CENTRAL COALFIELDS LIMITED
*(A MINIRATNA CAT-1 COMPANY)*
(GOVT. OF INDIA UNDERTAKING)
OFFICE OF THE PROJECT OFFICER
JARANGDIH COLLIERY, KATHARAAREA
PO:-JARANGDIH, BOKARO,JHARKHAND-829113

Tagline
Fuelling Sustainable Growth

स्वच्छ भारत
एक कदम स्वच्छता की ओर

Ref:PO/JRD/ENV/2024-25/1470 Date:- 26.09.2024

To,

**Registered Post**

The Member Secretary
State Pollution Control Board
T.A. Building, HEC Complex, Dhurwa,
Ranchi-834004, Jharkhand
Email- ranchijspcb@gmail.com

**Sub: Submission of Annual Environmental Statement Report for the year 2023-24 of Jarangdih Opencast Mine of Kathara Area, CCL.**

Respected Sir,

Please find herewith the copy of Annual Environmental Statement Report which is prepared as per statutory requirement for the year 2023-24 of Jarangdih Opencast Mine,Kathara Area, CCL.

This is for your kind information.

Yours faithfully

25/9

Project Officer
Jarangdih Colliery

**Copy for Kind Information-**

1. The Regional Officer, JSPCB HIG-1, Sardar Patel Nagar, Dhanbad, 826001, ***Email-dhanbadjspcb@gmail.com***
2. The HOD (Env. & Forest), CCL, HQ, Ranchi, ***Email- envccl@gmail.com***
3. The General Manager, Kathara Area, ***Email- gmkth.ccl@coalindia.in***
4. The S.O.(Env.), Kathara Area, ***Email- envcclkta@gmail.com***
5. The Office copy

# ENVIRONMENTAL STATEMENT

**OF**

## JARANGDIH OC

**FOR**

**2023-24**

## CENTRAL COALFIELDS LIMITED

# EXECUTIVE SUMMARY

**E-1** This Environmental Statement Report has been prepared as per gazette notification no. G.S.R. 329 (E) dated 13th March 1992 laid down by Ministry of Environment& Forest. The Environmental Audit has been subsequently renamed to "Environmental Statement" vide MOEF gazette notification no. G.S.R. 386 (E) dated 22nd April 1993.

**E-2** The Jarangdih OCP of Central Coalfields Limited is situated in the East Bokaro Coalfields in Bokaro dist. of Jharkhand State.

**E-3** The Environmental Monitoring is carried out as per the guide lines of Ministry of Environment &Forest (MOEF).

**E-4** The quality of Ambient air, effluent water, surface water and noise is monitored to study the level of pollution. The main air pollutant is Suspended Particulate Matter (SPM). It is difficult to quantify the amount of air pollutants generated due to mining. However, the results show that SPM, SOx, NOx and heavy metal values are generally below permissible limits prescribed by Ministry of Environment & Forest (MOEF).

**E-5** Water is not directly used during mining for coal production. It percolates into working area during mining operation. However, water is consumed for other purposes, mainly for dust suppression.

**E-6** The noise levels recorded are generally below permissible limits prescribed by Ministry of Environment & Forest (MOEF). There is no continuous high level sound frequency of impulsive nature.

**E-7** PM10 analyzer has been installed at the Jarangdih Railway siding and CAAQMS is installed at the gate of GM office, Kathara. Both are connected to JSPCB server for uninterrupted data transmission of environmental quality parameters.

**E-8** Raw materials used in coal mining activities are explosives. The consumption is detailed in part-B of Statement Form.

**E-9** Hazardous waste is not being produced either from mining operations or from any pollution control facilities except for Over Burden in case of OCP.

Regular measures are being taken to control air, water & noise pollutions discussed in detail in parts-G, H & I of the Statement Form.

**E-10** Also, measures are taken for implementation of the Environmental Management Plan for the project as per project report.

**E-11** This Annual Environmental Statement Report for the year 2023-24, has been prepared as per statutory requirement.

# PROJECT DESCRIPTION

## 1.1 INTRODUCTION

The Jarangdih OC of Central Coalfields limited is located in the East Bokaro district of Jharkhand state. The EC/CTO capacity of the project is 1.5 MTY.

## 1.2 LOCATION & COMMUNICATION :

Jarangdih colliery is situated in the East Bokaro Coalfield in the Bokaro District of Jharkhand State. It is bounded between Latitude: $23^0$47'31" & $23^0$47'53"N Longitude: $85^0$54'14" & $85^0$55'14" E Area of the Block-1.36Sqkm Strike-Strike of the formation is E-W to NE-SW Dip-The direction of dip is southerly and its amount varies from 5 degree to 45 degree. East Bokaro Coalfield is known to be the most important source of medium coking coal in the country. Even before the nationalization of coal industry, the coalfield was under active exploitation by the then NCDC and the private owners. The Jarangdih block is located in the central part of the coalfield. This is one of the several blocks notified by the NCDC for detail exploration and exploitation in the East Bokaro Coalfield.

The Jarangdih opencast block is well connected by both rail and road. The Gomoh-Barkakana loop line of the Eastern railway passes along the northern bank of the Konar River adjoining Jarangdih Opencast Block. The Jarangdih Railway Station is located within 1km from the block. Another feeder line connecting Kathara from Jarangdih passes about 1km from the eastern and southern boundaries of the block. The block is well connected by black tar road to different areas of East Bokaro Coalfield and in turn to major cities around the block. The block is about 90kms from Hazaribagh and 120kms from Ranchi via Tenughat Dam. The nearest Air strip connected by the regular airlines is at Ranchi. Another private air strip belonging to IEL is located near Sawang colliery at about 15 km from block.

## 1.3 SALIENT FEATURES :

Production of Jarangdih OC for FY 2023-24 was 1.481 MT. The mine is operated with shovel-dumper mechanism.

