.83	24.55
265	2020-09-21	57.21	295.31	NA	249.97		54.41	14.05	7.82	20.41
266	2020-09-22	53.76	274.45	NA	438.59		56.53	11.59	7.82	22.59
267	2020-09-23	77.43	297.97	NA	479.06		56.94	13	7.84	25.88
268	2020-09-24	72.33	298.33	NA	480.11		56.51	12.24	7.83	22.83
269	2020-09-25	67.39	294.14	NA	307.82		55.5	12.1	7.82	20.89
270	2020-09-26	44.67	251.8	NA	577.07		56.14	11.17	7.83	21.38

122

S. No.	Date	Stack21_DHDS_SRU_79F302-				Stack22_CCR_74_F1toF4-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
271	2020-09-27	33.73	248.99	NA	40.4	59.01	9.8	7.85	19.67
272	2020-09-28	35.19	295.8	NA	294.36	61.23	10.1	7.85	21.29
273	2020-09-29	19.16	295.54	NA	771.54	58.69	9.45	7.85	21.11
274	2020-09-30	14.8	296.01	NA	2246.4	54.67	10.63	7.84	20.94
275	2020-10-01	9.79	297.95	NA	1295.4	55.29	7.78	7.83	18.07
276	2020-10-02	8.43	300	NA	733.83	56.86	5.4	7.86	17.09
277	2020-10-03	8.49	294.99	NA	827.57	57.01	4.56	7.85	17.81
278	2020-10-04	3.54	300	NA	626.6	57.91	26.41	7.83	28.89
279	2020-10-05	2.47	294.01	NA	728.16	56.05	16.39	7.84	24.97
280	2020-10-06	1.55	178.37	NA	260.91	55.17	5.34	7.83	17.79
281	2020-10-07	92.52	131.89	NA	664.1	58.41	5.97	7.84	17.4
282	2020-10-08	220.67	256.6	NA	2778.49	60.57	5.75	7.84	15.77
283	2020-10-09	4.14	20.09	NA	1664.8	60.79	6.31	7.84	16.97
284	2020-10-10	0	0	NA	1244.24	56.51	6.68	7.84	17
285	2020-10-11	0	0	NA	1146.1	52.4	7.38	7.84	18.07
286	2020-10-12	0	0	NA	998.13	51.35	6.34	7.83	18.98
287	2020-10-13	0	0	NA	1999.2	51.28	9.46	7.84	19.63
288	2020-10-14	0	0	NA	2960.07	20.33	10.99	7.83	46.84
289	2020-10-15	2.22	122.35	NA	706.39	3.37	11.11	7.83	31.44
290	2020-10-16	26.23	200.52	NA	823.27	3.94	11.16	7.83	33.66
291	2020-10-17	31.27	191.79	NA	240.81	4.42	11.51	7.84	36.04
292	2020-10-18	34.5	190.35	NA	217.22	5.07	11.65	7.85	37.29
293	2020-10-19	28.43	223.76	NA	316.29	4.81	12.04	7.84	39.89
294	2020-10-20	30.11	182.72	NA	909.48	4.38	11.86	7.84	39.06
295	2020-10-21	41.56	119.13	NA	1202.2	3.84	12.06	7.85	38.34
296	2020-10-22	28.62	139.97	NA	432.93	3.19	12.67	7.85	39.22
297	2020-10-23	20.76	180.92	NA	227.34	2.44	13.23	7.86	38.75
298	2020-10-24	26.25	221.38	NA	332.94	3.04	13.18	7.86	38.32
299	2020-10-25	31.73	268.13	NA	491.36	4.67	12.95	7.85	38.59
300	2020-10-26	34.79	281.44	NA	771.6	4.25	13.19	7.85	39.54
301	2020-10-27	54.83	299.99	NA	1182.89	6.87	12.61	7.86	23.73
302	2020-10-28	40.86	294.82	NA	883.14	8.33	12.49	9.38	13.86
303	2020-10-29	11.98	284.12	NA	342.66	7.94	12.93	4.98	12.09
304	2020-10-30	21.74	282.47	NA	245.3	8.02	12.75	8.59	11.66
305	2020-10-31	45.33	263.79	NA	204.04	9.02	12.88	7.56	12.17
306	2020-11-01	48.23	129.31	NA	212.78	5.55	13.37	6.2	11.45
307	2020-11-02	46.82	177.14	NA	191.18	5.63	13.33	6.04	10.77
308	2020-11-03	19.79	75.95	NA	77.9	5.47	13.58	5.88	11.3
309	2020-11-04	0	0	NA	0	5.17	14.46	5.86	12.15
310	2020-11-05	0	0	NA	0	7.15	13.48	6.07	14.4
311	2020-11-06	0	0	NA	0	11.89	18.18	5.69	11.26
312	2020-11-07	0	0	NA	0	18.04	25.43	5.43	0.79
313	2020-11-08	0	0	NA	0	19.17	26.12	5.32	0
314	2020-11-09	0	0	NA	0	20.05	25.8	5.31	0
315	2020-11-10	0	0	NA	0	19.14	26.95	5.28	0
316	2020-11-11	32.89	153.3	NA	67.08	15.55	19.93	6.46	0
317	2020-11-12	56.16	286.47	NA	132.96	4.18	14.77	6.01	0
318	2020-11-13	56.64	300	NA	196	8.43	15.66	5.57	0
319	2020-11-14	47.65	300	NA	108.81	7.4	19.91	5.35	0
320	2020-11-15	51.06	300	NA	180.34	8.77	16.67	5.25	0
321	2020-11-16	55.91	300	NA	191.34	7.77	16.46	5.17	0
322	2020-11-17	41.09	232.76	NA	190.4	8.21	17.29	5.22	0
323	2020-11-18	18.28	167.5	NA	1444.13	7.9	16.84	5.29	0
324	2020-11-19	17.03	138.63	NA	1056.48	6.48	17.47	5.32	0
325	2020-11-20	17.43	181.7	NA	592.13	8.53	16.82	5.25	0
326	2020-11-21	17.64	127.79	NA	527.01	5.28	17.03	5.21	0
327	2020-11-22	20.94	137.22	NA	592.33	5.26	18.93	5.26	0
328	2020-11-23	16.55	91.98	NA	472.05	96.32	27.71	5.3	0
329	2020-11-24	13.05	44.34	NA	209.59	169.24	26.27	5.27	0
330	2020-11-25	14.37	36.08	NA	139.15	12.54	26.01	5.24	0
331	2020-11-26	13.07	39.83	NA	143.39	11.07	35.02	6.68	0
332	2020-11-27	13.6	80.48	NA	171.12	44.87	57.12	6.44	0
333	2020-11-28	11.69	42.53	NA	148.37	90.04	41.19	5.35	0
334	2020-11-29	0	29.06	NA	185.99	98.27	23.42	5.35	0
335	2020-11-30	8.72	45.34	NA	227.49	73.27	11.73	5.21	0
336	2020-12-01	16.87	45	NA	243.6	43.61	8.46	5.22	0
337	2020-12-02	16.3	39.39	NA	245.45	43.52	2.44	5.2	0
338	2020-12-03	18.14	44.79	NA	332.75	49.61	21.42	5.21	0

S. No.	Date	Stack21_DHDS_SRU_79F302-					Stack22_CCR_74_F1toF4-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
339	2020-12-04	6.26	38.11	NA	488.52		26.14	21.44	5.27	0
340	2020-12-05	3.16	2.71	NA	706.99		0	0.01	5.15	0
341	2020-12-06	43.06	229.61	NA	1569.52		0	0	5.04	0
342	2020-12-07	30.82	296.53	NA	9624.05		0	0.13	5.04	0
343	2020-12-08	36.39	293.35	NA	9608.57		0.22	13.33	5.03	0
344	2020-12-09	30.89	299.88	NA	6843.11		0.41	19.21	6.14	0
345	2020-12-10	40.4	293.16	NA	2723.52		17.33	29.2	10.84	0
346	2020-12-11	49.34	276.88	NA	1696.08		27.61	14.34	5.35	0
347	2020-12-12	46.84	188.73	NA	659.91		25.49	6.66	5.48	0
348	2020-12-13	51.05	155.81	NA	638.31		32.74	7.53	5.29	0
349	2020-12-14	48.68	132.27	NA	611.36		31.92	8.74	5.36	0
350	2020-12-15	32.27	137.21	NA	449.23		31.06	9.8	5.4	0
351	2020-12-16	23.78	161.85	NA	277.59		31.88	10.44	5.31	0
352	2020-12-17	50.89	167.26	NA	259.68		31.86	10.82	5.41	0
353	2020-12-18	52.8	174.22	NA	300.22		32.15	11.23	2.79	0
354	2020-12-19	54.19	167.64	NA	242.78		32.17	11.94	1.86	0
355	2020-12-20	59.13	184.11	NA	230.32		33.64	13.08	5.47	0
356	2020-12-21	61	153.12	NA	240.28		30.7	11.99	5.42	0
357	2020-12-22	53.16	193.96	NA	280.01		31.92	12.72	5.3	0
358	2020-12-23	63.61	108.77	NA	284.86		31.23	13.57	5.4	0
359	2020-12-24	51.07	7.44	NA	244.82		31.68	13.54	5.41	0
360	2020-12-25	87.1	68.42	NA	191.18		32.06	13.65	5.39	0
361	2020-12-26	112.63	85.12	NA	186.6		32.47	13.27	5.39	0
362	2020-12-27	103.63	95.25	NA	198.56		31.86	13.72	5.4	0
363	2020-12-28	66.75	194.59	NA	3411.97		20.39	13.26	5.24	0
364	2020-12-29	19.69	265.36	NA	3431.85		6.76	12.67	5.23	0
365	2020-12-30	4.92	180.89	NA	268.07		13.34	12.92	5.25	0
366	2020-12-31	20.48	72	NA	297.09		15.13	14.14	5.35	0
367	2021-01-01	26.57	31.05	NA	234.4		15.44	13.67	5.31	0
368	2021-01-02	27.9	36.47	NA	224.62		14.85	14.44	5.25	0
369	2021-01-03	30.87	39.54	NA	222.29		15.76	12.48	5.28	0
370	2021-01-04	29.56	46.42	NA	194.34		10.97	23.51	7.19	0
371	2021-01-05	28.33	41.35	NA	175.17		8.22	15.95	16.64	0
372	2021-01-06	27.33	30.66	NA	170.49		2.94	0	25.2	0
373	2021-01-07	24.71	108.95	NA	164.02		1.48	0.02	25.6	0
374	2021-01-08	23	28.87	NA	149.55		1.35	0.34	17.45	0
375	2021-01-09	23.75	63.59	NA	137.08		208.56	7.3	5.77	0
376	2021-01-10	25.72	42.29	NA	116.15		83.52	28.57	5.78	0
377	2021-01-11	23.54	36.06	NA	191.57		37.4	27.62	5.78	0
378	2021-01-12	21.5	37.88	NA	179.53		10.54	28.02	5.82	0
379	2021-01-13	20.79	63.44	NA	182.39		63.38	33.77	5.8	0
380	2021-01-14	20.35	78.34	NA	184.92		8.24	56.28	5.79	0
381	2021-01-15	20.53	76.53	NA	186.84		5.92	57.39	5.9	0
382	2021-01-16	20.66	57.39	NA	218.59		7.43	58.83	5.81	0
383	2021-01-17	20.29	91.43	NA	305.52		10.29	54.26	5.87	0
384	2021-01-18	20.44	91.42	NA	243.31		69.4	58.5	5.99	0
385	2021-01-19	21.14	48.64	NA	216.53		62.89	75.2	5.96	0
386	2021-01-20	20.41	69.29	NA	155.29		98.21	77.08	6.02	0
387	2021-01-21	20.81	111.93	NA	152.15		160.41	64.65	6.09	0
388	2021-01-22	22.21	124.28	NA	266.27		232.45	35.6	6.2	0
389	2021-01-23	21.21	148.25	NA	163.22		91.47	18.68	6.34	0
390	2021-01-24	18.54	169.23	NA	280.77		80.48	30.98	6.33	0
391	2021-01-25	20.39	215.88	NA	118.89		70.06	47.05	6.37	0
392	2021-01-26	22.61	199.51	NA	236.29		5.5	38.79	6.35	0
393	2021-01-27	22.09	156.74	NA	224.61		66.91	28.41	6.39	0
394	2021-01-28	20.02	120.39	NA	152.17		144.21	32.58	6.53	0
395	2021-01-29	19.6	107.09	NA	140.21		121.44	44.19	6.54	0
396	2021-01-30	19.14	66.55	NA	125.84		75.91	41	6.56	0
397	2021-01-31	18.87	19.62	NA	99.7		124.78	29.1	6.64	0
398	2021-02-01	18.2	10.72	NA	49.9		130.46	30.12	6.67	0
399	2021-02-02	17.83	1.85	NA	37.81		135.4	27.68	6.68	0
400	2021-02-03	18.75	49.46	NA	116.54		150.83	30.71	6.71	0
401	2021-02-04	20.4	127.92	NA	256.55		115.69	34.99	6.74	0
402	2021-02-05	20.08	80.71	NA	254.89		149.34	35.35	8.18	0
403	2021-02-06	20.02	4.25	NA	233.55		121.72	44.07	9.67	0
404	2021-02-07	19.54	6.22	NA	3062.58		10.89	36.75	9.38	0
405	2021-02-08	18.58	20.91	NA	4032.73		78.07	39.49	8.72	0
406	2021-02-09	18.39	90.33	NA	3261.64		76.12	37.2	8.42	0

S. No.	Date	Stack21_DHDS_SRU_79F302-					Stack22_CCR_74_F1toF4-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
407	2021-02-10	18.47	0	NA	1101.45		130.51	16.87	8.12	NA
408	2021-02-11	18.93	77.29	NA	1077.9		114.76	10.7	7.7	NA
409	2021-02-12	18.3	173.02	NA	2499.9		116.39	11.37	7.36	NA
410	2021-02-13	17.87	162.02	NA	2467.88		119.94	10.73	7.14	NA
411	2021-02-14	17.91	201.41	NA	671.07		122.28	10.58	6.81	NA
412	2021-02-15	18.72	185.69	NA	603.19		117.13	23.4	6.45	NA
413	2021-02-16	19.17	198.36	NA	314.18		114.39	36.12	5.71	NA
414	2021-02-17	20.96	282.2	NA	2697.78		115.33	35.69	5.4	NA
415	2021-02-18	21.85	238.39	NA	1804.91		110.55	35.88	5.04	NA
416	2021-02-19	25.24	148.31	NA	3312.11		114.15	35.52	4.88	NA
417	2021-02-20	21.01	105.41	NA	1367.9		113.52	35.14	4.77	NA
418	2021-02-21	18.34	99.68	NA	1848.54		114.6	34.74	4.68	NA
419	2021-02-22	18.59	99.53	NA	1664.81		124.21	37.26	4.55	NA
420	2021-02-23	17.85	46.82	NA	2349.69		120.69	37.29	4.36	NA
421	2021-02-24	13.61	82.82	NA	494.67		119	37.02	3.86	NA
422	2021-02-25	17.89	203.53	NA	1881.07		115.08	37.2	3.27	NA
423	2021-02-26	17.86	171.1	NA	1371.94		117.71	39.2	2.61	NA
424	2021-02-27	17.84	274.72	NA	3686.77		108.69	38.77	1.86	NA
425	2021-02-28	17.84	183.08	NA	4360.41		107.84	39.99	1.33	NA
426	2021-03-01	17.82	249.09	NA	1054.01		114.36	37.75	1.01	NA
427	2021-03-02	17.8	299.17	NA	1921.9		120.5	39.56	0.76	NA
428	2021-03-03	11.34	290.44	NA	3793		121.75	40.35	0.69	NA
429	2021-03-04	53.13	294.57	NA	2045.61		124.91	39.21	0.49	NA
430	2021-03-05	84.61	126.49	NA	1999.24		128.4	37.36	0.33	NA
431	2021-03-06	68.28	0	NA	1631.58		129.87	38.64	0.24	NA
432	2021-03-07	63.95	0	NA	1104.22		114.82	38.43	0.03	NA
433	2021-03-08	57.58	99.65	NA	1476.51		118.37	38.8	0	NA
434	2021-03-09	55.62	250.53	NA	2831.63		121.1	38.62	0	NA
435	2021-03-10	61.39	254.21	NA	579.89		120.54	40.58	0	NA
436	2021-03-11	65.07	168.09	NA	355.98		130.17	40.14	0	NA
437	2021-03-12	62.33	106.68	NA	50		139.49	39.75	3.94	NA
438	2021-03-13	60.23	129.98	NA	858.05		134.65	26.78	9.73	NA
439	2021-03-14	54.76	195.94	NA	2257.91		126.71	11.88	9.66	NA
440	2021-03-15	60.21	190.64	NA	2501.25		129.01	11.93	9.61	NA
441	2021-03-16	60.02	203.43	NA	324.59		125.88	12.37	9.61	NA
442	2021-03-17	58.38	198.08	NA	225.53		125.06	13.97	9.61	NA
443	2021-03-18	59.32	192.02	NA	1588.02		134.12	13.54	9.56	NA
444	2021-03-19	59.15	198.06	NA	698.18		142.72	12.81	9.52	NA
445	2021-03-20	61.46	200.56	NA	226.23		146.84	13.47	9.48	NA
446	2021-03-21	57.13	205.19	NA	1748.25		139.3	14.33	9.47	NA
447	2021-03-22	50.23	188.65	NA	1828.98		145.83	14.24	9.38	NA
448	2021-03-23	27.99	165.42	NA	209.51		153.52	13.35	9.33	NA
449	2021-03-24	28.48	203.66	NA	183.92		157.45	13.61	9.25	NA
450	2021-03-25	30.99	214.95	NA	135.94		129.77	13.48	9.2	NA
451	2021-03-26	29.01	117.56	NA	26.48		76.02	9.54	9.17	NA
452	2021-03-27	38.53	107.04	NA	1569.7		72.79	9.34	9.1	NA
453	2021-03-28	38.41	122.91	NA	2553.39		71.83	8.87	9.07	NA
454	2021-03-29	27.34	167	NA	1063.1		74.46	9.4	10.48	NA
455	2021-03-30	24.34	170.28	NA	788.16		71.19	9.43	11.2	24.53
456	2021-03-31	18.17	238.08	NA	402.47		66.48	9.73	11.2	24.01
457	2021-04-01	19.46	141.41	NA	27.7		71.78	10.84	11.2	25.06
458	2021-04-02	10.07	211.89	NA	5048.13		75.62	10.96	11.15	29.61
459	2021-04-03	10.95	220.04	NA	1942.29		78.01	11.6	11.04	31.36
460	2021-04-04	52.12	268.84	NA	4584.6		85.22	11.41	10.61	33.27
461	2021-04-05	28.46	261.16	NA	267.11		84.7	11.36	6.4	31.16
462	2021-04-06	21.22	242.14	NA	43.08		86.39	11.23	2.25	30.37
463	2021-04-07	22.63	190.86	NA	46.03		84.74	10.88	2.11	30.4
464	2021-04-08	22.26	135.51	NA	49.25		88.76	10.55	2.01	30.36
465	2021-04-09	22.97	164.09	NA	45.99		89.85	10.62	1.85	31.7
466	2021-04-10	50.02	189.51	NA	1808.98		95.47	10.8	1.7	32.69
467	2021-04-11	41.02	205.58	NA	1065.22		99.66	10.67	1.57	35.33
468	2021-04-12	34.81	179.97	NA	897.82		99.64	11.25	1.29	27.81
469	2021-04-13	NA	NA	NA	NA		NA	NA	NA	NA
470	2021-04-14	37.63	265.88	NA	723.41		98.32	11.68	1.04	31.28
471	2021-04-15	38.32	269.33	NA	642.67		96.1	11.36	0.96	28.95
472	2021-04-16	40.7	252.94	NA	634.25		92.27	9.85	0.85	15.99
473	2021-04-17	40.69	196.01	NA	589.72		87.33	9.85	0.68	17.39
474	2021-04-18	46.35	180.08	NA	488.88		86.04	9.68	0.58	16.17

S. No.	Date	Stack21_DHDS_SRU_79F302-					Stack22_CCR_74_F1toF4-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
475	2021-04-19	45.83	189.67	NA	415.02		86.78	10.06	0.67	16.33
476	2021-04-20	54.79	193.5	NA	439.8		90.99	10.11	0.53	15.54
477	2021-04-21	62.83	149.59	NA	424.3		91.49	10.5	0.56	17.92
478	2021-04-22	66	161.14	NA	387.37		95.12	10.63	0.43	16.81
479	2021-04-23	71.11	151.97	NA	370.36		97.99	10.98	0.21	15.46
480	2021-04-24	54.49	106.13	NA	693.67		94.24	11.54	0.15	15.52
481	2021-04-25	44.3	138.42	NA	636.43		92.74	11.16	0.17	15.45
482	2021-04-26	35.08	179.04	NA	1135.72		93.46	11.77	0.07	14.59
483	2021-04-27	74.52	138.2	NA	1344.51		98.41	12.11	0.02	15.48
484	2021-04-28	57.88	166.63	NA	762.95		99.78	12.82	0.01	14.59
485	2021-04-29	53.7	294.07	NA	497.77		101.5	13.37	0.84	13.18
486	2021-04-30	56.41	297.43	NA	397.52		100.11	13.87	0	13.64
487	CFO Standards	-	-	100	-		-	-	100	-
488	Maximum Value	220.67	300	NA	9624.05		232.45	110.66	46.35	46.84
489	Maximum Value on	2020-10-08	2020-09-06	NA	2020-12-07		2021-01-22	2020-03-22	2020-06-23	2020-10-14
490	Average	29.78	141.73	NA	647.17		69.73	18.01	10.78	21.62
491		334	272	0	356		379	387	327	186
492	Total Data Points	486	486	486	486		486	486	486	486
493	Data Availablity %	81.28	81.28	0	81.28		85.19	85.19	90.95	57.61
494	Pollutant Load (Tons/day)	0.008	0.038	0.000	0.176		0.135	0.035	0.021	0.042
495	Pollutnat Load as per CFO (Tons/day)			0.027					0.193	

Stack Monitroing Data (CEMS) - From 01.01.2020 to 30.04.2021

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

S. No.	Date	Stack25_CPP_HRSGIII-					Stack26_CPP_HRSGIV-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
1	2020-01-01	94.41	NA	14.61	14.04		120.33	9.21	10.91	18.24
2	2020-01-02	103.06	NA	14.05	14.09		123.74	8.73	10.91	15.09
3	2020-01-03	101.97	NA	14.44	10.55		119.72	8.16	10.92	10.55
4	2020-01-04	124.9	NA	14.26	9.87		116.24	8.05	10.92	9.1
5	2020-01-05	133.87	NA	14.28	10.99		119.39	6.88	10.92	9.52
6	2020-01-06	144.67	NA	14.57	11.5		126.76	6.89	12.32	10.08
7	2020-01-07	148.95	NA	14.82	11.18		132.69	6.79	12.62	10.94
8	2020-01-08	158.72	NA	14.88	7		141.47	6.61	12.69	8.07
9	2020-01-09	159.05	NA	14.83	6.11		137.07	6.16	12.69	7.16
10	2020-01-10	147.45	NA	14.67	6.3		142.52	5.74	12.87	6.72
11	2020-01-11	157.28	NA	14.54	7.03		146.06	6.2	13.26	6.94
12	2020-01-12	154.54	NA	14.66	7.34		153.71	7.49	13.61	7.49
13	2020-01-13	156.92	NA	14.82	6.12		150.6	7.68	13.5	5.7
14	2020-01-14	161.64	NA	14.87	5.44		145.77	7.85	13.19	4.48
15	2020-01-15	157.13	NA	14.9	6.32		147.68	7.58	12.99	4.41
16	2020-01-16	146.19	NA	14.8	5.86		134.83	7.88	13.01	3.55
17	2020-01-17	146.24	NA	14.77	6.23		133.93	8.05	12.87	3.29
18	2020-01-18	153.42	NA	14.75	6.56		143.78	8.3	12.71	3.08
19	2020-01-19	160.49	NA	14.82	8.34		159.92	8.37	12.93	5.17
20	2020-01-20	156.89	NA	14.7	9.5		161.19	8.43	13.02	6.17
21	2020-01-21	154.65	NA	14.46	10.68		161.02	8.67	12.87	7.06
22	2020-01-22	153.22	NA	14.41	7.63		157.02	7.92	12.72	3.65
23	2020-01-23	155.84	NA	14.58	5.65		157.46	7.73	12.52	1.23
24	2020-01-24	161.12	NA	14.71	5.64		163.57	7.61	12.55	0.86
25	2020-01-25	158.61	NA	14.76	5.04		159.61	7.53	12.66	0.28
26	2020-01-26	163.99	NA	14.55	4.07		159.76	7.82	12.66	0.04
27	2020-01-27	153.92	NA	14.52	3.85		140.24	7.88	12.44	2.68
28	2020-01-28	152.45	NA	14.43	45.07		128.58	13.67	12.28	23.94
29	2020-01-29	152.66	NA	NA	4.61		126.4	7.33	NA	5.76
30	2020-01-30	145.75	NA	NA	2.6		127.2	7.46	NA	5.96
31	2020-01-31	151.84	NA	NA	5.4		136.55	7.26	NA	9.95
32	2020-02-01	137.78	NA	NA	2.61		136.71	7.27	NA	4.53
33	2020-02-02	138.28	NA	NA	6.34		145.89	7.23	NA	8.46
34	2020-02-03	143.44	NA	NA	5.78		150.68	6.15	NA	8.2
35	2020-02-04	136.92	3.14	NA	4.83		145.87	5.26	NA	6.21
36	2020-02-05	156.49	2.86	NA	6.91		151.23	4.98	NA	9.67
37	2020-02-06	144.52	2.56	NA	5.94		148.01	5.02	NA	9.97
38	2020-02-07	157.8	2.78	NA	5.67		151.66	5.13	NA	9.02
39	2020-02-08	153.42	2.85	NA	2.94		148.17	5.25	NA	6.9
40	2020-02-09	146.1	2.64	NA	2.16		152.6	5.46	NA	5.48
41	2020-02-10	136.44	2.38	NA	2.7		152.8	5.49	NA	5.37
42	2020-02-11	142.33	2.52	NA	3.4		155.29	4.16	NA	5.45
43	2020-02-12	137.53	2.4	NA	2.79		151.17	4	NA	5.38
44	2020-02-13	161.63	2.75	NA	3.1		151.27	4.88	NA	3.03
45	2020-02-14	168.36	2.72	NA	3.76		149.89	5.29	NA	2.28
46	2020-02-15	168.62	2.58	NA	4.67		154.87	4.79	NA	4.51
47	2020-02-16	161.86	2.77	NA	4.35		155.26	3.99	NA	5.92
48	2020-02-17	164.92	2.7	NA	4.67		160.09	3.98	NA	5.7
49	2020-02-18	163.81	2.33	NA	22.69		159.71	4.3	NA	5.48
50	2020-02-19	168.64	2.21	NA	3.83		163.45	4.6	NA	6.75
51	2020-02-20	163.45	2.87	NA	10.64		168.86	6.21	NA	9.34
52	2020-02-21	168.39	2.28	NA	11.88		166.15	6.31	NA	11.18
53	2020-02-22	175.12	2.36	NA	19.7		168.31	6.44	NA	19.07
54	2020-02-23	170.53	2.45	NA	18.52		168.17	6.34	NA	19.04
55	2020-02-24	167.7	2.03	NA	15.17		163.87	6.12	NA	16.78
56	2020-02-25	163.83	2.43	NA	9.48		156.41	6.12	NA	11.96
57	2020-02-26	160.88	6.2	NA	25.22		155.66	8.36	NA	19.1
58	2020-02-27	161.06	5.77	NA	15.42		162.94	6.71	NA	14.33
59	2020-02-28	161.22	5.95	NA	13.5		156.95	6.95	NA	12.42
60	2020-02-29	161.41	5.92	NA	8.57		154.26	6.98	NA	10.45
61	2020-03-01	160.06	5.56	NA	11.55		157.72	7.05	NA	11.62
62	2020-03-02	154.6	5.2	NA	19.03		156.87	7.34	NA	18.55
63	2020-03-03	138.37	5.18	NA	18.01		133.47	7.96	NA	16.5
64	2020-03-04	140.35	4.89	NA	21.06		33.25	8.08	NA	15.32
65	2020-03-05	151.04	4.97	NA	16.6		0.87	6.87	NA	15.11

