

**ENVIRONMENTAL MONITORING REPORT**  
**FOR**  
**6x600 MW COAL BASED POWER PLANT**  
**OF KSK MAHANADI POWER COMPANY LTD**  
**AT NARIYARA, JANJGIR-CHAMPA DISTRICT, CHHATTISGARH**

**MONTHLY REPORT: MARCH-2025**


**Client:**

**KSK Mahanadi Power Company Ltd**  
**Nariyara, Chhattisgarh**

**Prepared by:**



**VIMTA Labs Ltd.**  
**142, IDA, Phase-II, Cherlapally**  
**Hyderabad – 500 051, Telangana State**  
**[www.vimta.com](http://www.vimta.com), [env@vimta.com](mailto:env@vimta.com)**

	<p><b>Monthly Environmental Monitoring Report for 6x600 MW Coal Based Power Plant of KSK Mahanadi Power Company Limited at Nariyara Village, Janjgir-Champa District, Chhattisgarh</b></p> <p style="text-align: right;"><b>March 2025</b></p>
---	--

## **1.0 INTRODUCTION**

KSK Mahanadi Power Company Limited has installed 3 X 600 MW Power Plant at Narayana, Janjgir Champa District, Chhattisgarh.

## **2.0 PROCESS DESCRIPTION**

The 6x600 MW Power Plant has been constructed as a two phase configuration of 2x1800 MW unit, with two boilers. The project involves 6 Pulverized boiler, steam at 174 bars at 540 °C with six condensing turbo generator set having generating capacity of 600 MW of power each. Out six Units three units under operation and balance units are under construction.

## **3.0 DESCRIPTION OF ENVIRONMENT**

The coal based thermal power plant is located near Nariyara village, Janjgir-Champa District, Chhattisgarh. The index map of the power plant and 10-km radius study area map are shown in **Figure-1** and **Figure-2** respectively.

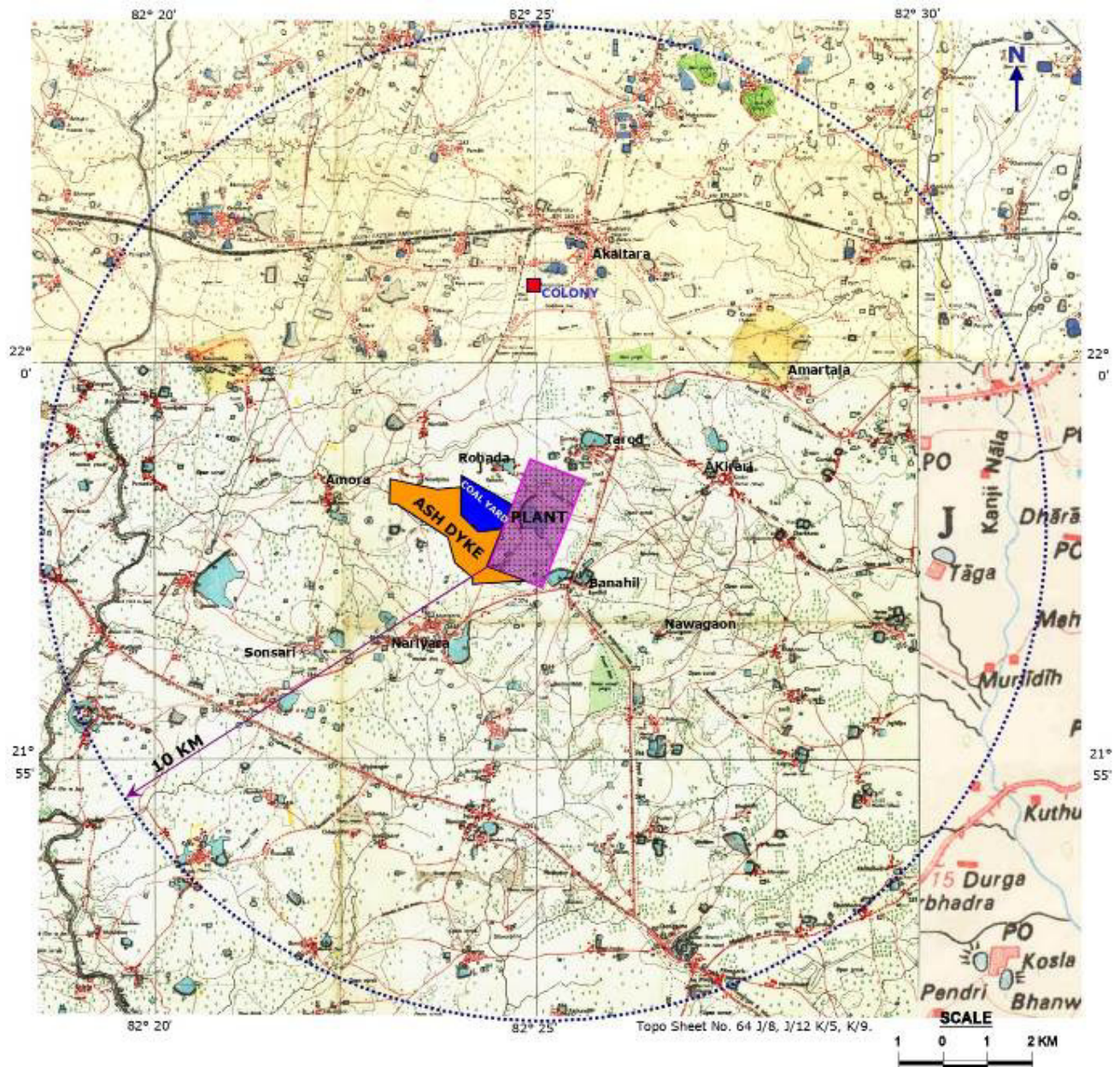
The air, noise and water sampling locations are given in **Figure-3**, **Figure-4** and **Figure-5**.

