



KSK Mahanadi Power Company Limited

CIN No. : U40300TG2009PLC064062

Works

Near Nariyara Village,
Akaltara Tehsil,
Janjgir - Champa District,
Chhattisgarh. Pin : 495553
Tel (Site): 07817-284001

Registered Office

8-2-293/82/A/431/A,
Road No. 22 Jubilee Hills
Hyderabad - 500033,
Tel: +91-40-23559922-25
Tel: +91-40-23558701
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Ref. No: CECB, BILAS/PDKN/2500108/655

Date: 10.09.2019

To
The Regional Officer,
Chhattisgarh Environment Conservation Board,
Vyapar Vihar, Near Pt. Deendayal Upadhyaya Park,
Bilaspur, Chhattisgarh.

Sub: - Submission of Environmental Statement (**Form-V**) for last Financial Year **2019-20**-Reg.

- Ref:** -i) Consent for Operation No. – 763/TS/CECB/2015 Dt. 22.05.2015
ii) Renewal Consent for Operation No.1602/TS/CECB/2018 (Air) and 1600/TS/CECB/2018 (Water)
Dtd.14.05.2018 Dtd. 14.05.2018
iii) Environmental Clearance No. (Amendment & Extended of Validity)-13012/44/2008-IA.II (T)
Dt.19.04.2018 & J-13012/44/2008-IA.II (T), Dt.19.10.2009
iv) Rule-14 of Environmental (Protection) Rule, 1986

Sir,

In inviting references to the above captioned subject and cited references, please find herewith the enclosed '**Environmental Statement**' in **Form-V** for last Financial Year **2019-20** in M/s KSK Mahanadi Power Company Limited (**3 x 600MW-Operational Units**), village-Nariyara, Akaltara, Chhattisgarh.

Submitted for your kind Perusal and records please.

Thanking You,
Yours faithfully,

For **KSK Mahanadi Power company Limited**

Dr.M.V.R.N Acharyulu
(Authorized Signatory)

Encl: Environmental Statement in **Form-V- FY 2019-20**.

Copy to: i) The Member Secretary, Paryavas Bhavan, North Block Sector-19, Atal Nagar Dist- Raipur (C.G.)-492002.

ii) The Addl. PCCF(C), MoEF &CC, Regional Office (WCZ), Nagpur, Maharashtra





ENVIRONMENTAL STATEMENT REPORT

OF

**KSK Mahanadi Power Company Limited,
Village- Nariyara, Tehsil- Akaltara
District- Janjgir-Champa
Chhattisgarh.**

Unit#1, 2 & 3 (3x600MW)

For

The Financial Year Ending 31st March 2020

Submitted to

**Chhattisgarh Environment Conservation Board,
Chhattisgarh**

FORM - V
(See Rule 14)

Environmental Statement Report for the financial year ending the 31st March, 2020.

PART-A

- (i) Name and address of the Owner/Occupier of the Industry, Operation or process. : Mr. S. Kishore, Director
M/s KSK Mahanadi Power Company Limited
Village- Nariyara, Tehsil-Akaltara,
District- Janjgir-Champa, Chhattisgarh
- (ii) Industry Category : Red A Category
- (iii) Production capacity : 3x600 MW
- (iv) Year of Establishment : 16th Feb 2010
Commercial Operation Date : 14th Aug 2013 (for **Unit No. #3**)
26th Aug 2014 (for **Unit No. #4**)
28th Feb 2018 (for **Unit No. #2**)
- (v) Date of the last environmental Audit Report submitted : 1st September, 2019

PART-B

Water and Raw Material Consumption

i) Water Consumption:

Raw Water	During the previous financial Year 2018-19	During the Financial Year 2019-20
For production of DM plant water (m3)	0	0
For cooling water & miscellaneous (m3)	14970453	19615050
Potable water (m3)	258123	205859
Total	15228576	19820909

Name of the product:	Water consumption per unit of product	
Specific water consumption (KL/MWH)	During the previous FY 2018-19	During the FY 2019-20
	1.93	1.93
	Details enclosed as Annexure-I	
Gross electricity generated (MU)	Electricity generation	
	During the previous Financial Year 2018-19	During the Financial Year 2019-20
	7872	10290
	Details enclosed as Annexure-II	

ii) Raw Material consumption:

SL. No	Name of raw materials.	Name of products	Consumption of raw material per unit of output (kg/Kwh)	
			During the previous FY 2018-19	During the FY 2019-20
1	Coal	Electricity	0.64	0.63
2	LDO/ HFO (Only during start up)		0.51	0.42

(i) Pollutant	Quantity of Pollution Generated	Percentage of variation from Prescribed Standards
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a) Waste Water

Condenser Cooling Water

Parameters	Limit	Range of conc.	% age of variation
pH	6.5- 8.5	7.5	within limits
Temp	<5 Deg C	28.4	within limits
FA Chlorine	0.5 mg/L	<0.2	within limits

Boiler Blow Down

Parameters	Limit	Range of conc.	% age of variation
Suspended solid	100 mg/L	35.5	within limits
Oil & Grease	20 mg/L	<1.0	within limits
Copper	1 mg/L	<0.01	within limits
Iron	1 mg/L	0.19	within limits

Cooling Tower Blow Down

Parameters	Limit	Range of conc.	% age of variation
FA Chlorine	0.5 mg/L	<0.2	within limits
Zinc	1.0 mg/L	0.31	within limits
Chromium (T)	0.2 mg/L	<0.01	within limits
Phosphate	5.0 mg/L	0.50	within limits

b) Air

Stack emission characteristics Unit#3		Quantity Kg/hour	Average concentration (mg/Nm3)	% Variation
Parameters	Limit			
Particulate Matter (PM)	50mg/Nm3	167	34.3	-31.4 %
Stack emission characteristics Unit#4		Quantity Kg/hour	Average concentration (mg/Nm3)	% Variation
Parameters	Limit			
Particulate Matter (PM)	50mg/Nm3	170	35.3	-29.4 %
Unit-2		Quantity Kg/hour	Average concentration (mg/Nm3)	% Variation
Parameters	Limit			
Particulate Matter (PM)	30mg/Nm3	102	21.8	-27.3 %

PART-D

Hazardous Wastes

(As specified under Hazardous Wastes (Management, Handling and Transboundary Movement Rules, 2008))

Hazardous Wastes	Total Quantity During the previous financial year (2018-19)	During the financial year (2019-20)
From Process	15.8 MT (Used Oil)	19.09MT (Used Oil)
From Pollution Control Facility	Nil	Nil

PART-E

Solid Wastes

Sl. No.		Total Quantity	
		During the previous Financial year (2018-19)MT	During the current Financial year (2019-20)(MT)
a)	From process Fly (Ash)	1794930 MT	2247091 MT
b)	From Pollution Control facility	Nil	Nil
c)	(1) Quantity recycled or re-utilized within the Unit.		
	(2) Sold		
	(3) Disposed	1824555 MT	2438962 MT

PART-F

Please specify the characteristics in terms of composition and quantum of Hazardous waste as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Hazardous waste:

The generated used/spent oil is hydrocarbon in nature. **19.09 MT** of Used/spent oil (under category No.-5.1) is disposed to authorized recycler of Hazardous Waste during this **FY 2019-20**.

Fly Ash and Bottom Ash:

At present, only Fly Ash & Bottom Ash as Solid Waste is being generated from current power plant operation activities. Fly ash is being collected & Stored at 3900m³ capacity Silo, thereafter pneumatically.

It is being transferred to Bulklers through the air tight telescopic chute use in Cement & Brick Manufacturing industry. Bottom Ash disposed to Ash Pond/dyke. 100% of the Ash Generated from plant operation is being utilized by dispatching to Cement Industry, Brick Manufactures, Road Construction work, Low lying areas and Mines quarry pits filling. (Ash Dyke storage optimization) Details are enclosed as **Annexure- III**.