S. No.	Date	Stack25_CPP_HRSGIII-					Stack26_CPP_HRSGIV-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
66	2020-03-06	167.88	4.64	NA	11.05		2.83	5.74	NA	9.73
67	2020-03-07	166.94	4.72	NA	10.89		2.62	5.78	NA	15.27
68	2020-03-08	155.01	5.06	NA	10.61		2.81	6.22	NA	11.51
69	2020-03-09	151.95	4.89	NA	9.28		3.58	5.84	NA	8.98
70	2020-03-10	166.36	3.59	NA	7.4		2.58	5.89	NA	14.47
71	2020-03-11	169.3	2.46	NA	7.11		2.31	6.21	NA	14.26
72	2020-03-12	167.55	2.43	9.65	7.06		5.55	6.24	9.34	13.55
73	2020-03-13	166.99	2.01	9.73	9.18		6.77	5.14	9.29	11.23
74	2020-03-14	170.65	1.75	9.88	7.7		3.65	5.85	9.33	11.01
75	2020-03-15	161.06	1.83	9.96	7.67		4.03	6.3	9.31	12.93
76	2020-03-16	165.65	1.5	9.67	7.29		3.52	5.54	9.08	12.17
77	2020-03-17	163.04	2.95	9.72	9.26		4.8	5.83	9.09	14.53
78	2020-03-18	170.2	4.33	9.74	12.87		3.66	5.82	9.21	15.8
79	2020-03-19	165.75	4.66	9.74	10.53		5.03	5.99	9.78	15.96
80	2020-03-20	157.02	4.31	9.73	3.7		6.69	6.53	9.45	7.99
81	2020-03-21	156.1	4.13	9.63	2.81		5.55	6.81	9.13	7.48
82	2020-03-22	153.39	3.91	9.65	2.7		4.93	6.92	9	7.04
83	2020-03-23	150.76	3.83	9.9	2.51		4.08	6.28	9.21	6.49
84	2020-03-24	159.21	3.65	9.83	1.74		8.76	6.12	9.54	5.37
85	2020-03-25	167.4	3.78	9.8	2.82		3.41	7.14	9.76	7.55
86	2020-03-26	174.93	3.95	10.02	4.53		4.7	7.08	9.75	5.92
87	2020-03-27	176.21	3.67	9.92	4.14		4.32	6.9	9.75	6.86
88	2020-03-28	164.96	3.5	9.83	0.98		7.71	7	9.75	5.17
89	2020-03-29	177.9	3.82	9.8	1.97		4.93	7.29	9.76	5.22
90	2020-03-30	174.59	3.78	9.86	4		3.85	6.85	9.75	6.26
91	2020-03-31	175.29	3.94	9.85	3.17		3.47	6.41	9.76	5.98
92	2020-04-01	169.28	4.01	9.86	2.48		4.16	5.85	9.76	6.28
93	2020-04-02	169.55	4.15	9.84	2.01		5.31	4.57	9.76	7.03
94	2020-04-03	168.24	4.52	9.84	2.05		4.34	5.14	9.76	6.84
95	2020-04-04	166.5	4.24	9.85	2.66		4.58	6.54	9.75	5.39
96	2020-04-05	169.95	4.1	9.85	4.24		4.43	7.53	9.75	5.35
97	2020-04-06	164.39	3.86	9.88	3.82		3.1	7.7	9.76	5.15
98	2020-04-07	164.07	3.79	9.9	3.98		5.01	7.9	9.75	5.31
99	2020-04-08	162.8	3.77	9.83	2.19		4.3	8.04	9.75	3.44
100	2020-04-09	165.37	3.9	9.74	3.32		3.99	7.47	9.74	4.15
101	2020-04-10	167.74	3.69	9.76	3.15		1.96	7.58	9.75	3.67
102	2020-04-11	160.02	3.47	9.81	1.63		4.05	7.55	9.75	3.09
103	2020-04-12	159.88	3.36	9.82	1.64		3.65	7.57	9.75	2.92
104	2020-04-13	161.71	3.74	7.87	3.5		4.22	8.03	9.76	4.7
105	2020-04-14	160.73	4.08	6.66	3.25		3.1	7.72	9.76	2.92
106	2020-04-15	163.25	4.19	6.69	2.8		3.51	8.1	9.76	3.07
107	2020-04-16	169.67	4.34	6.69	2.73		4.9	8.38	9.76	2.42
108	2020-04-17	161.74	2.7	6.64	1.75		2.36	9.03	9.75	0.91
109	2020-04-18	164.52	2.33	6.74	1.77		2.39	8.17	9.75	0.54
110	2020-04-19	163.1	2.05	6.67	2.33		3.64	7.27	9.76	1.24
111	2020-04-20	162.3	1.91	6.78	1.54		3.51	6.37	9.76	0.41
112	2020-04-21	165.67	2.85	6.59	1.47		2.93	5.18	9.76	2.39
113	2020-04-22	166.84	3.57	6.62	1.85		1.23	5.83	9.75	4.21
114	2020-04-23	167.12	3.61	6.83	1.7		2.86	6.5	9.76	4.14
115	2020-04-24	164.67	3.47	6.9	1.58		3.03	6.5	9.76	4.04
116	2020-04-25	113.26	5.03	6.66	1.69		4.61	6.71	5.02	3.23
117	2020-04-26	114.81	4.43	0	2.62		5.98	6.82	0	1.62
118	2020-04-27	134.92	4.44	0	2.78		1.34	5.84	0	1.76
119	2020-04-28	127.36	4.45	0	3.1		3.94	5.25	0	2.8
120	2020-04-29	141.21	4.46	0	2.56		3.54	6.18	0	3.52
121	2020-04-30	160.76	4.22	0	3.19		4.39	7.46	0	3.23
122	2020-05-01	158.26	4.14	0	2.15		3.58	8.25	0	2.72
123	2020-05-02	158.51	4.17	0	1.82		2.98	6.56	0	1.6
124	2020-05-03	156.07	3.9	0	1.18		2	5.13	0	1.33
125	2020-05-04	154.23	3.39	0	0.81		4.84	4.48	0	1.03
126	2020-05-05	155.29	3.13	0	1.13		2.58	3.97	0	1.17
127	2020-05-06	156.26	2.94	0	0.55		3.6	3.53	0	1.33
128	2020-05-07	157.81	3.21	0	0.76		3.37	3.46	0	0.23
129	2020-05-08	154.84	3.74	0	0.48		1.98	3.37	0	0.11
130	2020-05-09	151.81	4.38	0	0.79		3.34	3.41	0	0.66
131	2020-05-10	156.51	5.07	0	0.33		2.08	4.53	0	0.23
132	2020-05-11	149.71	5.36	3.09	1.73		2.76	5.15	7.56	2.89

S. No.	Date	Stack25_CPP_HRSGIII-				Stack26_CPP_HRSGIV-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
133	2020-05-12	154.74	5.24	6.3	3.16	2.32	5.31	14.91	5.1
134	2020-05-13	155.28	5.55	3.4	3.72	3.25	5.42	15.18	4.68
135	2020-05-14	155.94	6.8	5.54	3.04	1.97	5.35	15.32	4.02
136	2020-05-15	150.67	7.69	0	3.58	2.56	5.52	15.8	4.56
137	2020-05-16	149.94	7.62	0	4.14	4	5.4	16.28	5.26
138	2020-05-17	141.16	7.71	0	5.66	4.52	5.32	16.81	6.5
139	2020-05-18	139.51	11.76	1.05	41.5	5.3	14.87	16.32	47.42
140	2020-05-19	145	5.25	0.01	11.01	3.57	7.42	15.67	5.12
141	2020-05-20	136.87	3.8	3.88	11.68	3.22	7.37	15.38	5.8
142	2020-05-21	126.64	0.99	8.46	8.58	6.8	8.2	13.9	4.12
143	2020-05-22	123.83	6.85	8.87	4.54	5.32	8.57	13.63	4.03
144	2020-05-23	119.11	10.99	9.15	4.81	3.9	8.75	13.68	4.36
145	2020-05-24	87.67	8.04	9	4.12	5.57	9.51	13.52	4.24
146	2020-05-25	96.2	1.85	9.07	3.34	5.66	10.04	13.17	3.36
147	2020-05-26	139.32	0.19	9.49	2.94	4.56	8.04	13.25	3.61
148	2020-05-27	132.68	0.03	9.47	2.49	3.17	6.36	13.37	3.28
149	2020-05-28	134.02	1.87	9.5	2.11	2.3	7.17	13.05	1.93
150	2020-05-29	144.1	4.12	9.57	1.66	3.12	7.35	12.93	1.92
151	2020-05-30	145.23	4.29	9.55	2.12	7.79	7.41	13.66	3.14
152	2020-05-31	138.58	4.07	9.51	2.03	4.72	10.84	14.5	2.84
153	2020-06-01	145.78	4	9.65	1.78	3.95	12.42	14.1	2.59
154	2020-06-02	144.61	4.69	9.69	1.84	3.83	12.96	13.61	2.62
155	2020-06-03	141.58	4.5	9.76	2.38	7.19	16.57	14.57	2.43
156	2020-06-04	142.91	4.75	9.98	3.63	4.78	12.01	14.9	4.14
157	2020-06-05	97.24	21.72	9.96	21.95	3	7.59	15.86	5.47
158	2020-06-06	92.84	10.12	10.04	6.65	6.77	10.37	15.85	5.35
159	2020-06-07	91.28	6.33	9.91	8.81	5.96	7.62	14.49	4.25
160	2020-06-08	96.07	5.49	9.96	11.15	5.3	7.33	13.47	5.28
161	2020-06-09	113.26	5.8	10.07	6.12	4.1	6.96	2.1	6.21
162	2020-06-10	132.32	5.26	10.32	3.05	4.2	7.55	2.05	9.18
163	2020-06-11	133.51	5.93	10.43	3.25	3.53	8.45	2.28	8.36
164	2020-06-12	132.5	5.72	10.4	4.22	4.13	9.3	1.32	8.89
165	2020-06-13	144.27	4.06	10.5	3.69	4.5	8.14	0.71	9.45
166	2020-06-14	140.57	3.8	10.48	3.95	9.53	8.15	0.71	10.17
167	2020-06-15	136.21	3.69	10.56	4.01	5.01	8	0.71	10.22
168	2020-06-16	143.76	4.48	10.77	3.2	3.94	10.3	0.73	9.42
169	2020-06-17	142.13	4.83	10.74	3.15	3.58	8.57	0.78	9.67
170	2020-06-18	141.86	5.06	10.74	3.77	1.94	8.26	0.82	10.97
171	2020-06-19	140.12	4.82	10.61	4.92	3.51	7.33	0.71	11.08
172	2020-06-20	117.13	4.18	10.58	2.75	4.6	8.49	1.23	11.02
173	2020-06-21	101.47	3.8	10.75	0.04	5.16	10.9	0.7	11.14
174	2020-06-22	140.87	5.63	10.78	1.29	5.9	10.7	0.72	12.32
175	2020-06-23	100.23	3.68	10.61	1.7	6.62	8.25	0.96	12.28
176	2020-06-24	140.06	4.75	10.84	1.55	5.18	8.76	0.7	10.87
177	2020-06-25	149.21	5.37	10.82	1.5	4.94	8.9	8.76	11.59
178	2020-06-26	95.57	10.61	10.7	35.2	6.07	13.25	13.12	25.45
179	2020-06-27	61.14	8.51	10.68	5.78	8.15	9.14	13.36	5.52
180	2020-06-28	109.08	9.77	10.72	4.16	4.16	7.59	13.8	5.28
181	2020-06-29	127.88	7.71	10.86	4.72	5.67	8.09	14.13	4.99
182	2020-06-30	129.14	8.24	10.87	5.35	3.25	10.18	14.58	4.69
183	2020-07-01	127.22	6.68	11.01	6.21	6.78	12.39	15.79	5.53
184	2020-07-02	140.76	6.15	11.37	5.94	6.17	11.41	18.03	5.11
185	2020-07-03	139.86	6.08	11.44	2.06	5.69	11.18	17.74	4.47
186	2020-07-04	139.81	10	11.4	1.06	8.92	11.93	16.53	6.54
187	2020-07-05	146.31	9.35	11.71	1.28	4.79	12.17	16.28	5.96
188	2020-07-06	145.66	6.49	11.67	1.2	7.04	10.13	16.12	3.67
189	2020-07-07	133.89	4.46	11.39	1.52	4.67	6.86	15.42	NA
190	2020-07-08	46.08	3.22	11.12	1.9	6.88	6.99	15.09	NA
191	2020-07-09	77.85	4.37	11.38	2.34	5.43	6.99	15.5	4.48
192	2020-07-10	86.12	5.21	11.57	0.9	3.33	7.28	15.77	5.08
193	2020-07-11	164.01	6.55	11.5	3.36	2.66	7.21	15.1	4.8
194	2020-07-12	157.23	7.9	11.44	2.27	4.11	7.3	14.95	4.48
195	2020-07-13	162.12	8.54	11.5	4.42	3.54	7.37	14.76	3.57
196	2020-07-14	159.28	10.32	11.53	1.59	4.77	7.67	16.84	4.28
197	2020-07-15	144.13	9.01	11.38	1.69	3.23	8.47	15.21	3.48
198	2020-07-16	161.62	9.45	11.7	2.78	3.78	6.25	14.87	4.09
199	2020-07-17	146.39	6.87	11.63	5.97	4.41	6.31	14.68	2.93

S. No.	Date	Stack25_CPP_HRSGIII-					Stack26_CPP_HRSGIV-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
200	2020-07-18	146.11	5.73	11.58	7.12		6.41	7.04	14.45	1.57
201	2020-07-19	148.24	5.29	11.46	8.03		5.18	7.16	13.98	0.69
202	2020-07-20	142.34	5.15	11.58	8.8		4.51	6.79	15.92	0.88
203	2020-07-21	148.19	4.9	11.7	9.56		3.86	6.48	16.33	1
204	2020-07-22	150.95	4.5	11.81	10.1		5.54	7.09	15.09	1.18
205	2020-07-23	148.69	4.64	11.79	10.42		0.93	7.01	15.97	1.35
206	2020-07-24	153.21	4.77	11.89	10.83		3.19	8.75	15.4	1.29
207	2020-07-25	150.93	3.84	11.84	10.45		8.24	7.96	14.89	1.46
208	2020-07-26	111.12	2.37	11.75	10.09		4.87	8.14	15.81	2.83
209	2020-07-27	125.91	3.5	11.79	10.42		3.83	8.9	16.1	2.79
210	2020-07-28	147.9	2.9	11.63	10.84		2.88	6.03	16.23	2.72
211	2020-07-29	104.24	1.73	11.82	10.32		4.5	7.16	16.18	2.9
212	2020-07-30	66.34	0.65	11.81	9.72		6.64	7.77	16.03	2.87
213	2020-07-31	61.05	0.17	11.87	9.65		3.72	8.53	15.43	3.27
214	2020-08-01	69.89	1.27	11.79	6.03		5.03	8.49	14.73	3.08
215	2020-08-02	86.05	2.23	11.87	3.5		7.38	6.86	15.45	2.01
216	2020-08-03	76.23	1.97	11.98	3.35		5.08	7.3	15.29	2.21
217	2020-08-04	71.68	1.54	12.41	3.16		5.31	7.01	15.4	1.67
218	2020-08-05	61.89	0.67	12.47	2.21		7.71	4.07	15.41	0
219	2020-08-06	71.6	0.7	12.25	1.09		4.89	7.19	14.84	1.13
220	2020-08-07	79.96	0.93	11.95	0		6.38	12.65	14.61	4.18
221	2020-08-08	93.46	7.23	11.91	17.34		5.22	15.52	14.52	34.46
222	2020-08-09	91.85	3.17	12.02	1.53		11.42	7.88	14.28	4.47
223	2020-08-10	87.87	5.59	12.19	1.4		3.67	8.03	14.53	4.15
224	2020-08-11	96.26	6.42	12.2	1.1		5.18	8.28	14.12	4.71
225	2020-08-12	81.83	6.31	12.17	0.66		3.4	9.46	14.43	4.04
226	2020-08-13	61.45	5.82	12	1.09		6.04	9.66	15.77	2.81
227	2020-08-14	85.39	6.33	12.27	0.95		6.23	9.89	18.11	1.94
228	2020-08-15	137.82	6.58	12.59	0.69		4.68	9.78	17.68	2.87
229	2020-08-16	140.15	6.37	12.49	0.07		6.18	9.86	15.58	5.1
230	2020-08-17	137.46	5.76	12.27	0.98		7.36	1.13	36.32	3.47
231	2020-08-18	151.05	5.64	12.26	1.88		7.42	0.5	15.51	1.54
232	2020-08-19	150.83	5.16	12.18	1.85		4.68	0.11	15.74	2.13
233	2020-08-20	149.9	3.42	12.47	2.23		5.22	2.55	9.25	0.34
234	2020-08-21	141.59	4.14	12.43	1.85		10.38	5.66	0	0
235	2020-08-22	121.18	3.47	12.23	0.53		8.86	4.98	0	0
236	2020-08-23	42.08	1.31	12.23	0		6.7	7.37	0	0
237	2020-08-24	58.17	2.26	12.07	3.2		3.18	8.92	0	5.47
238	2020-08-25	55.28	1.99	12.02	5.25		5.4	5.98	0	7.56
239	2020-08-26	49.36	2.18	12.1	5.52		6.14	12.29	0	10.12
240	2020-08-27	57.61	2.41	12.25	5.38		1.95	6.73	0	8.43
241	2020-08-28	86.21	4.39	12.54	6.12		3.46	6.35	2.99	9.91
242	2020-08-29	95.32	13.09	12.5	58.67		4.25	14.07	3.34	33.93
243	2020-08-30	89.19	3.71	12.27	3.41		4.71	6.55	0.7	9.7
244	2020-08-31	69.93	3.44	12.11	3.17		4.18	6.08	1	9.38
245	2020-09-01	33.17	3.23	12.38	2		0.19	6.9	2.73	9.16
246	2020-09-02	32.97	3.34	12.39	1.71		5.14	8.18	1.04	8.51
247	2020-09-03	29.99	3.18	12.29	1.58		8.96	8.55	0.69	8.66
248	2020-09-04	28.96	2.57	12.16	0.73		5.84	8.44	0.73	9.86
249	2020-09-05	32.19	2.17	12.15	0.01		4.94	8.63	0.82	9.71
250	2020-09-06	37.97	1.96	12.15	0.01		10.28	9.21	0.7	9.19
251	2020-09-07	48.96	2.64	12.18	2.05		4.76	7.89	1.21	8.56
252	2020-09-08	63.79	3.63	12.08	3.79		5.74	7.49	0.93	7.84
253	2020-09-09	75.6	3.75	12.05	4.23		7.53	7.55	0.72	7.74
254	2020-09-10	88.93	4.95	12.13	4.27		4.49	6.6	1.05	7.62
255	2020-09-11	103.09	5.39	12.16	3.87		3.01	6.48	0.72	7.54
256	2020-09-12	105.27	4.43	12.31	4.02		5.15	5.76	0.73	7.5
257	2020-09-13	84.57	3.49	12.48	4.08		4.93	5.04	0.74	7.29
258	2020-09-14	89.37	3.87	12.47	4.21		5.81	3.48	0.73	8.15
259	2020-09-15	86.99	4.56	12.36	4.13		2.56	2.79	0.68	6.5
260	2020-09-16	86.43	4.76	12.42	3.57		4.41	2.02	0.68	16.88
261	2020-09-17	111	5.69	12.44	4.16		5.5	3.32	0.68	10.15
262	2020-09-18	124.19	6.85	12.37	4.2		5.46	6.39	4.02	5.25
263	2020-09-19	120.96	6.08	12.52	4.49		2.28	5.87	12.35	4.55
264	2020-09-20	118.42	5.86	12.54	4.05		4.55	6	13.25	4.06
265	2020-09-21	115.02	6.95	12.72	3.52		4.22	5.82	13.48	3.41
266	2020-09-22	130.8	7.3	12.85	3.02		2.2	5.61	13.24	2.57

S. No.	Date	Stack25_CPP_HRSGIII-				Stack26_CPP_HRSGIV-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
267	2020-09-23	112.01	6.87	12.7	2.41	1.32	4.98	13.81	2.18
268	2020-09-24	108.76	7.01	12.63	2.4	4.74	4.75	12.51	2.18
269	2020-09-25	81.52	7.21	12.7	1.97	3.9	4.45	12.47	2.44
270	2020-09-26	68.78	7.73	12.59	1.83	3.94	3.91	12.27	2.63
271	2020-09-27	56.3	8.89	12.51	2.52	4.78	3.57	11.88	4.38
272	2020-09-28	10.57	8.61	12.51	3.76	3.79	2.75	11.56	NA
273	2020-09-29	17.79	9.01	12.44	3.97	6.75	2.65	11.56	NA
274	2020-09-30	68.3	11.83	12.79	44.42	5.39	13.81	13.94	0.01
275	2020-10-01	128.43	4.87	12.67	6.63	3.91	6.79	14.8	0.01
276	2020-10-02	134.33	6.47	12.39	4.84	4.59	7.3	14.62	0.01
277	2020-10-03	122.38	3.32	12.42	6.04	5.71	7.05	14.64	0.01
278	2020-10-04	133.24	3.95	12.57	8.17	4.81	7.51	15.25	0.01
279	2020-10-05	127.36	4.28	12.67	8.62	82.78	6.81	14.58	0.01
280	2020-10-06	121.94	4.57	12.68	8.9	130.93	6.83	14.4	0.01
281	2020-10-07	109.46	4.08	12.58	8.58	126	7.11	14.43	0.01
282	2020-10-08	115.81	2.31	12.53	9.16	130.67	6.97	15.27	0.01
283	2020-10-09	125.52	4.14	12.77	9.31	129.45	7.58	16.65	0.01
284	2020-10-10	128.95	6.13	12.8	9.89	128.81	7.04	18.05	0.01
285	2020-10-11	115.68	8.35	13.24	8.34	132.19	7.14	17.77	0.01
286	2020-10-12	136.07	12.19	13.95	3.18	123.92	8.12	17.61	0.01
287	2020-10-13	118.49	9.1	13.5	5.53	125.7	6.62	15.28	0.01
288	2020-10-14	93.8	8.74	13.25	5.27	128.47	6.87	16.74	0.01
289	2020-10-15	98.89	7.09	13.04	4.05	123.44	6.56	16.48	0.01
290	2020-10-16	104.76	5.92	13.03	2.94	122.2	5.63	15.51	0.01
291	2020-10-17	98.02	5.71	13.05	4.68	128.2	5.41	14.47	0.01
292	2020-10-18	100.95	6.86	12.97	7.31	129.8	5.02	15.4	0.01
293	2020-10-19	101.59	7.95	13.15	8.51	129.88	4.75	15.55	0.01
294	2020-10-20	104.05	10.57	13.07	5.19	108.17	4.86	14.74	2.58
295	2020-10-21	88.78	8.42	12.74	1.15	112.15	4.58	14.74	3.45
296	2020-10-22	108.55	6.15	12.78	1.8	119.52	4.69	14.56	2.96
297	2020-10-23	123.88	10.11	12.9	1.44	124.77	3.78	14.77	2.39
298	2020-10-24	117.83	10.48	12.98	2.49	125.14	4.23	14.86	4.09
299	2020-10-25	125.28	10.34	13	4.23	128.72	3.85	14.27	6.05
300	2020-10-26	126.13	9.27	12.9	29.6	124.09	7.66	14.37	16.32
301	2020-10-27	115.91	6.75	12.75	6.28	113.9	7.34	15.22	10.43
302	2020-10-28	128.96	5.15	12.69	7.37	114.86	7.19	15.53	10.92
303	2020-10-29	130.01	4.37	12.66	5.47	121.28	6.61	15.72	10.69
304	2020-10-30	134.38	4.25	12.73	5.12	121.03	6.33	15.64	11.16
305	2020-10-31	130.2	4.47	12.75	3.72	125.77	5.77	15.76	10.69
306	2020-11-01	125.25	4.05	12.8	3.01	135.2	4.63	16	10.75
307	2020-11-02	125.76	4.66	12.89	2.91	133.52	4.05	16.02	10.29
308	2020-11-03	126.25	4.82	13.07	3.5	131.97	3.66	16.64	10.48
309	2020-11-04	131.95	5.25	13.06	4.63	131.92	3.57	17.5	11.11
310	2020-11-05	126.43	5.86	13.14	2.97	127.58	4.14	17.74	10.2
311	2020-11-06	130.83	5.78	13.31	4.84	132.73	3.51	17.31	11.55
312	2020-11-07	141.13	6.31	13.16	6.08	128.06	2.87	17.35	8.62
313	2020-11-08	148.08	6.81	13.21	11.9	132.3	2.63	17.28	6.71
314	2020-11-09	132.73	6.47	13.19	7.94	140.42	1.97	17.57	6.42
315	2020-11-10	131.8	6.52	13.38	9.11	141.05	2.28	17.54	6.84
316	2020-11-11	115.16	6.11	13.56	5.76	124.9	1.44	17.43	5.41
317	2020-11-12	111.32	6.3	13.69	0.82	130.44	1.14	15.56	5.87
318	2020-11-13	127.4	6.96	13.58	1.11	145.5	0.72	16.38	6.9
319	2020-11-14	136.22	8.53	13.44	1.49	143.06	0.48	16.82	9.31
320	2020-11-15	143.95	8.06	13.47	1.4	137.69	0.11	16.59	12.47
321	2020-11-16	147.68	8.28	13.44	0.67	138.84	2.43	16.35	11.22
322	2020-11-17	126.08	8.85	13.21	0.02	135	5.82	15.63	10
323	2020-11-18	112.65	8.68	13.04	0	118.12	6.32	15.61	2.15
324	2020-11-19	110.06	NA	13.07	1.19	114.25	6.58	15.79	3.08
325	2020-11-20	103.75	NA	13.04	3.31	106.76	5.71	15.85	6.34
326	2020-11-21	107.56	NA	13.02	6.05	118.01	5.13	15.79	7.16
327	2020-11-22	106.32	NA	13.18	6.69	126.07	4.27	15.71	6.95
328	2020-11-23	112.11	NA	13.51	8.89	128.19	4.09	16.16	7.72
329	2020-11-24	143.88	NA	13.69	8.36	144.56	3.94	16.26	8.96
330	2020-11-25	154.66	NA	13.71	8.17	142.5	3.64	16.25	6.19
331	2020-11-26	139.71	NA	13.87	4.1	135.01	3.44	16.59	4.56
332	2020-11-27	147.13	NA	14.15	16.42	134.01	10.46	16.68	39.56
333	2020-11-28	133.1	NA	13.68	0.29	139.11	7.68	16.58	5.99

