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| ECL CIN : - U10101WB1975GOI030295 G20 भारत 2023 INDIA | एक महारत्न कंपनी  A MAHARATNA COMPANY | ईस्टर्न कोलफील्ड्स लिमिटेड (कोल इंडिया की अनुबंधी इकाई) महाप्रबंधक का कार्यालय एस पी माइन्स क्षेत्र पो: चित्रा, जिला: देवघर, झारखण्ड 815351 EASTERN COALFIELDS LIMITED (A Subsidiary of Coal India Limited) OFFICE OF THE GENERAL MANAGER S.P. MINES AREA PO: CHITRA, DIST: DEOGHAR, JHARKHAND - 815351 |
| (An ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 Company) | | |

ECL/SPM/GM/24-25/1-24/439

Date: 24.05.2024

To
The Additional PCCF (C),
Ministry of Environment, Forest and Climate Change,
Regional Office (ECZ),
2nd Floor, Headquarter- Jharkhand State Housing Board,
Harmu Chowk, Ranchi, Jharkhand - 834002.

Sub: - Submission of EC Compliance Report for the period October 2023 to March 2024 in respect of Chitra East OCP, SP Mines Area, ECL

Ref: - MoEF&CC Environmental Clearance letter no. – J-11015/652/2007-IA.II(M) dated 4th March, 2010

Dear Sir,


Enclosed please find herewith the six-monthly EC compliance report in respect of Chitra East OCP, SP Mines Area, ECL for your ready reference.

Above said report is for the period from 1st October, 2023 to 31st March, 2024.

Ambient Air Quality, Water Quality, Noise Level Monitoring and Ground Water Level reports are also enclosed along with the above-mentioned report.

This is for your kind information, please.

Thanking you,



24/5/24
General Manager
SP Mines Area, ECL

Distribution:


1. Member Secretary, JSPCB, Dhurwa, Ranchi 834004
2. Regional Officer, JSPCB, Dumka 814110
3. General Manager (Env & F), ECL HQ, Barachak House


} for kind information,
please.




| Sub: Six-monthly EC Compliance Report | | |
|---|--|--|
| Chitra East OCP, SP Mines Area, ECL | | |
| For the period: - October 2023 to March 2024 | | |
| Ref: MoEF&CC letter no. J-11015/652/2007-IA.II(M) dated 04.03.2010 | | |
| 'A' SPECIFIC CONDITION | | |
| SL. NO. | CONDITIONS | COMPLIANCE |
| 1 | No mining operations shall be undertaken in the forest land until prior clearance has been obtained under the provisions of Act. 1980. | No mining operation is undertaken in forest land whose clearance has not been obtained under the provisions of Act, 1980. Stage- II forestry clearance for the proposal of diversion of 124.28 ha forest land has been granted in July 2019 and the said forest land has been released in favour of ECL by DoFE&CC, GoJH on 17.01.2022. 79.10 Ha PF Land included in the 124.28 Ha forest land diversion proposal handed over by DFO Deoghar to ECL. |
| 2 | Mining shall be carried out as per statute from the streams/nallahs flowing within the lease. No modifications of the natural drainage by way of diversion or construction of an embankment shall be undertaken without the prior approval of this Ministry. | Mining is being carried out as per statute. No modification of natural drainage by way of diversion or construction of an embankment has been undertaken. |
| 3 | No washery shall be established within the ML without prior environmental clearance from this Ministry. | No washery has been established within the Mining lease area. |
| 4 | Topsoil shall be stacked properly with proper slope at earmarked site(s) and shall not be kept active and shall be used for reclamation and development of green belt | Noted and agreed. |
| 5 | OB shall be stacked at earmarked three external OB dumps- in the existing dump, up to 8 years (dump 2), up to 12 years (dump 3). The dumps shall not exceed max. height of 90 m consisting of 3 benches, and the ultimate slope of the dumps shall not exceed 28°. The external dumps shall be reclaimed using native species thereafter and monitoring and management of reclaimed dump site shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the MOEF & its Regional office at Bhubaneshwar on Yearly basis. | OB is partially dumped in the Existing External OB dump at present. It (OB) is also used in simultaneous backfilling of the de-coaled areas of the mine pit. The maximum height of the external OB dump is well within the limit (90 m) and the ultimate slope of the dump is not exceeding 28°. |