Data of Industrial Effluent

Annexure- IV

Monthly Source Emissions Unit # 3

Annexure- V

Monthly Source Emissions Unit # 4

Annexure- V (A)

Monthly Source Emissions Unit # 2

Annexure- V (B)

SUMMARY OF AMBIENT AIR QUALITY RESULTS (Inside Plant)

Annexure- VI

SUMMARY OF AMBIENT AIR QUALITY RESULTS (Outside Plant)

Annexure- VI (A)

PART-G

Impact of the pollution abatement measures taken on conservation of natural resources and on the cost of production:

1. Low Sulphur Coal is used for power generation: Enabling to lower the SO₂ – Emission.
2. For Coal transportation through Train- Merry go round track is being used. (i.e. minimize line source emission & Fuel Conservation).
3. For Coal transportation through Roads: Tarpaulin covered trucks/dumpers has been followed-up to minimize Secondary /Tertiary fugitive dust emission.
4. Optimal Usage of Combustion support or Auxiliary fuels i.e LDO/HFO (lower per MW Liquid fuel cost)
5. Optimization of Coal Inventory level.
6. Reuse & recycle of waste water (Boiler, CT Blow down & DM Plant for ash handling purpose (Reducing demand for fresh raw water).
7. 100% of the Fly Ash Generation from plant operation is being utilized by dispatching to Cement Industry, Brick Manufactures, Road Construction work, Low lying areas and Mines quarry pits filling (Ash Dyke storage optimization)
8. Use of Low – NO_x Burner in furnace (Energy Conservation)
9. All the major Drives are VFD (Energy Conservation)
10. Dust extraction systems are provided & operation to minimize coal dust losses through fugitive dust emission.
11. Extensive tree plantation has been carried out. As on date, total **7,20,000nos.** of saplings have been planted within the Plant premises in an areas about **277** hectares i.e **33.3%** of total project area (**828.46** Hectares). Out of which **4,81,310 nos.** of saplings has been survived and further plantation by causality replacement is under progress.

PART-H

Additional measures investment proposal for environmental protection including abatement of pollution prevention of pollution.

Environmental Cost details towards pollution control and monitoring for the year 2019-20 are as follows:

Environmental Expenses in last FY2019-20

Section	Capital expenditure	Recurring expenditure	Total
	(In Crores)	(In Crores)	
Air quality Management			
Electrical, mechanical spares	--	₹ 5.62	₹ 5.62
Manpower cost	--	₹ 1.66	₹ 1.66
Road Water Sprinkling	--	₹ 0.21	₹ 0.21
Energy consumption cost (ESP+FF)	--	₹ 2.39	₹ 2.39
Water quality and waste water quality Management			
Chemicals	--	₹ 0.57	₹ 0.57

Manpower cost	--	0.4	0.4
Solid waste Management	--	--	--
Ash Transportation and Manpower Cost	--	₹ 66.43	₹ 66.43
Hazardous waste Management			
Hazardous Waste Storage Shed	--	--	--
House Keeping			
Manpower, Tools /Tackles & Vehicles resources cost.	--	₹ 2.01	₹ 2.01
Greenbelt Development			
Equipment	--	₹ 0.07	₹ 0.07
Manpower cost	--	₹ 1.33	₹ 1.33
CSR Expenses		₹ 0.93	₹ 0.93
Environmental Monitoring	--	₹ 0.31	₹ 0.31
Purchase of CEMS Analyzers and Calibration gas cylinders for maintenance.	₹ 0.03	₹ 0.29	₹ 0.32
EMD Manpower cost	--	₹ 0.50	₹ 0.50
Total	₹ 0.03	₹ 82.70	₹ 82.73

**PART-I
Miscellaneous**

Any other particulars for improving environment protection and abatement of pollution.

1. High efficiency ESP + Hybrid Fabric Filter combination, with 99.7% efficiency has been installed for each Unit (600MW).
2. Zero water discharge system has been implemented. Effluents are being used in Ash Handling, Dust Suppression, DM water Production & Green belt development purposes.
3. Development of Greenbelt, ranging 50 to 100m width, by using Local Climate suitable Fast growing plant species.
4. Pulse Jet type bag -filters have been installed at all the Transfer-points meant for Coal transport from CHP area to boiler area.-
5. Water sprinkling arrangement facilitate at all the dust prone areas including Coal yard area.
6. 44 No's Rain Gun type of Water spray system has been installed at Coal yard area.
7. Installation of bag filters & Dry Fog System over the Coal conveyor Transfer Towers.
8. All the major internal roads are concretized and adequate capacity of water tankers has been deployed for water spraying to control fugitive dust emission.
9. Regular sweeping of roads are also in practiced.
10. Necklace drains provided in and around the Coal yard and other area to prevent leachate water.