S. No.	Date	Stack25_CPP_HRSGIII-					Stack26_CPP_HRSGIV-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
334	2020-11-29	127.63	NA	13.56	0		135.05	7.95	16.85	8.48
335	2020-11-30	136.5	NA	13.48	1.76		139.15	8.47	17.48	9.38
336	2020-12-01	126.44	NA	13.53	3.78		139.24	7.96	17.4	10.24
337	2020-12-02	126.29	4.64	13.66	3.16		134.59	7.71	17.31	9.67
338	2020-12-03	126.41	4.86	13.56	2.75		137.24	7.58	17.4	10.55
339	2020-12-04	73.15	4.43	7.3	3.99		85.63	14.58	9.46	11.3
340	2020-12-05	46.15	2.06	0	2.44		37.35	20.04	0	6.93
341	2020-12-06	77.36	0	0	3.27		46.64	12.47	0	6.64
342	2020-12-07	78.7	2.34	0	1.49		58.9	6.99	0	6.72
343	2020-12-08	82.99	7.14	0	0.88		55.73	12.64	0	6.97
344	2020-12-09	85.26	5.97	0	1.56		66.53	10.93	0	5.88
345	2020-12-10	104.19	5.95	0	0.82		77.61	7.92	0	5.85
346	2020-12-11	113.23	6.14	0	1.22		111.7	5.33	0	6.8
347	2020-12-12	122.46	6.97	0	1.71		128.49	4.23	0	10.19
348	2020-12-13	0	3.29	0	0		145.6	2.65	0	9.44
349	2020-12-14	0.29	2.1	9.1	0.57		149.46	1.53	7.67	9.47
350	2020-12-15	0.39	1.62	17.48	1.59		148.99	0.6	16.31	10.68
351	2020-12-16	1.45	2.69	17.34	1.25		148.89	2.8	15.81	9.71
352	2020-12-17	0.18	4.64	17.11	0.88		155.02	6.12	18.42	7.3
353	2020-12-18	2.95	5.66	17.22	0.03		156.15	7.6	18.31	7.57
354	2020-12-19	10.38	5.71	17.42	0.15		149.97	7.24	17.57	8.77
355	2020-12-20	57.15	7.77	17.73	0.05		159.19	5.69	17.1	9.01
356	2020-12-21	82.06	11.94	28.03	2.17		153.64	6.26	16.69	8.96
357	2020-12-22	66.83	11.15	27.01	4.81		155.68	5.48	16.18	5.79
358	2020-12-23	137.94	11.92	15.54	4.53		153.67	4.69	15.83	5.99
359	2020-12-24	148.26	7.96	16.51	4.08		171.13	3.17	15.66	6.99
360	2020-12-25	150.08	6.38	16.51	3.68		164.89	2.2	19.62	7.39
361	2020-12-26	151.15	5.99	16.69	1.79		167.84	1.68	20.85	7.6
362	2020-12-27	147.65	5.33	16.92	0.01		165.33	1.83	19.63	7.59
363	2020-12-28	121	6.23	16.66	0		153.47	1.64	19.45	7.79
364	2020-12-29	132.59	12.49	11.96	40.98		142.16	10.76	19.63	33.45
365	2020-12-30	149.21	7.43	4.27	9.66		143.03	7	18.91	10.28
366	2020-12-31	145.25	6.7	4.32	12.71		148.56	6.17	18.8	9.98
367	2021-01-01	146.79	8.04	4.37	8.55		143.58	6.25	18.65	10.73
368	2021-01-02	155.62	8.43	4.31	7.38		145.39	6.47	18.52	11.64
369	2021-01-03	153.99	6.21	4.65	10.91		151.9	5.88	18.39	14.03
370	2021-01-04	111.91	3.95	3.92	13.19		113.01	5.95	18.35	13.1
371	2021-01-05	112.86	3.76	3.89	7.25		103.81	6.52	17.63	13.82
372	2021-01-06	122.31	2.67	3.8	6.62		112.6	5.63	17.27	13.04
373	2021-01-07	114.72	2.76	3.74	5.51		105.54	5.73	17.41	12.26
374	2021-01-08	113.23	2.27	3.92	5.01		107.27	5.75	17.4	12.62
375	2021-01-09	117.01	3.07	10.35	4.21		107.92	6.38	17.19	37.45
376	2021-01-10	139.96	2.38	9.35	3.75		132.16	5.73	16.99	5.05
377	2021-01-11	149.16	4.02	4.33	5.49		137.66	5	16.7	5.37
378	2021-01-12	143.61	6.01	4.62	6.04		137.66	4.97	16.6	6.15
379	2021-01-13	137.25	5.8	4.64	2.35		129.17	4.65	16.63	4.57
380	2021-01-14	134.39	5.47	4.76	2.34		123.32	4.3	16.78	7.99
381	2021-01-15	149.7	5.35	4.88	2.02		127.06	4.17	16.61	7.31
382	2021-01-16	148.75	5.32	4.61	1.24		131.02	4.25	16.61	7.94
383	2021-01-17	135.66	5.72	4.53	0.71		134.28	4.26	16.7	8.53
384	2021-01-18	130.13	5.28	4.53	1.45		120.39	4.8	16.55	9.54
385	2021-01-19	138.22	6.23	4.33	2.35		127.58	4.66	16.42	11.9
386	2021-01-20	148.92	6.04	4.27	1.76		133.88	4.79	16.65	12.67
387	2021-01-21	145.87	6.45	4.52	2.29		135.16	4.69	16.51	13.07
388	2021-01-22	135.21	4.86	4.53	1.93		128.85	4.25	16.29	11.71
389	2021-01-23	136.75	5.59	7.43	1.57		127.89	4.92	16.24	11.08
390	2021-01-24	148.23	5.19	4.29	1.74		129.48	4.59	16.39	11.46
391	2021-01-25	148.1	5.94	4.23	1.43		130.09	4.65	16.39	11.89
392	2021-01-26	140.46	6.09	4.2	1.26		127.86	5.2	16.04	12.48
393	2021-01-27	139.51	5.71	4.48	0.67		130.12	5.21	15.99	13.05
394	2021-01-28	141.95	5.04	4.82	3.24		137.19	7.39	15.98	8.54
395	2021-01-29	149.92	6.38	4.61	6.19		139.85	7.85	15.89	3.25
396	2021-01-30	141.13	9.1	4.64	20.31		135.99	8.63	15.99	14.5
397	2021-01-31	130.75	5.84	4.44	3.42		136.72	4.39	16	9.88
398	2021-02-01	139.99	6.64	4.54	4.95		140.08	5.6	16.06	10.73
399	2021-02-02	146.16	5.54	4.09	4.96		142.15	4.98	16.11	10.04
400	2021-02-03	153.37	5.58	4.02	5.53		149.21	5.31	16	10.39

S. No.	Date	Stack25_CPP_HRSGIII-				Stack26_CPP_HRSGIV-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
401	2021-02-04	152.24	5.65	3.94	4.95	150.33	5.26	16.11	10.66
402	2021-02-05	152.41	5.6	3.94	4.72	151.15	5.37	16.28	10.73
403	2021-02-06	152.33	6	4.05	5.88	149.71	5.43	16.2	10.55
404	2021-02-07	148.93	6.43	4.21	6.79	143.55	5.59	16.21	10.68
405	2021-02-08	129.51	5.63	4.06	6.15	136.79	5.61	16.22	10.59
406	2021-02-09	133.88	5.71	3.95	0.84	136.2	6.38	16.17	10.8
407	2021-02-10	129.34	5.6	3.89	0.01	130.32	7.6	16.11	10.27
408	2021-02-11	126.02	5.51	4.04	3.31	136.81	9.33	16.04	10.15
409	2021-02-12	129.13	5.81	4.06	6.53	138.79	10.09	15.93	10.56
410	2021-02-13	123.76	5.84	4.06	6.7	136.24	9.98	15.79	10.57
411	2021-02-14	154.21	5.51	3.91	7.08	137.9	9.51	15.77	9.91
412	2021-02-15	133.61	4.63	3.86	7.85	137.66	9.61	15.74	11.09
413	2021-02-16	116.61	4.4	3.93	8.33	132.75	9.77	15.88	11.88
414	2021-02-17	127.66	4.31	3.99	8.79	132.87	9.55	15.7	11.99
415	2021-02-18	110.45	3.88	3.9	9.69	119.52	9.64	15.33	11.42
416	2021-02-19	125.54	4.2	4.01	10	127.37	10.12	15.41	11.82
417	2021-02-20	128.67	4.24	4.05	10.36	124.72	10.47	15.56	10.53
418	2021-02-21	133.93	4.59	4.1	8.99	130.96	10.51	15.45	11.75
419	2021-02-22	124.84	4.61	3.74	7.88	139.9	NA	15.46	11.05
420	2021-02-23	128.62	4.77	4	7.85	137.68	NA	15.48	9.48
421	2021-02-24	139.35	5.16	4.26	8.66	129.65	11.43	15.46	8.48
422	2021-02-25	134.23	5.22	4.05	10.06	130.13	12.09	15.53	8.29
423	2021-02-26	131.76	7.03	3.94	22.95	127.06	10.11	15.59	14.92
424	2021-02-27	123.96	4.96	4.04	2.03	117.81	6.77	15.64	7.9
425	2021-02-28	93.29	8.15	3.24	3.8	121.75	7.19	1.8	8.04
426	2021-03-01	132.86	6.92	3.85	2.4	126.13	7.43	7.67	4.16
427	2021-03-02	135.45	6.15	3.78	3.43	124.1	7.71	17.14	1.48
428	2021-03-03	137.48	5.71	3.82	3.7	132.16	8.09	16.99	4.58
429	2021-03-04	136.07	5.29	3.77	4.2	132.9	8.06	17.08	4.51
430	2021-03-05	133.26	6.42	3.79	5.48	145.09	8.67	17.03	6.32
431	2021-03-06	138.16	5.14	3.87	4.86	148.61	11.76	16.89	8.78
432	2021-03-07	146.94	4.48	4.05	1.06	133.05	11.9	16.82	8.35
433	2021-03-08	149.74	4.82	4.1	1.24	132.83	11.77	16.72	10.08
434	2021-03-09	146.75	3.89	3.87	3.9	132.39	11.52	16.72	9.81
435	2021-03-10	142.33	4.01	3.84	3.56	134.27	11.48	16.71	9.78
436	2021-03-11	127.48	3.59	3.74	2.01	111.72	12.45	16.66	9.19
437	2021-03-12	123.03	4.11	3.66	1.92	113.04	13.13	16.61	9.91
438	2021-03-13	148.54	2.32	4.04	3.7	147.35	12.88	16.62	11.22
439	2021-03-14	137.94	2.63	4.09	3.83	138.45	13.29	16.5	10.87
440	2021-03-15	146.97	1.96	4.07	3.63	143.69	14.6	16.48	10.4
441	2021-03-16	138.81	2	4.18	2.66	137	17.18	16.52	10.43
442	2021-03-17	152.26	1.21	4.18	1.73	141.44	18.26	16.53	10.75
443	2021-03-18	147.76	1.17	4.03	1.98	143.86	18.56	16.48	11.79
444	2021-03-19	151.26	2.38	4.04	1.77	143.31	11.13	16.41	8.48
445	2021-03-20	150.11	3.83	4.05	2.02	144.82	5.02	14.95	5.31
446	2021-03-21	147.95	3.07	4.19	0.34	138.1	5.34	14.75	4.97
447	2021-03-22	149.72	4.53	4.17	5.78	146.92	4.8	14.69	5.25
448	2021-03-23	150.62	2.94	4.01	10.21	144.44	5.44	14.73	4.95
449	2021-03-24	143.51	1.9	3.88	8.56	143.18	5.79	14.7	5.12
450	2021-03-25	145.95	1.65	3.76	9.01	141.25	6.22	14.71	4.4
451	2021-03-26	141.87	1.31	3.62	8.17	134.69	6.48	14.69	0.07
452	2021-03-27	136.61	3.32	3.55	8.57	119.23	7.21	14.63	3.94
453	2021-03-28	134.79	5.04	3.72	8.62	115.32	7.67	14.59	9.81
454	2021-03-29	135.51	5.81	4.23	20.75	122.84	9.18	14.62	21.15
455	2021-03-30	141.19	4.21	5.33	11.1	121.56	6.61	14.63	7.48
456	2021-03-31	126.46	4.86	5.1	11.35	109.66	6.86	14.74	6.26
457	2021-04-01	100.87	5.06	4.75	10.72	85.74	8.13	14.63	5.64
458	2021-04-02	101.14	4.55	4.68	10.29	32.05	25.88	14.06	4.74
459	2021-04-03	90.83	3.89	4.32	10.1	79.91	33.01	14.42	8.62
460	2021-04-04	97.88	4.36	0	10.09	82.77	34.16	15.03	6.78
461	2021-04-05	86.59	3.69	3.35	9.83	81.86	18.03	15.12	8.69
462	2021-04-06	89.06	3.83	14.53	9.26	69.54	6.37	15.03	7.97
463	2021-04-07	100.35	3.43	17.59	7.97	92.9	8.83	14.89	9.88
464	2021-04-08	108.3	3.36	0	9.75	91.4	7.73	14.86	13.06
465	2021-04-09	96.8	3.26	14.35	13.05	93.39	8.71	14.78	20.61
466	2021-04-10	91.43	2.86	26.43	13.25	95.84	9.38	14.72	21.14
467	2021-04-11	98.92	3.46	26.48	13.09	91.81	9.45	14.74	21.04

S. No.	Date	Stack25_CPP_HRSGIII-					Stack26_CPP_HRSGIV-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
468	2021-04-12	102.91	3.15	26.5	13.57		92.62	9.73	14.66	20.32
469	2021-04-13	NA	NA	NA	NA		NA	NA	NA	NA
470	2021-04-14	92.28	3.02	26.5	13.23		106.85	9.51	14.79	21.99
471	2021-04-15	94.02	2.72	26.53	12.38		103.64	9.77	14.97	21.89
472	2021-04-16	103.7	2.45	26.47	13.43		109.73	10.76	14.79	22.74
473	2021-04-17	104.84	2.79	26.41	13.34		104.44	9.58	14.78	21.08
474	2021-04-18	90.8	3.18	26.42	17.4		100.76	9.78	14.68	19.34
475	2021-04-19	91.13	4.43	26.38	16.09		99.7	9.97	14.78	20.28
476	2021-04-20	92.77	4.46	26.43	16.08		101.78	10.3	15.19	20.77
477	2021-04-21	96.49	4.78	26.42	11.49		99.07	10.3	15.22	22.34
478	2021-04-22	86.39	3.22	26.43	9.1		85.35	9.21	15.08	24.61
479	2021-04-23	89.77	2.41	26.47	13.65		105.37	11.46	15.07	25.19
480	2021-04-24	85.92	6.3	26.48	16.42		100.1	11.28	15	25.98
481	2021-04-25	90.27	5.97	26.36	11.54		100.42	7.69	14.89	4.32
482	2021-04-26	87.56	5.54	26.35	12.07		100.79	7.86	14.94	3.46
483	2021-04-27	95.08	6.43	26.4	12.33		100.86	8.1	14.95	2.67
484	2021-04-28	88.55	6.32	26.39	12.53		102.53	8.09	14.96	2.48
485	2021-04-29	100.2	6.51	26.35	12.08		100.23	8.27	14.95	2.37
486	2021-04-30	90.77	6.01	26.32	8.64		109.67	9.01	15.23	3.53
487	CFO Standards	-	-	100	-		-	-	100	-
488	Maximum Value	177.9	21.72	28.03	58.67		171.13	34.16	36.32	47.42
489	Maximum Value on	2020-03-29	2020-06-05	2020-12-21	2020-08-29		2020-12-24	2021-04-04	2020-08-17	2020-05-18
490	Average	127.17	4.95	10.83	6.07		74.8	7.28	13.36	7.77
491		484	437	413	479		485	483	411	477
492	Total Data Points	486	486	486	486		486	486	486	486
493	Data Availablity %	99.79	90.12	90.95	99.79		99.79	99.38	90.95	98.97
494	Pollutant Load (Tons/day)	0.978	0.038	0.083	0.047		0.575	0.056	0.103	0.060
495	Pollutnat Load as per CFO (Tons/day)			0.769					0.769	

Stack Monitroing Data (CEMS) - From 01.01.2020 to 30.04.2021

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

S. No.	Date	Stack27_CPP_HRSGV-				Stack28_CPP_HRSGVI-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
1	2020-01-01	93.78	49.55	8.45	71.51	85.67	49.07	9.75	70.65
2	2020-01-02	86.47	47.04	8.66	66.9	87.11	48.95	9.78	67.04
3	2020-01-03	85.44	47.99	8.41	68.04	84.54	49.13	9.5	68.22
4	2020-01-04	85.5	47.6	8.44	69.04	89.05	49.04	9.57	69.57
5	2020-01-05	87.14	46.89	8.4	68.6	86.09	48.7	9.52	68.58
6	2020-01-06	98.96	40.38	8.58	83.18	97.96	41.31	9.68	95.08
7	2020-01-07	109.8	34.23	8.57	48.24	113.5	36.15	9.62	51.34
8	2020-01-08	109.71	35.17	8.31	54.46	116.12	36.12	9.44	57.78
9	2020-01-09	112.58	35.24	8.33	42.5	116.54	36.41	9.59	45.9
10	2020-01-10	100.48	35.54	8.26	68.46	103.15	36.07	9.47	70.55
11	2020-01-11	83.12	33	8.44	55.75	95.74	33.75	9.61	60.3
12	2020-01-12	77.84	30.47	8.57	91.02	90.48	30.78	9.67	92.86
13	2020-01-13	98.68	32.99	8.51	30.2	114.18	33.16	9.69	36.79
14	2020-01-14	101.69	36.43	8.38	34.01	115.51	35.04	9.75	40.02
15	2020-01-15	101.36	35.84	8.26	39.8	115.87	34.26	9.71	45.65
16	2020-01-16	83.5	34.53	8.36	29.32	93.61	33.16	9.75	32.36
17	2020-01-17	114.24	35.74	8.2	24.49	128.85	39.31	9.65	24.51
18	2020-01-18	154.5	43.03	8.08	23.48	179.1	58.3	9.57	22.71
19	2020-01-19	152.13	44.66	8.07	44.87	174.74	66.88	9.49	44.3
20	2020-01-20	166.43	45.12	8.01	34.89	197.27	73.24	9.49	35.97
21	2020-01-21	176.97	42.72	8.17	21.7	210.21	74.41	9.56	22.75
22	2020-01-22	167.91	38.11	8.24	19.11	214.34	64.74	9.63	20.11
23	2020-01-23	167.53	37.95	8.15	18.97	184.88	57.69	9.53	15.96
24	2020-01-24	145.02	37.53	8.1	16.6	110.45	49.16	9.54	11.94
25	2020-01-25	104.53	33.96	8.15	16.46	94.07	39.49	9.62	12.69
26	2020-01-26	94.88	33.95	8.19	15.77	92.28	32.71	9.67	12.45
27	2020-01-27	93.79	36.43	7.99	40.83	90.78	32.24	9.41	37.01
28	2020-01-28	105.29	43.87	8.04	36.4	104.91	36.76	9.48	34.08
29	2020-01-29	NA	NA	NA	NA	NA	NA	NA	NA
30	2020-01-30	NA	NA	NA	NA	NA	NA	NA	NA
31	2020-01-31	NA	NA	NA	NA	NA	NA	NA	NA
32	2020-02-01	NA	NA	NA	NA	NA	NA	NA	NA
33	2020-02-02	NA	NA	NA	NA	NA	NA	NA	NA
34	2020-02-03	NA	NA	NA	NA	NA	NA	NA	NA
35	2020-02-04	NA	NA	NA	NA	NA	NA	NA	NA
36	2020-02-05	NA	NA	NA	NA	NA	NA	NA	NA
37	2020-02-06	NA	NA	NA	NA	NA	NA	NA	NA
38	2020-02-07	NA	NA	NA	NA	NA	NA	NA	NA
39	2020-02-08	NA	NA	NA	NA	NA	NA	NA	NA
40	2020-02-09	NA	NA	NA	NA	NA	NA	NA	NA
41	2020-02-10	NA	NA	NA	NA	NA	NA	NA	NA
42	2020-02-11	NA	NA	NA	NA	NA	NA	NA	NA
43	2020-02-12	NA	NA	NA	NA	NA	NA	NA	NA
44	2020-02-13	NA	NA	NA	NA	NA	NA	NA	NA
45	2020-02-14	NA	NA	NA	NA	NA	NA	NA	NA
46	2020-02-15	NA	NA	NA	NA	NA	NA	NA	NA
47	2020-02-16	NA	NA	NA	NA	NA	NA	NA	NA
48	2020-02-17	NA	NA	NA	NA	NA	NA	NA	NA
49	2020-02-18	NA	NA	NA	NA	NA	NA	NA	NA
50	2020-02-19	NA	NA	NA	NA	NA	NA	NA	NA
51	2020-02-20	NA	NA	NA	NA	NA	NA	NA	NA
52	2020-02-21	NA	NA	NA	NA	NA	NA	NA	NA
53	2020-02-22	NA	NA	NA	NA	NA	NA	NA	NA
54	2020-02-23	NA	NA	NA	NA	NA	NA	NA	NA
55	2020-02-24	NA	NA	NA	NA	NA	NA	NA	NA
56	2020-02-25	NA	NA	NA	NA	NA	NA	NA	NA
57	2020-02-26	NA	NA	NA	NA	NA	NA	NA	NA
58	2020-02-27	NA	NA	NA	NA	NA	NA	NA	NA
59	2020-02-28	NA	NA	NA	NA	NA	NA	NA	NA
60	2020-02-29	NA	NA	NA	NA	NA	NA	NA	NA
61	2020-03-01	NA	NA	NA	NA	NA	NA	NA	NA
62	2020-03-02	NA	NA	NA	NA	NA	NA	NA	NA
63	2020-03-03	NA	NA	NA	NA	NA	NA	NA	NA
64	2020-03-04	NA	NA	NA	NA	NA	NA	NA	NA
65	2020-03-05	NA	NA	NA	NA	NA	NA	NA	NA
66	2020-03-06	NA	NA	NA	NA	NA	NA	NA	NA

S. No.	Date	Stack27_CPP_HRSGV-					Stack28_CPP_HRSGVI-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
67	2020-03-07	NA	NA	NA	NA		NA	NA	NA	NA
68	2020-03-08	NA	NA	NA	NA		NA	NA	NA	NA
69	2020-03-09	NA	NA	NA	NA		NA	NA	NA	NA
70	2020-03-10	NA	NA	NA	NA		NA	NA	NA	NA
71	2020-03-11	NA	NA	NA	NA		NA	NA	NA	NA
72	2020-03-12	78.3	29.98	8.77	31.37		NA	NA	NA	NA
73	2020-03-13	63.29	28.3	8.75	36.75		NA	NA	NA	NA
74	2020-03-14	81.08	25.71	8.73	31.01		NA	NA	NA	NA
75	2020-03-15	198.4	22.67	8.69	10.3		NA	NA	NA	NA
76	2020-03-16	128.07	26.18	8.71	20.52		NA	NA	NA	NA
77	2020-03-17	104.28	30.07	8.73	40.36		NA	NA	NA	NA
78	2020-03-18	83.48	32.74	8.87	29.31		NA	NA	NA	NA
79	2020-03-19	63.01	30.02	8.81	27.3		NA	NA	NA	NA
80	2020-03-20	66.09	30.52	8.97	30.14		NA	NA	NA	NA
81	2020-03-21	66.11	30.98	8.97	31.05		NA	NA	NA	NA
82	2020-03-22	82.8	30	8.93	19.08		NA	NA	NA	NA
83	2020-03-23	109.45	25.94	8.96	0		NA	NA	NA	NA
84	2020-03-24	81.22	24.2	8.89	8.37		NA	NA	NA	NA
85	2020-03-25	46.74	21.29	8.97	19.24		NA	NA	NA	NA
86	2020-03-26	48.27	20.32	8.98	20.44		NA	NA	NA	NA
87	2020-03-27	53.05	20.42	8.99	21.57		NA	NA	NA	NA
88	2020-03-28	62.78	27.29	8.85	106.04		NA	NA	NA	NA
89	2020-03-29	66.37	27.93	8.74	94.8		NA	NA	NA	NA
90	2020-03-30	97.47	24.79	8.65	37.55		NA	NA	NA	NA
91	2020-03-31	105.59	24.6	8.7	27		NA	NA	NA	NA
92	2020-04-01	107.3	23.79	8.74	29.64		NA	NA	NA	NA
93	2020-04-02	111.78	24.2	8.82	30.94		NA	NA	NA	NA
94	2020-04-03	113.3	24.45	8.77	32.1		NA	NA	NA	NA
95	2020-04-04	79.52	22.56	8.72	26.71		NA	NA	NA	NA
96	2020-04-05	75.17	21.35	8.82	22.46		NA	NA	NA	NA
97	2020-04-06	97.13	22.11	8.69	26.07		NA	NA	NA	NA
98	2020-04-07	105.58	22.28	8.76	28.63		NA	NA	NA	NA
99	2020-04-08	105.51	21.27	8.69	29.23		NA	NA	NA	NA
100	2020-04-09	108.34	22.92	8.78	30.17		NA	NA	NA	NA
101	2020-04-10	110.88	22.98	8.81	32.21		NA	NA	NA	NA
102	2020-04-11	112.03	22.29	8.66	32.63		NA	NA	NA	NA
103	2020-04-12	115.84	22.59	8.54	33.66		NA	NA	NA	NA
104	2020-04-13	119.27	22.64	8.61	34.38		NA	NA	NA	NA
105	2020-04-14	116.22	22.39	8.55	34.65		NA	NA	NA	NA
106	2020-04-15	97	22.27	8.67	35.29		NA	NA	NA	NA
107	2020-04-16	87.99	23.09	8.59	36.86		NA	NA	NA	NA
108	2020-04-17	86.08	22.88	8.69	34.55		NA	NA	NA	NA
109	2020-04-18	87.27	22.03	8.68	35.32		NA	NA	NA	NA
110	2020-04-19	87.77	22.88	8.63	35.89		NA	NA	NA	NA
111	2020-04-20	88.04	22.31	8.67	35.83		NA	NA	NA	NA
112	2020-04-21	93.63	24.1	8.58	35.59		NA	NA	NA	NA
113	2020-04-22	112.59	25.66	8.6	30.59		NA	NA	NA	NA
114	2020-04-23	114.42	25.36	8.55	29.03		NA	NA	NA	NA
115	2020-04-24	112.5	25.06	8.43	30.88		NA	NA	NA	NA
116	2020-04-25	107.7	24.77	8.82	29.04		NA	NA	NA	NA
117	2020-04-26	101.07	25.18	9.48	28.99		NA	NA	NA	NA
118	2020-04-27	110.99	25.72	9.92	31.3		114.15	34.6	9.97	33.93
119	2020-04-28	128.53	26.12	9.93	33.7		116.31	34.85	9.91	33.36
120	2020-04-29	121.34	27.54	9.92	31.73		117.82	33.9	9.82	31.12
121	2020-04-30	54.15	29.84	8.75	26.48		128.49	33.17	9.99	32.9
122	2020-05-01	122.94	26.52	9.91	31.58		118.81	33.53	9.87	31.21
123	2020-05-02	108.46	24.59	9.76	31.01		121.52	32.96	9.92	33.69
124	2020-05-03	129.12	25.3	9.93	31.94		117.91	32.89	9.89	31.42
125	2020-05-04	126.34	24.99	9.8	32.74		116.45	31.83	9.91	33.13
126	2020-05-05	129.36	24.97	9.8	33.15		115.92	32.03	9.86	33.43
127	2020-05-06	133.25	24.88	10.03	33.97		118.08	32.43	9.82	33.91
128	2020-05-07	129.32	25.7	9.92	37.14		118.3	33.34	9.74	36.44
129	2020-05-08	130.05	25.42	9.89	35.35		116.87	33.42	9.84	34.54
130	2020-05-09	132.73	24.81	9.72	36.21		116.31	33.15	9.73	35.39
131	2020-05-10	123.33	25.65	9.19	37.03		117.64	34.58	9.93	37.85
132	2020-05-11	125.25	24.74	9.31	36.95		115	33.41	9.85	37.19
133	2020-05-12	130.25	24.04	9.38	36.84		117.28	33.09	9.84	36.45
134	2020-05-13	127.77	24.88	9.37	39.78		121.72	33.61	9.96	39.56