21/05/24
Area General Manager
SP Mines Area


21/05/24
Agent
Chitra East OCP



21/05/2024
Area Manager (PC&D)
SP Mines Area



21/05/24
Area Env. Officer
SP Mines Area


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| 6 | <p>Catch drains and siltation ponds of appropriate size shall be constructed to arrest site and sediment flows from soil, OB and mineral dumps. The water so collected shall be utilized for watering the mine area, roads, green belt development etc. The drains shall be regular desilted and maintained properly.</p> | <p>The catch drains have been constructed along OB dump. The water so collected is being used for the purpose of water spraying. The catch drain is maintained properly.</p> |
| 7 | <p>Garland drain (size, gradient and length) and sump capacity shall be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper setting of silt material.</p> | <p>Pucca Garland Drain has been made and maintained. Also, Kuchha Garland Drain has been maintained.</p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="619 555 965 896">  <p>Kuchha Drain</p> </div> <div data-bbox="970 555 1436 896">  <p>Pucca drain</p> </div> </div> |
| 8 | <p>Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation shall be based on the rainfall data.</p> | <p>RCC wall has been constructed at the toe of the dump to check the OB materials. Stonewall has been constructed at the toe of the dump on the East side to check the OB materials.</p> <div style="text-align: center;">  </div> |



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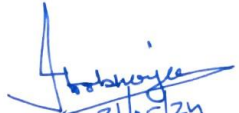

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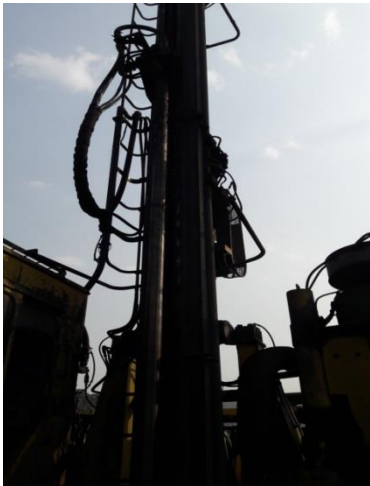
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| <p>9</p> | <p>Mineral transportation from mine to Jamtara railway siding by road shall be by truck at a minimum capacity of 20-T and covered tarpaulin. All internal roads and approach road shall be blacktopped. A-3-tiergreen belt shall be developed on both sides of the roads. Green belt shall be developed at the Railway siding.</p> | <p>Mineral/Coal transportation to Jamtara Siding is done by Tarpaulin covered tippers. Roads have been black topped and Green belt has been developed at places. Green belt has also been developed at Railway siding.</p>  |
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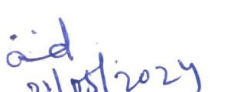

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| <p>10</p> | <p>High-efficiency water sprinkling system provided to check fugitive emissions at the transfer point, haulage roads, etc. shall be provided for crushing/loading operation for dust control at the CHP.</p> | <p>Effective dust suppression is being practiced at places of loading/unloading and haul roads. High efficiency fixed type water sprinkler system has been installed at Jamtara Railway Siding. Mobile water sprinklers are been provided in mines, colony roads including haul road and railway siding. There are two departmental mobile water sprinkler tanks of 10kL capacity each and five hired mobile water sprinkler tanks of 3kL capacity. They are deployed for water spraying round the clock as and when required. Two departmental mobile water sprinklers of 24 kL capacity have been procured in FY 2022-23. There is no CHP within mining lease area.</p> <div style="text-align: center;">  <h2 style="margin: 0;">Water Spraying Arrangements</h2>   </div> |
| <p>11</p> | <p>Drills shall be wet operated only.</p> | <p>Drill Machine has been fitted with wet drilling arrangement and it is in order.</p> <div style="text-align: center;">  </div> |