## FORM –V

**Environmental Statement for the financial year ending March'2024**

## PART – A

| | | |
|---|---|---|
| (i) Name and Address of the mine. | : | JARANGDIH OCP<br>Place : Jarangdih colliery<br>Post : Jarangdih colliery<br>Distt : Bokaro, JHARKHAND |
| (ii) Industry Category | : | Primary |
| (iii) Production Capacity | : | 1.5 MTY as per EC Memo No.EC/SEIAA/2022-23/2992/2022/326 Ranchi, Date : 02.11.2023<br>Production during year 2023-24 is 1.481 MT |
| (iv) Date of last Env. Statement Report: | | The last Env. Statement Report was submitted by for the year 2022-23 dated 01.08.2023 |

## PART – B

## WATER AND RAW MATERIAL CONSUMPTION

### I. Water consumption ($m^3$/ day)

| | | |
|---|---|---|
| **Mining** | | |
| **a** | Haul road dust suppression | 208 |
| **b** | Transportation Road & Siding dust suppression | 240 |
| **c** | Workshop | 10 |
| **d** | Fire fighting | Nil |
| **e** | Others (service, building, siding office etc.) | 25 |
| | | |
| Domestic | | |
| **a** | Domestic including service and welfare building | 2252 |

### WATER CONSUMPTION PER UNIT OF PRODUCT

| Name of Product | Water Consumption per Unit of Product (coal) | |
|---|---|---|
| | During financial year (2023-24) | During financial year (2022-23) |
| Coal | 0.675 $m^3$/tonne | 1.512 $m^3$/tonne |

## II. RAW MATERIAL CONSUMPTION :

| Sl.No. | Name of raw material | Name of products | Consumption of raw material per Unit of Product (coal) | |
|---|---|---|---|---|
| | | | During the financial year (2023-24) | During the financial year (2022-23) |
| 1. | Explosives | Coal | 0.939 Kg/tonne | 1.308 Kg/tonne |

## PART - C
## POLLUTION GENERATED
## (PARAMETERS SPECIFIED IN THE CONSENT ISSUED)

| Pollutions | Quantity of pollution generated | Percentage variation from prescribed standards with reasons | |
|---|---|---|---|
| WATER | Water discharged from:<br>(a)Mine-2231 cum /day<br>(b)Workshop- 00 cum /day<br>(c)Colony-2252 cum /day<br>It is difficult to quantify the amount of pollutants. | The analysis results reveal that all of the parameters are below the limits prescribed by MOEF. | Analysis report for the qtr ending –Mar 2024 is attached as **Annexure-I.** |
| AIR | It is difficult to quantify the amount of air pollutants. The main air pollutant is suspended particulate matter (SPM). | Ambient air quality analysis results shows that SO2,NOx, heavy metals & SPM level are well within prescribed standards. | |

## PART - D
## HAZARDOUS WASTES
(As specified under Hazardous Waste/Management and Handling Rules, 1989)

| **Hazardous Wastes** | **Total quantity** | |
|---|---|---|
| | **During the financial year (2023-24)** | **During financial year (2022-23)** |
| a) From process | Used oil- 3.505 KL<br>Used Led Acid batteries-03 Nos<br>Filter used – 50 Nos | Used oil-8.848KL<br>Used Led Acid batteries-18 Nos<br>Filter used – 146Nos |
| b) From pollution control facilities | Nil | Nil |

## PART – E

## SOLID WASTES

| | Total Quantity (in M $m^3$) | |
|---|---|---|
| | During the previous financial year (2023-24) | During the previous financial year (2022-23) |
| a) **From process (Mining)**Overburden | 1.614801 | 1.283878M |
| b) **From pollution control facilities** | Nil | Nil |
| c) **Quantity recycled or reutilized** | The entire volume of O.B. material is being used as external dump. | The entire volume of O.B. material is being used as external dump |

## PART – F

## PLEASE SPECIFY THE CHARACTERISTICS (IN TERMS OF CONCENTRATION AND QUANTUM) OF HAZARDOUS AS WELL AS SOLID WASTES AND INDICATE THE DISPOSAL PRACTICE ADOPTED FOR BOTH THESE CATEGORIES OF WASTES

1.Landfill Site: OB used as a landfill site for burying of filters.
2.Regional Store: Burnt Oil and Batteries are transported to the Regional Store.
3.ETP at workshop:Advance treatment of Oil and Grease and zero liquid discharge.

Hazardous waste is not being produced either from mining operation or from any pollution control facilities. During opencast mining, top soil and overburden are produced as solid wastes and stored at an earmarked place. Top soil is being used for plantation and throwing seed balls on OB dump. OB will be used as per Final Mine Closure Plan and EIA/EMP.
The overburden material is more or less homogeneous comprising mainly sand, silt, clay and gravel. Overburden generated during 2023-24 was 1.614801 Million cubic meter.

## PART – G

## IMPACT OF POLLUTION CONTROL MEASURES ON CONSERVATION OF NATURAL RESOURCES AND CONSEQUENTLY ON COST OF PRODUCTION

In order to carry out mining in an eco-friendly manner, following pollution control measures have been implemented:-

### 1.0 AIR POLLUTION CONTROL MEASURES :

The following measures have been taken to control air pollution:

(i) Wind Barriers/Screen is installed along the periphery of railway siding.
(ii) Increase of massive 3-tier plantation is practised.
(iii) PUC certificates of all transportation trucks are regularly checked at M-parivahan portal and only permitted in the mine after its clearance.
(iv) Vehicles used for transporting the mineral is covered with tarpaulins and optimally loaded.
(v) Tyre Washing facility is provided for all vehicles at the exit pointof the Opencast Mine.
(vi) Regularly sprinkling is being done on haul road and transportation road by using Mobile water sprinkler. Fixed water sprinklers with nozzels are installed along the platform and HMB road near the entrance of siding. to Overhead fixed sprinkles are installed at weighbridge.
(vii) Water Jet spray system installed at coal crusher and fully closed with canopy to control fugitive emission.
(viii) Controlled Blasting operations are carried out under congenial weather condition, i.e. avoiding temperature inversion,etc.
(ix) Plantation is done along the transporation road, OB dump etc. and in other vacant spaces.
(x) Water sprinkling is done on coal stock.
(xi) All drills are wet operated.
(xii) All necessary precautions are taken during drilling, blasting, loading and transporting operations.
(xiii) Regular road seeping is done on HMB road.
(xiv) Transportation and colony roads are black topped with avenue plantation.
(xv) PM10 analyzer has been installed at the Jarangdih Railway siding and CAAQMS is installed at the gate of GM office, Kathara, connected to JSPCB server for uninterruptedly data transmission of environmental quality parameters.
(xvi) Monitoring of Air quality parameters and its analysis is being done by CMPDI which is equipped NABL accredited laboratory.

## 2.0 WATER POLLUTION CONTROL MEASURES :

The following measures have been taken to control water pollution from the mine:

(i) Mine Sumps have been provided for collection and treatment of Mine Seepage water.

(ii) The mine water is discharged on wasteland after passing through a tank which acts as a settling pond. Finally, mine water reaches to Konar River flowing in the project area. Major portion of mine water is used dust suppression in mines and transportation roads.

(iii) A system of open drain exists within the leasehold area to collect the storm runoff from paved area, road, roof top,etc.& lead them to natural drains directly.