WATER CONSUMPTION DETAILS IN FY2019-20						
Consumption of Raw Water (KL)				Reuse/Recycling of Waste Water (KL)		
Month	Cooling Tower Operation	Boiler Water	Portable	ETP Clarifier plus RO+UF Circuit for DM WATER Production	Ash Handling	STP
Apr-18	1836430	0	18918	73742	263891	13099
May-18	1978744	0	20202	90759	252494	14587
Jun-18	1527299	0	22421	68481	208035	13736
Jul-18	1274449	0	21317	77235	170274	10060
Aug-18	1507878	0	19037	99158	201891	10470
Sep-18	832399	0	10268	60017	139347	5340
Oct-18	1580853	0	19217	72284	149333	12770
Nov-18	1325008	0	19428	81673	113005	10116
Dec-18	1650453	0	15554	92415	342087	15554
Jan-19	2070230	0	13333	90327	318142	9375
Feb-19	1994558	0	13325	105823	365760	9850
Mar-19	2036749	0	12839	35494	254450	11280
Total	19615050	0	205859	947408	2778709	136237

POWER GENERATION AND COAL CONSUMPTION DETAILS FOR FY 2019-20

Month	Month wise Gross Power Generation Details (MU)			Month wise Coal Consumption Detail's (MT)		
	Unit # 3	Unit # 4	Unit # 2	Unit # 3	Unit # 4	Unit # 2
Apr-19	213	346	369	147625	229657	237750
May-19	240	395	390	151943	249264	243563
Jun-19	23	380	378	16232	246453	246866
Jul-19	0	329	403	Nil	216146	261802
Aug-19	123	377	410	84171	245574	265655
Sep-19	75	209	201	50411	130084	127839
Oct-19	97	405	410	57839	252842	253131
Nov-19	82	335	372	53590	216483	224942
Dec-19	115	384	400	64269	232266	233971
Jan-20	415	392	225	239535	140021	250713
Feb-20	288	300	256	191353	186934	166147
Mar-20	300	289	319	204791	185291	206267
Total	1970	4141	4133	1261759	2531015	2718646

FY2019-20

S.N.	Description	Unit	Q1 (Apr, May, June-2019)			Q2 (Jul, Aug, Sept-2019)			Q3 (Oct,Nov,Dec-2019)			Q4 (Jan, Feb, Mar-2020)			Total Fly Ash Utilization in FY 2019-20
			Unit-3	Unit-4	Unit-2	Unit-3	Unit-4	Unit-2	Unit-3	Unit-4	Unit-2	Unit-3	Unit-4	Unit-2	
A	Ash Generation (Fly Ash + Bed Ash)	MT	110530	253881	254863	45026	202995	227712	59969	240221	246355	216144	176348	213047	2247091
B	Ash Utilization	MT	110530	253881	351739	45026	202995	175784	59969	240221	318928	216144	176348	287397	2438962
i)	Brick Manufacturing	MT	0	667	21	0	1287	0	673	1175	35988	1685	0	0	41496
ii)	Ready Mix Concrete	MT	100583	175551	7946	40817	121751	5484	44564	94480	0	92995	55075	0	739246
iii)	Low Lying area filling/ Area Development	MT	0	0	0	0	281	0	8736	14986	38365	48915	2872	33435	147590
iv)	Road Construction	MT	0	0	0	0	431	0	0	0	0	5521	0	0	5952
v)	Filling of abandoned stone quarry	MT	0	54814	320834	0	58906	149375	0	93209	217723	43853	97623	230271	1266608
vi)	Mines void filling	MT	0	0	0	0	0	0	0	0	0	0	0	0	0
vii)	Agriculture Utilization	MT	0	0	0	0	0	0	0	0	0	0	0	0	0
viii)	If any other area (specify)- Bottom Ash storage at Dyke	MT	9947	22849	22938	4209	20339	20925	5996	36371	26852	23175	20778	23691	238070
	Total Ash Utilization	MT	110530	253881	351739	45026	202995	175784	59969	240221	318928	216144	176348	287397	2438962
C	Ash Utilization percentage	%	100%	100%	138%	100%	100%	77%	100%	100%	129%	100%	100%	135%	109%