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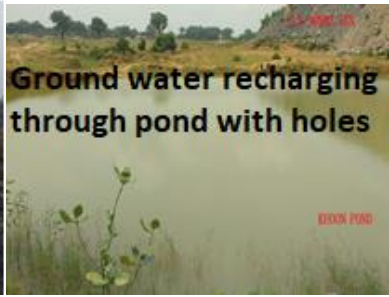
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| 12 | Controlled blasting shall be practiced with use of delay detonators. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented. | Diameter and Depth of hole are 160 mm and 6 m respectively; spacing and burden are 3 m and 2.5 m in OB and 4m and 3m in coal benches. The explosive charge per delay is 20 kg for coal and 25.2 kg for OB. Only NONEL initiation system is used. The wire net of 25 mm mesh and 1.6m x 1.8m size is used in every hole. In each hole, 4 sandbags each of 35-40 kg wt. are placed over the wire net. Stemming of hole is done by sand. Power gel is used to boost up explosive. About 200 kg of Explosive is blasted in one round (approximately 10 holes in each round). |
| 13 | The total area that shall be brought under afforestation at the time of mine closure shall be not less than 329.30 ha and include reclaimed external OB dump (201.63 ha), backfilled area (112.17 ha), along ML boundary, safety zone and undisturbed area, along roads and infrastructure, green belt (15.5 ha) and in township and in the R&R colony and in railway siding outside the lease by planting native found in the study area in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. | Trees have been planted around the mine lease area.  |
| 14 | A progressive mine closure plan shall be implemental by reclamation of the three quarries of an area of 84 ha, 50 ha, and 242 ha. The void of Q-I and Q-II shall be backfilled using the OB from Q-III. Backfilling of void in Q-III shall start from the 12 th year. Of the total quarry area an area of 112.17 ha being backfilled, shall be reclaimed with plantation in addition to already backfilled area, and afforested by planting native plant species in consultation with the local DFO/Agriculture department. The density of the trees shall be around 2500 plants per ha. An area of 8.4 ha of the void being left as a lagoon shall be gently terraced and stabilized with plantation. The balance 90m void of Q-III shall be backfilled using OB from future mining or from a neighboring mine. | Mine closure plan has been approved in the FY 2013-14 and fund has been deposited in escrow account. The progressive mine closure plan is under implementation phase. |



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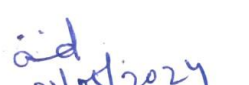

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| 15 | In addition a Final Mine Closure Plan shall be prepared and implemented for the number of old abandoned quarries and underground workings existing in the ML area and details thereof submitted to MOEF and its Regional office at Bhubaneshwar. | Mine closure plan has been approved by ECL board and submitted to authorities concerned. In FY 2023-24 an amount of Rs. 502.25 lakhs had been deposited in escrow account. |
| 16 | No ground water (bore well) shall be used for mining operations. Rainwater harvesting structures shall be erected within and around the ML including check dams for recharge of ground water and for additional use if any during mining operation along with mine sump water. | <p>Four Ponds have been created since 2008 around the Mining Lease Area in the village of Chitra, Tulsidabar and Khoon. Sump of sufficient capacity has been created in the mining area to store water which is subsequently fed to water treatment plant for use as Domestic water for our colonies and surrounding nearby villages like Chitra, Khoon.</p> <div style="display: flex; justify-content: space-around;">   </div> |
| 17 | Regular monitoring of ground water level and quality shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August) Post monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the Ministry of Environment & Forest and to the Central Pollution Control Board quarterly within one month of monitoring. | <p>Monitoring of Ground water level and quality is carried out by CMPDI, RI – I, Asansol at 5 dug wells and reported value is found well within limit, no significant deviation of GW table has been reported.</p> <p>Recently, two new piezometric bore wells had been constructed out of which one is fitted with automatic well recorder.</p> <p>Report of CMPDI enclosed.</p> |
| 18 | The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine. | Although there is no case of village wells going dry due to dewatering of mine, there is a regular supply of drinking water by 3-4 tankers (10 KL each) every day to near-by villages like Khoon, Tulsidabar, Bhawanipur etc. |
| 19 | Sewage treatment plant of adequate capacity shall be installed in the colony. ETP shall also be provided for workshop and CHP wastewater. Treated wastewater meeting prescribed norms only shall be permitted to be discharge in to the natural water sources. | <p>Work Order for construction of a sewerage treatment plant for the colony has been awarded and the work is expected to be completed in FY 2024-25.</p> <p>Scheme for an ETP in the Central Excavation Workshop has been prepared by CMPDIL and the work is expected to be completed in FY 2024-25.</p> |