(iv) Garland drain is provided around the quarry to collect the surface run-off . This also prevents storm water to enter into the quarry area.

(v) The catch drains have been constructed around the foot of the O.B. dumps in order to collect surface run-off water from the dumps and siding to convey them through settling ponds.

(vi) Colony and other service buildings are provided with septic tank and soak pit. Also, water is supplied after filtration and disinfection for domestic use.

(vii) 100 KLD ETP is constructed at the Workshop of Jarangdih OCP. Treated waste water is being reused.

(viii) Toe-wall with catch drain and settling tank is provided along OB Dump to arrest the silt flowing into water.

(ix) At present, regular monitoring of ground water level is carried out through Piezometer having Digital Water Level Recorder with Telemetry system near water filter plant of Jarangdih Colliery.

(x) Rain water harvesting system for recharge of ground water is present at PO office, GVTC center and Jarangdih Guest House, Pit Office, Kaushal Vikash Kendra, old R.R. dispensary and Jarangdih hospital.100 Nos. of Rain Water Harvestors are constructed at quarters to collect Rain water and recharge water table in Kathara Area.

(xi) Monitoring of Surface water and, Effluent water and Drinking water quality parameters and its analysis is being done by CMPDI which is equipped NABL accredited laboratory.

## 3.0 NOISE POLLUTION CONTROL MEASURES:

(i) Plantation barriers have been developed around residential locations and around other noise prone area.

(ii) Efforts are being made to keep HEMMs properly maintained so as to produce least noise.

(iii) Control blasting with the use of electronic detonators is carried out between 2 PM to 4.00 PM.

(iv) Use of HEMMs with sound proof cabin.

(v) Ear plugs/muffs are provided to workers engaged in blasting and drilling operations etc. as per requirement.

(vi) Monitoring of Noise quality parameters and its analysis is being done by CMPDI which is equipped NABL accredited laboratory.

## 4.0. MEASURES FOR RECLAMATION OF LAND

(i) After the back-filling and external dump reaches its final stage, it is proposed to starttechnical and biological reclamation of the external dumps. At the end of mining operation, some de-coaled area will remain empty, which would be used for storing rain water.

(ii) The presence of such a water body will help in increasing the moisture content of soil of adjacent area and ultimately it would promote the growth of vegetation.

(iii) Final reclamation will be done as per Project Report and EIA/EMP in consultation with the local DFO/Agricultural department.

## PART – H

## ADDITIONAL INVESTMENT PROPOSAL FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT OF POLLUTION

The following are the additional investment proposal for environmental protection:

i. The environmental monitoring of the project will be continued as per guidelines of MOEF.

ii. All residential quarters constructed for the Project has been provided with septic latrines and effluents are disposed off in soak pits. Proposal for construction of STP in colonies is in approval process.

iii. The air and water consent is being taken from Jharkhand State Pollution Control Board, Ranchi.

iv. Environmental statement report is prepared for each financial year ending 31'st March.

v. Progressive plantation is done as per requirement.

vi. A time series of land use maps of Jarangdih OCP, based on satellite imagery is prepared in every 3 years.

vii. An ESCROW account for the Mine closure of Jarangdih OCP has been opened.

viii. Proposal for AMC for cleaning of settling pond, ETP, Tyre washing platform, rainwater harvesting has been initiated.

ix. Proposal for AMC for two years for removal of dust, sweeping, cleaning and carriage of cleaned dust materials from HMB road starting from PO Jarangdih office to Kathara More including operation of water sprinkler under Jarangdih Colliery, Kathara Area has been initiated.

x. Proposal for Providing and laying Jute Netting on OB dump slope near Konar River under Jarangdih Colliery has been initiated.

xi. Proposal for preparation of The surface drainage plan including surface water conservation plan and " revarian/riparian ecosystem conservation and management plan." has been initiated.

xii. The proposed Capital Budget for FY 2024-25 and expenditure on Environment Protection measures is given below-

## Item wise expenditure on Environment protection measure for Jarangdih OCP

| Sl. No. | Item | | Expenditure (lakh) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 2023-24 | 2022-23 | 2021-22 | 2020-21 | 2019-20 | 2018-19 |
| 1. | Seed Ball | | | | | | 2.065 | |
| 2. | Controlled Blasting | 1. Wire Net | 1.97 | | | 1.06 | 1.06 | 2.85 |
| | | 2. Sake/Jute bag | | | | | 0.61 | 2.43 |
| 3. | Water sprinkler on public road (contractual) | | 11.61 | | | 2.67 | | 13.86 |
| 4. | Water sprinkler on haul road (departmental) | | 37.67 | | | | | |
| 5. | Fixed Sprinklers at Siding along the weighbridge | | | | | 5 | | |
| 6. | Tyre washing platform at Exit point of Mine | | | | | 4.14 | | |
| 7. | Wind Breaking Mesh along the railway siding | | | | 35 | 16.36 | | |
| 8. | Distribution of Saplings to the Employees | | | | | 0.90 | | |
| 9. | Earth Cutting and dressing for covering of Fly Ash/coal dust | | | | | 2.77 | | |
| 10. | Peizometer | | | | 2.50 | | | |
| 11. | Siltation pond | | | | 2.96 | | | |
| 12. | Construction of 2 nos. silt settling tank with drain for drainage of Railway siding. | | | | 11.77 | | | |
| 13. | Installation of PM10 analyzer | | | | 9 | | | |
| 14. | Toe wall 225m at dump | | | | 7.30 | | | |
| 15. | Bamboo and other plantation | | | | 10 | | | |
| 16. | ETP at workshop | | | 19 | | | | |
| 17. | Fixed sprinklers along Jarangdih HMB Road near Siding | | | 11.90 | | | | |
| 18. | Plantation of Polyalthia longifolia (Ashok) along Railway Siding, Jarangdih OCP | | | 11.37 | | | | |
| 19. | Toe wall 250m at dump | | | 15.59 | | | | |
| 20. | Toe wall 250m at dump | | 8.83 | | | | | |
| 21. | Plantation (16.77 Ha) | | 60.60 | | | | | |
| 22. | Garland Drain along OB dump near magazine | | 1.43 | | | | | |
| 23. | Pipe line along coal stock | | 1.43 | | | | | |
| 24. | 4 Nos. of RWH | | 10.17 | | | | | |
| 25. | DWLR with telemetry system | | 0.85 | | | | | |
| 26. | Fixed sprinklers along Jarangdih HMB Road | | 10.83 | | | | | |
| 27. | Erection of CGI Sheet fencing along siding | | 2.50 | | | | | |
| 28. | Cleaning of Garland drain | | 1.46 | | | | | |
| 29. | Monitoring and analysis of environmenal parameters. | | 59.15 | | | | | |
| 30. | Installation of spare parts of PM10 | | 0.76 | | | | | |
| | **Total** | | **209.26** | **57.86** | **78.53** | **32.90** | **3.735** | **19.14** |