Source: Maps of India

## **FIGURE-1**

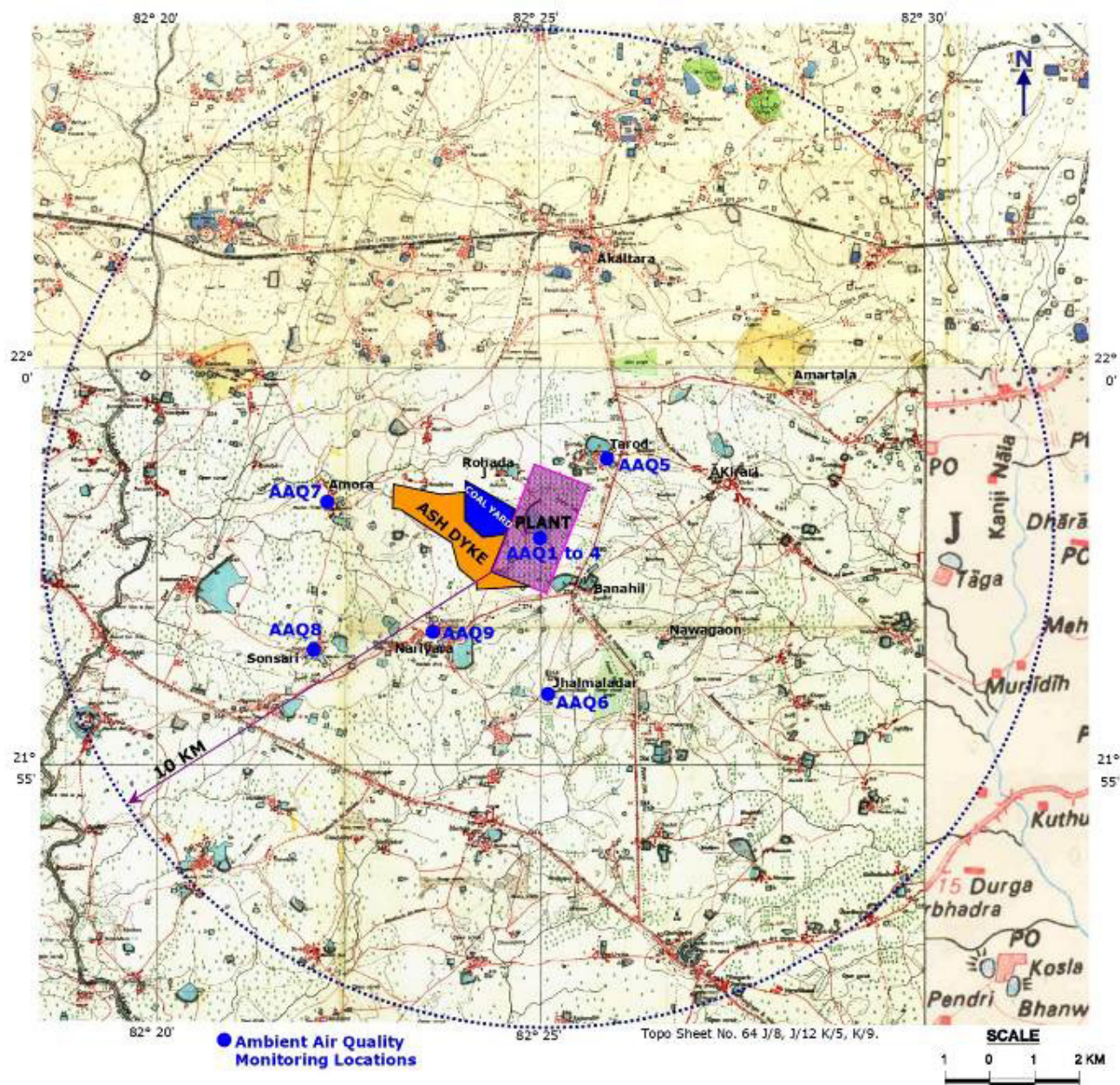
### **INDEX MAP**





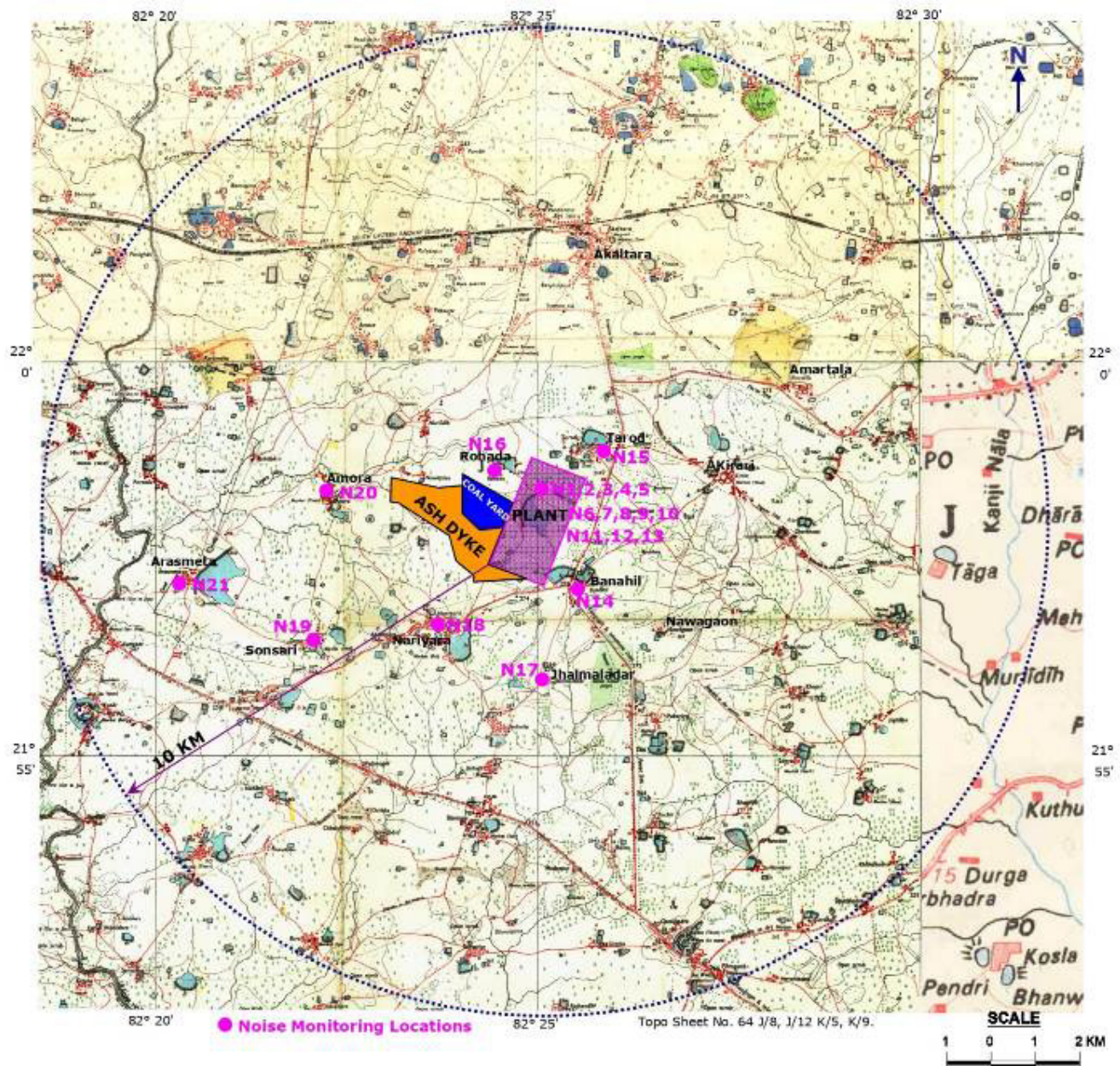
**FIGURE-2**  
**STUDY AREA MAP OF 10-KM RADIUS**





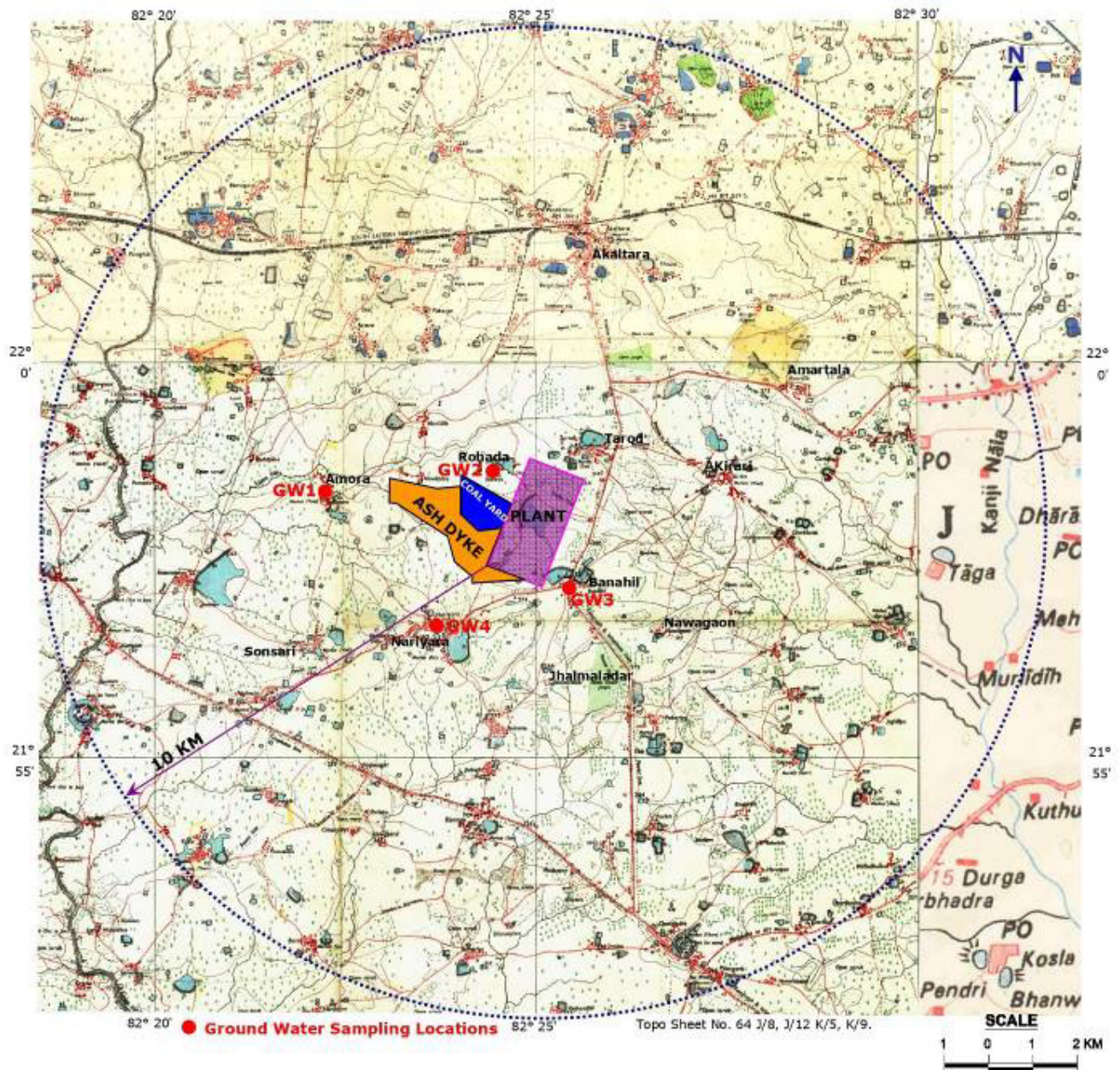
**FIGURE-3**  
**AMBIENT AIR QUALITY LOCATIONS**





**FIGURE-4**  
**NOISE MONITORING LOCATIONS**





**FIGURE-5**  
**GROUND WATER SAMPLING LOCATIONS**

	<b>Monthly Environmental Monitoring Report for 6x600 MW Coal Based Power Plant of KSK Mahanadi Power Company Limited at Nariyara Village, Janjgir-Champa District, Chhattisgarh</b>  <p style="text-align: right;"><b>March 2025</b></p>
---	--

#### 4.0 Scope of Work

M/s KSK Mahanadi Power Company Limited is regularly carrying out the environmental monitoring in and around plant site, as it is a requirement under consent for establishment and consent to Operate from CECB, Chhattisgarh. KSK Mahanadi Power Company Limited entrusted the job of regular environmental monitoring to M/s. Vimta Lab Ltd, Hyderabad.

Monitoring of Ambient Air Quality, water quality and noise level measurement are part of the scope of work given to M/s Vimta Lab Ltd. The environmental monitoring study has been carried out at the following locations:

##### A] Ambient Air Quality

**TABLE-1**  
**AMBIENT AIR QUALITY MONITORING LOCATIONS**

Location Code	Location Name	Direction w.r.t Plant	Distance from Plant (Km)
<b>Inside the Premises</b>			
AAQ1	BTG area	-	-
AAQ2	CHP area	-	-
AAQ3	DM Plant area	-	-
AAQ4	Ash handling area	-	-
<b>Outside the Premises</b>			
AAQ5	Tarod Village	NNE	0.8
AAQ6	Jhalmala Village	S	2.2
AAQ7	Amora Village	W	4.0
AAQ8	Sonsari Village	SW	4.3
AAQ9	Nariyara Village	SSW	1.8

##### B] Stack monitoring

Power Plant Unit –II, Unit – III and Unit - IV

##### C] Ambient Noise Levels

**TABLE-2**  
**AMBIENT NOISE LEVEL MONITORING LOCATIONS**

Location Code	Location Name	Direction w.r.t Plant	Distance from Plant (Km)
<b>Inside the Premises</b>			
N1	TG floor	-	-
N2	Cooling tower	-	-
N3	Main Gate	-	-
N4	Boiler feed pump	-	-
N5	Admin Building area	-	-
N6	CHP Machine area	-	-
N7	AHP area	-	-
N8	Ash Silo area	-	-
N9	CW Pump house	-	-
N10	Compressor 1	-	-
N11	Compressor 2	-	-
N12	Compressor 3	-	-
N13	Compressor 4	-	-
<b>Outside the Premises</b>			
N14	Banahil Village	E	0.7
N15	Tarod Village	NNE	0.8



	<b>Monthly Environmental Monitoring Report for 6x600 MW Coal Based Power Plant of KSK Mahanadi Power Company Limited at Nariyara Village, Janjgir-Champa District, Chhattisgarh</b>  <b>March 2025</b>
---	--

Location Code	Location Name	Direction w.r.t Plant	Distance from Plant (Km)
N16	Rogda Village	NW	1.5
N17	Jhalmala Village	S	2.2
N18	Nariyara Village	SSW	1.8
N19	Sonsari Village	SW	4.3
N20	Amora Village	W	4.0
N21	Arasmeta Village	W	6.8

#### D] Ground Water Sampling Locations

**TABLE-3**  
**GROUND WATER SAMPLING LOCATIONS**

Location Code	Location Name	Direction w.r.t Plant	Distance from Plant (Km)
<b>Ground Water Locations</b>			
GW1	Amora Village	W	4.0
GW2	Rogda Village	NW	1.5
GW3	Banahill Village	E	0.7
GW4	Nariyara Village	SSW	1.8
<b>Ash Pond Ground Water Locations</b>			
GW5	Ash pond Location-1	--	--
GW6	Ash pond Location-2	--	--
GW7	Ash pond Location-3	--	--
GW8	Ash pond Location-4	--	--

#### E] Waste water samples Locations

**TABLE-4**  
**WASTE WATER SAMPLING LOCATIONS**

Sr. No.	Code	Location
<b>Unit –I</b>		
1	WW1	CT blow down
2	WW2	Boiler blow down
3	WW3	Condenser Cooling Water
4	WW4	Guard pond
5	WW5	STP Outlet

#### F] Water Depth Sampling Locations

**TABLE-5**  
**WATER DEPTH SAMPLING LOCATIONS**

Location Code	Location Name	Direction w.r.t Plant	Distance from Plant (Km)
<b>Ground Water Depth Locations</b>			
GW1	Banahill village	E	0.7
GW2	Nariyara Village	SSW	1.8
GW3	Amora Village	W	4.0
GW4	Rogda Village	NW	1.5
<b>Ash pond Area</b>			
ASH1	Ash pond Location-1	--	--
ASH2	Ash pond Location-2	--	--
ASH3	Ash pond Location-3	--	--
ASH4	Ash pond Location-4	--	--

## G] Soil Quality

**TABLE-5 (A)**  
**SOIL SAMPLING LOCATIONS**

Location Code	Location Name	Direction w.r.t Plant	Distance from Plant (Km)
S1	Tarod Village	NNE	0.8
S2	Rogda Village	NW	1.5
S3	Banahil Village	E	0.7
S4	Jhalmala Village	S	2.2
S5	Amora Village	W	4.0
S6	Sonsari Village	SW	4.3
S7	Akaltara Village	NNE	6.2
S8	Nariyara Village	SSW	1.8

## 5.0 METHODOLOGY OF MONITORING AND SAMPLING PROCEDURES

### 5.1 Ambient Air Quality Monitoring

Respirable dust samplers with suitable calibration were located in selected sampling stations as mentioned above, based on topography and wind pattern of the region. Samples were collected continuously on 24 hours average basis for PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>2</sub>, Carbon Monoxide (CO), Ammonia, Lead, Arsenic, Nickel, Ozone, Benzene and Benzo(a)pyrene. Air samples were analyzed for SO<sub>2</sub> by West- Gaeke Method using Spectrophotometer at a wave length of 560 nm. For NO<sub>2</sub>, the analysis was carried out using Sodium Arsenite Method, spectrophotometrically at a wave length of 540 nm. The Fine Particulate Matter PM<sub>2.5</sub> & PM<sub>10</sub> is calculated by using gravimetric analysis. Pre-weighed Teflon filter paper and whatman GFA filter papers were used for determining the respirable particulate matter. The details of the sampling locations are presented in below **Table-1**.