DATA OF INDUSTRIAL EFFLUENT (Guard Pond) from APRIL 2019 - MARCH 2020

Month	pH	TSS (mg/l)	Oil & Grease (mg/l)
Apr-19	7.8	48	<1.0
May-19	7.9	52	<1.0
Jun-19	7.8	61.6	<1.0
Jul-19	7.4	55.4	<1.0
Aug-19	7.6	61.2	<1.0
Sep-19	7.9	56.4	<1.0
Oct-19	7.8	62.1	<1.0
Nov-19	8	53.6	<1.0
Dec-19	7.9	62.1	<1.0
Jan-20	8	57.4	<1.0
Feb-20	7.9	60.2	<1.0
Mar-20	7.6	54.4	<1.0
Avg	7.8	57.0	<1.0

Monthly Source Emissions (Unit#3) from April-2019 to March-2020

Month	Particulate Matter (mg/Nm³)	SO₂ (mg/Nm³)	NO_x (mg/Nm³)
Apr-19	35.8	593	484
May-19	28.8	972	463
Jun-19	Shut down	Shutdown	Shutdown
Jul-19	shutdown	shutdown	Shutdown
Aug-19	34.8	923.4	229.6
Sep-19	31.4	985.7	367.9
Oct-19	28.4	1036.4	367.9
Nov-19	38.6	1025.4	285.6
Dec-19	36.7	1101.4	301.5
Jan-20	37.4	1054.2	438.5
Feb-20	36.8	1161	483
Mar-20	34.7	1044	398
Avg.	34.3	989.6	381.9

Monthly Source Emissions (Unit#4) from April-2019 to March-2020

Month	Particulate Matter (mg/Nm³)	SO₂ (mg/Nm³)	NO_x (mg/Nm³)
Apr-19	37.1	621	521
May-19	32	1013	502
Jun-19	29.6	1120.1	467.4
Jul-19	31.5	1080.2	208
Aug-19	31.2	1199.9	395.7
Sep-19	36.2	1104.4	439.9
Oct-19	38.4	1067.1	319.3
Nov-19	40.5	980.6	302
Dec-19	38.4	1135.3	464.5
Jan-20	35.4	1174.6	311.2
Feb-20	37.2	1045.7	337.4
Mar-20	36.1	994	403
Avg.	35.3	1044.7	389.3

Monthly Source Emissions (Unit#2) from April-2019 to March-2020

Month	Particulate Matter (mg/Nm³)	SO₂ (mg/Nm³)	NOx (mg/Nm³)
Apr-19	25.4	534	450
May-19	21.7	935	432
Jun-19	20.8	1077.3	479.7
Jul-19	22.3	1102.6	500.2
Aug-19	21.6	1160	453.1
Sep-19	24.3	973.2	437
Oct-19	22.8	1080.1	413.7
Nov-19	24	840.7	532.5
Dec-19	20.8	1123.4	461.2
Jan-20	19.6	984.6	434.6
Feb-20	18.6	1111.9	402.3
Mar-20	20.2	1006	438
Avg.	21.8	994.0	452.8

SUMMARY OF AMBIENT AIR QUALITY RESULTS FROM APRIL 2019 TO MARCH 2020

Inside Location:

1. BTG Area-

PM 2.5 (µg/m ³)				PM 10 (µg/m ³)				SO2 (µg/m ³)				NOx (µg/m ³)				CO (µg/m ³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
39.4	31.8	35.9	37.7	77.2	63.4	70.7	74.0	16.7	12.2	15.0	16.6	22.3	14.3	17.8	19.8	338.0	0.3	112.8	132.7