**Proposed Capital budget of Jarangdih Project in 2024-25.**

| Sl. No. | Item | Expenditure(lakh) | Remarks |
|---|---|---|---|
| 1. | Development of Sal Nursery | 200 | Proposal uploaded on E-office on dated14.07.2023. Under Process |
| 2. | STP at Colony | 200 | Work awarded. |
| 3. | Mist Fogger machine (Fog canon) to control dust | 50 | Scheme prepared. |
| 4. | Toe Wall, garland drains, settling ponds etc. to environment control measures | 100 | Proposal initiated. |
| 5. | Fixed Water sprinkler along haul road | 40 | Proposal initiated. |
| 6. | Toe wall along new OB dump | 175 | Proposal initiated. |
| 7. | Wind Breaking system | 150 | Under approval. |
| 8. | Automatic wheel washing system | 40 | Proposal initiated. |
| 9. | Siltation pond | 35 | Proposal initiated. |
| 10. | Laying pipe line from JRD mine sump to JRD siding | 15 | Proposal initiated. |
| 11. | Construction of PCC surface near ETP | 80 | Proposal initiated. |
| 12. | **Total** | **1085** | |

## PART - I

## ANY OTHER PARTICULARS IN RESPECT OF ENVIRONMENTAL PROTECTION AND ABATEMENT OF POLLUTION

1. The Environmental monitoring is carried out for the project by CMPDI as per the guide lines of the Ministry of Environment &Forest (MOEF). Ambient air quality, quality of effluent discharged from the mine, surface water, drinking water and noise level all conform to the prescribed limits.
2. A full-fledged Environmental Cell both at the project and company head quarter level, with qualified personnel has already been established under the control of senior Executive.
3. Environmental Impact Assessment and Environmental Management Plan has been prepared for Jarangdih OCP as per EIA Notification, 2006 and will be followed accordingly.
4. The Environmental Statement for the project is prepared yearly.

23/9/2024
PE(EXCV.)
Jarangdih Colliery

23/09/2024
Nodal Officer (ENV)
Jarangdih Colliery

23/9/24
Officer(Survey)
Jarangdih Colliery

23/09/24
PE(E&M)
Jarangdih Colliery

Md firdaus
23/9/24
PE(Civil)
Jarangdih Colliery

23/9/24
Manager
Jarangdih OCP

23/9
Project Officer
Jarangdih Colliery

## TEST REPORT

| 03/24 Test Report No. 1914 | Job No. 094323120 | Year | FY2023-24 |
|---|---|---|---|
| Type of Sample | Ambient Air | Quarter Ending | Mar-24 |
| Customer | CCL | | |
| Mode of Receipt of Sample: | Joint sampling with customer | | |
| Testing/ Sampling Protocol: | IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution, LQR 32 | | |
| Remarks & Observation: | All samplers placed 1.5 m above ground level | | |

## TEST RESULT

The sample has been tested with the following results:-

**Area :** **Kathara** **Project:** **Jarangdih OC** **Stations:** Gayatri Colony

| Month | Date of Sampling | Date of receipt of sample | Date of analysis | Parameters ( in µg/m$^3$) | | | | | Wind Direction (from) & Weather |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Total Particulate Matter ($PM_{10}$+ >$PM_{10}$)TPM | Particulate Matter ($PM_{10}$) | Particulate Matter ($PM_{2.5}$) | Sulphur Dioxide ($SO_2$) | Nitrogen Oxides (as $NO_x$) | |
| **Jan-24 1st FN** | 04/01/24-05/01/24 | 15-01-2024 | 15/01/24-18/01/24 | 174 | 77 | 45 | < 25 | < 6 | East Sunny |
| **Jan-24 2nd FN** | 18/01/24-19/01/24 | 01-02-2024 | 01/02/24-05/02/24 | 216 | 71 | 34 | < 25 | < 6 | East Sunny |
| **Feb-24 3rd FN** | 05/02/24-06/02/24 | 17-02-2024 | 17/02/24-21/02/24 | 188 | 74 | 38 | < 25 | < 6 | East Sunny |
| **Feb-24 4th FN** | 19/02/24-20/02/24 | 01-03-2024 | 01/03/24-05/03/24 | 191 | 65 | 32 | < 25 | < 6 | East Sunny |
| **Mar-24 5th FN** | 03/03/24-04/03/24 | 18-03-2024 | 18/03/24-21/03/24 | 223 | 83 | 44 | < 25 | < 6 | West Rain |
| **Mar-24 6th FN** | 20/03/24-21/03/24 | 01-04-2024 | 01/04/24-06/04/24 | 217 | 95 | 56 | < 25 | < 6 | East Sunny |

**Note:**
1. Gazette Notification No. G.S.R 742(E) dt.25th Sept.'2000 is applicable in core zone.
2. Gazette Notification No. G.S.R 826 (E) dt.Nov.'2009 is applicable in buffer zone.

Analysed By Authorized Signatory

## TEST REPORT

| 03/24 Test Report No. 1915 | Job No. 094323120 | Year | FY2023-24 |
|---|---|---|---|
| Type of Sample | Ambient Air | Quarter Ending | Mar-24 |
| Customer | CCL | | |
| Mode of Receipt of Sample: | Joint sampling with customer | | |
| Testing/ Sampling Protocol: | IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution, LQR 32 | | |
| Remarks & Observation: | All samplers placed 1.5 m above ground level | | |

## TEST RESULT

The sample has been tested with the following results:-

**Area :** Kathara **Project:** Jarangdih OC **Stations:** Jarangdih Colony

| Month | Date of Sampling | Date of receipt of sample | Date of analysis | Parameters ( in µg/m$^3$) | | | | | Wind Direction (from) & Weather |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Total Particulate Matter ($PM_{10}$+ >$PM_{10}$)TPM | Particulate Matter ($PM_{10}$) | Particulate Matter ($PM_{2.5}$) | Sulphur Dioxide ($SO_2$) | Nitrogen Oxides (as $NO_x$) | |
| **Jan-24 1st FN** | 04/01/24-05/01/24 | 15-01-2024 | 15/01/24-18/01/24 | 173 | 68 | 34 | < 25 | < 6 | East Sunny |
| **Jan-24 2nd FN** | 18/01/24-19/01/24 | 01-02-2024 | 01/02/24-05/02/24 | 178 | 82 | 45 | < 25 | < 6 | East Sunny |
| **Feb-24 3rd FN** | 05/02/24-06/02/24 | 17-02-2024 | 17/02/24-21/02/24 | 191 | 92 | 56 | < 25 | < 6 | East Sunny |
| **Feb-24 4th FN** | 19/02/24-20/02/24 | 01-03-2024 | 01/03/24-05/03/24 | 204 | 72 | 38 | < 25 | < 6 | West Sunny |
| **Mar-24 5th FN** | 03/03/24-04/03/24 | 18-03-2024 | 18/03/24-21/03/24 | 195 | 70 | 32 | < 25 | < 6 | West Rain |
| **Mar-24 6th FN** | 20/03/24-21/03/24 | 01-04-2024 | 01/04/24-06/04/24 | 231 | 81 | 45 | < 25 | < 6 | West Sunny |