837

S. No.	Date	Stack27_CPP_HRSGV-				Stack28_CPP_HRSGVI-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)	NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
135	2020-05-14	130.52	24.06	9.28	38.76	122.26	32.65	9.76	38.39
136	2020-05-15	130.06	24.65	9.19	39.58	118.06	34.07	9.75	38.01
137	2020-05-16	132.96	25.26	9.19	39.63	113.65	33.91	9.71	38.47
138	2020-05-17	130.13	25.31	9.15	40.59	119.63	33.57	9.7	39.6
139	2020-05-18	119.13	24.53	9.31	42.66	119.99	34.38	9.87	40.28
140	2020-05-19	114.2	26.56	9.42	44.33	125.63	35.44	9.79	42.67
141	2020-05-20	119.36	28.29	9.1	43.19	120.79	38.21	9.49	40.34
142	2020-05-21	132.7	26.23	9.19	41.86	117.49	34.77	9.74	39.85
143	2020-05-22	130.3	25.96	9.15	41.91	122.77	34	9.76	40.09
144	2020-05-23	133.01	24.76	9.2	42.05	119.05	33.68	9.69	40.5
145	2020-05-24	133.58	24.98	9.31	42.19	121.47	32.35	9.83	40.78
146	2020-05-25	131.76	24.77	9.26	41.8	113.94	31.28	9.84	40.82
147	2020-05-26	127.15	24.23	9.29	42.85	124.59	32.16	9.82	40.24
148	2020-05-27	126.24	25.67	9.36	42.01	123.59	33.33	9.85	39.64
149	2020-05-28	133.67	24.71	9.16	43.27	122.06	32.24	9.72	41.5
150	2020-05-29	134.78	24.88	9.26	43.4	119.61	31.98	9.64	41.19
151	2020-05-30	126.82	26	9.41	43.96	118.95	33.65	9.69	41.88
152	2020-05-31	132.35	24.77	9.4	43.74	125.33	33.38	9.95	40.99
153	2020-06-01	128.96	24.45	9.39	44.28	120.9	32.79	9.98	42.28
154	2020-06-02	133.78	24.51	9.42	44.4	120.07	32.27	10.01	42.82
155	2020-06-03	133.52	24.87	9.37	45.37	123.94	33.32	10.02	42.62
156	2020-06-04	133.22	25.5	9.51	45.18	124.57	34.09	10.07	43.03
157	2020-06-05	123.63	30.9	9.49	45.84	115.28	37.95	10.05	45.39
158	2020-06-06	125.17	31.38	9.49	46.53	121.84	36.59	9.89	46.56
159	2020-06-07	123.83	29.54	9.29	46.48	123.25	34.14	9.86	46.88
160	2020-06-08	125.78	29.01	9.28	46.37	125.88	34.4	9.8	46.85
161	2020-06-09	117.07	29.2	9.23	44.39	119.02	36.54	9.89	46.53
162	2020-06-10	109.69	28.77	9.21	42.54	118.38	36.58	9.72	45.21
163	2020-06-11	112.53	29.57	9.27	48.48	118.37	36.27	9.91	50.04
164	2020-06-12	111.96	32.7	9.29	50.33	116.76	37.73	9.82	51.74
165	2020-06-13	118.68	27.39	9.51	45.58	114.66	33.92	9.99	47.02
166	2020-06-14	116.66	26.96	9.55	36.65	120.91	32.65	10.05	38.66
167	2020-06-15	119.19	26.62	9.45	37.44	122.01	32.18	9.91	39.69
168	2020-06-16	118.15	27.77	9.68	36.29	112.04	32.51	10.1	37.94
169	2020-06-17	119.37	28.37	9.37	36.48	123.71	32.31	10.07	38.66
170	2020-06-18	120.08	28.68	9.78	37.17	133.65	31.82	10.21	40.51
171	2020-06-19	121.83	28.99	9.75	38.85	137.24	32.28	10.2	41.68
172	2020-06-20	90.87	19.77	9.5	32.63	114.13	22.84	10.09	31.11
173	2020-06-21	61.02	5.22	9.67	25.4	92.6	6.86	10.17	24.17
174	2020-06-22	66.58	5.69	9.58	25.89	101.14	7.44	10.11	25.26
175	2020-06-23	65.87	6.77	9.31	17.56	99.64	9.86	10.01	16.46
176	2020-06-24	59.99	5.79	9.35	13.08	87.68	9.21	9.85	12.07
177	2020-06-25	62.96	6.21	9.39	10.44	89.97	10.04	9.79	10.32
178	2020-06-26	65.8	5.88	9.42	13.38	87.94	10.41	9.94	11.38
179	2020-06-27	66.46	6.67	9.51	13.85	90.48	11.37	9.96	12.59
180	2020-06-28	65.3	6.01	9.43	15.3	90.66	10.06	9.96	14.26
181	2020-06-29	63.99	6.28	9.41	15.58	84.99	10.28	9.88	14.47
182	2020-06-30	64.93	7.85	9.41	17.48	81.28	12.25	9.88	15.75
183	2020-07-01	61.72	9.8	9.62	20.34	88.76	12.71	10	19.44
184	2020-07-02	54.35	8.23	9.52	20.07	90.21	13.03	9.99	20.74
185	2020-07-03	57.92	6.34	9.39	20.65	88.92	11.64	9.93	20.79
186	2020-07-04	69.37	6.53	9.69	21.33	82.58	11.41	10.05	19.57
187	2020-07-05	72.46	6.15	9.45	22.97	87.82	10.5	9.9	21.2
188	2020-07-06	70.92	6.35	9.44	23.16	83.38	10.41	10.01	21.41
189	2020-07-07	73.5	5.61	9.44	22.98	87.31	10.33	9.88	21.43
190	2020-07-08	73.88	5.37	9.33	20.98	89.37	9.88	9.89	19.24
191	2020-07-09	72.13	5.52	9.39	20.07	84.46	9.81	9.82	17.93
192	2020-07-10	76.26	4.99	9.42	21.2	92.98	9.48	9.9	19.4
193	2020-07-11	80.03	4.88	9.47	21.13	92.47	9.73	9.88	18.94
194	2020-07-12	76.91	5.2	9.55	18.95	93.76	9.83	9.92	17.24
195	2020-07-13	82.97	5.86	9.45	20.13	98.5	10.76	9.92	18.51
196	2020-07-14	63.75	5.84	9.19	18.74	93.8	11.39	10	18.33
197	2020-07-15	56.76	7.21	9.72	20.1	70.69	12.34	10.25	18.49
198	2020-07-16	71.49	6.18	9.81	22.13	81.86	11.82	10.18	20.13
199	2020-07-17	67.57	5.92	9.73	21.14	84.56	10.81	10.19	19.58
200	2020-07-18	75.05	5.63	9.57	21.24	90.1	10.68	10.07	19.66
201	2020-07-19	77.1	5.3	9.5	21.73	94.03	10.18	10.17	19.59
202	2020-07-20	69.9	5.37	9.56	22.12	78.44	10.24	10.06	20.17

S. No.	Date	Stack27_CPP_HRSGV-					Stack28_CPP_HRSGVI-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
203	2020-07-21	75.59	5.16	9.54	21.6		91.83	9.41	10.09	19.9
204	2020-07-22	80.79	5.17	9.66	22.6		98.11	9.86	10.19	20.86
205	2020-07-23	79.47	5.68	9.78	23.35		98.27	9.95	10.28	21.26
206	2020-07-24	80.36	6.72	9.59	23.89		98.25	11.01	10.07	22.1
207	2020-07-25	77.69	6.16	9.62	24.19		94.7	10.84	10.04	22.35
208	2020-07-26	79.27	5.51	9.57	22.87		93.69	10.17	10.08	20.98
209	2020-07-27	78.34	5.61	9.69	23.83		95	10.53	10.13	21.31
210	2020-07-28	76.49	5.52	9.42	23.92		94.31	10.68	10.05	22.18
211	2020-07-29	75.15	5.41	9.53	24.78		91.14	10.98	10.09	22.75
212	2020-07-30	76.31	6.13	9.5	25.4		91.15	10.77	10.03	23.36
213	2020-07-31	78.75	5.89	9.58	26.19		92	11.13	10.13	24
214	2020-08-01	76.72	5.64	9.54	26.99		94.82	10.68	10.13	25.6
215	2020-08-02	80.79	6.07	9.75	27.85		97.19	10.74	10.02	26.29
216	2020-08-03	83.14	6.34	9.67	29.12		97.75	11.28	9.94	27.39
217	2020-08-04	80.19	5.48	9.92	27.6		96.7	9.5	10.06	26.04
218	2020-08-05	77.19	5.43	9.62	28.06		91.17	8.94	9.82	26.38
219	2020-08-06	80.6	5.2	9.67	29.65		95.55	6.05	9.78	28.35
220	2020-08-07	68.16	4.98	9.68	27.45		92.94	5.99	9.91	27.01
221	2020-08-08	74.5	5.46	9.76	29.1		101.95	6.8	9.89	29.07
222	2020-08-09	60.2	4.66	7.17	22.94		70.47	5.14	7.52	21.35
223	2020-08-10	0	0	0	0		0	0	0	0
224	2020-08-11	0	0	0	0		0	0	0	0
225	2020-08-12	0	0	5.72	0		0	0	5.77	0
226	2020-08-13	4.79	5.44	9.63	38.5		8.68	5.39	9.83	36.45
227	2020-08-14	7.38	8.96	9.43	66.34		13.13	10.9	9.66	63.74
228	2020-08-15	4.03	9	9.06	64.76		9.55	11.41	9.73	62.51
229	2020-08-16	5.12	9.45	9.43	66.68		11.26	11.29	9.87	63.88
230	2020-08-17	4.28	11.48	9.79	67.36		21.12	9.33	9.9	66.18
231	2020-08-18	6.4	10.02	9.77	67.48		19.29	9.39	9.81	65.94
232	2020-08-19	10.82	9.47	9.87	68.21		20.08	9.87	9.87	66.14
233	2020-08-20	6.02	9.57	9.67	67.01		20.67	10.07	9.88	67.07
234	2020-08-21	6.25	8.72	9.49	69.25		18.25	11.04	9.75	69.09
235	2020-08-22	4.67	8.54	9.48	68.43		13.38	13.99	9.92	68.75
236	2020-08-23	6.63	8.55	9.71	69.41		NA	NA	NA	NA
237	2020-08-24	66.38	6.76	9.43	38.01		101.96	5.58	9.64	13.32
238	2020-08-25	60.67	5.11	9.75	13.36		90.83	6.45	9.84	13.49
239	2020-08-26	67.64	5.37	9.87	14.38		98.14	6.63	9.78	13.88
240	2020-08-27	69.25	13.01	10.21	16.06		94.93	6.95	10.12	14.46
241	2020-08-28	20.86	3.5	5.75	14.38		109.64	6.2	10.23	18.11
242	2020-08-29	21.11	2.83	0.95	15.09		106.48	5.85	10.1	18.3
243	2020-08-30	20.69	3.02	0.71	14.93		104.24	5.87	10.04	18.37
244	2020-08-31	20.88	3.12	0.68	14.54		100.71	6.61	9.86	17.62
245	2020-09-01	65.67	2.81	0.77	7.7		97.08	6.62	9.95	20.12
246	2020-09-02	95.51	35.44	0.68	9.62		100.69	34.43	10.28	8.46
247	2020-09-03	127.29	58.47	0.69	18		117.32	60.07	10.15	16.55
248	2020-09-04	100.57	59.65	0.75	14.81		98.31	60.04	10.23	12.59
249	2020-09-05	69.43	25.22	0.73	8.56		91.25	28.04	10.4	15.59
250	2020-09-06	1.13	0.29	0.7	0.84		47.01	1.9	10.45	12.74
251	2020-09-07	95.56	35.97	5.3	7.06		56.35	7.3	10.44	13.76
252	2020-09-08	159.71	58.35	8.76	13.09		117.75	36.14	10.46	12.83
253	2020-09-09	161.49	59.19	8.8	16.01		160.12	59.17	10.43	13.26
254	2020-09-10	135.58	59.5	8.91	18.94		138.62	59.46	10.37	16.06
255	2020-09-11	54.54	59.46	8.86	20.88		77.96	59.38	10.42	18.32
256	2020-09-12	20.9	60.09	9.06	21.81		20.56	59.98	10.41	19.27
257	2020-09-13	116.8	59.65	8.99	21.57		108.98	59.52	10.44	18.92
258	2020-09-14	78.15	59.33	8.79	22.4		71.14	59.18	10.11	19.95
259	2020-09-15	65.07	59.36	8.77	24.15		69.89	59.23	10.13	21.9
260	2020-09-16	10.29	59.06	8.93	25.99		9.71	58.96	10.26	23.82
261	2020-09-17	46.39	55.06	8.98	24.71		45.07	55.58	10.32	22.24
262	2020-09-18	138.74	60.41	8.85	22.57		137.4	60.09	10.2	20.27
263	2020-09-19	32.26	60.21	8.89	26.47		34.54	60.13	10.31	24.35
264	2020-09-20	28.24	59.77	8.89	24.77		30.58	59.67	10.12	22.64
265	2020-09-21	79.48	60.7	9.03	21.65		78.04	60.6	10.25	19.26
266	2020-09-22	12.3	60.59	9.36	29.22		11.77	60.49	10.42	26.78
267	2020-09-23	118.64	44.99	8.75	24.52		121.56	44.97	10.18	22.16
268	2020-09-24	162.9	58.94	9.14	23.14		162.39	59.75	10.37	20.73
269	2020-09-25	147.35	60.16	9.17	23.54		149.26	60.06	12.13	21.15
270	2020-09-26	87.43	46.04	9.07	19.82		87.9	44.24	9.23	17.31

OFC

S. No.	Date	Stack27_CPP_HRSGV-					Stack28_CPP_HRSGVI-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
271	2020-09-27	28.61	24.58	8.94	17.05		34.69	24.71	10.13	14.5
272	2020-09-28	10.02	14.75	9.01	18.77		10.96	16.77	10.31	16.35
273	2020-09-29	17.26	23.59	8.95	21.34		17.17	23.79	10.31	18.9
274	2020-09-30	56.86	31.9	8.77	23.24		50.85	31.05	10.18	20.15
275	2020-10-01	32.15	20.92	8.86	26.95		31.44	20.7	10.05	24.61
276	2020-10-02	47.56	25.28	8.96	30.04		47.64	25.84	10.1	27.53
277	2020-10-03	44.55	11.97	8.9	32.19		44.52	12.25	10.25	30.18
278	2020-10-04	22.82	33.69	9.11	28.04		22.45	32.85	10.31	26.51
279	2020-10-05	24.19	35.17	8.91	29.9		23.72	35.11	10.15	27.88
280	2020-10-06	27.54	29.92	8.76	31.85		28.96	32.45	10.19	29.97
281	2020-10-07	35.21	33.82	9.02	30.55		35.62	34.67	10.27	27.93
282	2020-10-08	43.89	32.66	8.89	23.53		44.95	32.96	10.24	21.8
283	2020-10-09	35.35	28.08	8.72	29.14		35.51	29.01	10.21	26.04
284	2020-10-10	32.14	31.16	9.07	22.58		32.3	30.72	10.33	19.72
285	2020-10-11	50.28	32.58	11.77	16.13		50.85	33.27	10.02	13.3
286	2020-10-12	25.42	35.07	10.94	19.38		25.02	34.99	10.19	16.49
287	2020-10-13	41.14	34.78	10.53	22.06		40.94	34.68	9.92	19.65
288	2020-10-14	48.57	34.7	8.92	24.74		48.52	34.59	10.11	22.57
289	2020-10-15	38.96	30.39	9.08	23.73		38.77	30	10.22	21.5
290	2020-10-16	39.17	26.08	9.05	23.82		38.93	26.81	10.1	21.58
291	2020-10-17	42.08	34.58	9.08	23.26		41.65	34.47	10.1	20.68
292	2020-10-18	62.02	34.48	9.03	22.85		62.23	34.4	10.1	20.63
293	2020-10-19	60.26	34.63	9.35	17.56		60.14	34.5	10.4	15.12
294	2020-10-20	26.32	34.31	8.84	16.46		26.22	34.16	10.27	13.93
295	2020-10-21	168.5	32.13	9.16	18.47		162.1	31.39	10.33	15.7
296	2020-10-22	85.79	21.7	8.99	25.2		85.7	21.09	10.2	23.26
297	2020-10-23	106.29	7.28	8.89	28.97		105.5	7.44	10.21	26.51
298	2020-10-24	105.01	18.94	8.81	30.42		104.21	18.3	10.1	28.02
299	2020-10-25	107.88	26.63	9	32.73		106.85	26.5	10.19	30.47
300	2020-10-26	105.74	34.31	8.94	34.41		104.95	34.23	10.23	32.12
301	2020-10-27	106.83	26.78	9.12	28.26		100.46	27.12	10.13	25.99
302	2020-10-28	255.83	1.62	8.99	26.87		255.33	1.98	9.89	24.63
303	2020-10-29	170.83	3.39	9.02	43.04		168.64	2.36	9.81	31.37
304	2020-10-30	196.83	2.29	9.03	33.66		196.28	2.21	9.74	31.36
305	2020-10-31	197.22	2.47	8.99	34.05		196.53	2.35	9.47	31.58
306	2020-11-01	199.27	2.61	8.73	32.17		198.58	2.51	9.21	29.55
307	2020-11-02	196.35	2.68	8.53	27.5		195.89	2.53	9.2	25.33
308	2020-11-03	196.25	2.44	8.52	30.02		195.59	2.35	9.24	27.75
309	2020-11-04	198.85	2.44	8.53	31.67		198.26	2.34	9.42	29.19
310	2020-11-05	199.54	2.66	8.91	32.26		198.87	2.56	10.55	29.83
311	2020-11-06	199.35	2.77	9.31	29.33		198.63	2.68	10.78	27.26
312	2020-11-07	198.45	2.71	9.41	27.55		197.53	2.61	10.77	25.08
313	2020-11-08	191.01	2.78	9.54	20.55		190.56	2.66	10.89	17.88
314	2020-11-09	194.68	2.8	9.48	22.61		194.14	2.69	10.51	20.19
315	2020-11-10	195.53	2.71	9.38	23.79		195.03	2.61	10.46	21.57
316	2020-11-11	191.66	2.71	9.13	25.84		197.97	2.4	10.79	22.79
317	2020-11-12	199.55	2.14	9.12	25.45		197.63	2.04	10.48	22.58
318	2020-11-13	194.67	2.19	9.26	26.93		194.37	2.07	10.42	24.48
319	2020-11-14	200.87	2.5	9.29	31.59		200.16	2.42	10.43	29.31
320	2020-11-15	204.46	2.63	9.25	28.02		203.86	2.54	10.51	26.6
321	2020-11-16	202.4	2.55	9.19	24.71		201.89	2.47	10.41	23.15
322	2020-11-17	197.01	2.62	9.15	29.41		196.28	2.52	9.91	26.99
323	2020-11-18	197.15	2.57	9.26	25.84		196.31	2.48	9.86	24.13
324	2020-11-19	203.65	2.41	9.12	20.96		202.55	2.32	9.78	18.48
325	2020-11-20	196.07	2.94	9.15	25.73		195.02	2.86	9.86	23.51
326	2020-11-21	199.09	2.49	9.09	21.41		198.4	2.4	9.6	19.16
327	2020-11-22	212.4	2.16	9.16	8.8		211.67	2.09	9.61	6.56
328	2020-11-23	212.15	2.29	9.37	10.97		211.28	2.2	9.94	8.12
329	2020-11-24	200.58	2.57	9.5	18.08		199.71	2.49	10	15.92
330	2020-11-25	205.66	2.62	9.49	14.67		204.89	2.52	10.02	11.67
331	2020-11-26	187.9	2.46	9.25	23.11		187.32	2.37	10.54	19.97
332	2020-11-27	188.07	2.52	9.31	28.05		187.34	2.43	11	26.2
333	2020-11-28	188.47	2.75	9.75	35.15		187.83	2.64	10.74	32.93
334	2020-11-29	189.84	2.78	9.64	30.47		188.86	2.69	10.74	27.87
335	2020-11-30	190.97	2.85	9.96	33.13		190.13	2.74	10.78	29.4
336	2020-12-01	195.28	2.7	9.68	27.56		194.95	2.59	10.58	24.93
337	2020-12-02	192.63	2.86	9.6	28.08		191.84	2.75	10.41	26.6
338	2020-12-03	203.6	2.64	9.4	14.08		203.12	2.51	10.1	12.14

S. No.	Date	Stack27_CPP_HRSGV-					Stack28_CPP_HRSGVI-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
339	2020-12-04	192.7	2.57	9.5	25.19		192.08	2.49	9.96	23.51
340	2020-12-05	198.62	2.57	9.97	15.12		197.95	2.46	10.68	12.78
341	2020-12-06	185.85	2.54	9.73	29.44		185.27	2.47	10.74	26.4
342	2020-12-07	195.41	2.32	9.63	13.97		194.93	2.22	10.55	11.06
343	2020-12-08	193.17	13.22	9.48	8.39		183.85	14.68	10.32	12.39
344	2020-12-09	153.11	26.3	9.38	4.81		153.29	27.58	9.99	2.78
345	2020-12-10	73.31	6.08	9.28	9.04		83.65	6.13	9.77	6.88
346	2020-12-11	129.06	8.17	9.08	9.83		125.12	7.82	9.52	8.14
347	2020-12-12	111.19	23.33	8.95	20.44		110.17	23.45	9.44	17.98
348	2020-12-13	127.3	11.94	8.96	28.84		127.76	12.3	9.47	26.62
349	2020-12-14	97.22	15.32	8.58	48.67		93	15	9.35	44.72
350	2020-12-15	82.96	5.58	8.58	43.2		81.87	7.03	9.43	39.42
351	2020-12-16	82.19	32.18	8.7	30.96		81.88	33.29	9.5	25.57
352	2020-12-17	108.27	27.45	8.53	28.19		99.44	28.29	9.43	21.17
353	2020-12-18	105.74	21.72	8.54	40.74		100.71	23.45	9.32	37.93
354	2020-12-19	11.17	40.2	8.78	21.47		9.84	40.13	9.57	18.96
355	2020-12-20	148.48	24.34	8.86	18.63		151.69	23.9	9.56	17.35
356	2020-12-21	121.09	37.25	9.02	21.76		114.14	37.63	9.6	19.45
357	2020-12-22	168.1	21.71	8.97	22.84		171.62	18.1	9.55	19.99
358	2020-12-23	150.14	23.27	8.95	23.07		148.42	23.35	9.96	20.87
359	2020-12-24	199.17	27.46	8.69	19.78		190.63	27.5	7.39	17.23
360	2020-12-25	200.46	9.27	8.56	17.95		200.47	7.37	0.83	14.87
361	2020-12-26	196.32	3.1	8.54	17.19		192.64	2.95	0.69	14.28
362	2020-12-27	196.79	5.01	8.49	17.08		194.1	5.45	0.7	14.13
363	2020-12-28	105.74	4.51	8.43	20.72		102.24	4.5	0.66	18.19
364	2020-12-29	178.79	8.18	8.38	18.22		179.68	7.47	2.73	15.66
365	2020-12-30	194.05	23.2	8.41	18.28		189.62	22.63	3.91	15.31
366	2020-12-31	27.39	205.73	8.31	21.71		30.85	205.98	4.42	19.08
367	2021-01-01	169.46	43.7	8.29	15.9		164.01	47.99	0.86	13.19
368	2021-01-02	169.05	3.56	8.27	15.87		147.82	3.27	1.12	14.63
369	2021-01-03	166.47	3.24	8.21	18.98		157.74	3.29	1.89	16.89
370	2021-01-04	199.73	91.33	8.24	19.99		203.63	103.99	0.84	17.63
371	2021-01-05	149.5	3.75	8.27	21.08		152.28	4.56	4.06	17.33
372	2021-01-06	50.25	33.82	8.16	17.13		48.66	33.04	10.32	14.48
373	2021-01-07	59.73	34.98	8.15	21.54		54.67	34.04	9.16	19.22
374	2021-01-08	36.57	19.74	8.1	7.53		41.97	20.06	9.13	6.35
375	2021-01-09	27.01	14.64	8.2	11.65		21.15	14.46	9.15	9.14
376	2021-01-10	100.01	34.29	8.26	17.44		96.9	34.33	9.08	15.67
377	2021-01-11	252.99	22.42	8.31	43.76		243.19	22.52	9.01	41.03
378	2021-01-12	431.28	19.59	8.18	70.16		412.67	19.59	9.07	67.99
379	2021-01-13	204.29	86.84	8.03	82.11		205.44	87.22	9.15	78.51
380	2021-01-14	49.99	171.75	8.11	86.69		48.34	174.07	9.04	84.49
381	2021-01-15	50.84	184.94	8.17	86.66		49.88	184.79	9.21	83.96
382	2021-01-16	42.68	158.21	8.17	79.46		41.78	159.02	9.12	79.17
383	2021-01-17	37.56	180.38	8.15	63.02		37.26	183.85	9.17	62.71
384	2021-01-18	49.66	125.6	8.25	67.59		52.28	124.01	9.16	66.15
385	2021-01-19	96.64	56.26	8.27	59.13		100.19	55.74	9.11	56.45
386	2021-01-20	132.48	22.73	8.28	48.13		126.99	22.55	9.25	44.58
387	2021-01-21	156.95	26.23	8.19	61.08		153.77	26.1	9.12	58.65
388	2021-01-22	169.22	37.73	8.03	60.4		163.26	38.53	9.1	58.05
389	2021-01-23	160.69	37.34	8.08	58.02		146.81	37.39	9.11	55.27
390	2021-01-24	133.83	35.72	8.19	53.53		130.44	37.14	9.12	51.29
391	2021-01-25	156.15	34.86	8.25	54.47		155.05	35.79	9.17	52.13
392	2021-01-26	167.65	40.96	8.25	53.25		162.87	40.88	9.17	49.36
393	2021-01-27	98.83	31.52	8.19	39.66		105.32	29.35	9.08	43.86
394	2021-01-28	71.16	19.74	8.12	12.29		70.14	20.37	9.05	9
395	2021-01-29	71.67	9.39	8.17	11.8		74.09	8.26	9.12	9.58
396	2021-01-30	98.93	10.89	8.14	13.87		100.7	9.39	9.1	11.09
397	2021-01-31	98.67	11.41	8.19	11.54		99.62	10.95	9.17	9.4
398	2021-02-01	96.62	2.32	8.44	12.28		91.74	2.33	9.31	9.8
399	2021-02-02	106.65	13.65	8.54	11.81		111.96	13.21	9.18	10.07
400	2021-02-03	69.14	22.7	8.7	19.1		65.47	20.95	9.27	18.15
401	2021-02-04	21.27	33.84	8.83	41.23		21.81	32.66	9.37	36.57
402	2021-02-05	26.44	31.83	8.72	31.75		29.24	32.38	9.34	31.82
403	2021-02-06	46.88	32.69	8.61	7.58		48.61	33.01	9.33	5.31
404	2021-02-07	51.32	27.09	8.58	7		47.58	26.72	9.45	5.02
405	2021-02-08	68.34	27.43	8.49	10.96		66.93	27.84	9.23	6.98
406	2021-02-09	87.09	34.24	8.54	26.22		86.43	34.79	9.07	24.56