Arsenic (µg/m ³)				Nickel (µg/m ³)				Lead (µg/m ³)				O3 (µg/m ³)				NH ₃ (µg/m ³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<0.001	<0.001	<0.001	<0.001	2.39	<0.001	1.63	2.36	0.006	0.001	0.003	0.005	14.0	5.3	8.4	10.775	<20	<20	<20	<20

C6H6 (µg/m ³)				Benzo (a) Pyrene ng/m ³				Hg (µg/m ³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<0.01	<0.01	<0.01	<0.01	<1.0	<1.0	<1.0	<1.0	<0.001	<0.001	<0.001	<0.001

2. CHP Area-

PM 2.5 (µg/m ³)				PM 10 (µg/m ³)				SO2 (µg/m ³)				NOx (µg/m ³)				CO (µg/m ³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
43.5	32.6	37.7	40.4	78.1	61.2	71.8	75.4	20.6	12.5	16.2	17.5	24.1	15.1	19.3	20.6	342	0.254	119.7	138.7853

Arsenic (µg/m ³)				Nickel (µg/m ³)				Lead (µg/m ³)				O3 (µg/m ³)				NH ₃ (µg/m ³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<0.001	<0.001	<0.001	<0.001	5.800	1.284	1.768	2.768	0.007	0.001	0.003	0.006	14.0	5.2	8.9	11.1	<20	<20	<20	<20

C6H6 (µg/m ³)				Benzo (a) Pyrene ng/m ³				Hg (µg/m ³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<0.01	<0.01	<0.01	<0.01	<1.0	<1.0	<1.0	<1.0	<0.001	<0.001	<0.001	<0.001

3. DM Plant -

PM 2.5 (µg/m³)				PM 10 (µg/m³)				SO2 (µg/m³)				NOx (µg/m³)				CO (µg/m³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
37.5	30.5	34.5	36.0	73.6	60.8	67.2	70.23333	17.7	12.0	14.3	15.5	19.6	14.0	16.5	17.7	286	0.232	97.7	114.8

Arsenic (µg/m³)				Nickel (µg/m³)				Lead (µg/m³)				O3 (µg/m³)				NH3 (µg/m³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<0.001	<0.001	<0.001	<0.001	4	<0.001	1.392	1.926	0.005	0.001	0.003	0.004	13.8	4.7	8.1	10.1	<20	<20	<20	<20

C6H6 (µg/m³)				Benzo (a) Pyrene ng/m3				Hg (µg/m³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<0.01	<0.01	<0.01	<0.01	<1.0	<1.0	<1.0	<1.0	<0.001	<0.001	<0.001	<0.001

4. Ash Silo Area-

PM 2.5 (µg/m³)				PM 10 (µg/m³)				SO2 (µg/m³)				NOx (µg/m³)				CO (µg/m³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
42.1	30.6	37.3	39.7	79.4	65.3	72.5	75.9	19.5	12.1	15.4	16.9	22.6	14.1	18.1	19.8	318	0.06	110	128

Arsenic (µg/m³)				Nickel (µg/m³)				Lead (µg/m³)				O3 (µg/m³)				NH3 (µg/m³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<0.001	<0.001	<0.001	<0.001	0.004	0.2	1.609	2.410	0.007	0.001	0.003	0.005	14.6	4.6	8.1	10.2	<20	<20	<20	<20

C6H6 (µg/m³)				Benzo (a) Pyrene ng/m3				Hg (µg/m³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<0.01	<0.01	<0.01	<0.01	<1.0	<1.0	<1.0	<1.0	<0.001	<0.001	<0.001	<0.001

SUMMARY FOR AMBIENT AIR QUALITY MONITORING RESULTS FROM APRIL 2019 TO MARCH 2020

Out Side of Plant Area:

1. Tarod village

PM 2.5 (µg/m³)				PM 10 (µg/m³)				SO2 (µg/m³)				NOx (µg/m³)				CO (µg/m³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
31.7	23.0	26.9	28.5	67.8	54.0	60.5	65.1	15.2	10.5	12.6	13.7	17.5	12.9	14.8	15.9	267.0	0.186	88	106
Arsenic (µg/m³)				Nickel (µg/m³)				Lead (µg/m³)				O3 (µg/m³)				NH ₃ (µg/m³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	<0.001	0.002	0.003	6.5	4.2	7.4	9.3	<20	<20	<20	<20