**Note:**
1. Gazette Notification No. G.S.R 742(E) dt.25th Sept.'2000 is applicable in core zone.
2. Gazette Notification No. G.S.R 826 (E) dt.Nov.'2009 is applicable in buffer zone.

Analysed By Authorized Signatory

## TEST REPORT

| 03/24 Test Report No. 1916 | Job No. 094323120 | Year | FY2023-24 |
|---|---|---|---|
| Type of Sample | Ambient Air | Quarter Ending | Mar-24 |
| Customer | CCL | | |
| Mode of Receipt of Sample: | Joint sampling with customer | | |
| Testing/ Sampling Protocol: | IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution, LQR 32 | | |
| Remarks & Observation: | All samplers placed 1.5 m above ground level | | |

## TEST RESULT

The sample has been tested with the following results:-

**Area :** Kathara **Project:** Jarangdih OC **Stations:** P.O.Office

| Month | Date of Sampling | Date of receipt of sample | Date of analysis | Parameters ( in µg/m$^3$) | | | | | Wind Direction (from) & Weather |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Total Particulate Matter ($PM_{10}$+ >$PM_{10}$)TPM | Particulate Matter ($PM_{10}$) | Particulate Matter ($PM_{2.5}$) | Sulphur Dioxide ($SO_2$) | Nitrogen Oxides (as $NO_x$) | |
| **Jan-24 1st FN** | 04/01/24-05/01/24 | 15-01-2024 | 15/01/24-18/01/24 | 276 | 120 | 51 | < 25 | < 6 | East Sunny |
| **Jan-24 2nd FN** | 18/01/24-19/01/24 | 01-02-2024 | 01/02/24-05/02/24 | 293 | 136 | 61 | < 25 | < 6 | East Sunny |
| **Feb-24 3rd FN** | 05/02/24-06/02/24 | 17-02-2024 | 17/02/24-21/02/24 | 283 | 122 | 50 | < 25 | < 6 | East Sunny |
| **Feb-24 4th FN** | 19/02/24-20/02/24 | 01-03-2024 | 01/03/24-05/03/24 | 274 | 154 | 65 | < 25 | < 6 | West Sunny |
| **Mar-24 5th FN** | 03/03/24-04/03/24 | 18-03-2024 | 18/03/24-21/03/24 | 365 | 172 | 71 | < 25 | < 6 | West Rain |
| **Mar-24 6th FN** | 20/03/24-21/03/24 | 01-04-2024 | 01/04/24-06/04/24 | 385 | 185 | 80 | < 25 | < 6 | North Sunny |

**Note:**
1. Gazette Notification No. G.S.R 742(E) dt.25th Sept.'2000 is applicable in core zone.
2. Gazette Notification No. G.S.R 826 (E) dt.Nov.'2009 is applicable in buffer zone.

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## TEST REPORT

| 03/24 Test Report No. 1917 | Job No. 094323120 | Year | FY2023-24 |
|---|---|---|---|
| Type of Sample | Ambient Air | Quarter Ending | Mar-24 |
| Customer | CCL | | |
| Mode of Receipt of Sample: | Joint sampling with customer | | |
| Testing/ Sampling Protocol: | IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution, LQR 32 | | |
| Remarks & Observation: | All samplers placed 1.5 m above ground level | | |

## TEST RESULT

The sample has been tested with the following results:-

**Area :** Kathara **Project:** Jarangdih OC **Stations:** Guest House

| Month | Date of Sampling | Date of receipt of sample | Date of analysis | Parameters ( in µg/m$^3$) | | | | | Wind Direction (from) & Weather |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Total Particulate Matter ($PM_{10}$+ >$PM_{10}$)TPM | Particulate Matter ($PM_{10}$) | Particulate Matter ($PM_{2.5}$) | Sulphur Dioxide ($SO_2$) | Nitrogen Oxides (as $NO_x$) | |
| **Jan-24 1st FN** | 05/01/24-06/01/24 | 15-01-2024 | 15/01/24-18/01/24 | 187 | 72 | 41 | < 25 | < 6 | West Sunny |
| **Jan-24 2nd FN** | 19/01/24-20/01/24 | 01-02-2024 | 01/02/24-05/02/24 | 184 | 66 | 30 | < 25 | < 6 | East Sunny |
| **Feb-24 3rd FN** | 06/02/24-07/02/24 | 17-02-2024 | 17/02/24-21/02/24 | 207 | 81 | 45 | < 25 | < 6 | East Sunny |
| **Feb-24 4th FN** | 20/02/24-21/02/24 | 01-03-2024 | 01/03/24-05/03/24 | 198 | 105 | 54 | < 25 | < 6 | West Sunny |
| **Mar-24 5th FN** | 04/03/24-05/03/24 | 18-03-2024 | 18/03/24-21/03/24 | 206 | 84 | 45 | < 25 | < 6 | East Rain |
| **Mar-24 6th FN** | 21/03/24-22/03/24 | 01-04-2024 | 01/04/24-06/04/24 | 241 | 77 | 41 | < 25 | < 6 | East Sunny |

**Note:**

1. Gazette Notification No. G.S.R 742(E) dt.25th Sept.'2000 is applicable in core zone.
2. Gazette Notification No. G.S.R 826 (E) dt.Nov.'2009 is applicable in buffer zone.