### 5.2 Stack Gas Sampling

The stack sampling was carried out using ISO-Kinetic Method using pre-calibrated stack kit. Glass fiber thimbles were used for collecting particulate matter.

### 5.3 Ambient Noise Monitoring

Sound Pressure Levels (SPL) measurements were recorded at 8 locations. The readings were taken for every hour for 24-hrs. The day noise levels have been monitored during 6 am to 10 pm and night noise levels during 10 pm to 6 am at all the locations covered in the study area and 13 work zone noise levels. The details of the sampling locations are given in **Table-2**.

During each hour parameters like L10, L50, L90 and Leq were directly computed by the instrument based on the sound pressure levels.



## 5.4 Water Sampling

Water sample were collected and analyzed for Total Suspended Solids, Total Dissolved Solids, pH, Dissolved oxygen, Chemical Oxygen Demand, Biochemical Oxygen Demand, Oil & Grease, chlorides, sulphates, phosphates(Total), Zinc, chromium, copper, Iron(Total), as per standard methods published by APHA. The details of the sampling locations are given in **Table-3**.

## 5.5 Waste water Sampling

Waste water samples were collected and analyzed for Total Suspended Solids, Total Dissolved Solids, pH, Dissolved oxygen, Chemical Oxygen Demand, Biochemical Oxygen Demand, Oil & Grease, chlorides, sulphates, phosphates(Total), Zinc, chromium, copper, Iron(Total), as per standard methods published by APHA. The details of the sampling locations are given in **Table-4** and Water Depth levels of sampling locations are given in **Table-5**.

## 5.6 Soil Sampling

The Soil sampling locations have been identified with the following objectives:

- To determine the soil characteristics of the study area;
- To determine the impact of industrialization on soil characteristics; and
- To determine the impact on soils more importantly from agricultural productivity point of view.

At each location, soil samples were collected from three different depths viz. 30 cm, 60 cm and 90 cm below the surface and are homogenized. The homogenized soil samples will be analyzed as IS: 2720 and Methods of Soil Analysis, Part-1, 2<sup>nd</sup> edition, 1986 of (American Society for Agronomy and Soil Science Society of America) for physical and chemical characteristics. The details of the sampling locations are given in **Table-5 (A)**

## 6.0 QUALITY ASSURANCE

Vimta Labs Ltd is accredited by NABL Govt. of India and follows quality systems as per ISO/IEC 17025-2017. The QA/QC procedures are laid prior to sample collection and laboratory analysis. It includes the standard procedures of sample collection, preservation, transportation and laboratory analysis with all documented procedures and continuous monitoring of Quality Control division.

## 7.0 RESULTS OF SURVEY DATA

The monitoring results of Ambient Air Quality analysis for the month of **March-2025** are presented in below **Table-6 to Table-10**.

 KSK Power from knowledge	<b>Monthly Environmental Monitoring Report for 6x600 MW Coal Based Power Plant of KSK Mahanadi Power Company Limited at Nariyara Village, Janjgir-Champa District, Chhattisgarh</b>
	<b>March 2025</b>

## 7.1 Ambient Air Quality Monitoring Results

**TABLE-6**  
**AAQ MONITORING RESULTS**

Monitoring Date	PM2.5	PM10	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>
	Particulate Matter(µg/m <sup>3</sup> )				
BTG area – AAQ1					
03.03.2025	48.1	73.2	16.6	19.3	0.265
06.03.2025	43.8	72.1	14.7	17.5	0.259
10.03.2025	48.0	65.4	16.6	19.6	0.286
13.03.2025	43.4	70.0	15.2	18.3	0.252
17.03.2025	50.6	68.2	16.5	19.7	0.267
20.03.2025	47.3	71.3	14.9	17.6	0.255
24.03.2025	50.7	70.9	16.5	18.8	0.271
27.03.2025	45.4	74.6	14.9	18.4	0.257
Max	50.7	74.6	16.6	19.7	0.286
Min`	43.4	65.4	14.7	17.5	0.252
Avg	47.2	70.7	15.7	18.7	0.264
98%le	50.7	74.4	16.6	19.7	0.284
CHP area – AAQ2					
03.03.2025	49.2	74.3	18.1	21.6	0.293
06.03.2025	45.2	82.5	16.3	20.0	0.298
10.03.2025	50.2	77.5	17.6	21.5	0.330
13.03.2025	45.5	78.8	16.2	19.5	0.263
17.03.2025	40.5	73.6	17.5	21.4	0.328
20.03.2025	52.5	78.2	15.8	20.0	0.268
24.03.2025	51.7	74.5	19.2	23.2	0.324
27.03.2025	43.5	79.4	16.4	18.4	0.280
Max	52.5	82.5	19.2	23.2	0.330
Min	40.5	73.3	15.8	18.4	0.263
Avg	47.2	77.2	17.1	20.7	0.298
98%le	52.4	82.1	19.0	23.0	0.330
DM plant area – AAQ3					
03.03.2025	38.6	64.4	13.4	16.2	0.261
06.03.2025	43.6	67.3	15.5	18.3	0.253
10.03.2025	41.8	68.3	13.8	14.7	0.256
13.03.2025	44.3	71.5	15.9	15.7	0.245
17.03.2025	40.7	62.8	13.4	16.0	0.274
20.03.2025	45.2	67.3	14.8	17.2	0.236
24.03.2025	41.5	68.1	13.7	15.8	0.267
27.03.2025	39.5	71.4	14.5	18.2	0.244
Max	45.2	71.5	15.9	18.3	0.274
Min	38.6	62.8	13.4	14.7	0.236
Avg	41.9	67.6	14.4	16.5	0.255
98%le	45.1	71.5	15.8	18.3	0.273

Teflon filter paper was used in PM2.5 & whatman filter paper for PM10 weighed in Mettler electronic balance and computed as per standard methods PM2.5, PM10, SO<sub>2</sub>, NO<sub>x</sub> is monitored on 24 hrs. Basis CO is monitored on 8 hours basis All the values are expressed in µg/m<sup>3</sup> except CO is measured in mg/m<sup>3</sup>



	<b>Monthly Environmental Monitoring Report for 6x600 MW Coal Based Power Plant of KSK Mahanadi Power Company Limited at Nariyara Village, Janjgir-Champa District, Chhattisgarh</b>  <b>March 2025</b>
---	--

**TABLE-7**  
**AAO MONITORING RESULTS**

Monitoring Date	PM2.5	PM10	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>
	Particulate				
Ash handling area – AAQ4					
03.03.2025	42.0	72.6	15.5	18.9	0.278
06.03.2025	51.5	83.2	16.6	19.1	0.316
10.03.2025	38.9	78.5	14.9	17.8	0.269
13.03.2025	45.4	76.1	17.3	20.3	0.292
17.03.2025	44.0	74.0	15.6	17.8	0.314
20.03.2025	51.8	81.4	18.1	21.4	0.288
24.03.2025	42.0	84.2	14.5	18.7	0.313
27.03.2025	47.0	75.5	15.5	17.6	0.273
Max	51.8	84.2	18.1	21.4	0.316
Min	38.9	72.6	14.5	17.6	0.269
Avg	45.3	78.2	16.0	19.0	0.293
98%ile	51.8	84.1	18.0	21.2	0.316
Tarod Village – AAQ5					
03.03.2025	35.7	59.8	12.9	14.5	0.181
06.03.2025	32.5	61.4	11.6	13.5	0.155
10.03.2025	32.5	58.5	13.0	14.2	0.176
13.03.2025	38.3	57.0	11.6	13.6	0.130
17.03.2025	34.2	64.4	12.8	14.5	0.186
20.03.2025	41.6	58.8	11.8	13.9	0.143
24.03.2025	38.2	63.5	12.9	14.5	0.177
27.03.2025	33.8	60.2	11.5	13.6	0.143
Max	41.6	64.4	13.0	14.5	0.186
Min	32.5	57.0	11.5	13.5	0.130
Avg	35.9	60.5	12.3	14.0	0.161
98%ile	41.1	64.3	13.0	14.5	0.185
Jhalmala Village- AAQ6					
03.03.2025	39.3	58.7	12.6	14.3	0.168
06.03.2025	35.8	61.4	10.7	13.2	0.138
10.03.2025	37.7	57.2	12.7	14.2	0.159
13.03.2025	33.6	62.1	11.4	13.9	0.133
17.03.2025	35.8	55.0	12.3	15.3	0.142
20.03.2025	35.9	59.3	10.6	13.9	0.198
24.03.2025	38.1	56.2	12.4	14.5	0.182
27.03.2025	35.1	60.3	10.2	13.5	0.137
Max	39.3	62.1	12.7	15.3	0.198
Min	33.6	55.0	10.2	13.2	0.133
Avg	36.4	58.8	11.6	14.1	0.157
98%ile	39.1	62.0	12.7	15.2	0.196
Limits as per NAAQS	60	100	80	80	02

Teflon filter paper was used in PM2.5 & whatman filter paper for PM10 weighed in Mettler electronic balance and computed as per standard methods PM2.5, PM10, SO<sub>2</sub>, NO<sub>x</sub> is monitored on 24 hrs. Basis CO is monitored on 8 hours basis All the values are expressed in µg/m<sup>3</sup> except CO is measured in mg/m<sup>3</sup>

	<b>Monthly Environmental Monitoring Report for 6x600 MW Coal Based Power Plant of KSK Mahanadi Power Company Limited at Nariyara Village, Janjgir-Champa District, Chhattisgarh</b>  <b>March 2025</b>
---	--