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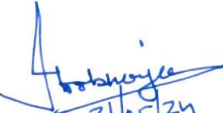

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| 20 | <p>Besides carrying regular periodic health check up to their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health checkup for occupational diseases and hearing impairment, if any, through an agency such as NIOH, Ahmedabad within a period of one year and the results reported to this Ministry and to DGMS.</p> | <p>PME of workers is done by Departmental Doctors. Suitable action is taken to identify the occupational diseases. Hearing test is conducted of each worker during PME. Details of PME data for last ten years is as follows:</p> <table border="1" data-bbox="742 324 1404 560"> <thead> <tr> <th>Year</th> <th>Manpower</th> <th>PME done</th> </tr> </thead> <tbody> <tr> <td>2019-20</td> <td>986</td> <td>111</td> </tr> <tr> <td>2020-21</td> <td>970</td> <td>238</td> </tr> <tr> <td>2021-22</td> <td>940</td> <td>75</td> </tr> <tr> <td>2022-23</td> <td>906</td> <td>68</td> </tr> <tr> <td>2023-24</td> <td>884</td> <td>87</td> </tr> </tbody> </table> <p>NIOH has been engaged for health check for occupational diseases and hearing impairment for 10% of the workers engaged in active mining operations. As per the direction of Director, NIOH, 10% of the workers engaged in active mining operations have been nominated and their details have been submitted. NIOH has conducted the study.</p> | Year | Manpower | PME done | 2019-20 | 986 | 111 | 2020-21 | 970 | 238 | 2021-22 | 940 | 75 | 2022-23 | 906 | 68 | 2023-24 | 884 | 87 |
|---------|--|---|------|----------|----------|---------|-----|-----|---------|-----|-----|---------|-----|----|---------|-----|----|---------|-----|----|
| Year | Manpower | PME done | | | | | | | | | | | | | | | | | | |
| 2019-20 | 986 | 111 | | | | | | | | | | | | | | | | | | |
| 2020-21 | 970 | 238 | | | | | | | | | | | | | | | | | | |
| 2021-22 | 940 | 75 | | | | | | | | | | | | | | | | | | |
| 2022-23 | 906 | 68 | | | | | | | | | | | | | | | | | | |
| 2023-24 | 884 | 87 | | | | | | | | | | | | | | | | | | |
| 21 | <p>A detailed CSR plan shall also be prepared for and in consultation with the local communities. The annual revenue expenditure on CSR should be for a minimum Rs. 5/tonne of coal which is to be adjusted for the depreciation in the value of the rupee over the life of the project. The activities undertaken for the specific villages adopted under CSR should be displayed on the company website and update at least once a year.</p> | <p>CSR activities are done as per Guideline of Govt. 2% of the profit goes to CSR.</p> <div style="display: flex; justify-content: space-around;">   </div> <p>In FY 2023-24, following CSR activities have been undertaken:</p> <ol style="list-style-type: none"> 1. Project "SWASTHYA SEVA SHIVIR" - organizing free medical camp on the occasion of Saawan Mahotsav-2023 for local people including kanwaris at Dumma, Deoghar, Jharkhand. 2. Mobile Medical Van Service in villages near SP Mines Area. 3. Installation of Seven Nos. of High Mast Light for different locations in Sarath & Palojori Block. 4. AI Lab in Jawahar Navoday Vidyalaya, Deoghar and Jamtara. 5. Ambulance service for carrying patients from nearby villages of SP Mines Area to nearest hospital. | | | | | | | | | | | | | | | | | | |