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## TEST REPORT

| 03/24 Test Report No. 1918 | Job No. 094323120 | Year | FY2023-24 |
|---|---|---|---|
| Type of Sample: | Noise | Quarter Ending | Mar-24 |
| Customer | CCL | | |
| Testing/ Sampling Protocol: | *'The noise pollution (Regulation and Control), Rules,2000, LQR 34* | | |
| Remarks: | | | |

## TEST RESULT

The sample has been tested with the following results:-

**Area :** **Kathara** **Project:** **Jarangdih OC**

| Station Name | Noise Level dB(A) Leq | | | | | |
|---|---|---|---|---|---|---|
| | Jan-24 1st FN | Jan-24 2nd FN | Feb-24 3rd FN | Feb-24 4th FN | Mar-24 5th FN | Mar-24 6th FN |
| | Day/Night | Day/Night | Day/Night | Day/Night | Day/Night | Day/Night |
| Date of recording | 04-01-2024 | 18-01-2024 | 05-02-2024 | 19-02-2024 | 03-03-2024 | 20-03-2024 |
| **1. Gyatri Colony** | 52.3/43.5 | 52.3/43.5 | 51.9/49.7 | 58.1/45.4 | 55.6/48.2 | 50.2/40.1 |
| Date of recording | 04-01-2024 | 18-01-2024 | 05-02-2024 | 19-02-2024 | 03-03-2024 | 20-03-2024 |
| **2. Jarangdih Colony** | 52.1/46.6 | 64.1/54.1 | 51.8/49.3 | 57.5/46.2 | 55.4/48.3 | 50.4/40.2 |
| Date of recording | 04-01-2024 | 18-01-2024 | 05-02-2024 | 19-02-2024 | 03-03-2024 | 20-03-2024 |
| **3. P.O.Office** | 53.4/47.8 | 59.4/52.1 | 50.6/48.4 | 58.1/47.2 | 56.8/48.2 | 55.8/45.4 |
| Date of recording | 05-01-2024 | 19-01-2024 | 06-02-2024 | 20-02-2024 | 04-03-2024 | 21-03-2024 |
| **4. Guest House** | 50.1/45.2 | 53.2/46.9 | 50.7/48.9 | 57.1/46.1 | 55.6/47.2 | 49.2/39.1 |

| *Ambient Air Quality Standards in respect of Noise as per 'The noise pollution (Regulation and Control), Rules,2000* | | |
|---|---|---|
| *Time Frame* | *Limits in dB(A) Leq* | |
| | *Day Time 6.00 AM to 10.00 PM* | *Night Time 10.00 PM to 6.00 AM* |
| *Industrial Area* | *75* | *70* |
| *Commercial Area* | *65* | *55* |
| *Residential area* | *55* | *45* |
| *Silence Zone* | *50* | *40* |

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## TEST REPORT

| | | | |
|---|---|---|---|
| **03/24 Test Report No. 1919** | **Job No. 094323120** | **Year** | FY2023-24 |
| Type of Sample: | **Effluent Water** | Quarter Ending | Mar-24 |
| Customer | CCL | | |
| Mode of Receipt of Sample: | Joint sampling with customer | | |
| Testing/ Sampling Protocol: | **MOEF -SCH-VI STANDARDS, Class 'A', LQR 33** | | |
| Remarks & Observation: | Samples received in 5 ltrs plastic Jerri cane, Colour as observed is transparent | | |

## TEST RESULT

The sample has been tested with the following results:-

**Area :** **Kathara** **Project:** **Jarangdih OC** **Stations:** Mine Water

| **Analysis Results of FN Effluent Water** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Parameters → | | | | **COD** | **O & G** | **pH value** | **TSS** |
| **Detection Limit** | | | | **4** | **2** | **0.2** | **10** |
| **MOEF -SCH-VI, STANDARDS, Class 'A'** | | | | **250** | **10** | **5.5 to 9.0** | **100** |
| Month | Date of Sampling | Date of Receipt of Sample | Date of Analysis | **Value in mg/l, except pH** | | | |
| **Jan-24 1st FN** | 10/01/24 | 15/01/24 | 15/01/24-31/01/24 | 20 | <2.00 | 7.55 | 45 |
| **Jan-24 2nd FN** | 20/01/24 | 01/02/24 | 01/02/24-16/02/24 | 16 | <2.00 | 7.6 | 41 |
| **Feb-24 3rd FN** | 12/02/24 | 17/02/24 | 17/02/24-29/02/24 | 12 | <2.00 | 7.55 | 38 |
| **Feb-24 4th FN** | 26/02/24 | 01/03/24 | 01/03/24-15/03/24 | 20 | <2.00 | 7.86 | 47 |
| **Mar-24 5th FN** | 11/03/24 | 18/03/24 | 18/03/24-01/04/24 | 8 | <2.00 | 7.78 | 34 |
| **Mar-24 6th FN** | 27/03/24 | 01/04/24 | 01/04/24-16/04/24 | 12 | <2.00 | 7.79 | 37 |
| **BIS Standard & Method** | | | | APHA, 23rd Edition, Closed Reflux, Titrimetric Method, 2017 | IS 3025/39:1991, R : 2003, Partition Gravimetric | IS-3025/11:1983, R-1996, Electrometric | IS 3025/17:1984, R :1996, Gravimetric Method |

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## TEST REPORT

| 03/24 Test Report No. 1920 | Job No. 094323120 | Year | FY2023-24 |
|---|---|---|---|
| Type of Sample: | Surface Water | Quarter Ending | Mar-24 |
| Customer | CCL | Date of Receipt: | 15-01-2024 |
| Mode of Receipt of Sample: | Joint sampling with customer | Date of Analysis: | 15.01.24-19.03.24 |
| Testing/ Sampling Protocol: | LQR 33 | | |
| Remarks & Observation: | Samples received in 5 ltrs plastic Jerri cane, Colour as observed is transparent | | |