S. No.	Date	Stack27_CPP_HRSGV-					Stack28_CPP_HRSGVI-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
407	2021-02-10	79.64	20.87	8.51	23.62		77.27	21.2	9.12	20.52
408	2021-02-11	81.07	21.07	8.5	25.01		77	21.84	9.27	22.81
409	2021-02-12	65.89	32.03	8.59	19.84		66.21	31.71	9.2	17.44
410	2021-02-13	86.13	36.09	8.66	16.74		82.6	36.11	9.27	13.71
411	2021-02-14	98.01	32.92	8.63	25.64		95.62	33.08	9.29	22.72
412	2021-02-15	96.59	21.86	8.64	10.84		92.06	24.66	9.27	8.96
413	2021-02-16	62.51	17.52	8.44	9.22		62.35	18.03	9.29	7.08
414	2021-02-17	55.87	21.55	8.42	8.27		55.68	21.44	9.27	5.78
415	2021-02-18	58.35	19.65	8.43	16.56		75.28	20.37	9.25	14
416	2021-02-19	56.89	16.73	8.55	33.18		50.58	17.75	9.37	31.19
417	2021-02-20	67.34	2.48	8.65	32.03		67.31	2.11	9.41	30.26
418	2021-02-21	51.55	0.99	8.55	32.12		47.85	0.94	9.39	30.33
419	2021-02-22	59.5	12.49	8.64	32.81		60.55	13.8	9.22	30.94
420	2021-02-23	55.51	2.62	8.66	32.55		55.34	2.54	9.29	30
421	2021-02-24	45.65	3.67	8.63	32.95		42.76	3.55	9.3	31.17
422	2021-02-25	38.98	5.11	8.46	32.58		34.41	4.98	9.33	30
423	2021-02-26	31.98	5.04	8.42	32.62		30.37	5.07	9.28	30.62
424	2021-02-27	45.51	6.28	8.3	33.17		48.02	6.17	9.36	30.96
425	2021-02-28	63.7	3.36	8.21	32.92		60.71	3.36	9.33	30.95
426	2021-03-01	47.31	3.1	8.3	33.01		44.47	2.94	9.33	31.05
427	2021-03-02	20.45	25.95	8.44	32.31		22.48	27.81	9.35	30.85
428	2021-03-03	35.28	30.69	8.39	33.65		30.3	33.91	9.15	31.25
429	2021-03-04	41.26	12.32	8.53	33.72		37.28	13.73	9.26	31.72
430	2021-03-05	77.19	42.76	8.56	27.39		76.51	47.29	9.3	25.38
431	2021-03-06	89.21	102.93	8.66	24.36		89.27	101.95	9.33	21.98
432	2021-03-07	116.4	120.14	8.44	18.65		115.51	122.66	9.38	15.3
433	2021-03-08	86.25	95.17	8.3	46.69		83.91	92.05	9.39	50.57
434	2021-03-09	13.9	0.75	8.36	8.46		11.05	0.66	9.49	6.88
435	2021-03-10	25.13	1.25	8.18	4.51		32.3	0.39	9.53	3.96
436	2021-03-11	82.84	12.06	8.26	51.49		106.13	2.46	9.47	37.28
437	2021-03-12	74.93	6.53	8.32	36		58.27	9.42	9.38	13.77
438	2021-03-13	121.54	6.01	8.35	8.61		176.35	29.71	9.35	8.45
439	2021-03-14	119.42	4.88	8.44	8.53		170.32	27.31	9.43	7.85
440	2021-03-15	124.74	4.41	8.3	8.75		170.32	25.04	9.2	7.56
441	2021-03-16	122.42	4.17	8.38	8.88		167.42	23.4	9.43	8.6
442	2021-03-17	129.38	3.99	8.2	9.13		171.4	23.51	9.35	9.28
443	2021-03-18	131.66	3.84	8.25	9.52		170.33	20.77	9.35	9.44
444	2021-03-19	111.22	4.55	8.39	10.13		130.93	17.81	9.36	9.76
445	2021-03-20	34.81	6.16	8.25	13.87		27.7	19.33	9.16	14.72
446	2021-03-21	37.78	6.24	8.23	13.46		22.88	21.32	9.16	13.94
447	2021-03-22	36.17	6.59	8.32	13.61		20.81	22.94	9.26	13.96
448	2021-03-23	31.87	5.28	8.37	13.97		21.41	23.76	9.18	13.86
449	2021-03-24	34.38	3.44	8.41	14.25		14.59	23.07	9.2	13.73
450	2021-03-25	37.2	3.3	8.4	14.09		16.23	22.52	9.15	13.61
451	2021-03-26	27.03	5.2	8.32	14		30.35	17.68	9.15	13.2
452	2021-03-27	37.58	6.69	8.31	14.79		15.89	14.79	9.18	13.53
453	2021-03-28	49.75	5.69	8.19	13.62		22.52	14.54	9.29	12.61
454	2021-03-29	49.45	6.01	8.2	13.8		11.26	15.18	9.28	12.66
455	2021-03-30	45.11	6.77	8.68	13.49		16.31	14.33	9.34	12.45
456	2021-03-31	39.02	5.87	9.17	14.69		50.56	10.58	9.28	13.08
457	2021-04-01	16.72	3.68	8.23	9.66		86.86	9.12	9.24	12.67
458	2021-04-02	13.48	1.37	8.1	8.78		149.37	6.71	9.29	0
459	2021-04-03	19.17	3.55	8.35	12.55		157.45	6.89	9.55	3.88
460	2021-04-04	28.64	5.71	8.82	15.08		165.98	7.32	9.86	6.54
461	2021-04-05	24.99	5.57	8.87	13.92		165.56	7.16	9.79	6.57
462	2021-04-06	35.97	5.79	9.11	12.72		165.05	7.15	9.92	6.68
463	2021-04-07	77.18	5.47	9.18	13.25		170.82	7.18	9.99	6.17
464	2021-04-08	68.58	3.01	9.21	16.06		172.04	6.8	9.94	5.38
465	2021-04-09	57.16	3.16	9.18	15.43		168.42	6.96	9.73	6.23
466	2021-04-10	70.89	3.37	9.13	18.33		171.31	7.15	9.6	5.65
467	2021-04-11	76.99	3.23	9.61	19.24		170.36	7.34	9.7	6.04
468	2021-04-12	76.94	4.32	9.39	14.9		182.59	7.37	9.56	4.88
469	2021-04-13	NA	NA	NA	NA		NA	NA	NA	NA
470	2021-04-14	50.77	3.87	9.1	13.91		179.61	8.12	9.82	2.96
471	2021-04-15	92.62	4.62	9.14	16.55		177.74	8.49	10.29	1.78
472	2021-04-16	131.29	5.01	9.04	17.59		179.83	8.52	10.21	4.06
473	2021-04-17	101.19	4.69	8.9	15.9		169.16	8.53	10.1	8.14
474	2021-04-18	70.38	4.07	8.94	14.03		168.14	8.7	10.19	7.37

S. No.	Date	Stack27_CPP_HRSGV-					Stack28_CPP_HRSGVI-			
		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)		NOx (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	SO2 (mg/Nm3)
475	2021-04-19	56.02	3.9	8.97	12.36		168.69	9.04	10.15	5
476	2021-04-20	49.45	4.34	8.77	12.26		169.4	9.32	10.17	5.44
477	2021-04-21	39.42	3.79	8.82	12.83		169.62	9.61	10.23	6.26
478	2021-04-22	69.36	5.88	8.84	27.78		174.77	9.85	10.15	5.76
479	2021-04-23	58.04	3.69	9.03	10.71		178.43	10.16	10.25	4.25
480	2021-04-24	34.15	3.26	8.81	11.64		213.65	10.58	9.82	13.48
481	2021-04-25	32.09	3.23	8.72	9.63		244.83	8.44	9.98	3.55
482	2021-04-26	32.21	2.93	8.79	9.37		233.03	8.53	10.09	2.53
483	2021-04-27	51.87	3.16	8.79	10.22		236.77	8.8	10.11	1.62
484	2021-04-28	55.86	3.31	8.87	9.66		238.45	8.97	10.05	1.26
485	2021-04-29	41.66	3.09	8.71	10.16		231.21	9.2	9.98	1.44
486	2021-04-30	31.35	2.98	8.83	10.86		224.8	9.5	9.93	2.18
487	CFO Standards	-	-	100	-		-	-	100	-
488	Maximum Value	431.28	205.73	11.77	106.04		412.67	205.98	12.13	95.08
489	Maximum Value on	2021-01-12	2020-12-31	2020-10-11	2020-03-28		2021-01-12	2020-12-31	2020-09-25	2020-01-06
490	Average	97.23	22.38	8.76	28.77		111.08	25.16	9.55	26.35
491		439	439	440	438		392	392	393	391
492	Total Data Points	486	486	486	486		486	486	486	486
493	Data Availablity %	90.95	90.95	90.95	90.95		81.28	81.28	81.28	81.28
494	Pollutant Load (Tons/day)	0.648	0.149	0.058	0.192		0.740	0.168	0.064	0.176
495	Pollutnat Load as per CFO (Tons/day)			0.666					0.666	

Stack Monitroing Data (CEMS) - From 01.01.2020 to 30.04.2021

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

S. No.	Date	Stack_29_DHT_FEED_90F01_02-				Stack_30_DHT_HGU_NAPTHA_HEATER_91F01-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
1	2020-01-01	80.82	50.88	12.31	NA	61.81	34.36	3.28	4.92
2	2020-01-02	92.15	99.77	8.04	NA	62.32	39.13	3.34	5.01
3	2020-01-03	78.17	136.34	7.35	NA	59.84	47.19	3.32	5.06
4	2020-01-04	NA	NA	NA	NA	59.38	38.27	3.29	4.33
5	2020-01-05	NA	NA	NA	NA	60.89	89.57	3.57	4.47
6	2020-01-06	NA	NA	NA	NA	61.49	89.4	3.28	4.55
7	2020-01-07	NA	NA	NA	NA	64.09	34.32	3.45	4.71
8	2020-01-08	NA	NA	NA	NA	63.69	12.01	3.4	4.85
9	2020-01-09	NA	NA	NA	NA	60.96	19.26	3.38	4.8
10	2020-01-10	NA	NA	NA	NA	56.36	5.8	3.16	5.01
11	2020-01-11	NA	NA	NA	NA	59.73	6.7	3.14	4.57
12	2020-01-12	NA	NA	NA	NA	61.27	18.06	2.93	4.9
13	2020-01-13	NA	NA	NA	NA	60.31	23.34	2.86	4.96
14	2020-01-14	NA	NA	NA	NA	59.66	25.29	2.84	5.02
15	2020-01-15	NA	NA	NA	NA	58.74	18.48	2.77	5.01
16	2020-01-16	NA	NA	NA	NA	58.3	11.22	2.68	5.11
17	2020-01-17	NA	NA	NA	NA	53.78	28.3	2.47	5.26
18	2020-01-18	NA	NA	NA	NA	51.25	53.92	2.37	5.5
19	2020-01-19	NA	NA	NA	NA	0	3.7	0	6.1
20	2020-01-20	57.24	56.19	18.07	NA	0	3.5	0	6.14
21	2020-01-21	0.91	18.56	28.77	NA	0	3.37	0	6.34
22	2020-01-22	10.54	1.43	32.06	NA	0.12	1.67	2.59	6.3
23	2020-01-23	68	6.87	37.38	NA	0	0.48	4.03	6.28
24	2020-01-24	78.26	75.59	26	NA	0	0.55	4.24	6.26
25	2020-01-25	51.02	189.86	41.23	NA	0.26	0.5	1.71	6.25
26	2020-01-26	56.47	114.71	135.46	NA	0.46	0.4	0.17	6.41
27	2020-01-27	60.92	48.22	125.32	NA	0.3	0.59	0.04	6.44
28	2020-01-28	68.03	48.32	181.86	NA	0.14	0.99	1.08	6.44
29	2020-01-29	80.51	103.73	128.56	NA	0	3.7	6.12	NA
30	2020-01-30	59.15	442.75	70.44	NA	0	5.24	7.68	NA
31	2020-01-31	71.43	98.09	62.88	NA	0	5.66	7.88	NA
32	2020-02-01	110.83	102.11	45.79	NA	0	6.4	8.26	NA
33	2020-02-02	91.7	60.46	82.34	NA	0	6.37	7.87	NA
34	2020-02-03	60.26	78	70.9	NA	2.04	3.58	4.49	NA
35	2020-02-04	51.2	73.69	63.1	NA	3.84	0.28	0.75	NA
36	2020-02-05	40.66	30.74	11.26	NA	3.11	0.33	0.49	NA
37	2020-02-06	35.12	23.05	23.62	NA	4.23	0.25	0.44	NA
38	2020-02-07	25.52	7.12	14.87	NA	3.41	0.44	0.67	NA
39	2020-02-08	79.21	4.91	18.4	NA	3.9	0.36	0.33	NA
40	2020-02-09	80.9	31.31	17.78	NA	3.75	0.43	0.18	NA
41	2020-02-10	79.53	30.66	17.78	NA	6.61	0.3	0.11	NA
42	2020-02-11	59.26	17.43	20.57	NA	5.46	0.5	0.28	NA
43	2020-02-12	45.39	35.83	32.74	NA	5.75	0.53	0.12	NA
44	2020-02-13	49.29	35.23	69.8	NA	4.9	0.6	0.32	NA
45	2020-02-14	78.24	45.18	27.19	NA	4.34	0.66	0.48	NA
46	2020-02-15	62.16	23.44	26.04	NA	3.63	0.88	0.55	NA
47	2020-02-16	61.31	60.75	43.01	NA	4.15	0.87	0.41	NA
48	2020-02-17	102.02	118.51	41.71	NA	3.54	1.03	0.26	NA
49	2020-02-18	61.65	31.18	26.27	NA	4.93	1.81	4.88	NA
50	2020-02-19	53.38	65.69	13.93	NA	2.66	0.74	5.42	NA
51	2020-02-20	47.36	86.89	13.39	NA	7.39	0	0	NA
52	2020-02-21	57.68	19.35	17.3	NA	6.36	0	0	NA
53	2020-02-22	59.79	10.38	18.66	NA	4.91	0.36	0.2	NA
54	2020-02-23	59.53	3.09	16.27	NA	0.02	0.83	0.76	NA
55	2020-02-24	41.89	5.76	25.4	NA	0.01	0.82	0.79	NA
56	2020-02-25	82.7	95.72	50.56	NA	0.48	0.77	1.09	NA
57	2020-02-26	54.58	74.66	29.74	32.1	0.66	1.04	1.65	NA
58	2020-02-27	35.47	22.81	20.48	32.28	0.22	1.72	1.69	NA
59	2020-02-28	29.73	18.98	23.97	35	0.76	1.73	1.64	NA
60	2020-02-29	28.17	15.77	27.04	36.98	0.11	1.95	1.93	NA
61	2020-03-01	68.25	17.8	35.48	36.74	0.32	2.01	1.27	NA
62	2020-03-02	51.01	14.3	36.43	36.59	1.83	1.38	1.09	NA
63	2020-03-03	79.4	45.05	35.18	37.54	3.29	0	0.09	NA
64	2020-03-04	77.11	53.79	29.01	36.94	2.87	0	0.01	NA
65	2020-03-05	70.85	46.41	31.11	36.69	3.46	0	0.02	NA
66	2020-03-06	66.27	121.21	35.35	37.29	1.72	0	0	NA
67	2020-03-07	66.63	384.76	38.55	37.72	4.43	0	0.12	NA

S. No.	Date	Stack_29_DHT_FEED_90F01_02-					Stack_30_DHT_HGU_NAPTHA_HEATER_91F01-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
68	2020-03-08	69.77	65.43	38.44	38.1		1.98	0	0.04	NA
69	2020-03-09	62.85	84.44	36.29	37.81		6.02	0	0.15	NA
70	2020-03-10	49.33	24.61	35.41	37.77		2.07	0	0.04	NA
71	2020-03-11	44.95	10.07	36.63	38.11		3.38	0	0	NA
72	2020-03-12	37.2	34.19	38.06	38.19		0.98	0	0.07	NA
73	2020-03-13	43.45	40.77	21.78	37.64		0.6	0.03	0.05	NA
74	2020-03-14	40.23	85.27	15.93	37.91		1.19	0.03	0.12	NA
75	2020-03-15	39.81	12.22	16.97	37.94		0.8	0.13	0.11	NA
76	2020-03-16	35.09	11.46	21.63	38.39		0.88	0.07	0.12	NA
77	2020-03-17	29.94	20.2	20.88	38.04		1.57	0.12	0.1	NA
78	2020-03-18	30.48	32.11	12.91	38.09		2.82	0.01	0.09	NA
79	2020-03-19	27.59	20.36	11.28	40.31		2.41	0.03	0.09	NA
80	2020-03-20	42.17	51.67	12.62	42.64		4.53	0.26	0.36	NA
81	2020-03-21	43.52	54.76	18.27	44.45		NA	NA	NA	NA
82	2020-03-22	33.34	20.79	16.95	44.16		NA	NA	NA	NA
83	2020-03-23	26.18	19.08	18.3	44.75		NA	NA	NA	NA
84	2020-03-24	25.97	15.21	17.91	47.07		NA	NA	NA	NA
85	2020-03-25	24.52	13.47	19.02	47.46		NA	NA	NA	NA
86	2020-03-26	24.95	15.15	18.62	47.04		NA	NA	NA	NA
87	2020-03-27	25.13	15.32	18.63	46.38		NA	NA	NA	NA
88	2020-03-28	14.82	15.7	26.73	47.44		NA	NA	NA	NA
89	2020-03-29	19.74	13.73	18.69	46.69		NA	NA	NA	NA
90	2020-03-30	20.76	14.17	16.27	46.48		NA	NA	NA	NA
91	2020-03-31	17.44	20.59	20.84	46.65		NA	NA	NA	NA
92	2020-04-01	15.39	18.76	22.74	46.66		NA	NA	NA	NA
93	2020-04-02	16.6	13.48	23.85	47.55		NA	NA	NA	NA
94	2020-04-03	14.55	14.3	25.16	47.61		NA	NA	NA	NA
95	2020-04-04	11.12	12.38	29.33	47.66		NA	NA	NA	NA
96	2020-04-05	6.88	10.78	36.49	47.8		NA	NA	NA	NA
97	2020-04-06	5.31	10.46	46.34	47.97		NA	NA	NA	NA
98	2020-04-07	4.33	13.1	47.71	47.91		NA	NA	NA	NA
99	2020-04-08	4.56	12.05	45.08	48.21		NA	NA	NA	NA
100	2020-04-09	9.69	10.3	38.35	48.78		NA	NA	NA	NA
101	2020-04-10	17.8	28.75	36.21	49.1		NA	NA	NA	NA
102	2020-04-11	30.77	42.04	22.88	48.92		NA	NA	NA	NA
103	2020-04-12	14.28	11.12	37.77	50.98		NA	NA	NA	NA
104	2020-04-13	13.14	7.93	117.05	49.9		NA	NA	NA	NA
105	2020-04-14	10.78	15.1	96.07	50.22		NA	NA	NA	NA
106	2020-04-15	10.23	20.38	50.87	50.6		NA	NA	NA	NA
107	2020-04-16	13.44	17.28	29.24	49.74		NA	NA	NA	NA
108	2020-04-17	10.62	9.5	38.9	50.92		NA	NA	NA	NA
109	2020-04-18	12.38	12.31	28.76	55.55		NA	NA	NA	NA
110	2020-04-19	13.99	9.44	21.81	59.61		NA	NA	NA	NA
111	2020-04-20	14.1	10.91	37.8	49.81		NA	NA	NA	NA
112	2020-04-21	15.51	9.93	45.53	29.7		NA	NA	NA	NA
113	2020-04-22	15.16	9.32	39.97	29.63		NA	NA	NA	NA
114	2020-04-23	14.39	10.69	20.91	29.73		NA	NA	NA	NA
115	2020-04-24	17.87	11.2	20.75	30.32		NA	NA	NA	NA
116	2020-04-25	16.03	10.83	38.3	27.34		NA	NA	NA	NA
117	2020-04-26	6.77	11.22	33.18	23.56		NA	NA	NA	NA
118	2020-04-27	2.73	10.34	22.16	21.32		NA	NA	NA	NA
119	2020-04-28	2.16	8.99	16.86	19.64		NA	NA	NA	NA
120	2020-04-29	1.92	8.15	14.16	19.95		NA	NA	NA	NA
121	2020-04-30	1.52	7.45	12.93	19.73		NA	NA	NA	NA
122	2020-05-01	1.15	6.65	12.3	20.11		NA	NA	NA	NA
123	2020-05-02	0.98	6.44	12.14	21.94		NA	NA	NA	NA
124	2020-05-03	0.53	5.7	12.19	22.33		NA	NA	NA	NA
125	2020-05-04	0.51	5.21	12.67	22.77		NA	NA	NA	NA
126	2020-05-05	0.58	4.53	13.14	22.72		NA	NA	NA	NA
127	2020-05-06	0.38	4.11	13.5	22.9		NA	NA	NA	NA
128	2020-05-07	19.03	21.57	22.66	22.94		NA	NA	NA	NA
129	2020-05-08	30.35	42.18	40.02	23.31		NA	NA	NA	NA
130	2020-05-09	29.48	20.17	51.44	22.98		NA	NA	NA	NA
131	2020-05-10	42.22	39.05	42.56	24.67		NA	NA	NA	NA
132	2020-05-11	38.74	39.23	23.17	23.92		NA	NA	NA	NA
133	2020-05-12	35.26	33.1	20.77	23.53		NA	NA	NA	NA
134	2020-05-13	33.95	38.27	18.9	23.53		NA	NA	NA	NA
135	2020-05-14	29.15	59.46	20.81	23.68		NA	NA	NA	NA
136	2020-05-15	24.39	68.67	20.87	23.69		NA	NA	NA	NA
137	2020-05-16	19.91	44.4	19.46	23.61		NA	NA	NA	NA

S. No.	Date	Stack_29_DHT_FEED_90F01_02-				Stack_30_DHT_HGU_NAPTHA_HEATER_91F01-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
138	2020-05-17	17.96	170.12	27.88	23.75	NA	NA	NA	NA
139	2020-05-18	19.79	164	23.13	23.89	NA	NA	NA	NA
140	2020-05-19	32.6	173.07	16.1	23.89	NA	NA	NA	NA
141	2020-05-20	19.84	95.67	21.6	23.89	NA	NA	NA	NA
142	2020-05-21	77.43	276.07	21.81	26.57	NA	NA	NA	NA
143	2020-05-22	82.7	232.59	13.52	23.69	NA	NA	NA	NA
144	2020-05-23	53.53	107.1	7.6	23.41	NA	NA	NA	NA
145	2020-05-24	68.96	145.71	6.91	23.58	NA	NA	NA	NA
146	2020-05-25	49.81	92.35	5.93	23.37	NA	NA	NA	NA
147	2020-05-26	49.23	80.48	5.46	23.39	NA	NA	NA	NA
148	2020-05-27	27.25	54.09	31.75	23.95	NA	NA	NA	NA
149	2020-05-28	67.88	125.56	5.62	23.3	NA	NA	NA	NA
150	2020-05-29	63.65	134.99	5.6	23.29	NA	NA	NA	NA
151	2020-05-30	65.95	175.42	6.47	23.37	NA	NA	NA	NA
152	2020-05-31	63.88	110.21	11.95	23.83	NA	NA	NA	NA
153	2020-06-01	53.15	115.17	14.02	23.57	NA	NA	NA	NA
154	2020-06-02	59.17	129.94	7.66	23.43	NA	NA	NA	NA
155	2020-06-03	66.12	109.17	6.36	23.43	NA	NA	NA	NA
156	2020-06-04	64.14	98.56	5.31	23.47	NA	NA	NA	NA
157	2020-06-05	43.69	55.07	5.88	23.33	58.48	22.38	4.14	NA
158	2020-06-06	37.67	68.98	7.86	23.45	59.43	24.17	4.61	NA
159	2020-06-07	25.27	77.96	88.91	23.8	62.77	26.7	4.89	NA
160	2020-06-08	27.27	80.96	86.76	24	62.55	31.4	4.73	NA
161	2020-06-09	29.18	79.69	21.44	23.78	35.77	18	4.66	NA
162	2020-06-10	29.35	99.08	27.19	24.4	48.06	13.6	7.16	NA
163	2020-06-11	55.42	197.67	12.3	23.86	52.64	25.95	5.19	NA
164	2020-06-12	41.41	123.85	14.45	24.22	55.2	14.28	4.18	NA
165	2020-06-13	37.37	117.15	22.1	24.24	59.4	13.17	3.18	9.58
166	2020-06-14	41.02	91.19	13.63	24.64	62.58	30.8	2.56	9.69
167	2020-06-15	20.88	34.1	16.25	25.22	61.64	27.91	6.7	9.69
168	2020-06-16	17.86	89.38	28.26	25.49	0.24	0.18	6.26	9.69
169	2020-06-17	56.39	72.16	39.32	25.32	22.68	4.9	18.62	9.69
170	2020-06-18	42.61	13.3	36.74	26.77	43.49	11.56	18.83	9.69
171	2020-06-19	28.51	24.51	34.01	26.38	48.68	17.11	15.61	9.69
172	2020-06-20	10.95	7.18	37.24	26.48	43.11	15.96	18.56	9.69
173	2020-06-21	13.21	1.61	32.28	26.29	49.41	16.52	16.17	9.69
174	2020-06-22	16.1	2.85	31.83	26.12	64.71	15.35	9.77	9.69
175	2020-06-23	22.29	11.96	33.06	25.95	66.52	26.25	9.17	9.69
176	2020-06-24	15.91	179.47	33.36	25.77	66.2	44.14	8.79	9.69
177	2020-06-25	9.91	107.52	32.9	25.84	70.86	47.44	8.5	9.69
178	2020-06-26	16.94	805.22	35.74	25.98	68.23	0.05	8.51	9.69
179	2020-06-27	28.14	120.73	33.83	26.01	72.46	43.61	8.29	9.69
180	2020-06-28	25.13	164.85	36.31	26.11	69.16	46.67	8.07	9.69
181	2020-06-29	13.72	108.16	24.62	26.19	40.72	22.16	6.68	9.69
182	2020-06-30	40.59	77.15	22.14	25.97	0	4.39	4.54	9.69
183	2020-07-01	55.1	64.26	14.26	26.47	0	3.51	4.06	9.69
184	2020-07-02	38.92	42.91	14.03	26.36	40.67	10.48	7.98	9.69
185	2020-07-03	30.93	8.4	12.79	25.2	70.41	7.06	7.85	9.69
186	2020-07-04	17.97	10.73	25.09	26.31	70.06	5.38	7.13	9.69
187	2020-07-05	13.93	11.56	27.94	27.09	72.76	4.85	6.81	9.69
188	2020-07-06	12.91	12.26	26.33	28.24	70.79	7.13	6.94	9.69
189	2020-07-07	8.75	6.45	27.35	26.37	69.31	8.94	6.92	9.69
190	2020-07-08	7.66	2.12	26.2	26.47	NA	NA	NA	9.69
191	2020-07-09	7.67	1.84	25.61	26.69	69.69	6.53	6.81	9.69
192	2020-07-10	8.59	6.15	24.34	27.36	69.64	7.65	6.65	9.69
193	2020-07-11	14.07	7.66	16.47	27.71	74.99	6.17	6.56	9.69
194	2020-07-12	14.03	7.34	18.6	28.68	75.75	9	6.52	9.69
195	2020-07-13	11.15	9.92	11.98	32.95	76.08	6.95	6.35	9.69
196	2020-07-14	11.35	3.89	57.3	34.37	74.5	6.12	6.53	9.69
197	2020-07-15	0.55	1.92	5.51	37.7	75.66	7.74	6.49	9.69
198	2020-07-16	14.31	46.69	13.38	38.48	71.71	8.65	6.85	9.69
199	2020-07-17	20.84	45.53	27.11	30.97	67.23	11.9	6.63	9.69
200	2020-07-18	29.64	31.32	18.85	27.8	71.81	9.3	5.95	9.69
201	2020-07-19	33.72	17.86	9.99	27.41	75.43	11.05	5.78	9.69
202	2020-07-20	13.84	17	6.09	27.73	73.48	8.89	5.53	9.69
203	2020-07-21	32.39	80.01	8.31	28.61	71.26	13.37	7.7	9.69
204	2020-07-22	64.52	83.1	11.52	28.46	67.73	21.3	8.9	9.69
205	2020-07-23	55.29	85.08	13.75	28.88	66.15	9.54	8.67	9.69
206	2020-07-24	45.45	67.95	9.88	29.63	67.97	7.66	8.55	9.69
207	2020-07-25	30.14	72.91	12.07	31.53	67.63	11.45	8.51	9.69