**TABLE-8**  
**AAQ MONITORING RESULTS**

Monitoring Date	PM2.5	PM10	SO <sub>2</sub> µg/m <sup>3</sup>	NO <sub>2</sub> µg/m <sup>3</sup>	CO mg/m <sup>3</sup>
	Particulate				
Amora Village - AAQ7					
03.03.2025	35.6	63.1	13.2	15.3	0.165
06.03.2025	32.5	60.4	12.4	13.4	0.138
10.03.2025	34.9	59.5	13.2	15.4	0.146
13.03.2025	31.5	67.3	12.4	12.9	0.133
17.03.2025	35.4	59.4	11.8	14.3	0.144
20.03.2025	32.8	62.5	12.7	13.8	0.164
24.03.2025	36.2	62.4	13.3	15.2	0.135
27.03.2025	34.5	57.3	11.6	13.6	0.147
Max	36.2	67.3	13.3	15.4	0.165
Min	31.5	57.3	11.6	12.9	0.133
Avg	34.2	61.5	12.6	14.2	0.147
98%ile	36.1	66.7	13.3	15.4	0.165
Sonsari Village - AAQ8					
03.03.2025	38.2	57.6	13.2	15.0	0.148
06.03.2025	35.1	59.1	11.7	12.9	0.134
10.03.2025	33.5	58.9	13.6	15.0	0.146
13.03.2025	29.9	59.4	10.9	12.7	0.127
17.03.2025	36.4	63.4	13.6	14.1	0.154
20.03.2025	32.6	55.6	12.5	13.2	0.142
24.03.2025	34.9	62.5	13.5	15.1	0.174
27.03.2025	36.1	64.2	11.7	13.4	0.132
Max	38.2	64.2	13.6	15.1	0.174
Min	29.9	55.6	10.9	12.7	0.127
Avg	34.6	60.1	12.6	13.9	0.145
98%ile	37.9	64.1	13.6	15.1	0.171
Nariyara Village – AAQ9					
03.03.2025	32.8	55.4	12.2	14.0	0.158
06.03.2025	34.8	57.3	11.4	12.5	0.143
10.03.2025	31.8	56.3	12.4	14.8	0.161
13.03.2025	30.1	52.8	11.2	13.3	0.187
17.03.2025	33.1	56.5	10.7	12.9	0.192
20.03.2025	32.6	55.3	11.4	13.1	0.159
24.03.2025	37.2	52.4	12.5	14.1	0.124
27.03.2025	36.9	57.1	11.8	13.2	0.142
Max	37.2	57.3	12.5	14.8	0.192
Min	30.1	52.4	10.7	12.5	0.124
Avg	33.7	55.4	11.7	13.5	0.158
98%ile	37.2	57.3	12.5	14.7	0.191
Limits as per NAAQS	60	100	80	80	02

Teflon filter paper was used in PM2.5 & whatman filter paper for PM10 weighed in Mettler electronic balance and computed as per standard methods PM2.5, PM10, SO<sub>2</sub>, NO<sub>x</sub> is monitored on 24 hrs. Basis CO is monitored on 8 hours basis All the values are expressed in µg/m<sup>3</sup> except CO is measured in mg/m<sup>3</sup>



 KSK Power from knowledge	<b>Monthly Environmental Monitoring Report for 6x600 MW Coal Based Power Plant of KSK Mahanadi Power Company Limited at Nariyara Village, Janjgir-Champa District, Chhattisgarh</b>
	<b>March 2025</b>

**TABLE-9**  
**AAQ MONITORING RESULTS**

Monitoring Date & Location	Arsenic ng/m <sup>3</sup>	Nickel ng/m <sup>3</sup>	Lead µg/m <sup>3</sup>	O <sub>3</sub> µg/m <sup>3</sup>	NH <sub>3</sub> µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> µg/m <sup>3</sup>	Benzo(a) Pyrene ng/m <sup>3</sup>	Hg µg/m <sup>3</sup>
<b>BTG area – AAQ1</b>								
03.03.2025	<1.0	1.5	<0.001	11.4	<5.0	<1.0	<0.1	<0.001
06.03.2025	<1.0	2.1	<0.001	8.3	<5.0	<1.0	<0.1	<0.001
10.03.2025	<1.0	<1.0	<0.001	12.1	<5.0	<1.0	<0.1	<0.001
13.03.2025	<1.0	1.7	<0.001	10.7	<5.0	<1.0	<0.1	<0.001
17.03.2025	<1.0	1.4	<0.001	12.5	<5.0	<1.0	<0.1	<0.001
20.03.2025	<1.0	1.2	<0.001	10.3	<5.0	<1.0	<0.1	<0.001
24.03.2025	<1.0	1.7	<0.001	9.5	<5.0	<1.0	<0.1	<0.001
27.03.2025	<1.0	1.8	<0.001	8.5	<5.0	<1.0	<0.1	<0.001
<b>Max</b>	<b>&lt;1.0</b>	<b>2.1</b>	<b>&lt;0.001</b>	<b>12.5</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Min</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>8.3</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Avg</b>	<b>&lt;1.0</b>	<b>1.6</b>	<b>&lt;0.001</b>	<b>10.4</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>98%</b>	<b>&lt;1.0</b>	<b>2.1</b>	<b>&lt;0.001</b>	<b>12.4</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>CHP area – AAQ2</b>								
03.03.2025	<1.0	1.9	<0.001	11.6	<5.0	<1.0	<0.1	<0.001
06.03.2025	<1.0	2.3	<0.001	9.3	<5.0	<1.0	<0.1	<0.001
10.03.2025	<1.0	1.7	<0.001	10.2	<5.0	<1.0	<0.1	<0.001
13.03.2025	<1.0	2.2	<0.001	9.9	<5.0	<1.0	<0.1	<0.001
17.03.2025	<1.0	1.5	<0.001	14.4	<5.0	<1.0	<0.1	<0.001
20.03.2025	<1.0	1.1	<0.001	13.6	<5.0	<1.0	<0.1	<0.001
24.03.2025	<1.0	2.0	<0.001	10.5	<5.0	<1.0	<0.1	<0.001
27.03.2025	<1.0	2.3	<0.001	9.4	<5.0	<1.0	<0.1	<0.001
<b>Max</b>	<b>&lt;1.0</b>	<b>2.3</b>	<b>&lt;0.001</b>	<b>14.4</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Min</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>9.3</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Avg</b>	<b>&lt;1.0</b>	<b>1.9</b>	<b>&lt;0.001</b>	<b>11.1</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>98%</b>	<b>&lt;1.0</b>	<b>2.3</b>	<b>&lt;0.001</b>	<b>14.3</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>DM plant area – AAQ3</b>								
03.03.2025	<1.0	1.3	<0.001	7.4	<5.0	<1.0	<0.1	<0.001
06.03.2025	<1.0	1.0	<0.001	10.5	<5.0	<1.0	<0.1	<0.001
10.03.2025	<1.0	1.7	<0.001	8.6	<5.0	<1.0	<0.1	<0.001
13.03.2025	<1.0	1.5	<0.001	10.2	<5.0	<1.0	<0.1	<0.001
17.03.2025	<1.0	<1.0	<0.001	9.2	<5.0	<1.0	<0.1	<0.001
20.03.2025	<1.0	1.7	<0.001	11.1	<5.0	<1.0	<0.1	<0.001
24.03.2025	<1.0	1.4	<0.001	8.5	<5.0	<1.0	<0.1	<0.001
27.03.2025	<1.0	1.2	<0.001	7.6	<5.0	<1.0	<0.1	<0.001
<b>Max</b>	<b>&lt;1.0</b>	<b>1.7</b>	<b>&lt;0.001</b>	<b>11.1</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Min</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>7.4</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Avg</b>	<b>&lt;1.0</b>	<b>1.4</b>	<b>&lt;0.001</b>	<b>9.1</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>98%</b>	<b>&lt;1.0</b>	<b>1.7</b>	<b>&lt;0.001</b>	<b>11.0</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Limits as per</b>	<b>06</b>	<b>20</b>	<b>1.0</b>	<b>100</b>	<b>400</b>	<b>05</b>	<b>01</b>	<b>-</b>

Below Detectable Limit for as and Ni 1.0 ng/m<sup>3</sup> Below Detectable Limit for Pb 0.001 µg/m<sup>3</sup> Ozone and CO is monitored on 8 hours basis Below Detectable Limit for O<sub>3</sub> 50 µg/m<sup>3</sup> Below Detectable Limit for NH<sub>3</sub> 5.0 µg/m<sup>3</sup>

	<b>Monthly Environmental Monitoring Report for 6x600 MW Coal Based Power Plant of KSK Mahanadi Power Company Limited at Nariyara Village, Janjgir-Champa District, Chhattisgarh</b>  <b>March 2025</b>
---	--

**TABLE-10**  
**AAQ MONITORING RESULTS**

Monitoring Date & Location	Arsenic ng/m3	Nickel ng/m3	Lead µg/m3	O <sub>3</sub> µg/m3	NH <sub>3</sub> µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> µg/m3	Benzo(a) Pyrene ng/m3	Hg µg/m3
<b>Ash handling area – AAQ4</b>								
03.03.2025	<1.0	2.5	<0.001	10.4	<5.0	<1.0	<0.1	<0.001
06.03.2025	<1.0	1.4	<0.001	14.0	<5.0	<1.0	<0.1	<0.001
10.03.2025	<1.0	1.9	<0.001	11.5	<5.0	<1.0	<0.1	<0.001
13.03.2025	<1.0	2.4	<0.001	13.2	<5.0	<1.0	<0.1	<0.001
17.03.2025	<1.0	2.1	<0.001	11.6	<5.0	<1.0	<0.1	<0.001
20.03.2025	<1.0	2.6	<0.001	10.5	<5.0	<1.0	<0.1	<0.001
24.03.2025	<1.0	1.7	<0.001	13.8	<5.0	<1.0	<0.1	<0.001
27.03.2025	<1.0	1.3	<0.001	9.4	<5.0	<1.0	<0.1	<0.001
<b>Max</b>	<b>&lt;1.0</b>	<b>2.6</b>	<b>&lt;0.001</b>	<b>14.0</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Min</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>9.4</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Avg</b>	<b>&lt;1.0</b>	<b>2.0</b>	<b>&lt;0.001</b>	<b>11.8</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>98%</b>	<b>&lt;1.0</b>	<b>2.6</b>	<b>&lt;0.001</b>	<b>14.0</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Tarod Village – AAQ5</b>								
03.03.2025	<1.0	<1.0	<0.001	6.7	<5.0	<1.0	<0.1	<0.001
06.03.2025	<1.0	<1.0	<0.001	8.4	<5.0	<1.0	<0.1	<0.001
10.03.2025	<1.0	<1.0	<0.001	7.2	<5.0	<1.0	<0.1	<0.001
13.03.2025	<1.0	<1.0	<0.001	6.9	<5.0	<1.0	<0.1	<0.001
17.03.2025	<1.0	<1.0	<0.001	9.4	<5.0	<1.0	<0.1	<0.001
20.03.2025	<1.0	<1.0	<0.001	8.0	<5.0	<1.0	<0.1	<0.001
24.03.2025	<1.0	<1.0	<0.001	7.9	<5.0	<1.0	<0.1	<0.001
27.03.2025	<1.0	<1.0	<0.001	9.0	<5.0	<1.0	<0.1	<0.001
<b>Max</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>9.4</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Min</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>6.7</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Avg</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>7.9</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>98%</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>9.3</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Jhalmala Village- AAQ-6</b>								
03.03.2025	<1.0	<1.0	<0.001	7.9	<5.0	<1.0	<0.1	<0.001
06.03.2025	<1.0	<1.0	<0.001	5.8	<5.0	<1.0	<0.1	<0.001
10.03.2025	<1.0	<1.0	<0.001	6.6	<5.0	<1.0	<0.1	<0.001
13.03.2025	<1.0	<1.0	<0.001	8.0	<5.0	<1.0	<0.1	<0.001
17.03.2025	<1.0	<1.0	<0.001	6.7	<5.0	<1.0	<0.1	<0.001
20.03.2025	<1.0	<1.0	<0.001	5.8	<5.0	<1.0	<0.1	<0.001
24.03.2025	<1.0	<1.0	<0.001	8.8	<5.0	<1.0	<0.1	<0.001
27.03.2025	<1.0	<1.0	<0.001	7.2	<5.0	<1.0	<0.1	<0.001
<b>Max</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>8.8</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Min</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>5.8</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Avg</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>7.1</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>98%</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>8.7</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.001</b>
<b>Limits as per</b>	<b>06</b>	<b>20</b>	<b>1.0</b>	<b>100</b>	<b>400</b>	<b>05</b>	<b>01</b>	<b>-</b>