## TEST RESULT

The sample has been tested with the following results:-

**Area :** **Kathara** **Project:** **Jarangdih OC**

**Stations:** Konar River Near Railway Bridge **Date of Sampling:** 10-01-2024

| Sl.No | Parameter | Sampling Stations | | | | Detection Limit | BIS Standard & Method |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | | |
| 1 | Arsenic (as As), mg/l | <0.002 | | | | 0.002 | IS 3025/37:1988 R : 2003, AAS-VGA, Method |
| 2 | BOD (3 days 27°C), mg/l | <2.00 | | | | 2.00 | IS 3025 /44: 1993, R: 2003 3 day incubation at 27°C |
| 3 | Cadmium(as Cd), mg/l | <0.0004 | | | | 0.0004 | APHA, 23rd Edition AAS-GTA Method, 2017 |
| 4 | Chlorides (as $Cl^-$), mg/l | 12 | | | | 2.00 | IS-3025/32:1988, R-2007, Argentometric Method |
| 5 | Copper (as Cu), mg/l | <0.02 | | | | 0.02 | IS 3025/42: 1992, R : 2009, AAS (Air-Ac-Flame) |
| 6 | Disolved Oxygen | 7.3 | | | | 0.10 | IS 3025/38: 1989, R:2003, Winkler Azide Method |
| 7 | Fluoride (as $F^-$) mg/l | 0.57 | | | | 0.02 | APHA, 23rd Edition, SPADNS Method, 2017 |
| 8 | Hexavalent Chromium, mg/l | <0.01 | | | | 0.01 | APHA, 23rd Edition, 2017 Diphenylcarbohydrazide, |
| 9 | Iron (as Fe), mg/l | <0.04 | | | | 0.04 | IS 3025 /53: 2003, R : 2009, AAS (Air-Ac-Flame) |
| 10 | Lead (as Pb), mg/l | <0.001 | | | | 0.001 | APHA, 23rd Edition AAS-GTA Method, 2017 |
| 11 | Nitrate (as $NO_3^-$), mg/l | 2.04 | | | | 0.50 | APHA, 23rd Edition, UV - Spectrophotometric, 2017 |
| 12 | pH value | 8.2 | | | | 1.0 | IS-3025/11:1983, R-1996, Electrometric Method |
| 13 | Phenolic compounds (as $C_6H_5OH$), mg/l | <0.001 | | | | 0.001 | APHA, 23rd Edition, 2017, 4-Amino Antipyrine Method, |
| 14 | Selenium (as Se), mg/l | <0.0005 | | | | 0.0005 | IS 3025/56:2003 AAS-VGA Method |
| 15 | Sulphate (as $SO_4^{-2}$) mg/l | 38 | | | | 2.00 | APHA, 23rd Edition Turbidity Method, 2017 |
| 16 | Total Dissolved Solids, mg/l | 212 | | | | 25.00 | IS 3025 /16:1984 R : 2006, Gravimetric Method |
| 17 | Total Suspended Solids, mg/l | 18 | | | | 10.00 | IS 3025 /17:1984, R :1996, Gravimetric Method |
| 18 | Zinc (as Zn), mg/l | 0.009 | | | | 0.005 | IS 3025 /49: 1994, R : 2009, AAS (Air-Ac-Flame) |

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## TEST REPORT

| | | | |
|---|---|---|---|
| **03/24 Test Report No. 1906** | **Job No. 094323120** | **Year** | FY2023-24 |
| Type of Sample | Ambient Air | Quarter Ending | March-24 |
| Customer | CCL | | |
| Mode of Receipt of Sample: | Joint sampling with customer | | |
| Testing/ Sampling Protocol: | IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution, LQR 32 | | |
| Remarks & Observation: | All samplers placed 1.5 m above ground level | | |

## TEST RESULT

The sample has been tested with the following results:-

**Area :** **Kathara** **Project:** **Jarangdih OC** **Stations:** Gayatri Colony

| Month | Date of Sampling | Date of receipt of sample | Date of analysis | Parameters NAAQS (8 Hourly Average) | | | Wind Direction (from) & Weather |
|---|---|---|---|---|---|---|---|
| | | | | **Ammonia (in µg/m³)** | **CO (in mg/m³)** | **Ozone (in µg/m³)** | |
| **Jan.'24 1st FN** | 04/01/24 | 04/01/24 | 04/01/24 | <20 | 0.455 | <19.62 | E to W |
| **Jan.'24 2nd FN** | 18/01/24 | 18/01/24 | 18/01/24 | <20 | 0.499 | <19.62 | E to W |
| **Feb.'24 3rd FN** | 05/02/24 | 05/02/24 | 05/02/24 | <20 | 0.468 | <19.62 | E to W |
| **Feb.'24 4th FN** | 19/02/24 | 19/02/24 | 19/02/24 | <20 | 0.499 | <19.62 | E to W |
| **March '24 5th FN** | 03/03/24 | 03/03/24 | 03/03/24 | <20 | 0.478 | <19.62 | W to E |
| **March '24 6th FN** | 20/03/24 | 20/03/24 | 20/03/24 | <20 | 0.487 | <19.62 | E to W |

**Note:**
1. Gazette Notification No. G.S.R 742(E) dt.25th Sept.'2000 is applicable in core zone.
2. Gazette Notification No. G.S.R 826 (E) dt.Nov.'2009 is applicable in buffer zone.

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## TEST REPORT

| | | | |
|---|---|---|---|
| **03/24 Test Report No. 1907** | **Job No. 094323120** | **Year** | FY2023-24 |
| Type of Sample | Ambient Air | Quarter Ending | March-24 |
| Customer | CCL | | |
| Mode of Receipt of Sample: | Joint sampling with customer | | |
| Testing/ Sampling Protocol: | IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution, LQR 32 | | |
| Remarks & Observation: | All samplers placed 1.5 m above ground level | | |

## TEST RESULT

The sample has been tested with the following results:-

**Area :** **Kathara** **Project:** **Jarangdih OC** **Stations:** **Jarangdih Colony**

| Month | Date of Sampling | Date of receipt of sample | Date of analysis | Parameters NAAQS (8 Hourly Average) | | | Wind Direction (from) & Weather |
|---|---|---|---|---|---|---|---|
| | | | | **Ammonia (in µg/m³)** | **CO (in mg/m³)** | **Ozone (in µg/m³)** | |
| **Jan.'24 1st FN** | 04/01/24 | 04/01/24 | 04/01/24 | <20 | 0.498 | <19.62 | E to W |
| **Jan.'24 2nd FN** | 18/01/24 | 18/01/24 | 18/01/24 | <20 | 0.502 | <19.62 | E to W |
| **Feb.'24 3rd FN** | 05/02/24 | 05/02/24 | 05/02/24 | <20 | 0.531 | <19.62 | E to W |
| **Feb.'24 4th FN** | 19/02/24 | 19/02/24 | 19/02/24 | <20 | 0.522 | <19.62 | W to E |
| **March '24 5th FN** | 03/03/24 | 03/03/24 | 03/03/24 | <20 | 0.510 | <19.62 | W to E |
| **March '24 6th FN** | 20/03/24 | 20/03/24 | 20/03/24 | <20 | 0.519 | <19.62 | W to E |

**Note:**
1. Gazette Notification No. G.S.R 742(E) dt.25th Sept.'2000 is applicable in core zone.
2. Gazette Notification No. G.S.R 826 (E) dt.Nov.'2009 is applicable in buffer zone.