S. No.	Date	Stack_29_DHT_FEED_90F01_02-					Stack_30_DHT_HGU_NAPTHA_HEATER_91F01-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
208	2020-07-26	36.05	58.65	7.53	30.39		70.42	19.87	8.52	9.69
209	2020-07-27	19.4	26.74	19.17	33.31		72.37	13.59	5.35	9.69
210	2020-07-28	23.31	34.54	22.04	31.41		72.1	7.96	2.73	9.69
211	2020-07-29	33.52	31.99	6.64	30.96		66.21	11.65	2.06	9.69
212	2020-07-30	31.91	30.53	7.79	31.36		66.6	7.54	1.88	9.69
213	2020-07-31	28.24	0.12	7.2	30.88		70.89	5.12	2.06	9.69
214	2020-08-01	28.07	3.81	6.31	30.36		67.18	8.01	1.88	9.69
215	2020-08-02	33.71	12.17	7.44	31.08		67.21	1.86	1.82	9.69
216	2020-08-03	36.49	27.04	7.26	30.14		63.04	2.93	1.84	9.69
217	2020-08-04	36.89	20.35	6.24	33.7		65.94	3	2.01	9.69
218	2020-08-05	34.54	22.22	7	34.4		69.98	2.9	1.82	9.69
219	2020-08-06	39.86	28.21	6.8	52.5		32.48	1.09	0.93	9.69
220	2020-08-07	48.04	18.86	6.25	75.16		0	0.01	0.46	9.69
221	2020-08-08	44.92	30.65	6.48	77.54		0.35	0.72	2.28	9.69
222	2020-08-09	41.86	21.54	7.2	75.06		0	2.91	4	9.69
223	2020-08-10	37.25	69.26	10.55	73.34		0.01	3.15	4.39	9.69
224	2020-08-11	45.29	131.14	11.98	74.31		0.32	2.68	4.18	9.69
225	2020-08-12	12.17	3.02	25.78	72.79		2.5	2.22	4.19	9.69
226	2020-08-13	6.21	1.21	6.18	75.18		3.55	1.73	3.53	9.69
227	2020-08-14	4.43	4.65	5.1	66.92		1.93	1.52	3.65	9.69
228	2020-08-15	0.26	12.49	33.09	57.23		1.8	1.25	3.06	9.69
229	2020-08-16	0	12.1	90.25	56.01		2.4	0.92	2.92	9.69
230	2020-08-17	0	11.23	121.37	56.74		3.73	0.61	2.42	9.69
231	2020-08-18	0	10.66	122.33	56.95		4.3	0.59	2.95	9.69
232	2020-08-19	0	9.69	142.93	56.94		5.28	0.64	2.77	9.69
233	2020-08-20	0	9.79	148.1	57.7		3.01	0.74	2.91	9.69
234	2020-08-21	0	9.82	118.64	56.25		4.54	0.46	2.61	9.69
235	2020-08-22	0	8.32	123.18	60.96		3.75	0.5	3.06	9.69
236	2020-08-23	0	8.06	125.88	60.7		4.04	0.52	2.53	9.69
237	2020-08-24	0	7.67	120.95	58.96		4.39	0.67	3.08	9.69
238	2020-08-25	0	6.91	141.19	55.14		4.16	0.99	2.89	9.69
239	2020-08-26	0	6.58	158.66	56.04		2.2	0.96	2.96	9.69
240	2020-08-27	0	6.64	163.38	57.77		4.74	0.76	2.21	9.69
241	2020-08-28	0	6.4	134.41	58.89		4.62	0.53	2.49	9.69
242	2020-08-29	0	6.45	125.02	60.76		4.69	0.49	1.9	9.69
243	2020-08-30	0	5.75	118.5	65.22		5.51	0.42	2.31	9.69
244	2020-08-31	0	5.2	129.33	61.8		5.87	0.41	1.68	9.69
245	2020-09-01	0	4.87	137.97	63.54		5.56	0.4	1.81	9.69
246	2020-09-02	0	5.01	149.68	65.76		4.75	0.45	1.51	9.69
247	2020-09-03	0.25	5.74	149.02	66.54		5.69	0.26	1.45	9.69
248	2020-09-04	0	4.31	159.57	65.88		22.28	8.08	5.62	9.69
249	2020-09-05	0	4.16	150.29	66.8		45.19	24.03	19.14	9.69
250	2020-09-06	0	3.65	164.56	66.94		52.62	29.05	25.58	9.69
251	2020-09-07	0	3.4	172.27	65.99		62.69	27.51	10.39	9.69
252	2020-09-08	22.98	39.48	86.34	72.86		59.8	31.09	10.16	9.69
253	2020-09-09	64.13	75.06	16.79	48.31		56.36	36.59	10.19	9.69
254	2020-09-10	39.59	11.18	24.37	31.59		42.8	35.85	11.05	9.69
255	2020-09-11	37.7	51.13	14.74	31.49		30.04	31.36	24.16	9.69
256	2020-09-12	30.26	30.33	12.54	31.86		38.05	33.28	13.41	9.69
257	2020-09-13	35.04	31.83	10	32.66		33.04	26.62	13.12	9.69
258	2020-09-14	16.9	14.32	18.26	33.53		43.91	21.93	10.3	9.69
259	2020-09-15	15.19	11.51	15.54	34.23		41.67	21.27	10.07	9.69
260	2020-09-16	45.25	116.68	64.75	34.12		27.08	37.21	30.88	9.69
261	2020-09-17	41.65	69.98	23.54	33.92		49.27	52.44	7.58	9.69
262	2020-09-18	49.53	54.34	10.94	33.54		57.13	55.42	14.85	9.69
263	2020-09-19	44.64	49.18	11.79	33.74		63.97	23.36	11.45	9.69
264	2020-09-20	51.38	51.07	8.72	34.75		78.4	29.82	6.41	9.69
265	2020-09-21	52.72	198.36	8.63	36.23		76.53	31.06	6.64	9.69
266	2020-09-22	54.81	77.42	8.82	36.23		79.29	37.26	6.54	9.69
267	2020-09-23	53.02	42.16	9.14	36.25		80.07	10.14	6.19	9.69
268	2020-09-24	54.35	42.43	9.22	27.56		79.61	4.06	6.27	9.69
269	2020-09-25	55.23	87.7	8.67	18.88		77.76	39.12	6.44	9.64
270	2020-09-26	53.97	55.05	8.63	18.71		78.2	24.17	6.32	9.69
271	2020-09-27	54	37.97	9.04	18.62		76.92	14.06	6.25	9.69
272	2020-09-28	46.81	43.1	11.62	19.04		76.87	7.44	5.79	4.99
273	2020-09-29	53.2	34.27	8.83	19.07		74.29	7.72	5.86	0.59
274	2020-09-30	51.1	21.97	9.43	29.85		76.55	10.51	6	0.59
275	2020-10-01	55.67	38.75	8.88	20.15		77.47	14.87	5.9	0.59
276	2020-10-02	88.8	365.76	9.1	19.98		78.13	19.8	5.92	0.59
277	2020-10-03	91.51	625.47	9.03	20.33		74.57	0.02	6.19	0.59

3 of 5

S. No.	Date	Stack_29_DHT_FEED_90F01_02-				Stack_30_DHT_HGU_NAPTHA_HEATER_91F01-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
278	2020-10-04	90.08	224.93	9.27	20.47	76.73	32.99	6.12	0.59
279	2020-10-05	88.28	250.07	9.01	21.71	72.13	16.34	5.87	0.59
280	2020-10-06	81.11	91.09	15.19	23.39	75.16	29.49	5.75	0.59
281	2020-10-07	57.62	36.66	28.8	22.4	73.48	19.79	5.7	0.59
282	2020-10-08	53.33	50.25	36.42	22.18	64.7	19.9	6.22	0.59
283	2020-10-09	50.88	50.45	35.47	24.19	66.3	23.9	5.3	0.59
284	2020-10-10	54.71	59.64	27	24.64	66.42	11.61	5.13	0.59
285	2020-10-11	67.94	55.69	11.13	27.38	75.58	17.45	5.12	0.59
286	2020-10-12	65.76	66.18	13.8	31.85	74.15	31.67	4.98	0.56
287	2020-10-13	37.42	63.7	60.6	26.46	74.05	38.35	4.44	0.3
288	2020-10-14	55	48.39	10.46	20.76	75.43	25.05	4.76	0.05
289	2020-10-15	67.92	79.24	7.13	21.08	73.52	21.81	4.86	0.57
290	2020-10-16	87.33	96.8	7.08	21.45	74.32	17.01	4.72	0.59
291	2020-10-17	90.16	113.87	7	20.51	72.38	13.69	4.63	0.59
292	2020-10-18	87.11	69.67	7.3	20.98	74.4	16.72	4.61	0.59
293	2020-10-19	86.48	113.3	7.73	21.65	65.54	13.27	8.44	0.59
294	2020-10-20	44.29	41.37	7.4	24.01	68.51	13.52	10.95	0.59
295	2020-10-21	54.3	56.45	29.13	20.71	66	13.72	10.25	0.59
296	2020-10-22	66.32	45.6	6.47	20.1	70.15	37.68	9.89	0.59
297	2020-10-23	68.15	69.16	6.61	20.28	71.05	31.48	9.42	0.59
298	2020-10-24	67.34	53.26	5.93	19.88	70.4	17.29	9.56	0.59
299	2020-10-25	70.2	32.24	5.34	20.14	73.8	29.11	9.32	0.59
300	2020-10-26	56.45	39.88	10.39	20.17	73.09	26.44	9.53	0.59
301	2020-10-27	4.55	0	8.98	20.34	77.55	20.36	9.36	0.59
302	2020-10-28	5.36	0	1.4	19.92	67.12	9.17	9.02	0.59
303	2020-10-29	0.05	1.48	0.16	20.04	67.63	9.67	8.68	0.59
304	2020-10-30	1.35	6.76	1.11	20.22	75.41	9.14	9.3	0.59
305	2020-10-31	22.75	49.66	9.45	22.13	77.34	7.34	9.47	0.59
306	2020-11-01	86.75	107.45	13.73	21.6	75.49	18.19	8.82	0.59
307	2020-11-02	58.5	17.63	16.55	20.95	66.02	17.05	9.69	0.59
308	2020-11-03	44.5	34.64	25.17	20.57	61.29	20.9	9.76	0.59
309	2020-11-04	46.83	41.02	26.89	22.04	64.66	17.44	9.79	0.59
310	2020-11-05	42.92	9.65	41.48	23.41	61.62	14.41	9.75	0.59
311	2020-11-06	49.45	0.45	41.93	23.57	66.12	13.3	9.71	0.59
312	2020-11-07	34.47	9.86	39.36	22.52	62.67	12.61	9.34	0.59
313	2020-11-08	52.35	43.28	45.59	22.65	68.24	10.06	9.03	0.59
314	2020-11-09	66.39	46.59	34.72	22.35	62.7	20.64	8.68	0.59
315	2020-11-10	42.41	32.63	49.02	23.38	71	11.76	8.73	0.59
316	2020-11-11	54.99	34.21	38.81	28.61	59.77	9.28	8.69	0.59
317	2020-11-12	61.53	33.35	27.39	23.91	59.39	4.01	8.61	0.59
318	2020-11-13	65.3	48.51	29.71	24.49	72.81	8.42	5.44	0.59
319	2020-11-14	34.87	36.47	37.54	25.01	94.94	8.35	2	0.59
320	2020-11-15	21.34	6.98	16.74	24.19	62.34	3.89	0.68	0.59
321	2020-11-16	19.45	8.98	16.13	24.26	48.46	1.89	0.61	0.59
322	2020-11-17	42.05	32.76	16.33	24.39	49.98	6.47	5.18	0.59
323	2020-11-18	101.42	108.6	10.34	24.77	48.9	20.79	9.29	0.59
324	2020-11-19	110.32	88.48	10.26	24.81	53.66	8.33	9.41	0.59
325	2020-11-20	93.04	82.51	13.71	25.35	58.8	3.26	9.4	0.59
326	2020-11-21	97.97	94.5	12.45	25.94	60.57	3.73	9.25	0.59
327	2020-11-22	114.69	134.63	11.07	25.44	58.57	0	9.18	0.59
328	2020-11-23	104.95	109.18	10.06	25.54	63.06	5.51	9.09	0.59
329	2020-11-24	95.46	73.22	9.39	25.22	65	3.13	8.9	0.59
330	2020-11-25	76.99	22.16	9.06	25.21	59.32	3.05	8.5	0.59
331	2020-11-26	98.85	41.98	9.61	31.42	58.13	12.86	7.4	0.59
332	2020-11-27	111.61	139.91	9.74	32.49	36.49	17.59	15.51	0.59
333	2020-11-28	107.66	192.18	9.47	28.54	52.12	5.58	9.66	0.59
334	2020-11-29	132.72	279.97	9.67	28.07	57.02	11.78	6.94	0.59
335	2020-11-30	124.69	326.34	11.19	23.79	56.87	25.88	6.78	0.59
336	2020-12-01	85.96	224.88	14.12	18.63	55.11	17.48	7.26	0.59
337	2020-12-02	108.57	259.62	12.38	18.54	56.86	9.16	7.11	0.59
338	2020-12-03	113.79	249.54	12.4	18.8	54.95	6.63	7.29	0.59
339	2020-12-04	58.81	129.02	9.31	20.67	31.99	6.2	6.76	0.59
340	2020-12-05	0	21.62	5.64	20.03	0.6	5.76	8.2	0.59
341	2020-12-06	0	8.29	8.95	26.5	0.34	5.12	8.03	0.59
342	2020-12-07	NA	NA	NA	19.42	0.37	4.92	8.28	0.59
343	2020-12-08	NA	NA	NA	19.25	0.71	4.84	8.36	0.59
344	2020-12-09	12.86	40.54	6.29	19.28	0.42	5	8.67	0.59
345	2020-12-10	18.54	101.26	32.48	22.64	0.87	4.77	8.66	0.59
346	2020-12-11	70.61	162.27	16.94	29.99	29.49	12.59	9.55	0.59
347	2020-12-12	72.42	145.75	13.31	20.78	64.03	31.95	7.62	0.59

S. No.	Date	Stack_29_DHT_FEED_90F01_02-				Stack_30_DHT_HGU_NAPTHA_HEATER_91F01-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
348	2020-12-13	78.1	608.79	11.23	19.74	58.78	24.37	7.76	0.59
349	2020-12-14	83.18	759.8	11.24	19.85	56.47	8.41	10.96	0.59
350	2020-12-15	84.31	205.45	10.54	22.1	57.7	68.27	12.5	0.59
351	2020-12-16	82.46	119.96	10.57	25.21	57.27	27.65	12.62	0.59
352	2020-12-17	81.88	154.7	10.51	25.63	56.77	41.52	12.5	0.59
353	2020-12-18	73.19	406.05	10.36	26.06	54.96	25.34	12.33	0.59
354	2020-12-19	70.78	204.54	10.38	26.58	57.41	35.97	12.2	0.59
355	2020-12-20	56.56	79.56	12.27	27.46	58.21	34.89	11.84	0.59
356	2020-12-21	36.36	126.19	9.98	27.95	58.09	63	11.94	0.59
357	2020-12-22	42.14	110.98	12.56	28.85	60.63	44.41	11.66	0.59
358	2020-12-23	25.4	66.43	26.79	31.79	59.7	34.42	11.71	0.59
359	2020-12-24	20.22	34.47	43.85	33.22	58.9	36.65	11.65	0.59
360	2020-12-25	31.89	25.95	9.38	33.02	57.41	31.14	11.69	0.59
361	2020-12-26	30.84	20.08	9.59	31.17	57.19	19.49	11.64	0.59
362	2020-12-27	89.1	223.3	9.01	32.59	55.56	18.27	11.62	0.59
363	2020-12-28	69.99	187.86	11.36	33	56.16	32.46	11.26	0.59
364	2020-12-29	110.84	377.91	11.48	31.03	57.33	82.3	11.19	0.59
365	2020-12-30	87.15	233.19	20.47	30.84	60.92	58.82	11.48	0.59
366	2020-12-31	74.52	225.18	21.68	30.51	56.25	26.84	11.51	0.59
367	2021-01-01	83.18	169.84	21.33	30.6	56.68	23.41	11.28	0.59
368	2021-01-02	78.16	170.18	21.11	30.57	56.22	20.33	11.05	0.59
369	2021-01-03	77.36	192.98	21.28	30.59	55.45	16.09	11.18	0.59
370	2021-01-04	77.72	196.44	20.09	30.7	54.8	22.57	11.19	0.59
371	2021-01-05	93.55	224.2	22.87	31.43	53.29	24.51	11.02	0.59
372	2021-01-06	95.42	205.3	22.76	32.46	53.64	22.31	10.82	0.59
373	2021-01-07	60.44	98.14	28.98	32.19	56.55	17.13	12.51	0.59
374	2021-01-08	61.4	141.65	24.84	32.43	52.38	36.39	14.48	0.59
375	2021-01-09	63.68	118.56	26.96	31.66	51.98	37.26	11.29	0.59
376	2021-01-10	45.1	94.92	30.97	31.57	53.86	29.94	11.11	0.59
377	2021-01-11	29.95	101.83	37.64	32.33	53.62	36.51	10.8	0.59
378	2021-01-12	50.38	108.57	26.38	31.25	52.6	25.7	10.74	0.59
379	2021-01-13	23.68	110.3	44.32	31.75	50.26	22.06	10.64	0.59
380	2021-01-14	33.44	64.11	26.16	31.45	49.3	22.92	10.57	0.59
381	2021-01-15	33.47	44.11	26.46	32.04	50.09	22.32	10.37	0.59
382	2021-01-16	34.33	252.03	24.8	31.93	47.86	14.25	10.25	0.59
383	2021-01-17	36.84	664.18	26.81	32.1	47.22	0	10.19	0.59
384	2021-01-18	44.58	351.58	25.99	32.6	49.47	26.17	10.15	0.59
385	2021-01-19	33.34	151.33	23.62	33.24	48.25	41.99	9.96	0.59
386	2021-01-20	38.85	154.63	19.88	33.29	53.33	20.11	9.8	0.59
387	2021-01-21	48.84	104.27	9.59	31.37	53.05	12.66	9.45	1.28
388	2021-01-22	16.76	97.31	29.91	33.84	51.26	4.54	9.49	1.52
389	2021-01-23	35.47	172.54	10.38	36.6	47.74	26.29	9.68	1.44
390	2021-01-24	32.66	91.23	10.82	34.98	48.78	12.5	9.3	1.71
391	2021-01-25	54.83	125.17	12.59	35.63	48.93	3.59	9.18	1.66
392	2021-01-26	55.42	102.54	20.08	35.91	48.65	4.28	9.08	1.71
393	2021-01-27	55.7	77.93	14.86	35.56	47.97	6.88	9.17	2.04
394	2021-01-28	45.84	70.85	17.46	34.69	47.58	4.32	9.2	2.41
395	2021-01-29	53.63	81.37	14.9	33.61	49.78	5.85	11.02	2.62
396	2021-01-30	65.21	81.31	16.1	34.03	53.8	6.6	12.78	2.45
397	2021-01-31	63.24	57.18	16.51	34.83	55.41	4.82	12.54	2.68
398	2021-02-01	57.12	56.17	14.73	33.61	56.37	4	12.33	2.79
399	2021-02-02	59.2	86.45	11.14	33.62	53.27	3.95	12.38	2.87
400	2021-02-03	80.67	114.26	11.14	35.07	60.14	5.18	11.92	2.94
401	2021-02-04	82.48	96.08	10.73	35.36	60.62	5.5	11.61	3.03
402	2021-02-05	69.4	96.58	11.45	33.76	60.28	11.94	11.5	3.11
403	2021-02-06	88.09	206.93	13.71	34.21	59.17	7.58	11.76	3.08
404	2021-02-07	96.26	127.1	16.97	33.69	58.51	22.52	11.63	3.09
405	2021-02-08	89.27	141.08	16.88	33.58	55.7	9.16	11.75	3.1
406	2021-02-09	84.3	147.45	15.7	34	56.17	16.98	11.59	3.17
407	2021-02-10	75.51	85.18	15.14	33.48	55.62	9.69	11.69	3.23
408	2021-02-11	61.8	83.22	16.29	32.63	53.88	7.9	11.72	3.3
409	2021-02-12	68.96	127.68	15.81	32.61	54.87	11.25	11.22	3.95
410	2021-02-13	80.28	82.55	16.45	33.45	55.86	8.17	11.46	4.23
411	2021-02-14	85.79	25.19	15.15	34.04	56.25	8.79	11.28	3.76
412	2021-02-15	78.12	73.19	13.18	28.41	55.53	8.32	11.41	3.55
413	2021-02-16	73.94	165.09	20.42	23.2	55.2	2.49	11.75	3.92
414	2021-02-17	97.91	184.17	9.62	21.72	54.42	2.94	11.91	4.55
415	2021-02-18	116.07	209.07	11.11	21.52	52.37	4.6	11.75	5.7
416	2021-02-19	113.39	153.28	10.32	21.91	54	1.51	11.58	5.95
417	2021-02-20	119.16	151.95	11.41	21.56	78.86	14.19	6.4	6.03

S. No.	Date	Stack_29_DHT_FEED_90F01_02-				Stack_30_DHT_HGU_NAPTHA_HEATER_91F01-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
418	2021-02-21	119.18	135.77	28.94	21.94	119.17	48.75	0	6.41
419	2021-02-22	81.28	56.6	105.39	21.74	92.72	35.22	5.22	6.72
420	2021-02-23	74.32	57.26	94.87	21.74	57.2	16.31	9.89	7.05
421	2021-02-24	77.19	88.28	46.29	21.99	53.52	9.66	9.46	6.99
422	2021-02-25	86.79	77.35	18.71	22.35	54.78	12.47	9.37	7.3
423	2021-02-26	87.07	51.27	28.81	22.73	52.07	8.8	9.59	7.56
424	2021-02-27	85.82	50.69	31.81	22.46	51.92	9.13	9.41	8.06
425	2021-02-28	106.66	44.91	32.76	22.41	34.16	16.52	18.61	8.72
426	2021-03-01	60.94	4.62	22.24	22.67	22.32	14.01	62.36	8.73
427	2021-03-02	57.25	3.18	22.01	23.26	26.42	13.58	57.21	9.17
428	2021-03-03	48.46	19.49	17.68	23.1	40.51	14.18	33.64	8.84
429	2021-03-04	37.77	31.32	19.37	23.02	57.02	10.91	8.33	9.19
430	2021-03-05	35.19	49.72	17.24	23.22	58.13	10.06	8.17	9.59
431	2021-03-06	73.09	87.64	8.79	22.27	58.29	9.96	7.94	8.88
432	2021-03-07	70.24	74.31	8.76	22.28	54.67	9.52	8.37	8.32
433	2021-03-08	101.77	150.04	8.99	22.11	53.86	9.06	9.09	8.35
434	2021-03-09	107.91	171.44	9.11	22.33	54.22	9.49	9.89	8.16
435	2021-03-10	113.65	160.26	7.83	22.98	48.78	10.89	8.75	7.9
436	2021-03-11	9.55	22.27	34.16	23.19	47.48	10.64	9.57	7.9
437	2021-03-12	8.58	12.5	34.1	21.64	48.47	12.58	9.02	7.94
438	2021-03-13	93.23	107.57	10.89	23.44	48.11	11.89	7.49	7.96
439	2021-03-14	86.17	18.82	11.53	22.74	44.22	11.27	7.54	7.9
440	2021-03-15	98.85	103.22	13.46	22.19	46.14	11.63	7.26	8.38
441	2021-03-16	121.91	158.4	9.38	22.67	43	12.02	7.62	8.04
442	2021-03-17	122.36	155.84	9.45	22.66	50.9	5.63	7.59	8.46
443	2021-03-18	121.65	149.11	10.06	22.66	52.64	4.18	7.76	8.58
444	2021-03-19	109.89	105.82	10.92	25.14	53.55	4.39	7.57	8.77
445	2021-03-20	88.23	92.01	12.07	22.8	52.39	3.35	7.61	8.96
446	2021-03-21	84.44	74.7	10.89	23.51	51.7	5.21	7.46	9.07
447	2021-03-22	90.5	81.23	10.2	23.37	52.47	7.48	7.39	9.17
448	2021-03-23	137.13	202.65	9.73	24.2	53.5	8.33	6.91	9.21
449	2021-03-24	142.31	171.65	9.37	24.56	51	4.12	6.86	9.09
450	2021-03-25	142.23	185.71	12.44	24.94	50.41	5.26	6.64	9.09
451	2021-03-26	139	159.15	10.84	25.63	51.91	3.28	6.77	9.14
452	2021-03-27	140.63	169.8	9.77	25.5	50.24	2.83	6.71	9
453	2021-03-28	48.87	14.86	28.41	26.86	48.45	9.99	7.05	8.74
454	2021-03-29	123.89	109.09	14.29	26.73	51.27	29.41	6.66	8.75
455	2021-03-30	132.92	99.06	15.69	27.78	52.16	14.32	6.46	8.66
456	2021-03-31	130.57	118.9	28.51	27.74	50.57	16.75	6.34	8.76
457	2021-04-01	64.41	91.17	35.55	28.49	50.22	19.82	6.52	8.67
458	2021-04-02	138.96	200.03	12.63	27.47	52	38.71	6.3	8.47
459	2021-04-03	114.36	120	10.39	28.59	44.11	3.35	5.75	8.2
460	2021-04-04	34.49	247.38	42.28	30.91	0.16	0.58	2.56	8.18
461	2021-04-05	7.69	10.01	13.2	27.68	0.36	0.29	2.25	8.2
462	2021-04-06	47.44	57.97	30.29	28.13	0.94	0.13	2.49	8.01
463	2021-04-07	103.29	99.42	14.01	28.6	2.47	1.3	16.66	8.32
464	2021-04-08	107.53	120.48	12.76	29.19	48.43	12.1	16.01	8.37
465	2021-04-09	110.36	121.71	13.89	29.13	59.13	8.74	6.18	8.4
466	2021-04-10	104.04	127.13	14.95	29.19	59.57	4.26	6.14	8.45
467	2021-04-11	95.18	118.06	15.24	29.28	59.56	5.14	5.94	8.37
468	2021-04-12	65.31	59.96	16.91	28.62	60.11	6.38	5.93	8.85
469	2021-04-13	NA	NA	NA	NA	NA	NA	NA	NA
470	2021-04-14	61.83	59.28	14.81	29.2	64.85	9.02	5.48	8.77
471	2021-04-15	96.99	154.3	15.24	30.26	63.89	5.03	5.49	9.1
472	2021-04-16	106.11	113.11	13.97	29.93	63.46	4.84	5.59	8.85
473	2021-04-17	118.8	177.36	11.5	29.7	57.76	6.09	10.13	8.59
474	2021-04-18	104.68	8.12	18.92	29.68	53.16	4.26	12.8	8.55
475	2021-04-19	106.35	57.68	18.04	29.93	59.29	5.45	12.6	8.47
476	2021-04-20	87.07	20.95	17.42	29.34	65.25	4.82	12.64	8.69
477	2021-04-21	82.89	51.61	16.62	28.99	56.82	9.04	12.3	8.56
478	2021-04-22	94.81	175.53	10.89	28.65	64.92	6.39	12.33	8.46
479	2021-04-23	93.05	150.26	10.02	28.57	59.19	15.39	12	8.13
480	2021-04-24	97.21	154.17	9.66	28.44	53.28	14.21	11.99	8.21
481	2021-04-25	89.08	74.45	12.34	29.02	55.07	14.13	11.69	8.75
482	2021-04-26	85.83	81.17	12.71	29.7	55.15	14.95	11.62	8.38
483	2021-04-27	89.52	153.73	11.96	30.42	56.15	13.5	11.71	8.22
484	2021-04-28	89.69	148.26	12.48	30.49	55.61	13.78	11.67	8.23
485	2021-04-29	84.99	143.2	12.52	30.52	55.62	8.14	11.76	8.24
486	2021-04-30	86.34	146.21	12.44	32.16	57.18	8.65	11.79	8.36
487	CFO Standards	-	-	-	100	-	-	-	10

S. No.	Date	Stack_29_DHT_FEED_90F01_02-					Stack_30_DHT_HGU_NAPTHA_HEATER_91F01-			
		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)		NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)
488	Maximum Value	142.31	805.22	181.86	77.54		119.17	89.57	62.36	9.69
489	Maximum Value on	2021-03-24	2020-06-26	2020-01-28	2020-08-08		2021-02-21	2020-01-05	2021-03-01	2020-06-14
490	Average	53.81	81.08	28.1	31.83		46.49	13.92	7.44	5.53
491		443	465	467	429		394	394	400	349
492	Total Data Points	486	486	486	486		486	486	486	486
493	Data Availablity %	96.09	96.09	96.09	88.27		83.95	83.95	83.95	71.81
494	Pollutant Load (Tons/day)	0.092	0.138	0.048	0.054		0.002	0.001	0.000	0.000
495	Pollutnat Load as per CFO (Tons/day)				0.171					0.000

Stack Monitroing Data (CEMS) - From 01.01.2020 to 30.04.2021

Industry : M/s. Hindustan Petroleum Corporation Limited (Refinery), Malkapuram, Visakhapatnam