**Monthly Environmental Monitoring Report for 6x600 MW Coal Based Power Plant of KSK Mahanadi Power Company Limited at Nariyara Village, Janjgir-Champa District, Chhattisgarh**

**March 2025**

**TABLE-11  
AAQ MONITORING RESULTS**

Monitoring Date & Location	Arsenic ng/m <sup>3</sup>	Nickel ng/m <sup>3</sup>	Lead µg/m <sup>3</sup>	O <sub>3</sub> µg/m <sup>3</sup>	NH <sub>3</sub> µg/m <sup>3</sup>	C <sub>6</sub> H <sub>6</sub> µg/m <sup>3</sup>	Benzo(a) Pyrene ng/m <sup>3</sup>	Hg µg/m <sup>3</sup>
<b>Amora Village – AAQ7</b>								
03.03.2025	<1.0	<1.0	<0.001	7.4	<5.0	<1.0	<0.1	<0.001
06.03.2025	<1.0	<1.0	<0.001	5.6	<5.0	<1.0	<0.1	<0.001
10.03.2025	<1.0	<1.0	<0.001	7.8	<5.0	<1.0	<0.1	<0.001
13.03.2025	<1.0	<1.0	<0.001	8.2	<5.0	<1.0	<0.1	<0.001
17.03.2025	<1.0	<1.0	<0.001	7.0	<5.0	<1.0	<0.1	<0.001
20.03.2025	<1.0	<1.0	<0.001	6.7	<5.0	<1.0	<0.1	<0.001
24.03.2025	<1.0	<1.0	<0.001	8.9	<5.0	<1.0	<0.1	<0.001
27.03.2025	<1.0	<1.0	<0.001	5.8	<5.0	<1.0	<0.1	<0.001
<b>Max</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>8.9</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.00</b>
<b>Min</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>5.6</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.00</b>
<b>Avg</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>7.2</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.00</b>
<b>98%</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>8.8</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.00</b>
<b>Sonsari Village – AAQ8</b>								
03.03.2025	<1.0	<1.0	<0.001	7.8	<5.0	<1.0	<0.1	<0.001
06.03.2025	<1.0	<1.0	<0.001	6.3	<5.0	<1.0	<0.1	<0.001
10.03.2025	<1.0	<1.0	<0.001	7.0	<5.0	<1.0	<0.1	<0.001
13.03.2025	<1.0	<1.0	<0.001	5.8	<5.0	<1.0	<0.1	<0.001
17.03.2025	<1.0	<1.0	<0.001	9.3	<5.0	<1.0	<0.1	<0.001
20.03.2025	<1.0	<1.0	<0.001	7.3	<5.0	<1.0	<0.1	<0.001
24.03.2025	<1.0	<1.0	<0.001	8.3	<5.0	<1.0	<0.1	<0.001
27.03.2025	<1.0	<1.0	<0.001	6.2	<5.0	<1.0	<0.1	<0.001
<b>Max</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>9.3</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.00</b>
<b>Min</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>5.8</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.00</b>
<b>Avg</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>7.3</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.00</b>
<b>98%</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>9.2</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.00</b>
<b>Nariyara Village – AAQ9</b>								
03.03.2025	<1.0	<1.0	<0.001	7.3	<5.0	<1.0	<0.1	<0.001
06.03.2025	<1.0	<1.0	<0.001	5.9	<5.0	<1.0	<0.1	<0.001
10.03.2025	<1.0	<1.0	<0.001	7.0	<5.0	<1.0	<0.1	<0.001
13.03.2025	<1.0	<1.0	<0.001	8.4	<5.0	<1.0	<0.1	<0.001
17.03.2025	<1.0	<1.0	<0.001	5.7	<5.0	<1.0	<0.1	<0.001
20.03.2025	<1.0	<1.0	<0.001	7.3	<5.0	<1.0	<0.1	<0.001
24.03.2025	<1.0	<1.0	<0.001	6.6	<5.0	<1.0	<0.1	<0.001
27.03.2025	<1.0	<1.0	<0.001	8.2	<5.0	<1.0	<0.1	<0.001
<b>Max</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>8.4</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.00</b>
<b>Min</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>5.7</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.00</b>
<b>Avg</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>7.1</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.00</b>
<b>98%</b>	<b>&lt;1.0</b>	<b>&lt;1.0</b>	<b>&lt;0.001</b>	<b>8.4</b>	<b>&lt;5.0</b>	<b>&lt;1.0</b>	<b>&lt;0.1</b>	<b>&lt;0.00</b>
<b>Limits as per</b>	<b>06</b>	<b>20</b>	<b>1.0</b>	<b>100</b>	<b>400</b>	<b>05</b>	<b>01</b>	<b>-</b>

Below Detectable Limit for as and Ni 1.0 ng/m<sup>3</sup> · Below Detectable Limit for Pb 0.001 µg/m<sup>3</sup> Ozone and CO is monitored on 8 hours basis Below Detectable Limit for O<sub>3</sub> 50 µg/m<sup>3</sup> Below Detectable Limit for NH<sub>3</sub> 5.0 µg/m<sup>3</sup>

#### 7.1.1 Observations (Inside the premises)

PM2.5: The maximum value for PM2.5 observed at CHP area as 52.5  $\mu\text{g}/\text{m}^3$  and minimum value for PM2.5 at DM Plant area as 38.6  $\mu\text{g}/\text{m}^3$ . The 24 hours applicable limit inside the plant premises 60  $\mu\text{g}/\text{m}^3$  for industrial area.

PM10: The maximum value for PM10 observed at AHP area as 84.2  $\mu\text{g}/\text{m}^3$  and minimum value for PM10 at DM Plant area as 62.8  $\mu\text{g}/\text{m}^3$ . The 24 hours applicable limit inside the plant premises 100  $\mu\text{g}/\text{m}^3$  for industrial area.

SO<sub>2</sub>: The maximum value for SO<sub>2</sub> observed at CHP plant area as 19.2  $\mu\text{g}/\text{m}^3$  and minimum value for SO<sub>2</sub> at DM Plant area as 13.4  $\mu\text{g}/\text{m}^3$ . The 24 hours applicable limit inside the plant premises 80  $\mu\text{g}/\text{m}^3$  for industrial area.

NO<sub>2</sub>: The maximum value for NO<sub>2</sub> observed at CHP area as 23.2  $\mu\text{g}/\text{m}^3$  and minimum value for NO<sub>2</sub> at DM Plant area as 14.7  $\mu\text{g}/\text{m}^3$ . The 24 hours applicable limit inside the plant premises 80  $\mu\text{g}/\text{m}^3$  for industrial area.

CO: The maximum value for CO observed at CHP area as 0.330  $\text{mg}/\text{m}^3$  and minimum value for CO at DM plant as 0.236  $\text{mg}/\text{m}^3$ . The 8 hours applicable limit inside the plant premises 02  $\text{mg}/\text{m}^3$  for industrial area.

Ammonia: The maximum and minimum value for Ammonia observed at all the locations as <20  $\mu\text{g}/\text{m}^3$ . The 24 hours' applicable limit inside the plant premises 400  $\mu\text{g}/\text{m}^3$  for industrial area

Nickel: The maximum value for Nickel observed at AHP area as 2.6  $\text{ng}/\text{m}^3$  and <1.0  $\text{ng}/\text{m}^3$  minimum value for BTG, DM, CHP & AHP Plant area. The 24 hours' applicable limit inside the plant premises 20  $\text{ng}/\text{m}^3$  for industrial area.

Arsenic: The maximum and minimum value for Arsenic observed at all the locations as <1.0  $\text{ng}/\text{m}^3$ . The 24 hours applicable limit inside the plant premises 6  $\text{ng}/\text{m}^3$  for industrial area


Lead: The maximum value for Lead observed at all the locations as <0.001  $\mu\text{g}/\text{m}^3$ . The 24 hours' applicable limit inside the plant premises 1  $\mu\text{g}/\text{m}^3$  for industrial area.

Ozone: The maximum value for Ozone observed at CHP area as 14.4  $\mu\text{g}/\text{m}^3$  and minimum value for Ozone DM Plant area as 7.4  $\mu\text{g}/\text{m}^3$ . The 8 hours' applicable limit inside the plant premises 100  $\mu\text{g}/\text{m}^3$  for industrial area.

Benzo(a)Pyrene: The maximum and minimum value for Benzo(a)Pyrene observed at all the locations as <0.1  $\text{ng}/\text{m}^3$ . The 24 hours applicable limit inside the plant premises 1  $\text{ng}/\text{m}^3$  for industrial area

Benzene: The maximum and minimum value for Benzene observed at all the locations as <1.0  $\mu\text{g}/\text{m}^3$ . The 24 hours applicable limit inside the plant premises 5  $\mu\text{g}/\text{m}^3$  for industrial area



	<p><b>Monthly Environmental Monitoring Report for 6x600 MW Coal Based Power Plant of KSK Mahanadi Power Company Limited at Nariyara Village, Janjgir-Champa District, Chhattisgarh</b></p> <p style="text-align: right;"><b>March 2025</b></p>
---	--

Mercury: The maximum and minimum value for Mercury observed at all the locations as  $<0.001 \mu\text{g} / \text{m}^3$  for 24 hours.

#### 7.1.2 Observations (Outside the premises)

PM<sub>2.5</sub>: The maximum value for PM<sub>2.5</sub> observed at Tarod village as  $41.6 \mu\text{g} / \text{m}^3$  and minimum value for PM<sub>2.5</sub> at Sonsari village as  $29.9 \mu\text{g} / \text{m}^3$ . The 24 hours applicable limit outside the plant premises  $60 \mu\text{g} / \text{m}^3$  for Rural/Residential area.

PM<sub>10</sub>: The maximum value for PM<sub>10</sub> observed at Amora village as  $67.3 \mu\text{g} / \text{m}^3$  and minimum value for PM<sub>10</sub> at Nariyara village as  $52.4 \mu\text{g} / \text{m}^3$ . The 24 hours applicable limit outside the plant premises  $100 \mu\text{g} / \text{m}^3$  for Rural/Residential area.

SO<sub>2</sub>: The maximum value for SO<sub>2</sub> observed at Sonsari village as  $13.6 \mu\text{g} / \text{m}^3$  and minimum value for SO<sub>2</sub> at Amora village as  $11.6 \mu\text{g} / \text{m}^3$ . The 24 hours applicable limit outside the Plant premises  $80 \mu\text{g} / \text{m}^3$  for Rural/Residential area.

NO<sub>x</sub>: The maximum value for NO<sub>x</sub> observed at Amora village as  $15.4 \mu\text{g} / \text{m}^3$  and minimum value for NO<sub>x</sub> at Nariyara village as  $12.5 \mu\text{g} / \text{m}^3$ . The 24 hours applicable limit outside the plant premises  $80 \mu\text{g} / \text{m}^3$  for Rural/Residential area.

CO: The maximum value for CO observed at Jhalmala village as  $0.198 \text{ mg} / \text{m}^3$  and minimum value for CO at Nariyara village as  $0.124 \text{ mg} / \text{m}^3$ . The 8 hours' applicable limit outside the plant premises  $02 \text{ mg} / \text{m}^3$  for Rural/Residential area.