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| 22 | R&R involving 586 PAFs from six villages- Bhawanipur (92), Tulsidabur (94), Khoon (90), Chitra (part) (105), Jamua (110) & Tarabad (95) from the existing and the proposed expansion project shall not be less than the norms specific in the National R&R policy. Provision of annuities instead of one time compensation shall be examined. A corpus fund for the maintenance of the R&R colony shall be created. The details of the progress made in the status and implementation of the R&R plan shall be regularly updated (at least twice in a year) on the company's website including the costs incurred on the various activities. | Considering adult male as PAF, the total no of PAFs to be shifted is 1596 from six villages – Bhawanipur (192), Tulsidabor (186), Khoon (286), Chitra (Part) (320), Jamua (Part) (366) & Tarabad (246). Benefits are being extended to shifted PAFs in accordance to CIL R&R Policy. A corpus fund for the maintenance of the R&R colony has been created. | | | | | | | | | | | | |
|--|--|---|----------|-----------|------------------------|-------|--------------------------------|-------|--|-------|--------------------------|-------|----------------------|--------|
| 23 | For monitoring land use pattern and for post-mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1:5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in three years (for any one particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhubaneshwar. | Satellite surveillance had been done in the area in 2020 by CMPDIL, HQ, Ranchi. A brief report of the land use in the area is as follows: <table border="1" data-bbox="703 902 1434 1111"> <thead> <tr> <th>Land Use</th> <th>Area (Ha)</th> </tr> </thead> <tbody> <tr> <td>Area under backfilling</td> <td>31.81</td> </tr> <tr> <td>Plantation on external OB dump</td> <td>14.90</td> </tr> <tr> <td>Social Forestry, Avenue Plantation, etc.</td> <td>27.99</td> </tr> <tr> <td>Area under active mining</td> <td>77.74</td> </tr> <tr> <td>Total excavated area</td> <td>109.55</td> </tr> </tbody> </table> | Land Use | Area (Ha) | Area under backfilling | 31.81 | Plantation on external OB dump | 14.90 | Social Forestry, Avenue Plantation, etc. | 27.99 | Area under active mining | 77.74 | Total excavated area | 109.55 |
| Land Use | Area (Ha) | | | | | | | | | | | | | |
| Area under backfilling | 31.81 | | | | | | | | | | | | | |
| Plantation on external OB dump | 14.90 | | | | | | | | | | | | | |
| Social Forestry, Avenue Plantation, etc. | 27.99 | | | | | | | | | | | | | |
| Area under active mining | 77.74 | | | | | | | | | | | | | |
| Total excavated area | 109.55 | | | | | | | | | | | | | |
| 24 | A final mine closure plan along with detail of corpus fund shall be submitted to the Ministry of Environment & Forests 5 years in advance of final mine closure for approval. | Mine closure plan has been approved by ECL board and submitted to authorities concerned. In FY 2023-24 an amount of Rs. 502.25 lakhs had been deposited in escrow account. | | | | | | | | | | | | |


'B' GENERAL CONDITION


| SL. NO. | CONDITIONS | COMPLIANCE |
|---------|--|--|
| 1 | No change in mining technology and scope of working shall be made without prior approval of the Ministry of environment & forests. | As per scope, horizontal slicing open cast mining is being done by Dumper- Shovel combination. |