S. No.	Date	Stack_31_DHT_HGU_91M20-				Stack_32_DHT_SRU_92M22-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)	PM (mg/Nm3)	CO (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)
1	2020-01-01	12.74	25.5	7.48	10.34	4.6	0.07	10.53	99.63
2	2020-01-02	12.78	30.54	6.04	10.55	4.6	0.07	12.17	100.65
3	2020-01-03	12.8	33.57	8.45	11	4.6	0.07	11.26	99.32
4	2020-01-04	12.58	28.19	11.31	13.07	4.6	0.07	12.26	103.22
5	2020-01-05	12.34	0.36	12.48	48.84	4.6	0.07	11.13	99.75
6	2020-01-06	12.28	23.68	18.62	36.35	4.6	0.07	11.8	101.71
7	2020-01-07	12.75	40.06	11.88	9.36	4.6	0.07	9.93	97.59
8	2020-01-08	13.05	40.26	9.87	9.36	4.6	0.07	11.81	104.09
9	2020-01-09	13.1	38.24	10.76	9.46	4.6	0.07	12.04	95.92
10	2020-01-10	12.76	36.58	9.08	8.98	4.6	0.07	10.47	99.47
11	2020-01-11	12.73	37.59	6.35	9.21	4.6	0.06	14.2	111.25
12	2020-01-12	12.6	38.14	6.78	8.76	4.6	0.07	11.09	99.3
13	2020-01-13	12.07	37.82	7.43	8.68	4.6	0.07	16.64	126.21
14	2020-01-14	11.97	39.99	9.42	8.64	4.6	0.12	13.46	82.64
15	2020-01-15	11.83	38.59	8.08	8.56	4.6	0.07	2.39	18.43
16	2020-01-16	12.18	39.49	8.77	8.3	4.6	0.07	13.16	120.58
17	2020-01-17	12.82	36.27	10.64	7.87	4.6	0.07	14.08	153.98
18	2020-01-18	12.91	38.88	16.18	8.28	4.6	0.07	13.25	142.52
19	2020-01-19	12.39	38.03	8.9	8.4	4.6	0.07	14.29	144.4
20	2020-01-20	11.96	38.53	9.4	8.33	4.6	0.07	10.93	136.56
21	2020-01-21	12.26	26.82	12.4	11.33	4.6	0.07	10.22	121.54
22	2020-01-22	12.35	14.92	5.51	13.29	4.6	0.07	8.8	110.93
23	2020-01-23	12.25	13.87	9.01	13.26	4.6	0.07	10.67	143.87
24	2020-01-24	11.69	14.61	14.12	13.55	4.6	0.07	14.63	190.94
25	2020-01-25	11.82	12.85	16.66	13.52	4.6	0.06	14.87	188.15
26	2020-01-26	12.12	14.67	18.9	13.38	4.6	0.06	13.92	190.01
27	2020-01-27	12.75	5.3	18.97	11.04	4.6	0.06	10.04	179.83
28	2020-01-28	12.63	5.6	19.54	8.63	4.6	0.06	11.3	184.22
29	2020-01-29	NA	23.02	15.14	8.99	NA	NA	NA	NA
30	2020-01-30	NA	26.84	164.21	10.45	NA	NA	NA	NA
31	2020-01-31	NA	37.87	21.48	12.98	NA	NA	NA	NA
32	2020-02-01	NA	41	19.16	12.62	NA	NA	NA	NA
33	2020-02-02	NA	37.3	17.46	13.24	NA	NA	NA	NA
34	2020-02-03	NA	41.15	23.98	12.57	NA	NA	NA	NA
35	2020-02-04	NA	42.55	28.28	12.23	NA	NA	NA	NA
36	2020-02-05	NA	20.74	26.62	4.55	NA	NA	NA	NA
37	2020-02-06	NA	27.47	22.12	8.33	NA	NA	NA	NA
38	2020-02-07	NA	44.27	26.42	12.01	NA	NA	NA	NA
39	2020-02-08	NA	39.4	20.66	12.62	NA	NA	NA	NA
40	2020-02-09	NA	46.17	31.75	11.81	NA	NA	NA	NA
41	2020-02-10	NA	40.99	26.77	12.28	NA	NA	NA	NA
42	2020-02-11	NA	42.33	25.25	12.22	NA	NA	NA	NA
43	2020-02-12	NA	38.68	23.44	12.52	NA	NA	NA	NA
44	2020-02-13	NA	43.47	28.17	12.01	NA	NA	NA	NA
45	2020-02-14	NA	40.83	24.49	11.84	NA	NA	NA	NA
46	2020-02-15	NA	41.95	23.82	12.47	NA	NA	NA	NA
47	2020-02-16	NA	41.33	22.85	11.74	NA	NA	NA	NA
48	2020-02-17	NA	48.26	26.38	11.19	NA	NA	NA	NA
49	2020-02-18	NA	37.28	24.9	12.51	NA	NA	NA	NA
50	2020-02-19	NA	38.47	32.82	12.27	NA	NA	NA	NA
51	2020-02-20	NA	32.43	43.77	10.67	NA	NA	NA	NA
52	2020-02-21	NA	38.05	22.82	10.18	NA	NA	NA	NA
53	2020-02-22	NA	37.67	17.74	10.06	NA	NA	NA	NA
54	2020-02-23	NA	38.86	20.74	10.22	NA	NA	NA	NA
55	2020-02-24	NA	38.16	18.83	9.31	NA	NA	NA	NA
56	2020-02-25	NA	41.51	28.82	8.37	NA	NA	NA	NA
57	2020-02-26	NA	32.99	14.4	9.07	NA	NA	NA	NA
58	2020-02-27	NA	37.39	12.06	9.16	NA	NA	NA	NA
59	2020-02-28	NA	36.38	20.48	9.78	NA	NA	NA	NA
60	2020-02-29	NA	36.98	22.43	9.83	NA	NA	NA	NA
61	2020-03-01	NA	38.12	23.74	9.96	NA	NA	NA	NA
62	2020-03-02	NA	37.07	22.7	9.43	NA	NA	NA	NA
63	2020-03-03	NA	35.69	24.46	10.28	NA	NA	NA	NA
64	2020-03-04	NA	39.24	29.95	9.76	NA	NA	NA	NA
65	2020-03-05	NA	34.82	28.57	9.76	NA	NA	NA	NA
66	2020-03-06	NA	36.32	64.88	10.03	NA	NA	NA	NA

S. No.	Date	Stack_31_DHT_HGU_91M20-					Stack_32_DHT_SRU_92M22-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)		PM (mg/Nm3)	CO (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)
67	2020-03-07	NA	34.1	147.57	10.66		NA	NA	NA	NA
68	2020-03-08	NA	37.84	35.38	10.24		NA	NA	NA	NA
69	2020-03-09	NA	31.94	44.29	11.28		NA	NA	NA	NA
70	2020-03-10	NA	38.83	30.19	10.11		NA	NA	NA	NA
71	2020-03-11	NA	37.78	23.29	9.9		NA	NA	NA	NA
72	2020-03-12	12.4	41.51	39.47	10.13		4.59	66.09	113.19	222.88
73	2020-03-13	12.07	37.27	33.65	10.65		4.59	59.53	155.49	219.19
74	2020-03-14	12.1	40.95	55.54	10.18		4.59	68.96	225.23	318.44
75	2020-03-15	12.12	38.24	23.57	10.2		4.6	64.55	346.59	293.32
76	2020-03-16	12.17	40.14	25.82	10.13		4.59	98.38	NA	NA
77	2020-03-17	12.18	36.96	20.2	10.66		4.59	85.69	NA	NA
78	2020-03-18	12.38	40.12	24.6	10.06		4.59	99.24	NA	NA
79	2020-03-19	NA	31.06	42.84	10.71		4.59	100.24	NA	NA
80	2020-03-20	NA	35.56	28.61	9.78		4.6	48.53	NA	NA
81	2020-03-21	11.81	41.7	29.32	9.91		4.6	43.65	NA	NA
82	2020-03-22	12.14	49.88	38.18	9.07		4.6	43.14	NA	NA
83	2020-03-23	12.32	35.05	20.39	10.05		4.6	30.14	NA	NA
84	2020-03-24	12.14	29.42	9.71	10.72		4.59	33.6	NA	NA
85	2020-03-25	12.44	23.67	6.05	11.36		4.59	35.87	NA	NA
86	2020-03-26	12.24	27.79	9.63	10.9		4.59	38.56	NA	NA
87	2020-03-27	12.46	22.91	6.06	11.3		4.59	41.74	NA	NA
88	2020-03-28	11.6	27.13	9.9	10.99		4.6	50.54	NA	NA
89	2020-03-29	12.11	23.67	6.15	11.37		4.59	48.22	NA	NA
90	2020-03-30	12.05	27.51	14.69	11.48		4.59	48.58	NA	NA
91	2020-03-31	11.94	26.55	17.57	11.3		4.59	60.81	NA	NA
92	2020-04-01	12.02	31.98	21.57	10.84		4.59	61.65	NA	NA
93	2020-04-02	12.36	28.84	15.79	11.29		4.59	61.98	NA	NA
94	2020-04-03	12.66	32.4	20.88	11.28		4.59	65.7	NA	NA
95	2020-04-04	13.03	31.25	17.15	11.42		4.59	80.29	NA	NA
96	2020-04-05	12.8	40.53	21.85	10.12		4.59	58.72	NA	NA
97	2020-04-06	13	36.1	16.16	10.17		4.59	65.11	NA	NA
98	2020-04-07	12.56	34.67	20.25	10.03		4.59	67.69	NA	NA
99	2020-04-08	13.2	39.16	16.42	10.42		4.59	76.1	NA	NA
100	2020-04-09	12.35	49.95	22.65	9.66		4.59	62.89	NA	NA
101	2020-04-10	12.68	53.28	17.77	11.28		4.59	64.88	NA	NA
102	2020-04-11	12.88	55.81	22.08	11.07		4.59	69.89	NA	NA
103	2020-04-12	13.25	37.61	14.38	12.11		4.59	73.39	NA	NA
104	2020-04-13	13.31	44.45	28.92	10.84		4.59	68.3	NA	NA
105	2020-04-14	13.3	47.61	39.34	11.13		4.59	61.59	NA	NA
106	2020-04-15	13.36	45.38	40.76	11.34		4.59	58.03	NA	NA
107	2020-04-16	13.41	45.29	40.1	11.27		4.59	57.92	NA	NA
108	2020-04-17	13.72	44.32	39.27	11.39		4.59	67.54	NA	NA
109	2020-04-18	13.29	44.07	39.88	11.25		4.59	58.22	NA	NA
110	2020-04-19	12.93	45.42	40.39	10.67		4.59	51.94	NA	NA
111	2020-04-20	13.19	48.45	41.97	10.55		4.59	53.26	NA	NA
112	2020-04-21	13.21	50	42.36	10.5		4.59	54.46	NA	NA
113	2020-04-22	12.88	53.43	43.34	10.48		4.59	57.42	NA	NA
114	2020-04-23	13.26	46.51	42.99	11.09		4.59	53.46	NA	NA
115	2020-04-24	13.52	45.69	42.92	10.85		4.59	55.49	NA	NA
116	2020-04-25	20.41	52.87	45.06	10.12		4.59	59.26	NA	NA
117	2020-04-26	5.2	73.17	43.07	9.2		4.59	66.79	NA	NA
118	2020-04-27	0	72.74	45.75	8.86		4.6	33.78	NA	NA
119	2020-04-28	0	72.86	46.27	8.72		4.59	59.97	NA	NA
120	2020-04-29	0	71.72	46.8	8.42		4.59	40.42	NA	NA
121	2020-04-30	0	72.04	48.41	8.31		4.59	103.17	NA	NA
122	2020-05-01	0	71.14	46.23	8.51		4.59	91.63	NA	NA
123	2020-05-02	0	70.33	47.21	8.82		4.59	83.67	NA	NA
124	2020-05-03	0	57.11	53.63	9.17		4.59	61.88	NA	NA
125	2020-05-04	0	62.22	47.94	8.3		4.59	67.41	NA	NA
126	2020-05-05	0	64.99	48.94	8.14		4.59	68.6	NA	NA
127	2020-05-06	0	63.3	50.09	7.91		4.59	57.41	NA	NA
128	2020-05-07	0	54.94	33.08	7.57		4.59	62.49	NA	NA
129	2020-05-08	2.24	38.52	7.8	8.44		4.59	67.81	NA	NA
130	2020-05-09	22.5	36.11	8.15	9.63		4.59	70.86	NA	NA
131	2020-05-10	45.36	53.12	16.16	10.85		4.59	51.62	NA	NA
132	2020-05-11	21.01	55.74	21.73	11.01		4.59	57	NA	NA
133	2020-05-12	21.97	58.42	23.75	8.85		4.59	53.4	NA	NA
134	2020-05-13	22.79	55.84	24.4	9.27		4.59	42.28	NA	NA

P.3.Σ

S. No.	Date	Stack_31_DHT_HGU_91M20-					Stack_32_DHT_SRU_92M22-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)		PM (mg/Nm3)	CO (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)
135	2020-05-14	23.19	40.46	22.26	11.93		4.59	49.15	NA	NA
136	2020-05-15	23.03	43.88	19.71	11.14		4.59	42.99	NA	NA
137	2020-05-16	23.33	41.27	9.12	11.62		4.59	48.94	NA	NA
138	2020-05-17	22.93	45.6	15.23	11.17		4.59	63.19	NA	NA
139	2020-05-18	22.77	48.75	13.64	10.31		4.58	15.59	NA	NA
140	2020-05-19	22.77	45.12	9.81	10.12		4.58	10.75	NA	NA
141	2020-05-20	22.38	49.15	10.32	9.66		4.58	23.51	NA	NA
142	2020-05-21	22.3	46.83	19.88	9.66		4.58	34.69	NA	NA
143	2020-05-22	22.93	43.47	13.04	10.67		4.58	52.75	NA	NA
144	2020-05-23	22.68	39.42	13.8	10.69		4.58	62.74	NA	NA
145	2020-05-24	22.25	37.31	15.02	11.05		4.59	50.27	NA	NA
146	2020-05-25	23.27	38.86	13.98	11.01		4.59	42.29	NA	NA
147	2020-05-26	22.59	39.43	13.43	10.74		4.59	33.09	NA	NA
148	2020-05-27	22.09	43.38	14.34	9.72		4.59	36.6	NA	NA
149	2020-05-28	22.74	43.02	18	9.46		4.59	44.21	NA	NA
150	2020-05-29	22.72	48.57	32.56	8.82		4.59	47.94	NA	NA
151	2020-05-30	22.7	54.43	45.39	8.25		4.59	51.17	NA	NA
152	2020-05-31	23.21	60.45	46.17	8.55		4.59	32	NA	NA
153	2020-06-01	22.63	60.29	46.68	8.46		4.59	32.72	NA	NA
154	2020-06-02	22.36	52.77	45.07	10.7		4.59	33.99	NA	NA
155	2020-06-03	22.25	11.15	24.19	1.23		4.59	44.3	NA	NA
156	2020-06-04	23.58	9.49	4.78	0.14		4.59	31.36	NA	NA
157	2020-06-05	25.22	4.35	8.3	0.49		4.59	36.49	NA	NA
158	2020-06-06	23.47	6.11	9.72	0.31		4.59	51.52	NA	NA
159	2020-06-07	22.94	9.26	6.89	0.18		4.59	48.8	NA	NA
160	2020-06-08	22.6	7.32	11.83	0.18		4.59	35.35	NA	NA
161	2020-06-09	NA	6.8	7.08	0.36		4.59	80.14	NA	NA
162	2020-06-10	NA	7.27	9.16	0.26		4.59	48.66	NA	NA
163	2020-06-11	NA	3.3	12.79	0.4		4.6	22.51	NA	NA
164	2020-06-12	NA	4.55	12.58	0.2		4.6	21.41	NA	NA
165	2020-06-13	NA	7.79	13.35	0.27		4.59	12.62	NA	NA
166	2020-06-14	NA	6.8	10.24	0.32		4.59	19.85	NA	NA
167	2020-06-15	NA	7.67	7.95	0.17		4.59	31.62	NA	NA
168	2020-06-16	NA	7.16	12.05	0.29		4.6	121.62	NA	NA
169	2020-06-17	NA	5.9	12.45	0.34		4.59	200	NA	NA
170	2020-06-18	NA	6.03	12.3	0.28		4.59	200	NA	NA
171	2020-06-19	NA	6.38	10.21	0.23		4.59	102.42	NA	NA
172	2020-06-20	NA	6.67	10.99	0.19		4.59	27.68	NA	NA
173	2020-06-21	NA	9.65	11.46	0.3		4.59	27.69	NA	NA
174	2020-06-22	NA	7.93	9.37	0.23		4.59	26.26	NA	NA
175	2020-06-23	NA	29.59	11.63	7.68		4.58	29.23	NA	NA
176	2020-06-24	NA	35.8	86.65	9.83		4.59	33.85	NA	NA
177	2020-06-25	NA	37.21	72	10.09		4.59	29.45	NA	NA
178	2020-06-26	NA	36.41	542.09	11.06		4.58	26.61	NA	NA
179	2020-06-27	NA	36.6	95.98	11.9		4.59	23.32	NA	NA
180	2020-06-28	NA	35.95	152.41	13.96		4.59	38	NA	NA
181	2020-06-29	NA	20.17	81.24	12.53		4.59	53.73	NA	NA
182	2020-06-30	NA	36.99	12.78	17.14		4.59	157.85	NA	NA
183	2020-07-01	NA	131.26	10.97	10.77		4.59	107.14	NA	NA
184	2020-07-02	NA	33.4	6.19	13.96		4.59	69.22	NA	NA
185	2020-07-03	NA	32.77	5.77	15.13		4.6	60.36	NA	NA
186	2020-07-04	NA	38.95	14.14	15.91		4.6	67.92	NA	NA
187	2020-07-05	NA	40.69	14.47	15.09		4.6	57.65	NA	NA
188	2020-07-06	NA	47.86	16.19	13.43		4.6	59.4	NA	NA
189	2020-07-07	NA	47.95	17.37	13.75		4.59	71.45	NA	NA
190	2020-07-08	NA	43.11	13.49	11.45		4.59	70.32	23.01	38.16
191	2020-07-09	NA	11.34	9.84	1.4		4.59	71.36	22.07	30.85
192	2020-07-10	NA	3	11.25	0.17		4.59	62.39	26.3	34.09
193	2020-07-11	NA	6.54	19.2	0.21		4.59	61.82	22.56	132.85
194	2020-07-12	NA	8.11	8.8	0.3		4.59	53.69	15.04	39.34
195	2020-07-13	NA	5.34	10.27	0.24		4.59	51.51	17.26	24.88
196	2020-07-14	NA	8.51	9.86	0.21		4.6	28.34	15.55	24.27
197	2020-07-15	NA	5.63	9.17	0.19		4.6	54.82	28.95	284.06
198	2020-07-16	NA	4.83	12.8	0.33		4.6	54.99	19.28	65.81
199	2020-07-17	NA	7.42	15.73	0.25		4.6	73.98	20.32	54.83
200	2020-07-18	NA	5.08	14.23	0.24		4.59	75.15	19.85	44.65
201	2020-07-19	NA	6.09	13.28	0.38		4.59	56.61	19.02	46.6
202	2020-07-20	NA	4.77	9.34	0.26		4.59	51.49	22.24	62.84

S. No.	Date	Stack_31_DHT_HGU_91M20-					Stack_32_DHT_SRU_92M22-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)		PM (mg/Nm3)	CO (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)
203	2020-07-21	NA	4.58	11.86	0.3		4.59	60.79	22.49	73.52
204	2020-07-22	NA	2.68	8.62	0.28		4.59	68.08	21.63	62.03
205	2020-07-23	NA	5.63	11.42	0.34		4.6	79.23	22.62	53.82
206	2020-07-24	NA	7.2	19.55	0.3		4.6	67.23	21.6	48.94
207	2020-07-25	NA	13.65	5.92	0.36		4.59	61.84	24.25	52.17
208	2020-07-26	NA	6.37	14.97	0.41		4.59	69.52	18.91	49.32
209	2020-07-27	NA	6.62	7.62	0.15		4.59	84.74	19.75	47.85
210	2020-07-28	NA	5.87	9.64	0.3		4.59	84.17	18.67	44.71
211	2020-07-29	NA	10.27	8.58	0.25		4.59	65.34	18.65	36.68
212	2020-07-30	NA	5.88	10.95	0.35		4.59	56.96	18.38	23.32
213	2020-07-31	NA	5.9	8.03	0.35		4.59	57.97	18.48	26.28
214	2020-08-01	NA	8.73	12.55	0.16		4.59	46.08	18.14	31.43
215	2020-08-02	NA	7.89	17.85	0.23		4.59	42.29	18.51	66.02
216	2020-08-03	NA	7.41	6.27	0.32		4.59	45.67	18.71	52.51
217	2020-08-04	NA	7.92	10.44	0.23		4.6	19.72	10.91	28.35
218	2020-08-05	NA	6.7	7.74	0.11		4.6	10.17	2.61	2.17
219	2020-08-06	NA	8.88	9.71	0.27		4.6	11.95	5.56	3.31
220	2020-08-07	NA	5.32	12.59	0.48		4.59	14.16	5.18	2.49
221	2020-08-08	NA	9.68	11.39	0.38		4.59	15.63	8.49	3.31
222	2020-08-09	NA	7.34	13.16	0.9		4.59	16.43	5.17	2.22
223	2020-08-10	NA	4.11	11.25	0.81		4.6	15.44	4.09	2.15
224	2020-08-11	NA	7.16	23.31	0.74		4.6	13.1	6.56	3.04
225	2020-08-12	NA	7.7	33.83	1.04		4.6	12.57	5.28	2.12
226	2020-08-13	NA	8.53	21.16	0.92		4.6	12.76	5.01	7.07
227	2020-08-14	NA	6.78	10.4	0.85		4.6	12.45	0.42	19.06
228	2020-08-15	NA	6.13	10.58	0.91		4.6	10.14	0.04	18.71
229	2020-08-16	NA	8.79	5.28	0.76		4.6	8.64	0	21.22
230	2020-08-17	NA	6.85	9.73	0.59		4.6	8.41	3.72	13.77
231	2020-08-18	NA	7.73	8.56	1.45		4.6	38.33	14.75	21.32
232	2020-08-19	NA	2.94	23.9	0.48		4.6	71.09	24.86	29.48
233	2020-08-20	NA	6.66	14.78	0.71		4.6	52.13	25.56	96.67
234	2020-08-21	NA	5.82	12.07	0.95		4.6	87.03	22.89	80.83
235	2020-08-22	NA	6.1	9.22	0.99		4.6	65.72	26.13	43.6
236	2020-08-23	NA	5.21	11.01	0.97		4.6	40.58	23.86	51.25
237	2020-08-24	NA	9.36	19.38	1.34		4.59	46.4	25.11	40.94
238	2020-08-25	NA	4.99	5.1	2.15		4.59	80.07	16.28	35.6
239	2020-08-26	NA	7.96	12.34	1.85		4.6	115.43	49.91	36.57
240	2020-08-27	NA	5.51	13.43	1		4.6	12.46	35.68	328.8
241	2020-08-28	NA	6.07	8.57	1.48		4.6	13.2	25.64	104.91
242	2020-08-29	NA	8.67	8.88	0.99		4.59	13.49	23.08	20.84
243	2020-08-30	NA	4.39	13.35	2.1		4.59	13.85	24.18	7.34
244	2020-08-31	NA	8.37	8.43	0.66		4.59	65.54	23.49	7.62
245	2020-09-01	NA	9.67	11.58	1.18		4.59	66.84	7.62	46.46
246	2020-09-02	NA	5.93	17.11	1.44		4.6	2.6	8.9	3.82
247	2020-09-03	NA	7.26	5.26	1.23		4.59	6.62	5.05	1.28
248	2020-09-04	NA	9.43	9.21	1.53		4.59	3.33	3.02	1.47
249	2020-09-05	NA	4.8	6.56	0.38		4.59	2.21	2.4	1.52
250	2020-09-06	NA	4.65	4.73	0.11		4.59	2.53	2.09	1.15
251	2020-09-07	NA	4.48	12.86	0.33		4.59	2.91	1.81	1.15
252	2020-09-08	NA	4.68	15.11	0.39		4.59	2.9	2.45	1.41
253	2020-09-09	NA	5.78	11.4	0.39		4.59	57.72	3.43	15.92
254	2020-09-10	22.2	2.5	10.2	0.37		4.59	93.96	47.23	451.73
255	2020-09-11	22.75	3.49	8.99	0.27		4.59	66.42	34.93	404.11
256	2020-09-12	23.44	6.42	7.86	0.37		4.59	23.63	28.39	352.42
257	2020-09-13	22.92	4.18	11.89	0.45		4.59	52.46	16.17	176
258	2020-09-14	23.05	7.31	8.35	0.21		4.59	32.12	9.17	30.13
259	2020-09-15	23.79	3.16	15.67	0.3		4.59	48.65	12.87	26.73
260	2020-09-16	24.17	4.62	9.6	0.36		4.59	48.86	14.9	39.42
261	2020-09-17	23.55	7.13	11.6	0.33		4.59	69.81	17.08	40.47
262	2020-09-18	23.93	5.55	8.61	0.4		4.59	60.57	17.3	30.24
263	2020-09-19	23.88	9.06	9.57	0.29		4.59	62.94	19.02	24.19
264	2020-09-20	24.57	6.33	7.76	0.24		4.59	62.05	17.15	37.07
265	2020-09-21	25.29	7.53	11.25	0.26		4.6	57.19	16.37	74.27
266	2020-09-22	24.45	8.92	10.03	0.35		4.6	50.12	16.68	38.37
267	2020-09-23	27	9.47	11.57	0.25		4.59	47.25	14.36	28.01
268	2020-09-24	24.17	7.37	9.82	0.36		4.59	48.7	14.82	25.57
269	2020-09-25	24.82	10.55	6.98	0.32		4.6	51.29	15.2	39.6
270	2020-09-26	25.5	10.18	9.6	0.29		4.6	45.6	15.54	21.61