Ammonia: The maximum and minimum value for Ammonia observed at all the locations as  $<20 \mu\text{g} / \text{m}^3$ . The 24 hours applicable limit outside the plant premises  $400 \mu\text{g} / \text{m}^3$  for Rural/Residential area.

Nickel: The maximum and minimum value for Nickel observed at all the locations as  $<1.0 \text{ ng} / \text{m}^3$ . The 24 hours applicable limit outside the plant premises  $20 \text{ ng} / \text{m}^3$  for Rural/Residential area.

Arsenic: The maximum and minimum value for Arsenic observed at all the locations as  $<1.0 \text{ ng} / \text{m}^3$ . The 24 hours applicable limit outside the plant premises  $6 \text{ ng} / \text{m}^3$  for Rural/Residential area.

Lead: The maximum and minimum value for Lead observed at all the locations as  $<0.001 \mu\text{g} / \text{m}^3$ . The 24 hours applicable limit outside the plant premises  $1 \mu\text{g} / \text{m}^3$  for Rural/Residential area.

Ozone: The maximum value for Ozone observed at Tarod village as  $9.4 \mu\text{g} / \text{m}^3$  and minimum value for Ozone at Amora village as  $5.6 \mu\text{g} / \text{m}^3$ . The 8 hours applicable limit outside the plant premises  $100 \mu\text{g} / \text{m}^3$  for Rural/Residential area.

Benzo(a)Pyrene: The maximum and minimum value for Benzo(a)Pyrene observed at all the locations as  $<0.1 \text{ ng} / \text{m}^3$ . The 24 hours applicable limit outside the plant premises  $1 \text{ ng} / \text{m}^3$  for Rural/Residential area.

	<b>Monthly Environmental Monitoring Report for 6x600 MW Coal Based Power Plant of KSK Mahanadi Power Company Limited at Nariyara Village, Janjgir-Champa District, Chhattisgarh</b>  <b>March 2025</b>
---	--

Benzene: The maximum and minimum value for Benzene observed at all the locations as  $<1.0 \mu\text{g}/\text{m}^3$ . The 24 hours applicable limit outside the plant premises  $5 \mu\text{g}/\text{m}^3$  for Rural/Residential area

Mercury: The maximum and minimum value for Mercury observed at all the locations as  $<0.001 \mu\text{g}/\text{m}^3$  for 24 hours.

#### Results and conclusions:

The results of the monitored data indicate that the ambient air quality of the region in general is conformity with respect to norms of National Ambient Air Quality standards of CPCB, at all locations monitored.

## **7.2 Noise Monitoring**

### **7.2.1 Source Noise Monitoring – Inside the Plant Premises**

The spot noise levels observed inside the premises at various locations is given in **Table-12**

**TABLE-12**  
**INDUSTRIAL NOISE LEVELS IN WORK ENVIRONMENT**

Sr. No	Code	Location	Date of sampling	Noise Level $L_{eq}$ [dB(A)]
1	N1	TG floor	04/03/2025	83.1
2	N2	Cooling tower#3	04/03/2025	82.5
3	N3	Main Gate	05/03/2025	64.1
4	N4	Boiler feed pump	04/03/2025	83.3
5	N5	Admin Building area	05/03/2025	57.2
6	N6	CHP Machine area	07/03/2025	83.6
7	N7	AHP area	05/03/2025	84.0
8	N8	Ash Silo area	05/03/2025	82.2
9	N9	CW Pump house	04/03/2025	82.7
10	N10	Compressor 1	07/03/2025	83.5
11	N11	Compressor 2	07/03/2025	84.2
12	N12	Compressor 3	07/03/2025	84.0
13	N13	Compressor 4	07/03/2025	83.7

### **7.2.2 Observations**

The industrial noise levels within the premises at Work Zone area are observed to be in the range of 57.2 to 84.2 dB (A), which are within the prescribed limit of 85 dB (A).

### **7.2.3 Noise Monitoring – Outside the Premises**

The statistical analysis is done for measured noise levels at four locations in the study area. The parameters are analyzed for  $L_{day}$ ,  $L_{night}$ , and  $L_{dn}$ . The statistical analysis results are given in **Table-13**.

**TABLE-13**  
**AMBIENT NOISE LEVELS IN THE STUDY AREA**

*All the values are given in dB (A)*

Code	Location	Date of sampling	L <sub>10</sub>	L <sub>50</sub>	L <sub>90</sub>	L <sub>eq</sub>	L <sub>day</sub>	L <sub>night</sub>	L <sub>dn</sub>
N14	Banahill Village	08.03.2025	53.2	49.3	45.6	50.3	51.1	43.2	47.6
N15	Tarod Village	28.03.2025	51.6	47.7	44.0	48.7	50.7	42.7	46.3
N16	Rogda Village	22.03.2025	54.6	50.7	47.0	51.7	52.5	42.5	48.3
N17	Jhalmala Village	14.03.2025	52.7	48.8	45.1	49.8	50.6	43.1	47.2
N18	Nariyara Village	15.03.2025	52.1	48.2	44.5	49.2	53.0	42.8	49.3
N19	Sonsari Village	18.03.2025	53.5	49.6	45.9	50.6	51.4	43.0	46.6
N20	Amora Village	21.03.2025	51.8	47.9	44.2	48.9	52.1	41.9	47.8
N21	Arasmeta Village	19.03.2025	52.5	48.6	44.9	49.6	50.4	43.7	46.2

#### 7.2.3.1 Observations

##### d) Day time Noise Levels (L<sub>day</sub>)

###### Residential Area

The daytime (L<sub>day</sub>) noise levels are observed to be in the range of 53.0 dB (A) – 50.4 dB (A), which are within the prescribed limit of 55 dB (A).

##### e) Night time Noise Levels (L<sub>night</sub>)

###### Residential Area

The nighttime (L<sub>night</sub>) noise levels were observed to be in the range of 43.7 dB (A) – 41.9 dB (A), which are within the prescribed limit of 45 dB (A).

### 7.3 Ground Water Quality

Four ground water samples were collected around Ash pond area and four ground water samples were collected at villages around the plant site and analyzed for various parameters. The analytical results are presented below in **Table-14** and **Table-15**.



**TABLE-14**  
**GROUND WATER QUALITY AROUND ASHPOND**

Sr. No	Parameter	Units	GW5	GW6	GW7	GW8
	Sampling season		Pre Monsoon Season			
	Sampling date		11.03.2025	11.03.2025	11.03.2025	11.03.2025
	Date of analysis		14.03.2025	14.03.2025	14.03.2025	14.03.2025
1	pH	--	7.42	7.37	7.64	7.45
2	Color	Hazen	8	7	9	5
3	Taste	--	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	--	Agreeable	Agreeable	Agreeable	Agreeable
5	Conductivity	µs/cm	1227	985	1006	1157
6	Turbidity	NTU	6	5	7	9
7	Total Dissolved Solids	mg/l	808	640	664	778
8	Total Hardness as CaCO <sub>3</sub>	mg/l	369	304	305	367
9	Total Alkalinity as CaCO <sub>3</sub>	mg/l	295	224	214	235
10	Calcium as Ca <sup>2+</sup>	mg/l	84.2	64.4	68.6	76.8
11	Magnesium as Mg <sup>2+</sup>	mg/l	38.6	34.8	32.4	42.6
12	Residual Chlorine	mg/l	<0.1	<0.1	<0.1	<0.1
13	Boron as B	mg/l	0.6	0.9	0.8	0.5
14	Chloride as Cl <sup>-</sup>	mg/l	132.6	128.2	142.8	168.1
15	Sulphate as SO <sub>4</sub> <sup>2+</sup>	mg/l	99.8	72.4	68.5	86.2
16	Fluorides as F	mg/l	1.6	1.1	1.0	1.5
17	Nitrate as NO <sub>3</sub>	mg/l	27.6	10.6	15.7	13.8
18	Sodium as Na <sup>+</sup>	mg/l	101.6	76.8	81.4	86.5
19	Potassium as K <sup>+</sup>	mg/l	18.5	12.1	16.5	18.1
20	Phenolic Compounds	mg/l	<0.001	<0.001	<0.001	<0.001
21	Cyanides as CN	mg/l	<0.02	<0.02	<0.02	<0.02
22	Anionic Detergents	mg/l	<0.1	<0.1	<0.1	<0.1
23	Mineral Oil	mg/l	<0.01	<0.01	<0.01	<0.01
24	Cadmium as Cd	mg/l	<0.003	<0.003	<0.003	<0.003
25	Total Arsenic as As	mg/l	<0.01	<0.01	<0.01	<0.01
26	Copper as Cu	mg/l	<0.01	<0.01	<0.01	<0.01
27	Lead as Pb	mg/l	<0.01	<0.01	<0.01	<0.01
28	Manganese as Mn	mg/l	<0.01	<0.01	<0.01	<0.01
29	Iron as Fe	mg/l	0.14	0.07	0.11	0.12
30	Total Chromium (as Cr)	mg/l	<0.01	<0.01	<0.01	<0.01
31	Selenium as Se	mg/l	<0.01	<0.01	<0.01	<0.01
32	Zinc as Zn	mg/l	0.33	0.27	0.38	0.25
33	Aluminium as Al	mg/l	<0.01	<0.01	<0.01	<0.01
34	Mercury as Hg	mg/l	<0.001	<0.001	<0.001	<0.001
35	Pesticides	mg/l	Absent	Absent	Absent	Absent
36	E. Coli	--	Absent	Absent	Absent	Absent
37	Total Coliforms	MPN/100ml	<2	<2	<2	<2

**Sampling Locations**

GW5. Ash pond Location-1, GW6. Ash pond Location-2, GW7. Ash pond Location-3, GW8. Ash pond Location-4

**7.3.1 Observations**

**7.3.2.1 Ground Water Around Ash pond Quality**

The analysis results indicate that the pH and conductivity of the ground water was found to be in the range of 7.37– 7.64 and 985 to 1227 µS/cm. The Total Dissolved Solids were found to be in the ranging of 640 to 808 mg/L. The Other parameters like Chlorides, Sulphates, Nitrates and Fluorides were found to be in the range of observed to be 128.2 mg/l to 168.1 mg/l, 68.5 mg/l to 99.8 mg/l, 10.6 mg/l to 27.6 mg/l and 1.0 mg/l to 1.6 mg/l.