C6H6 (µg/m³)				Benzo (a) Pyrene ng/m3				Hg (µg/m³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001

2. Jhalmala Village

PM 2.5 (µg/m³)				PM 10 (µg/m³)				SO2 (µg/m³)				NOx (µg/m³)				CO (µg/m³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
28.6	21.6	25.1	26.6	61.5	49.6	56.1	58.4	13.5	10.1	12.0	12.8	16.0	12.2	14.1	15.0	266.0	0.196	86	104
Arsenic (µg/m³)				Nickel (µg/m³)				Lead (µg/m³)				O3 (µg/m³)				NH ₃ (µg/m³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	12.4	4.2	6.8	8.6	<20	<20	<20	<20

C6H6 (µg/m³)				Benzo (a) Pyrene ng/m3				Hg (µg/m³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001

3. Amora village-

PM 2.5 (µg/m ³)				PM 10 (µg/m ³)				SO ₂ (µg/m ³)				NO _x (µg/m ³)				CO (µg/m ³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
28.1	24.4	26.3	28.1	61.7	55.9	58.7	61.6	13.7	11.7	12.7	13.6	16.1	13.7	14.8	16.1	109.8	71.2	90.7	109.3

Arsenic (µg/m ³)				Nickel (µg/m ³)				Lead (µg/m ³)				O ₃ (µg/m ³)				NH ₃ (µg/m ³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	9.3	5	7.1	9.1	<20	<20	<20	<20

C ₆ H ₆ (µg/m ³)				Benzo (a) Pyrene ng/m ³				Hg (µg/m ³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<0.001	<0.001	<0.001	<0.001

4. Sonsari village-

PM 2.5 (µg/m ³)				PM 10 (µg/m ³)				SO ₂ (µg/m ³)				NO _x (µg/m ³)				CO (µg/m ³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
29.4	21.4	25.1	26.6	66.3	50.1	58.5	60.85	14.6	10.0	12.1	13.15833	17.1	12.4	14.4	15.4	251	0.165	86.30408	111

Arsenic (µg/m ³)				Nickel (µg/m ³)				Lead (µg/m ³)				O ₃ (µg/m ³)				NH ₃ (µg/m ³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	12.4	3.9	7.0	9.0	<20	<20	<20	<20

C ₆ H ₆ (µg/m ³)				Benzo (a) Pyrene ng/m ³				Hg (µg/m ³)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<0.01	<0.01	<0.01	<0.01	<1.0	<1.0	<1.0	<1.0	<0.001	<0.001	<0.001	<0.001

5. Nariyara village-

PM 2.5 ($\mu\text{g}/\text{m}^3$)				PM 10 ($\mu\text{g}/\text{m}^3$)				SO ₂ ($\mu\text{g}/\text{m}^3$)				NO _x ($\mu\text{g}/\text{m}^3$)				CO ($\mu\text{g}/\text{m}^3$)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
27.4	21.8	25.7	25.3	63.5	51.6	52.2	54.6	13.7	9.6	11.7	12.9	16.5	12.1	14.3	15.3	260	0.172	213.8	259

Arsenic ($\mu\text{g}/\text{m}^3$)				Nickel ($\mu\text{g}/\text{m}^3$)				Lead ($\mu\text{g}/\text{m}^3$)				O ₃ ($\mu\text{g}/\text{m}^3$)				NH ₃ ($\mu\text{g}/\text{m}^3$)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	12.1	3.8	7.0	8.8	<20	<20	<20	<20

C ₆ H ₆ ($\mu\text{g}/\text{m}^3$)				Benzo (a) Pyrene ng/m ³				Hg ($\mu\text{g}/\text{m}^3$)			
Max	Min	Avg	98%	Max	Min	Avg	98%	Max	Min	Avg	98%
<0.01	<0.01	<0.01	<0.01	<1.0	<1.0	<1.0	<1.0	<0.001	<0.001	<0.001	<0.001