S. No.	Date	Stack_31_DHT_HGU_91M20-					Stack_32_DHT_SRU_92M22-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)		PM (mg/Nm3)	CO (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)
271	2020-09-27	23.84	8.49	9.59	0.29		4.59	74.93	9.02	7.33
272	2020-09-28	23.36	7.25	13.97	0.24		4.59	101.78	0.03	2.59
273	2020-09-29	23.45	10.04	10.54	0.24		4.59	156.86	0.15	4.43
274	2020-09-30	29.15	9.24	10.92	0.39		4.6	37.25	23.1	5.54
275	2020-10-01	24.7	4.96	13.19	0.21		4.6	45.85	0.02	4.6
276	2020-10-02	23.55	6.91	11.24	0.33		4.59	52.36	0.01	5.56
277	2020-10-03	24.2	9.5	11.85	0.22		4.59	59.19	0.01	3.39
278	2020-10-04	24.62	7.94	9.28	0.37		4.6	130.98	1.6	31.01
279	2020-10-05	23.99	6.85	13.73	0.28		4.59	148.93	0.02	10.09
280	2020-10-06	25.2	6.69	11.98	0.13		4.59	140.97	0.43	41.82
281	2020-10-07	24.53	5.64	9.86	0.24		4.59	60.74	0.02	0.7
282	2020-10-08	23.63	9.17	11.78	0.36		4.59	50.9	0.03	2.78
283	2020-10-09	25.35	6.58	17.86	0.29		4.59	149.3	0	46.06
284	2020-10-10	24.17	11.64	8.85	0.21		4.59	147.65	0.03	2.5
285	2020-10-11	27.25	8.91	10.99	0.32		4.59	56.49	8.2	173.4
286	2020-10-12	12.66	12.21	12.98	0.06		4.6	65.22	106.8	89.88
287	2020-10-13	8.25	6.22	6.37	0.27		4.59	159.59	105.32	2.9
288	2020-10-14	8.05	6.26	11.72	0.24		4.59	114.69	0.05	2.01
289	2020-10-15	18.45	7.13	10.28	0.27		4.59	44.75	3.91	29.27
290	2020-10-16	16.56	9.88	5.41	0.3		4.59	3.77	10.19	32.86
291	2020-10-17	13.27	5.03	7.69	0.27		4.59	4.51	10.98	24.63
292	2020-10-18	21.19	8.13	13.96	0.36		4.59	10.87	15.69	23.31
293	2020-10-19	6.8	8.68	10.89	0.22		4.59	18.83	21.32	18.64
294	2020-10-20	6.77	7.19	9.57	0.28		4.59	65.87	18.12	19.1
295	2020-10-21	8.25	6.01	16.3	0.35		4.59	79.93	19.69	17.1
296	2020-10-22	6.64	5.4	9.66	0.28		4.59	59.73	20.85	22
297	2020-10-23	16.68	5.75	7.07	0.25		4.59	50.32	22.92	25.76
298	2020-10-24	15.81	6.29	9.58	0.21		4.59	47.47	22.03	15.18
299	2020-10-25	4.56	8.79	8.94	0.18		4.59	51.85	22.7	20.38
300	2020-10-26	11.46	12.06	8.1	0.24		4.59	53.25	21.58	17.27
301	2020-10-27	5.77	4.63	10.83	0.33		4.59	41.88	20.59	16.84
302	2020-10-28	5.6	10.21	9.38	0.24		4.59	46.05	21.15	28.74
303	2020-10-29	8.25	5.76	12.65	0.27		4.59	56.82	23.44	26.62
304	2020-10-30	8.25	7.74	9.63	0.28		4.59	73.86	25.7	23.33
305	2020-10-31	8.25	6.17	11.34	0.24		4.59	72.25	25.51	20.04
306	2020-11-01	8.57	5.69	12.81	0.17		4.59	77.75	25.34	22.81
307	2020-11-02	8.26	10.99	14.38	0.31		4.59	86.36	24.54	22.72
308	2020-11-03	8.25	7.42	12.2	0.27		4.59	88.35	23.43	22.23
309	2020-11-04	9.54	3.32	11.33	0.37		4.59	98.97	23.95	16.58
310	2020-11-05	15.63	8.51	15.75	0.32		4.59	104.07	22.33	17.97
311	2020-11-06	8.25	4.83	10.7	0.34		4.59	109.59	22.59	23.45
312	2020-11-07	14.43	7.21	9.66	0.22		4.59	117.78	20.2	15.63
313	2020-11-08	21.91	4.26	14.98	0.41		4.59	166.42	24	21.77
314	2020-11-09	7.52	7.93	11.4	0.16		4.59	82.34	19.59	29.61
315	2020-11-10	8.25	7.67	13.69	0.21		4.59	89.44	16.89	24.72
316	2020-11-11	8.25	8.93	14.71	0.17		4.6	94.38	21.4	22.12
317	2020-11-12	8.25	7.03	16.11	0.34		4.6	93.15	14.5	13.52
318	2020-11-13	9.36	7.22	12.83	0.16		4.59	115.68	18.77	20.21
319	2020-11-14	6.78	5.42	10.08	0.29		4.59	82.63	18.04	16
320	2020-11-15	19.19	7.91	14.2	0.25		4.6	78.35	18.69	15.23
321	2020-11-16	24.57	5.76	7.87	0.28		4.59	77.71	18.43	17.84
322	2020-11-17	20.32	6.98	10.94	0.3		4.59	70.8	15.55	26.79
323	2020-11-18	13.56	5.39	12.7	0.23		4.59	54.24	27.7	35.24
324	2020-11-19	8.25	4.06	13.37	0.3		4.59	52.78	26.81	32.39
325	2020-11-20	8.24	4.36	9.86	0.34		4.59	56.96	24.53	30.44
326	2020-11-21	10.61	10.03	9.95	0.28		4.59	52.2	22.38	37.06
327	2020-11-22	8.25	4.47	13.87	0.35		4.59	55.21	24.89	40.9
328	2020-11-23	8.25	8.7	11.08	0.22		4.6	59.91	21.64	36.77
329	2020-11-24	15.88	7.86	8.16	0.3		4.6	75.47	23.76	39.14
330	2020-11-25	24.58	7.1	9.22	0.24		4.6	67.92	29.57	32.22
331	2020-11-26	8.95	5.47	10.44	0.17		4.6	79.17	20.98	76.89
332	2020-11-27	8.4	9.23	16.71	0.2		4.6	78.64	24.41	120.18
333	2020-11-28	8.25	9.48	13.39	0.27		4.6	66.63	17.16	74.55
334	2020-11-29	19.96	10.74	8.83	0.35		4.59	61.22	25.97	64.4
335	2020-11-30	25.08	8.4	10.9	0.3		4.6	83.79	24.7	93.76
336	2020-12-01	14.83	8.66	11.38	0.19		4.6	73.94	21.41	62.83
337	2020-12-02	8.25	9.91	7.91	0.28		4.6	55.89	34.41	35.8
338	2020-12-03	21.33	4.01	11.19	0.23		4.6	73.13	46.35	19.82

S. No.	Date	Stack_31_DHT_HGU_91M20-					Stack_32_DHT_SRU_92M22-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)		PM (mg/Nm3)	CO (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)
339	2020-12-04	23.25	5.39	8.79	0.59		4.6	79.25	58.05	68.97
340	2020-12-05	24.33	10.38	9.82	0.21		4.6	94.76	23.6	6.22
341	2020-12-06	23.88	8.1	8.19	0.23		4.6	189.01	9.1	112.93
342	2020-12-07	14.88	8.61	10.15	0.31		4.6	62.06	37.66	683.36
343	2020-12-08	8.22	10.07	10.75	0.37		4.59	83.7	40.08	505.07
344	2020-12-09	8.25	8.55	8.16	0.45		4.6	150.6	25.71	335.57
345	2020-12-10	8.25	5.01	9.83	0.31		4.6	192.57	14.72	122.8
346	2020-12-11	8.25	6.12	13.9	0.37		4.6	147.17	5.76	1.51
347	2020-12-12	8.25	7.33	5.06	0.21		4.6	96.52	9.26	2.03
348	2020-12-13	8.25	6.26	8.12	0.36		4.6	35.02	8.05	0.97
349	2020-12-14	8.2	7.92	10.59	0.18		4.6	24.53	26.56	189.71
350	2020-12-15	8.25	6.57	9.75	0.24		4.6	10.95	14.62	168.24
351	2020-12-16	15.7	8.49	10.31	0.25		4.6	15.03	5.99	53.2
352	2020-12-17	21.2	6.52	10.36	0.4		4.6	9.24	33.85	209.54
353	2020-12-18	21.09	6.77	11.43	0.26		4.6	5.51	112.54	338.84
354	2020-12-19	20.82	7.65	9.8	0.38		4.6	9.45	42.23	277.35
355	2020-12-20	22.24	5.24	11.2	0.09		4.6	10.71	40.45	271.4
356	2020-12-21	23.85	5.64	9.2	0.14		4.6	13.28	16.9	84.88
357	2020-12-22	9.91	10.46	3.64	0.36		4.6	21.28	18.28	47.16
358	2020-12-23	15	6.45	13.93	0.34		4.6	32.44	15.76	42.88
359	2020-12-24	21.85	7.15	10.65	0.19		4.6	44.59	16.16	45.97
360	2020-12-25	22.94	7.05	7.57	0.14		4.6	45.85	15.38	32
361	2020-12-26	21.82	6.19	8.48	0.26		4.6	44.64	21.61	103.55
362	2020-12-27	21.57	7.31	10.37	0.23		4.6	45.97	14.47	34.91
363	2020-12-28	20.75	6.24	13.68	0.32		4.6	49.12	191.84	19.71
364	2020-12-29	19.73	2.89	11.52	0.34		4.6	44.99	171.22	80.66
365	2020-12-30	23.18	9.15	8.53	0.08		4.6	42.96	17.55	131.91
366	2020-12-31	21.49	7.34	14.49	0.01		4.6	37.18	4.05	60.94
367	2021-01-01	20.63	5.31	10.81	0.21		4.6	40.43	15.73	39.7
368	2021-01-02	20.69	0.4	37	0.03		4.6	43.94	9.8	39.48
369	2021-01-03	22.64	20.03	17.82	0.44		4.6	47.31	16.52	45.45
370	2021-01-04	22.08	6	9.35	0.34		4.6	27.46	1.85	43.2
371	2021-01-05	23.14	4.47	12.47	0.19		4.6	36.6	7.79	9.1
372	2021-01-06	22.99	3.06	10.39	0.19		4.6	52.86	14.76	26.99
373	2021-01-07	23.74	9.74	13.75	0.3		4.6	39.8	23.56	104.67
374	2021-01-08	23.97	8.91	9.24	0.22		4.6	43.61	19.99	26.35
375	2021-01-09	24.02	7.29	9.89	0.29		4.6	54.47	24.12	30.3
376	2021-01-10	20.57	4.72	13.66	0.23		4.59	33.32	25.89	32.86
377	2021-01-11	20.04	5.56	12.59	0.28		4.6	28.54	38.04	123.59
378	2021-01-12	22.6	5.85	8.98	0.38		4.6	27.52	26.42	92.71
379	2021-01-13	22.26	6.89	11.93	0.23		4.6	31.11	11.61	89.99
380	2021-01-14	22.81	5.22	11.05	0.3		4.6	31.62	14.96	119.69
381	2021-01-15	23.91	6.7	10.34	0.3		4.6	32.76	14.77	112.55
382	2021-01-16	23.1	8.31	13	0.25		4.6	37.66	8.23	75.01
383	2021-01-17	22.7	8.12	10.44	0.17		4.6	39.16	0.16	0.02
384	2021-01-18	22.01	4.35	9.76	0.17		4.6	45.48	6.31	33.32
385	2021-01-19	22.63	5.77	7.65	0.38		4.6	42.11	15.62	114.03
386	2021-01-20	22.67	7.11	7.1	0.34		4.6	45.17	13.16	74.49
387	2021-01-21	22.61	11.2	10.88	0.29		4.59	36.63	10.9	52.26
388	2021-01-22	22.17	10.39	9.4	0.25		4.6	34	8.11	71.02
389	2021-01-23	22.54	5.91	10.98	0.37		4.6	36.69	12.01	210.02
390	2021-01-24	22.06	6.58	12.08	0.34		4.6	25.5	5.02	34.99
391	2021-01-25	21.26	9.11	10.51	0.25		4.6	30.33	7.32	19.14
392	2021-01-26	20.38	7.88	8.41	0.29		4.6	31.67	9.05	47.41
393	2021-01-27	20.45	6.39	12.59	0.23		4.6	29.42	8.12	31.6
394	2021-01-28	21.26	6	10.36	0.2		4.6	32.27	7.15	25.28
395	2021-01-29	22.21	6.69	9.69	0.23		4.6	32.35	7.18	46.55
396	2021-01-30	22.5	14.93	11.71	0.2		4.6	37.11	7.45	41.68
397	2021-01-31	22.82	5.06	12.09	0.21		4.6	37.29	6.59	39.61
398	2021-02-01	22.86	4.5	14.15	0.33		4.6	36.95	7.84	47.05
399	2021-02-02	23.62	4.34	10.06	0.21		4.6	34.29	7.59	38.68
400	2021-02-03	23.96	8.07	9.78	0.22		4.6	56.87	9.48	23.23
401	2021-02-04	24.13	6.11	12.58	0.23		4.6	58.96	46.58	60
402	2021-02-05	23.96	6.62	13.02	0.18		4.6	53.52	47.38	83.1
403	2021-02-06	23.9	5.99	5.4	0.36		4.6	40.83	86.79	72.91
404	2021-02-07	23.84	9.44	10.23	0.3		4.6	48.52	139.2	82
405	2021-02-08	24.11	6.48	11.33	0.18		4.6	41.67	54.64	42.93
406	2021-02-09	23.79	7.47	14.45	0.26		4.6	46.37	92	70.23

S. No.	Date	Stack_31_DHT_HGU_91M20-					Stack_32_DHT_SRU_92M22-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)		PM (mg/Nm3)	CO (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)
407	2021-02-10	23.61	7.5	10.58	0.3		4.6	56.44	14.54	36.7
408	2021-02-11	23.2	7.11	15.24	0.37		4.6	71.79	6.1	20.4
409	2021-02-12	22.34	7.89	4.39	0.3		4.6	56.02	12.42	15.44
410	2021-02-13	21.52	7.4	7.71	0.3		4.6	37.05	21.69	19.07
411	2021-02-14	21.44	9.19	14.48	0.28		4.6	33.61	46.7	29.06
412	2021-02-15	21.64	19.67	14.64	3.03		4.6	37.29	43.56	36.3
413	2021-02-16	23.67	34.37	14.59	7.16		4.6	37.38	32.22	30.25
414	2021-02-17	23.31	35.83	16.01	6.64		4.6	40.2	17.77	26.98
415	2021-02-18	23.89	36.68	16.79	5.94		4.6	20.38	13.98	25
416	2021-02-19	23.68	44.43	17.59	5.47		4.6	112.91	29.91	56.89
417	2021-02-20	23.98	42.9	22.68	5.06		4.6	116.63	31.23	83.37
418	2021-02-21	24.29	48.95	32.09	5.31		4.6	103.35	23.22	106.26
419	2021-02-22	24.37	51.02	27.93	8.37		4.59	62.16	23.24	69.06
420	2021-02-23	24.53	51.58	9.57	11.39		4.6	13.13	16.62	58.56
421	2021-02-24	24.56	62.55	8.87	11.52		4.6	21.72	16.7	49.03
422	2021-02-25	24.3	54.11	7.63	11.78		4.59	32	13.43	43.67
423	2021-02-26	14.47	48.65	19.56	11.52		4.59	26.35	14.37	46.73
424	2021-02-27	26.39	45.62	33.45	10.73		4.6	25.51	9.09	42.14
425	2021-02-28	27.8	5.49	32.36	10.19		4.59	137.03	13.42	88.46
426	2021-03-01	21.7	114.41	37.18	7.32		4.59	139.61	6.43	69.24
427	2021-03-02	16.05	166.41	39.78	6.3		4.59	82.32	14.23	56.51
428	2021-03-03	19.44	80.26	40.93	7.58		4.59	29.62	30.2	72.77
429	2021-03-04	19.9	25.13	39.46	8.44		4.59	22.03	26.95	48.49
430	2021-03-05	19.5	27.49	38.32	8.16		4.59	31.12	24.13	38.77
431	2021-03-06	18.12	33.06	39.41	7.72		4.59	27.85	28.63	43.91
432	2021-03-07	22.75	28.82	40.73	8.11		4.59	43.62	29.99	48.55
433	2021-03-08	26	21.77	39.06	8.34		4.59	39.3	27.99	50.8
434	2021-03-09	26.36	15.28	29.67	8.49		4.59	39.11	24.36	40.12
435	2021-03-10	26.67	21.49	38.3	7.9		4.6	43.26	25.02	48.43
436	2021-03-11	27.2	35.13	38.96	6.5		4.59	64.48	26.33	69.48
437	2021-03-12	27.1	31.58	39.97	6.22		4.59	61.18	26.49	71.98
438	2021-03-13	25.58	21.28	38.77	7.05		4.59	32.35	21.37	46.17
439	2021-03-14	24.98	16.29	38.71	7.45		4.59	30.35	22.18	47.83
440	2021-03-15	24.6	16.07	39.1	7.05		4.59	30.69	27.77	44.16
441	2021-03-16	25.47	25.18	49.74	9.4		4.59	37.26	27.81	44.02
442	2021-03-17	25.5	26.54	15.5	11.93		4.59	38.69	25.2	35.31
443	2021-03-18	25.17	31.09	15.35	11.74		4.59	38.62	22.58	35.81
444	2021-03-19	25.02	31.82	15.06	11.78		4.22	40.7	11.71	22.58
445	2021-03-20	25.16	30.55	12.02	11.75		4.59	56.71	11.07	26.4
446	2021-03-21	26.13	25.89	9.07	12.05		4.59	53.21	17.81	36.8
447	2021-03-22	24.77	30.94	12.23	11.48		4.59	54.49	20.04	57.68
448	2021-03-23	24.87	31.56	14.37	10.64		4.59	28.75	7.49	39.05
449	2021-03-24	24.66	24.91	17.2	10.71		4.59	24.66	7.13	18.18
450	2021-03-25	24.55	22.55	22.92	10.46		4.59	28.59	6	28.12
451	2021-03-26	24.91	23.73	27.14	11.41		4.59	35.46	7.43	29.83
452	2021-03-27	25.29	36.64	34.32	10.2		4.59	61.73	14.24	30.75
453	2021-03-28	25.52	28.01	20.11	10.14		4.59	46.73	11.56	46.42
454	2021-03-29	26.1	29.05	33.68	9.59		4.59	43.23	8.99	50.53
455	2021-03-30	25.97	28.66	28.48	9.77		4.59	36.23	11.22	67.1
456	2021-03-31	27.52	28.29	38.13	11.26		4.59	33.65	17.07	51.01
457	2021-04-01	27.16	37.8	50.74	9.35		4.59	67.13	22.26	62.46
458	2021-04-02	26.52	37.27	57.52	9.32		4.59	76.65	120.72	28.52
459	2021-04-03	25.65	27.93	43.66	8.71		4.59	48.87	22.39	42.35
460	2021-04-04	25.89	23.79	100.4	6.66		4.59	68.27	21.74	49.77
461	2021-04-05	26.44	252.01	89.48	3.47		4.59	150.89	7.01	13.17
462	2021-04-06	25.75	155.73	53.86	6.01		4.59	120.66	9.07	13.71
463	2021-04-07	25.91	32.11	51.35	8.42		4.59	50.21	12.31	18.11
464	2021-04-08	26	28.69	48.94	8.69		4.59	43.33	14.97	25.44
465	2021-04-09	25.09	28.04	50.71	8.75		4.59	39.5	14.29	16.23
466	2021-04-10	24.19	24.82	45.17	8.82		4.59	47.6	16.23	9.84
467	2021-04-11	24.89	26.38	49.81	8.68		4.6	45.96	20.95	17.51
468	2021-04-12	23.63	23.4	50.44	8.77		4.58	47	16.44	18.94
469	2021-04-13	NA	NA	NA	NA		NA	NA	NA	NA
470	2021-04-14	23.35	19.18	48.98	8.77		4.59	60.63	23.5	22.77
471	2021-04-15	23.49	21.2	52.08	8.57		4.59	66.96	17.29	16.6
472	2021-04-16	23.62	35.37	76.18	10.72		4.59	54.08	14.58	13.8
473	2021-04-17	24.32	25.68	20.93	12.61		4.59	45.71	11.42	12.58
474	2021-04-18	24.69	24.24	29.72	12.76		4.59	43.91	7.54	9.18

S. No.	Date	Stack_31_DHT_HGU_91M20-					Stack_32_DHT_SRU_92M22-			
		PM (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)	CO (mg/Nm3)		PM (mg/Nm3)	CO (mg/Nm3)	NOx (mg/Nm3)	SO2 (mg/Nm3)
475	2021-04-19	24.86	21.6	29.52	12.97		4.59	37.24	11.2	10.32
476	2021-04-20	24.36	23.46	33.45	12.87		4.59	67.28	20.63	22.1
477	2021-04-21	25.49	18.91	31.98	13.06		4.59	45.95	31.05	47.56
478	2021-04-22	24.89	22.36	35.83	12.39		4.59	38.1	26.1	32.51
479	2021-04-23	23.76	27.84	20.7	10.91		4.59	31.66	25.75	37.96
480	2021-04-24	23.75	35.33	5.14	10.15		4.59	35.91	25.21	33.28
481	2021-04-25	25.54	38.68	14.7	9.93		4.59	43.28	77.09	22.23
482	2021-04-26	25.51	38.76	14.62	9.66		4.59	18.1	73.4	244.13
483	2021-04-27	24.38	38.65	15.55	9.71		4.59	50.61	41.6	190.39
484	2021-04-28	24.16	38.09	15.83	9.59		4.59	102.4	37.47	81.54
485	2021-04-29	24.46	38.52	15.29	9.58		4.59	37.19	28.46	56.48
486	2021-04-30	24.1	36.47	15.01	9.69		4.59	23.28	31.13	111.55
487	CFO Standards	100	-	-	-		100	-	-	-
488	Maximum Value	45.36	252.01	542.09	48.84		4.6	200	346.59	683.36
489	Maximum Value on	2020-05-10	2021-04-05	2020-06-26	2020-01-05		2020-01-01	2020-06-17	2020-03-15	2020-12-07
490	Average	18.88	23.66	21.12	5.43		4.59	51.63	23.16	63.99
491	-	336	485	485	485		442	440	326	328
492	Total Data Points	486	486	486	486		486	486	486	486
493	Data Availablity %	71.4	99.79	99.79	99.79		90.95	90.95	67.49	67.49
494	Pollutant Load (Tons/day)	0.063	0.079	0.071	0.018		0.004	0.041	0.018	0.051
495	Pollutnat Load as per CFO (Tons/day)	0.335					0.079			

ANNEXURE - 20

ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY:: VISAKHAPATNAM
D.No.39-33-20/1/4,Madhavadhara VUDA Colony, Visakhapatnam - 530018.

M.RAVI, M.Sc.,
SENIOR ENVIRONMENTAL SCIENTIST

Ph : 0891-2719380/481
e-mail:zovsplab-ses2@ appcb.gov.in

ANALYSIS REPORT

Sample No. : 2021 – 03 – E – 334 & 335

Sample location/Address : M/s Hindustan Petroleum Corporation Ltd., (Visakha Refinery), Malkapuram, Visakhapatnam.

Sample Source : E-334: ETP-I DMF Outlet
E-335: ETP-IV ACF Outlet

Sample collected on : 26.03.2021

Sample received on : 27.03.2021

Sample collected by : JSO & Analyst (OS), Zonal Laboratory, Visakhapatnam during the visit of NGT Committee

Sl. No.	Parameter	E-334	E-335	Standard
1.	pH	7.64	8.33	6.5-8.5
2.	Total Suspended Solids at 105^0 C	23	57	20 mg/l
3.	Chemical Oxygen Demand	44	96	125 mg/l
4.	Biochemical Oxygen Demand	10.5	23.0	15 mg/l
5.	Oil & Grease	<1	2.0	5.0 mg/l
6.	Sulphides (as S^{2-})	1.6	2.4	0.5 mg/l
7.	Ammonical Nitrogen (as NH_3-N)	3.9	26.3	15.0 mg/l
8.	Phenols (as C_6H_5OH)	BDL	0.02	0.35 mg/l
9.	Phosphates (as P)	0.08	0.07	3.0 mg/l
10.	Hexavalent Chromium (as Cr^{6+})	BDL	BDL	0.10 mg/l
11.	Total Chromium (as Cr)	0.0007	0.0010	2.0 mg/l
13.	Lead (as Pb)	0.0002	<0.0001	0.10 mg/l
14.	Zinc (as Zn)	0.0090	0.0080	5.0 mg/l
15.	Nickel (as Ni)	0.0083	0.0024	1.0 mg/l
16.	Copper (as Cu)	0.0025	0.0007	1.0 mg/l
17.	Cyanide (as CN^-)	BDL	BDL	0.2 mg/l

Note: - All values are expressed in mg/l except pH
BDL: Below Detectable Limit

M.Ravi
SENIOR ENVIRONMENTAL SCIENTIST

ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY:: VISAKHAPATNAM
D.No.39-33-20/1/4,Madhavadhara VUDA Colony, Visakhapatnam - 530018.

M.RAVI, M.Sc.,
SENIOR ENVIRONMENTAL SCIENTIST

Ph : 0891-2719380/481
e-mail:zovsplab-ses2@ appcb.gov.in

ANALYSIS REPORT

Sample No. : 2021 – 03 – E – 336

Sample location/Address : M/s Hindustan Petroleum Corporation Ltd., (Visakha Refinery), Malkapuram, Visakhapatnam.

Sample Source : E-336: STP Outlet

Sample collected on : 26.03.2021

Sample received on : 27.03.2021

Sample collected by : JSO & Analyst (OS), Zonal Laboratory, Visakhapatnam during the visit of NGT Committee

Sl. No.	Parameter	E-336	Standard
1.	pH	8.40	6.5-8.5
2.	Total Suspended Solids at 105^0 C	14	100 mg/l
3.	Total Dissolved Solids at 105^0 C	820	--
4.	Chemical Oxygen Demand	72	--
5.	Biochemical Oxygen Demand	18	30 mg/l

Note: - All values are expressed in mg/l except pH

SENIOR ENVIRONMENTAL SCIENTIST

393

ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY:: VISAKHAPATNAM
D.No.39-33-20/1/4,Madhavadhara VUDA Colony, Visakhapatnam - 530018.

M.RAVI, M.Sc.,
SENIOR ENVIRONMENTAL SCIENTIST

Ph : 0891-2719380/481
e-mail:zovsplab-ses2@ appcb.gov.in

ANALYSIS REPORT

Sample No. : 2021 – 03 – E – 332 & 333

Sample location/Address : M/s Hindustan Petroleum Corporation Ltd., (Visakha Refinery), Malkapuram, Visakhapatnam.

Sample Source : E-332: MHF-II Outlet
E-333: MHF-I Outlet

Sample collected on : 26.03.2021

Sample received on : 27.03.2021

Sample collected by : JSO & Analyst (OS), Zonal Laboratory, Visakhapatnam during the visit of NGT Committee

Sl. No.	Parameter	E-332	E-333	Stipulated in CFO Order
1.	pH	7.16	7.28	6.50-8.50
2.	Oil & Grease	<1	<1	1.0 mg/l
3.	Hexavalent Chromium (as Cr^{6+})	0.01	BDL	0.10 mg/l

Note: - All values are expressed in mg/l except pH
BDL: Below Detectable Limit

M.Ravi

SENIOR ENVIRONMENTAL SCIENTIST

394

ANNEXURE - 21

ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY:: VISAKHAPATNAM
D.No.39-33-20/1/4,Madhavadhara VUDA Colony, Visakhapatnam - 530018.

M.RAVI, M.Sc.,
SENIOR ENVIRONMENTAL SCIENTIST

Ph : 0891-2719380/481
e-mail:zovsplab-ses2@ appcb.gov.in

ANALYSIS REPORT

Sample No. : 2021 – 03 – W – 337 & 338

Sample location/Address : M/s Hindustan Petroleum Corporation Ltd., (Visakh Refinery), Malkapuram, Visakhapatnam.

Sample Source : W – 337 : Bore well near Sub-station 8A within the industry premises
W – 338 : Bore well near Tank 10 A within the industry premises

Sample collected on : 26.03.2021

Sample submitted on : 27.03.2021

Sample collected by : JSO & Analyst (OS), Zonal Laboratory, Visakhapatnam during the visit of NGT Committee

S. No	Parameter	W-337	W-338	Drinking Water Specification: IS: 10500: 2012	
				Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source
Physico Chemical					
1.	pH	7.81	8.03	6.5-8.5	No Relaxation
2.	Conductivity (as µS/cm)	10190	4400	--	--
3.	Total Dissolved Solids	7024	2772	500 mg/l	2000 mg/l
4.	Total Organic Carbon (as TOC)	36.8	8.8		
5.	Chlorides (as Cl)	3229	1101	250 mg/l	1000 mg/l
6.	Total Alkalinity (as $CaCO_3$)	424	380	200 mg/l	600 mg/l
7.	Total Hardness (as $CaCO_3$)	1104	592	200 mg/l	600 mg/l
8.	Calcium (as Ca)	107.2	128.0	75 mg/l	200 mg/l
9.	Magnesium (as Mg)	203.1	66.0	30 mg/l	100 mg/l
10.	Sodium (as Na)	1938	652	--	--
11.	Potassium (as K)	32	30	--	--
12.	Nitrite Nitrogen (as NO_2-N)	0.82	0.05	--	--
13.	Ammonical Nitrogen (as NH_3-N)	BDL	BDL	0.5	No relaxation
14.	Phosphates (as P)	0.07	1.82	--	--
15.	Sulphate (as SO_4)	76.3	142.3	200 mg/l	400 mg/l
16.	Fluoride (as F)	1.62	1.10	1.0 mg/l	1.5 mg/l
Heavy Metals					
17.	Lead (as Pb)	0.0004	0.0016	0.01 mg/l	No Relaxation
18.	Iron (as Fe)	0.6514	0.5752	0.3 mg/l	No Relaxation
19.	Copper (as Cu)	0.0018	0.0056	0.05 m/l	1.5 mg/l
20.	Zinc (as Zn)	0.0071	0.0173	5 mg/l	15 mg/l
21.	Nickel (as Ni)	0.0006	0.0013	0.02 mg/l	No Relaxation
22.	Cadmium (as Cd)	<0.0001	<0.0001	0.003 mg/l	No Relaxation
23.	Chromium (as Cr)	0.0010	0.0009	0.05 mg/l	No Relaxation
24.	Arsenic (as As)	0.0006	0.0002	0.01 mg/l	0.05 mg/l
25.	Manganese (as Mn)	0.0300	0.0865	0.1 mg/l	0.3 mg/l

Note: - All values are expressed in mg/l except pH & Conductivity
BDL: Below Detectable Limit

M. Ravi
SENIOR ENVIRONMENTAL SCIENTIST

M/s. HPCL - Visakha Refinery - Layout Map.