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## TEST REPORT

| | | | |
|---|---|---|---|
| **03/24 Test Report No. 1908** | **Job No. 094323120** | **Year** | FY2023-24 |
| Type of Sample | Ambient Air | Quarter Ending | March-24 |
| Customer | CCL | | |
| Mode of Receipt of Sample: | Joint sampling with customer | | |
| Testing/ Sampling Protocol: | IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution, LQR 32 | | |
| Remarks & Observation: | All samplers placed 1.5 m above ground level | | |

## TEST RESULT

The sample has been tested with the following results:-

**Area :** **Kathara** **Project:** **Jarangdih OC** **Stations:** **P.O.Office**

| Month | Date of Sampling | Date of receipt of sample | Date of analysis | Parameters NAAQS (8 Hourly Average) | | | Wind Direction (from) & Weather |
|---|---|---|---|---|---|---|---|
| | | | | **Ammonia (in µg/m³)** | **CO (in mg/m³)** | **Ozone (in µg/m³)** | |
| **Jan.'24 1st FN** | 04/01/24 | 04/01/24 | 04/01/24 | <20 | 0.550 | <19.62 | E to W |
| **Jan.'24 2nd FN** | 18/01/24 | 18/01/24 | 18/01/24 | <20 | 0.596 | <19.62 | E to W |
| **Feb.'24 3rd FN** | 05/02/24 | 05/02/24 | 05/02/24 | <20 | 0.581 | <19.62 | E to W |
| **Feb.'24 4th FN** | 19/02/24 | 19/02/24 | 19/02/24 | <20 | 0.621 | <19.62 | W to E |
| **March '24 5th FN** | 03/03/24 | 03/03/24 | 03/03/24 | <20 | 0.610 | <19.62 | W to E |
| **March '24 6th FN** | 20/03/24 | 20/03/24 | 20/03/24 | <20 | 0.593 | <19.62 | N to S |

**Note:**
1. Gazette Notification No. G.S.R 742(E) dt.25th Sept.'2000 is applicable in core zone.
2. Gazette Notification No. G.S.R 826 (E) dt.Nov.'2009 is applicable in buffer zone.

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## TEST REPORT

| | | | |
|---|---|---|---|
| **03/24 Test Report No. 1909** | **Job No. 094323120** | **Year** | FY2023-24 |
| Type of Sample | Ambient Air | Quarter Ending | March-24 |
| Customer | CCL | | |
| Mode of Receipt of Sample: | Joint sampling with customer | | |
| Testing/ Sampling Protocol: | IS 5182 (part 14): 2000 ,R -2010, Methods for Measurement of Air Pollution, LQR 32 | | |
| Remarks & Observation: | All samplers placed 1.5 m above ground level | | |

## TEST RESULT

The sample has been tested with the following results:-

**Area :** **Kathara** **Project:** **Jarangdih OC** **Stations:** **Guest House**

| Month | Date of Sampling | Date of receipt of sample | Date of analysis | Parameters NAAQS (8 Hourly Average) | | | Wind Direction (from) & Weather |
|---|---|---|---|---|---|---|---|
| | | | | **Ammonia (in µg/m³)** | **CO (in mg/m³)** | **Ozone (in µg/m³)** | |
| **Jan.'24 1st FN** | 05/01/24 | 05/01/24 | 05/01/24 | <20 | 0.421 | <19.62 | W to E |
| **Jan.'24 2nd FN** | 19/01/24 | 19/01/24 | 19/01/24 | <20 | 0.400 | <19.62 | E to W |
| **Feb.'24 3rd FN** | 06/02/24 | 06/02/24 | 06/02/24 | <20 | 0.454 | <19.62 | E to W |
| **Feb.'24 4th FN** | 20/02/24 | 20/02/24 | 20/02/24 | <20 | 0.469 | <19.62 | W to E |
| **March '24 5th FN** | 04/03/24 | 04/03/24 | 04/03/24 | <20 | 0.478 | <19.62 | E to W |
| **March '24 6th FN** | 21/03/24 | 21/03/24 | 21/03/24 | <20 | 0.489 | <19.62 | E to W |

**Note:**

1. Gazette Notification No. G.S.R 742(E) dt.25th Sept.'2000 is applicable in core zone.
2. Gazette Notification No. G.S.R 826 (E) dt.Nov.'2009 is applicable in buffer zone.

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# TEST REPORT

| | | | |
|---|---|---|---|
| **01/24 Test Report No. Metal / 03** | | **Job No. 094323120** | 2023-24 |
| Type of Sample | Ambient Air | Quarter Ending | March '2024 |
| Customer | CCL | Date of Receipt of Sample: | 15/01/2024 |
| Mode of Receipt of Sample: | Joint sampling with customer | Date of Analysis: | 15/02/24-23/02/24 |
| Sampling Protocol: | USEPA IO-3.2: 1999, LQR 32 | | |
| Remarks & Observation: | All samplers placed 1.5 m above ground level | | |

## TEST RESULT

The sample has been tested with the following results:-

**Area :** **Kathara** **Project:** **Jarangdih OC**

**Stations:** **Date of Sampling:**

1. Gayatri Colony 04-05/01/2024
2. Jarangdih Colony 04-05/01/2024
3. P.O.Office 04-05/01/2024
4. Guest House 05-06/01/2024

| S.No | Test Parameters | Units | Test Result | | | | Method detection Limit | Limit (NAAQS-2011) | Test Method |
|---|---|---|---|---|---|---|---|---|---|
| Stations: | | | **1** | **2** | **3** | **4** | | | |
| 1 | Conc. of As in Air | ng/m$^3$ | 0.88 | 2.36 | 1.39 | 1.27 | 0.1 | 6.00 | USEPA IO-3.2:1999 |
| 2 | Conc. of Ni in Air | ng/m$^3$ | 4.67 | 4.98 | 4.90 | 2.69 | 0.1 | 20.00 | USEPA IO-3.2:1999 |
| 3 | Conc. of Pb in Air | µg/m$^3$ | 0.030 | 0.020 | 0.021 | 0.030 | 0.005 | 1.0 | USEPA IO-3.2: 1999 |
| 4 | Conc. of Cu in Air | ng/m$^3$ | 0.40 | 0.18 | 0.22 | 0.26 | 0.1 | - | USEPA IO-3.2: 1999 |
| 5 | Conc. of Cd in Air | ng/m$^3$ | 0.034 | 0.040 | 0.037 | 0.027 | 0.02 | - | USEPA IO-3.2: 1999 |
| 6 | Conc. of Cr in Air | ng/m$^3$ | 0.16 | 0.17 | 0.16 | 0.17 | 0.1 | - | USEPA IO-3.2: 1999 |
| 7 | Conc. of Hg in Air | ng/m$^3$ | <0.005 | <0.005 | <0.005 | <0.005 | 0.005 | - | USEPA IO-3.2: 1999 |

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