**TABLE-15**  
**GROUND WATER QUALITY IN STUDY AREA**

Sr. No	Parameter	Units	GW1	GW2	GW3	GW4	Limits as per IS:10500
	Sampling season		Pre Monsoon Season				
	Sampling date		12.03.2025	12.03.2025	12.03.2025	12.03.2025	
	Date of analysis		14.03.2025	14.03.2025	14.03.2025	14.03.2025	
1	pH	--	7.64	7.53	7.43	7.58	6.5 – 8.5 (NR)
2	Color	Hazen	<1.0	<1.0	<1.0	<1.0	5(15)
3	Taste	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Odour	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Conductivity	µs/cm	721	942	781	807	\$
6	Turbidity	NTU	<1.0	<1.0	<1.0	<1.0	1(5)
7	Total Dissolved Solids	mg/l	461	614	498	522	500(2000)
8	Total Hardness as CaCO <sub>3</sub>	mg/l	230	295	247	237	200(600)
9	Total Alkalinity as CaCO <sub>3</sub>	mg/l	165	208	185	192	200(600)
10	Calcium as Ca <sup>2+</sup>	mg/l	44.8	62.4	48.6	51.3	75(200)
11	Magnesium as Mg <sup>2+</sup>	mg/l	28.6	33.6	30.6	26.4	30(100)
12	Residual Chlorine	mg/l	<0.1	<0.1	<0.1	<0.1	0.2(1)
13	Boron as B	mg/l	0.05	0.02	0.06	0.02	0.5(1)
14	Chloride as Cl <sup>-</sup>	mg/l	104.8	130.2	107.2	111.3	250(1000)
15	Sulphate as SO <sub>4</sub> <sup>2+</sup>	mg/l	36.9	64.2	41.2	42.5	200(400)
16	Fluorides as F	mg/l	0.8	0.7	0.9	1.1	1.0(1.5)
17	Nitrate as NO <sub>3</sub>	mg/l	8.3	12.5	10.2	7.4	45(NR)
18	Sodium as Na <sup>+</sup>	mg/l	55.7	75.2	60.6	67.7	\$
19	Potassium as K <sup>+</sup>	mg/l	7.6	10.5	8.9	15.3	\$
20	Phenolic Compounds	mg/l	<0.001	<0.001	<0.001	<0.001	0.001(0.002)
21	Cyanides as CN	mg/l	<0.02	<0.02	<0.02	<0.02	0.05 (NR)
22	Anionic Detergents	mg/l	<0.1	<0.1	<0.1	<0.1	0.2 (1.0)
23	Mineral Oil	mg/l	<0.01	<0.01	<0.01	<0.01	0.5 (NR)
24	Cadmium as Cd	mg/l	<0.003	<0.003	<0.003	<0.003	0.003 (NR)
25	Total Arsenic as As	mg/l	<0.01	<0.01	<0.01	<0.01	0.01 (0.05)
26	Copper as Cu	mg/l	<0.01	<0.01	<0.01	<0.01	0.05 (1.5)
27	Lead as Pb	mg/l	<0.01	<0.01	<0.01	<0.01	0.01 (NR)
28	Manganese as Mn	mg/l	<0.01	<0.01	<0.01	<0.01	0.1 (0.3)
29	Iron as Fe	mg/l	0.08	0.06	0.07	0.10	0.3(NR)
30	Total Chromium (as Cr)	mg/l	<0.01	<0.01	<0.01	<0.01	0.05(NR)
31	Selenium as Se	mg/l	<0.01	<0.01	<0.01	<0.01	0.01(NR)
32	Zinc as Zn	mg/l	0.16	0.28	0.21	0.25	5(15)
33	Aluminium as Al	mg/l	<0.01	<0.01	<0.01	<0.01	0.03(0.2)
34	Mercury as Hg	mg/l	<0.001	<0.001	<0.001	<0.001	0.001(NR)
35	Pesticides	mg/l	Absent	Absent	Absent	Absent	Absent
36	E. Coli	--	Absent	Absent	Absent	Absent	Absent
37	Total Coliforms	MPN/100ml	<2	<2	<2	<2	10

Note: \$ - Limits not specified; NR - No Relaxation Limits are shown in IS 10500 are Acceptable limits (Requirement) and in parenthesis are Permissible limit in absence of alternate source

**Sampling Locations**

GW1. Amora Village (Bore well) , GW2. Rogda (Bore well)  
GW3. Banahill (Bore well) , GW4. Nariyara Village (Bore well)

**7.3.1 Observations**

**7.3.2.1 Ground Water Quality**

The analysis results indicate that the pH and conductivity of the ground water was found to be in the range of 7.43 - 7.64 and 721 to 942 µS/cm. The Total Dissolved Solids were found to be well within the limits ranging from 461 to 614 mg/L. Other parameters like Chlorides, Sulphates, Nitrates and Fluorides were observed to be well within the prescribed limits. The overall physico-chemical analysis of all the parameters is well within the standards as per IS: 10500.

#### 7.4 Waste Water Quality

Four waste water samples were collected within the plant site and analyzed for various parameters. The analytical results are presented below in **Table-16**.

**TABLE-16**  
**WASTE WATER QUALITY**

Sr. No.	Parameters	Units	CT Blow Down	Boiler Blow Down	Condenser Cooling water	Guard Pond	Limits as per CECB& CPCB
			WW1	WW2	WW3	WW4	
	Sampling Date		11.03.2025	11.03.2025	11.03.2025	11.03.2025	
	Date of Analysis		14.03.2025	14.03.2025	14.03.2025	14.03.2025	
1	p <sup>H</sup>	-	7.35	7.96	8.04	7.61	6.5-8.5
	Temperature	°C	28.0	28.5	27.6	27.2	
3	Total Dissolved Solids	mg/l	525	10	13	674	-
4	Total Suspended Solids	mg/l	26.1	<1.0	<1.0	61.5	100
5	Dissolved Oxygen	mg/l	5.2	5.5	5.3	5.4	-
6	Biochemical Oxygen Demand, (3 days at 27°C)	mg/l	<3	<3	<3	16	-
7	Chemical Oxygen Demand	mg/l	<5	<5	<5	87	-
8	Chlorides	mg/l	82.2	15.7	12.7	136.4	-
9	Sulphates	mg/l	70.3	12.6	9.6	115.4	-
10	Phosphates	mg/l	0.62	<0.01	<0.01	2.06	5.0
11	Zinc	mg/l	<0.01	<0.01	<0.01	0.51	1.0
12	Chromium	mg/l	<0.01	<0.01	<0.01	<0.01	0.2
13	Copper	mg/l	<0.01	<0.01	<0.01	<0.01	1.0
14	Free Available chlorine	mg/l	<0.2	<0.2	<0.2	<0.2	0.5
15	Irons	mg/l	<0.01	<0.01	<0.01	0.30	1.0
16	Oil & Grease	mg/l	<1.0	<1.0	<1.0	<1.0	20

##### 7.4.1 Results and Conclusions

The data analysis to be as per CFO Norms and analytical results indicated that the guard pond waste water is well within the standard limits specified by EPA Notification [G.S.R.7, dt. Dec.22,1998].

##### 7.4.2 Observations-Waste water quality.

The analysis results indicate that the pH ranges from 7.35 – 8.04 and the Total Suspended Solids were found to be within the limits ranging from <1.0-61.5 mg/l. Other parameters like Zinc, Chromium, Available, chloride, Iron and Oil& Grease were observed to be well within the prescribed limits.



 KSK Power from knowledge	<b>Monthly Environmental Monitoring Report for 6x600 MW Coal Based Power Plant of KSK Mahanadi Power Company Limited at Nariyara Village, Janjgir-Champa District, Chhattisgarh</b>  <p style="text-align: right;"><b>March 2025</b></p>
--	--

#### 7.4.3 Sewage Waste Water Quality

One Sewage water samples is collected and analyzed for various parameters. The survey analytical results are given in **Table-17**.

**TABLE-17**  
**SEWAGE WASTE WATER QUALITY**

Sr.No	Parameter	UOM	WW5 (STP Outlet)
	Sampling Date		11.03.2025
	Date of Analysis		14.03.2025
1	pH	-	7.55
2	Total Dissolved Solids	mg/l	473
3	Total Suspended Solids	mg/l	36.3
4	Dissolved Oxygen	mg/l	5.5
5	Bio Chemical Oxygen Demand for 3 day 27°C	mg/l	15.6
6	Chemical Oxygen Demand	mg/l	78
7	Chlorides	mg/l	94.2
8	Sulphates	mg/l	125.3
9	Phosphates	mg/l	0.57
10	Zinc	mg/l	0.44
11	Chromium	mg/l	<0.01
12	Copper	mg/l	<0.01
13	Available Chlorine	mg/l	<0.2
14	Iron	mg/l	0.27
15	Oil and Grease	mg/l	<1.0

#### 7.5 Water Depth measurement

Four ground water depths at villages and plant and four ash pond area locations were measured and results are given in **Table-18**.

**TABLE-18**  
**WATER DEPTH MEASUREMENT**

Location Code	Location Name	Depth(m)
GW1	Banahil Village	6.42
GW2	Nariyara Village	5.23
GW3	Amora Village	3.65
GW4	Rogda Village	4.57
ASH1	Ash pond Location-1	7.05
ASH2	Ash pond Location-2	6.83
ASH3	Ash pond Location-3	7.12
ASH4	Ash pond Location-4	1.22

## 7.6 Soil Quality

Soil Samples were collected from eight locations around the plant site area. The soil quality results are given below in **Table-19** and **Table-20**.

**TABLE-19**  
**SOIL QUALITY RESULTS**

Sr. No	Parameters	Unit	S1	S2	S3	S4
	Sampling Date		12/03/2024	12/03/2024	12/03/2024	12/03/2024
	Date of Analysis		14/03/2024	14/03/2024	14/03/2024	14/03/2024
	Date of Analysis Completion		25/03/2024	25/03/2024	25/03/2024	25/03/2024
1	Textural Class	----	Sandy Caly Loam	Silt loam	Silt loam	Sandy Caly
a	Sand	%	53	14	15	50
b	Silt	%	16	66	68	15
c	Clay	%	31	20	17	35
2	Bulk Density	g/cc	1.41	1.24	1.33	1.35
3	pH (1:5 Aq. Extraction)	----	7.11	5.56	7.31	7.57
4	Conductivity (1:5 Aq. Extraction)	μS/cm	213	277	364	423
5	Exchangeable Calcium as Ca	mg/kg	3106	1743	2365	2305
6	Exchangeable Magnesium as Mg	mg/kg	942	867	1092	793
7	Exchangeable Sodium as Na	mg/kg	93.8	120.6	95.76	158.7
8	Sodium Absorption Ratio (SAR)	----	0.12	0.19	0.13	0.23
9	Available Nitrogen as N	Kg/hac	124.2	151.1	200.1	169.3
10	Available Phosphorous as P	Kg/hac	98.2	78.3	104.3	72.4
11	Available Potassium as K	Kg/hac	626.0	703	634	551
12	Organic Carbon	%	0.6	0.37	0.48	0.52
13	Organic Matter	%	1.01	0.64	0.84	0.91
14	Water Soluble Chlorides as Cl	mg/kg	253.4	198.3	178.3	227.1
15	Water Soluble Sulphates as SO <sub>4</sub>	mg/kg	86.41	78.42	76.24	120.6
16	Aluminium	%	0.62	0.42	0.37	0.51
17	Total Iron	%	0.36	0.22	0.17	0.27
18	Manganese	mg/kg	212	159	1295	513
19	Boron	mg/kg	23.6	35.3	19.5	28.4
20	Zinc	mg/kg	25.22	25.58	30.28	34.38
21	Total Chromium as Cr	mg/kg	6.5	8.2	5.3	7.4
22	Lead as Pb	mg/kg	<0.1	<0.1	<0.1	<0.1
23	Nickel as Ni	mg/kg	11.3	8.5	5.8	12.5
24	Arsenic as As	mg/kg	<0.1	<0.1	<0.1	<0.1
25	Mercury as Hg	mg/kg	<0.1	<0.1	<0.1	<0.1
26	Cadmium as Cd	mg/kg	<0.1	<0.1	<0.1	<0.1
27	Exchangeable Calcium	meq/100g	15.53	8.72	11.83	11.53
28	Exchangeable Magnesium	meq/100g	7.72	7.11	8.95	6.50
29	Exchangeable Sodium	meq/100g	0.41	0.52	0.42	0.69
30	Exchangeable Potassium	meq/100g	1.16	1.55	0.96	1.11
31	Cation Exchange Capacity	meq/100g	24.82	17.89	22.16	19.82