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| 2 | No change in the calendar plan including excavation, the quantum of mineral coal and waste shall be made. | <p>No change in the calendar plan including excavation, the quantum of mineral coal and waste has been made.</p> <p>Over the sanctioned EC capacity of 2.50 MTPA, the following is the present production level</p> <table border="1" data-bbox="699 331 1442 600"> <thead> <tr> <th>Year</th> <th>Coal Productions (MT)</th> <th>OB removal (Mm³)</th> </tr> </thead> <tbody> <tr> <td>2019-20</td> <td>2.05</td> <td>5.56</td> </tr> <tr> <td>2020-21</td> <td>0.87</td> <td>2.67</td> </tr> <tr> <td>2021-22</td> <td>0.99</td> <td>2.39</td> </tr> <tr> <td>2022-23</td> <td>1.03</td> <td>2.86</td> </tr> <tr> <td>2023-24</td> <td>1.75</td> <td>5.02</td> </tr> </tbody> </table> | Year | Coal Productions (MT) | OB removal (Mm ³) | 2019-20 | 2.05 | 5.56 | 2020-21 | 0.87 | 2.67 | 2021-22 | 0.99 | 2.39 | 2022-23 | 1.03 | 2.86 | 2023-24 | 1.75 | 5.02 |
|---------|---|---|------|-----------------------|-------------------------------|---------|------|------|---------|------|------|---------|------|------|---------|------|------|---------|------|------|
| Year | Coal Productions (MT) | OB removal (Mm ³) | | | | | | | | | | | | | | | | | | |
| 2019-20 | 2.05 | 5.56 | | | | | | | | | | | | | | | | | | |
| 2020-21 | 0.87 | 2.67 | | | | | | | | | | | | | | | | | | |
| 2021-22 | 0.99 | 2.39 | | | | | | | | | | | | | | | | | | |
| 2022-23 | 1.03 | 2.86 | | | | | | | | | | | | | | | | | | |
| 2023-24 | 1.75 | 5.02 | | | | | | | | | | | | | | | | | | |
| 3 | Four ambient air quality monitoring station shall be established in the core zone as well as in the buffer zone for monitoring of air quality. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive target in consultation with the State Pollution Control Board. In addition, heavy metals such as Hg, Pb, Cd, As, etc. from the particulates shall be monitored at least twice in a year. The data thereon recorded properly. | <p>Six ambient air quality monitoring stations have been established namely Attendance Room Near Store, Weigh Bridge Near Sales Office, Chitra Guest House and Jamtara Railway Siding. The ambient air quality reports are enclosed and Environmental Standard for Raniganj Coalfield vide MoEF, GoI, Gazette Notification No GSR 742 (E) dated 25.09.2000 for 24 hourly samples at 500 metres from dust generating point for PM₁₀, SO₂ & NO_x is being maintained. National Ambient Air Quality Standard (NAAQS), 2009 for PM_{2.5}, SO₂ & NO_x is being maintained. Report of heavy metals is also enclosed.</p> <p>Also, a PM₁₀ analyser have been installed at Jamtara Railway Siding with online connectivity to JSPCB server.</p> | | | | | | | | | | | | | | | | | | |
| 4 | Water spraying arrangement on haul roads, wagon loading, and dump trucks (loading and unloading) points shall be provided and properly maintained. | <p>Effective dust suppression is being practiced at places of loading/unloading and haul roads.</p> <p>High efficiency fixed type water sprinkler system has been installed at Jamtara Railway Siding.</p> <p>Mobile water sprinklers are been provided in mines, colony roads including haul road and railway siding. There are two departmental mobile water sprinkler tanks of 10kL capacity each and five hired mobile water sprinkler tanks of 3kL capacity. They are deployed for water spraying round the clock as and when required. Two departmental mobile water sprinklers of 24 kL capacity have been procured in FY 2022-23.</p>  | | | | | | | | | | | | | | | | | | |



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| | | |
|---|---|---|
| 5 | Data on ambient air quality and heavy metals such as Hg, Pb, Cd, As, etc. shall be regularly submitted to the Ministry including its Regional office at Bhubaneswar and to the State Pollution Control Board and the Central Pollution Control Board once in six months. | Report of CMPDIL for heavy metals is enclosed. Concentration of heavy metals like As, Cd, Cr, Hg, Ni & Pb are well within the standards of NAAQS. |
| 6 | Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc. shall be provided with ear plugs/muffs. | Noise level is being kept within limit. Control blasting technique using NONEL, DTH/TLD are followed for blasting. The cabin of Dumper/HEMM has been made air-conditioned. The noise level has been monitored adjacent to the air quality measurement stations. The maximum noise level is below 85 dB (A). Report of CMPDIL is enclosed. Noise level monitoring is also done in mines and the noise level is found below permissible limit. |
| 7 | Industrial wastewater (workshop and wastewater from the mine) shall be properly collected and treated so as to conform to the standard prescribed under GSR 422 (E) dated 19 th May 1993 and 31 st December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents. | Industrial wastewater is properly collected and treated before discharge. The discharge water quality is conforming to the standard prescribed. Reports enclosed. |
| 8 | Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded. | It is a regular practice to check the vehicular emission of the concerned vehicle. Vehicular emission is under control. Coal is being transported using Tarpaulin covered tipping trucks and is optimally loaded.  |
| 9 | The environmental quality parameters shall be got analyzed from a recognized environmental laboratory or shall be established with adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board. | Environmental quality parameters are being analyzed by CMPDIL, an ISO 9001:2015 company having NABL accredited laboratories and reports are sent to Jharkhand State Pollution Control Board. |