### Soil Sampling Locations

**S1. Tarod Village**

**S 2. Rogda Village**

**S 3. Banahill Village**

**S4. Jhalmala Village**

	<b>Monthly Environmental Monitoring Report for 6x600 MW Coal Based Power Plant of KSK Mahanadi Power Company Limited at Nariyara Village, Janjgir-Champa District, Chhattisgarh</b>  <b>March 2025</b>
---	--

**TABLE-20**  
**SOIL QUALITY RESULTS**

Sr. No	Parameters	Unit	S5	S6	S7	S8
	Sampling Date		12/03/2024	12/03/2024	12/03/2024	12/03/2024
	Date of Analysis		14/03/2024	14/03/2024	14/03/2024	14/03/2024
	Date of Analysis Completion		25/03/2024	25/03/2024	25/03/2024	25/03/2024
1	Textural Class	----	Silt loam	Sandy Caly	Sandy Caly Loam	Silt loam
a	Sand	%	28	51	56	16
b	Silt	%	54	13	14	62
c	Clay	%	18	36	30	22
2	Bulk Density	g/cc	1.4	1.35	1.3	1.42
3	pH (1:5 Aq. Extraction)	----	8.28	5.67	7.35	7.11
4	Conductivity (1:5 Aq. Extraction)	µS/cm	244	353	213	243
5	Exchangeable Calcium as Ca	mg/kg	1429	1142	2687	3087
6	Exchangeable Magnesium as Mg	mg/kg	953.1	693.1	809.3	946
7	Exchangeable Sodium as Na	mg/kg	143.3	124.56	108.04	251.8
8	Sodium Absorption Ratio (SAR)	----	0.23	0.23	0.15	0.32
9	Available Nitrogen as N	Kg/hac	122.6	158.4	146.2	138.4
10	Available Phosphorous as P	Kg/hac	102.3	83.5	90.5	76.3
11	Available Potassium as K	Kg/hac	783	812	503	693
12	Organic Carbon	%	0.35	0.65	0.72	0.46
13	Organic Matter	%	0.61	1.13	1.25	0.80
14	Water Soluble Chlorides as Cl	mg/kg	190.4	163.5	208.4	187.4
15	Water Soluble Sulphates as SO <sub>4</sub>	mg/kg	158.2	98.4	108.2	146.5
16	Aluminium	%	0.43	0.36	0.55	0.27
17	Total Iron	%	0.31	0.18	0.26	0.37
18	Manganese	mg/kg	442	218	337	437
19	Boron	mg/kg	31.4	25.7	38.4	22.5
20	Zinc	mg/kg	45.45	22.18	25.53	38.16
21	Total Chromium as Cr	mg/kg	4.8	7.1	8.5	5.8
22	Lead as Pb	mg/kg	<0.1	<0.1	<0.1	<0.1
23	Nickel as Ni	mg/kg	7.5	10.8	13.91	9.6
24	Arsenic as As	mg/kg	<0.1	<0.1	<0.1	<0.1
25	Mercury as Hg	mg/kg	<0.1	<0.1	<0.1	<0.1
26	Cadmium as Cd	mg/kg	<0.1	<0.1	<0.1	<0.1
27	Exchangeable Calcium	meq/100g	7.15	5.71	13.44	15.44
28	Exchangeable Magnesium	meq/100g	7.81	5.68	6.63	7.75
29	Exchangeable Sodium	meq/100g	0.62	0.54	0.47	1.09
30	Exchangeable Potassium	meq/100g	0.94	1.32	1.20	1.29
31	Cation Exchange Capacity	meq/100g	16.52	13.26	21.74	25.57

**Soil Sampling Locations**

**S5. Amora Village**

**S6. Sonsari Village**

**S7. Akaltara Village**

**S8. Nariyara Village**

## 7.7 Stack Emission Monitoring


The power plant has stack of height 275.0-m, which is the major source of air pollution. The stack emission monitoring for Unit – II, Unit - III & Unit - IV has been carried out and results are given in **Table-21 to 23**.

**TABLE - 21**  
**STACK EMISSION MONITORING UNIT -II**

Sr. No.	Parameters	UOM	Result	Methods
Date Of Sampling :25/03/2025				
Sampling Time : 11.50 to 12.50 hrs				
Duration Of sampling : 60 mints				
Date of sample analysis : 27/03/2025				
<b>Details of the source</b>				
1	Capacity	MW	600	-
2	Stack Height	M	275	-
3	Duct Dimension	M	7.0	-
4	Duct area	m <sup>2</sup>	38	-
<b>Flue Gas Characteristics</b>				
5	Temperature	°C	110	USEPA 1,2,3&4
6	Velocity	m/s	18.50	USEPA 1,2,3&4
7	Volumetric Flow Rate	Nm <sup>3</sup> /s	526.14	USEPA 1,2,3&4
8	Particulate Matter	mg/Nm <sup>3</sup>	27.68	USEPA 5
9	Sulfur dioxide	mg/Nm <sup>3</sup>	993	USEPA 6
10	Oxides of Nitrogen	mg/Nm <sup>3</sup>	416	USEPA 7
11	Arsenic as As	mg/Nm <sup>3</sup>	0.015	USEPA method -29
12	Cadmium as Cd	mg/Nm <sup>3</sup>	0.024	USEPA method -29
13	Cobalt as Co	mg/Nm <sup>3</sup>	<0.001	USEPA method -29
14	Nickel as Ni	mg/Nm <sup>3</sup>	0.033	USEPA method -29
15	Copper as Cu	mg/Nm <sup>3</sup>	0.043	USEPA method -29
16	Mercury as Hg	mg/Nm <sup>3</sup>	0.014	USEPA method -29
17	Chromium as Cr	mg/Nm <sup>3</sup>	0.031	USEPA method -29
18	Manganese as Mn	mg/Nm <sup>3</sup>	0.055	USEPA method -29
19	Antimony as Sb	mg/Nm <sup>3</sup>	<0.001	USEPA method -29
20	Lead as Pb	mg/Nm <sup>3</sup>	0.034	USEPA method -29
21	Thallium as TI	mg/Nm <sup>3</sup>	<0.001	USEPA method -29
22	Vanadium as V	mg/Nm <sup>3</sup>	<0.001	USEPA method -29

The results indicate that the PM is observed as 27.68 mg/Nm<sup>3</sup>.



	<b>Monthly Environmental Monitoring Report for 6x600 MW Coal Based Power Plant of KSK Mahanadi Power Company Limited at Nariyara Village, Janjgir-Champa District, Chhattisgarh</b>  <div style="text-align: right;"><b>March 2025</b></div>
---	--

**TABLE-22**  
**STACK EMISSION MONITORING UNIT -III**

Sr. No.	Parameters	UOM	Result	Methods
Date Of Sampling : 25/03/2025				
Sampling Time : 12.50 to 13.50 hrs				
Duration Of sampling : 60 mints				
Date of sample analysis : 27/03/2025				
<b>Details of the source</b>				
1	Capacity	MW	600	-
2	Stack Height	M	275	-
3	Duct Dimension	M	7.0	-
4	Duct area	m <sup>2</sup>	38	-
<b>Flue Gas Characteristics</b>				
5	Temperature	°C	109	USEPA 1,2,3&4
6	Velocity	m/s	18.79	USEPA 1,2,3&4
7	Volumetric Flow Rate	Nm <sup>3</sup> /s	536.3	USEPA 1,2,3&4
8	Particulate Matter	mg/Nm <sup>3</sup>	11.94	USEPA 5
9	Sulfur dioxide	mg/Nm <sup>3</sup>	1008	USEPA 6
10	Oxides of Nitrogen	mg/Nm <sup>3</sup>	421	USEPA 7
11	Arsenic as As	mg/Nm <sup>3</sup>	0.025	USEPA method -29
12	Cadmium as Cd	mg/Nm <sup>3</sup>	0.018	USEPA method -29
13	Cobalt as Co	mg/Nm <sup>3</sup>	<0.001	USEPA method -29
14	Nickel as Ni	mg/Nm <sup>3</sup>	0.037	USEPA method -29
15	Copper as Cu	mg/Nm <sup>3</sup>	0.044	USEPA method -29
16	Mercury as Hg	mg/Nm <sup>3</sup>	0.013	USEPA method -29
17	Chromium as Cr	mg/Nm <sup>3</sup>	0.026	USEPA method -29
18	Manganese as Mn	mg/Nm <sup>3</sup>	0.038	USEPA method -29
19	Antimony as Sb	mg/Nm <sup>3</sup>	<0.001	USEPA method -29
20	Lead as Pb	mg/Nm <sup>3</sup>	0.025	USEPA method -29
21	Thallium as TI	mg/Nm <sup>3</sup>	<0.001	USEPA method -29
22	Vanadium as V	mg/Nm <sup>3</sup>	<0.001	USEPA method -29

The results indicate that the PM is observed as 11.94 mg/Nm<sup>3</sup>.

	<b>Monthly Environmental Monitoring Report for 6x600 MW Coal Based Power Plant of KSK Mahanadi Power Company Limited at Nariyara Village, Janjgir-Champa District, Chhattisgarh</b>  <p style="text-align: right;"><b>March 2025</b></p>
---	--

**TABLE-23**  
**STACK EMISSION MONITORING UNIT -IV**

Sr. No.	Parameters	UOM	Result	Methods
Date Of Sampling : 26/03/2025				
Sampling Time : 15.45 to 16.45 hrs				
Duration Of sampling : 60 mints				
Date of sample analysis : 28/03/2025				
<b>Details of the source</b>				
1	Capacity	MW	600	-
2	Stack Height	M	275	-
3	Duct Dimension	M	10.4 x 7.8	-
4	Duct area	m <sup>2</sup>	81.12	-
<b>Flue Gas Characteristics</b>				
5	Temperature	°C	104	USEPA 1,2,3&4
6	Velocity	m/s	18.46	USEPA 1,2,3&4
7	Volumetric Flow Rate	Nm <sup>3</sup> /s	1122.1	USEPA 1,2,3&4
8	Particulate Matter	mg/Nm <sup>3</sup>	12.64	USEPA 5
9	Sulfur dioxide	mg/Nm <sup>3</sup>	988	USEPA 6
10	Oxides of Nitrogen	mg/Nm <sup>3</sup>	418	USEPA 7
11	Arsenic as As	mg/Nm <sup>3</sup>	0.022	USEPA method -29
12	Cadmium as Cd	mg/Nm <sup>3</sup>	0.026	USEPA method -29
13	Cobalt as Co	mg/Nm <sup>3</sup>	<0.001	USEPA method -29
14	Nickel as Ni	mg/Nm <sup>3</sup>	0.035	USEPA method -29
15	Copper as Cu	mg/Nm <sup>3</sup>	0.043	USEPA method -29
16	Mercury as Hg	mg/Nm <sup>3</sup>	0.012	USEPA method -29
17	Chromium as Cr	mg/Nm <sup>3</sup>	0.028	USEPA method -29
18	Manganese as Mn	mg/Nm <sup>3</sup>	0.032	USEPA method -29
19	Antimony as Sb	mg/Nm <sup>3</sup>	<0.001	USEPA method -29
20	Lead as Pb	mg/Nm <sup>3</sup>	0.039	USEPA method -29
21	Thallium as TI	mg/Nm <sup>3</sup>	<0.001	USEPA method -29
22	Vanadium as V	mg/Nm <sup>3</sup>	<0.001	USEPA method -29

The results indicate that the PM is observed as 12.64 mg/Nm<sup>3</sup>.