21/05/24
Area General Manager
SP Mines Area


21/05/24
Agent
Chitra East OCP



21/05/2024
Area Manager (PC&D)
SP Mines Area

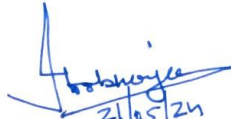

21/05/24
Area Env. Officer
SP Mines Area

| 10 | Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects. Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed. | <p>All personnel working in mines are provided with protective equipment and they are provided with adequate training and information on safety and health aspects. The following numbers of protective equipment have been provided to personnel working in mines during the FY 2023-24:</p> <table border="1" data-bbox="738 331 1406 555"> <thead> <tr> <th>Sl No</th> <th>Protective Equipment</th> <th>Number Issued</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Dust Mask</td> <td>500</td> </tr> <tr> <td>2</td> <td>Mining Shoe (pairs)</td> <td>633</td> </tr> <tr> <td>3</td> <td>Goggles</td> <td>100</td> </tr> <tr> <td>4</td> <td>Safety Helmet</td> <td>154</td> </tr> <tr> <td>5</td> <td>Safety Jacket</td> <td>300</td> </tr> <tr> <td>6</td> <td>Rubber Hand Gloves (pairs)</td> <td>10</td> </tr> </tbody> </table> | Sl No | Protective Equipment | Number Issued | 1 | Dust Mask | 500 | 2 | Mining Shoe (pairs) | 633 | 3 | Goggles | 100 | 4 | Safety Helmet | 154 | 5 | Safety Jacket | 300 | 6 | Rubber Hand Gloves (pairs) | 10 |
|-------|---|---|-------|----------------------|---------------|---|-----------|-----|---|---------------------|-----|---|---------|-----|---|---------------|-----|---|---------------|-----|---|----------------------------|----|
| Sl No | Protective Equipment | Number Issued | | | | | | | | | | | | | | | | | | | | | |
| 1 | Dust Mask | 500 | | | | | | | | | | | | | | | | | | | | | |
| 2 | Mining Shoe (pairs) | 633 | | | | | | | | | | | | | | | | | | | | | |
| 3 | Goggles | 100 | | | | | | | | | | | | | | | | | | | | | |
| 4 | Safety Helmet | 154 | | | | | | | | | | | | | | | | | | | | | |
| 5 | Safety Jacket | 300 | | | | | | | | | | | | | | | | | | | | | |
| 6 | Rubber Hand Gloves (pairs) | 10 | | | | | | | | | | | | | | | | | | | | | |
| 11 | A separate environmental management cell with suitable personnel shall be set up under the control of a Senior Executive who will report directly to the head of the company. | Environmental management cell has been setup under the control of Area Manager (PCD&E), SP Mines Area. One Assistant Manager (Environment) and one Management Trainee (Environment) are directly under his Control. Area Manager (PCD&E) directly reports to Area General Manager for Environmental issues. Moreover, an Area Level Advisory Committee has been formed with Area General Manager as Chairman, Area Environment Officer as Member Secretary and all HODs as Members solely to monitor the compliance of EC compliances. Similar Advisory Committee has also been formed at ECL HQ level and CIL HQ level to monitor EC compliances. | | | | | | | | | | | | | | | | | | | | | |
| 12 | The funds earmarked for environmental protection measure shall be kept the separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this ministry and its Regional office at Bhubaneswar. | Funds for environmental protection measure is kept in a separate account and not diverted for other purposes. | | | | | | | | | | | | | | | | | | | | | |
| 13 | A copy of the letter shall be marked to the concerned Panchayat, Zila Parishad, Municipal Corporation/Urban local body, local NGO, if any, from whom any suggestion/ representation has been received while processing the proposal. The clearance. Letter shall also be displayed on the company's website. | Noted | | | | | | | | | | | | | | | | | | | | | |
| 14 | A copy of the clearance letter shall also be sent to the Regional Office of the MOEF, the respective zonal offices of the CPCB and the SPCB. The concerned State Pollution Control Board shall display a copy of the clearance letter on their website. Copies shall also be displayed at District Industry Centre and Collector's Office/Tehsilor's office for 30 days. A copy of the clearance letter may also be seen at the website of Ministry of Environment & Forests at http://envfor.nic.in . | Noted | | | | | | | | | | | | | | | | | | | | | |



21/05/24
Area General Manager
SP Mines Area


21/05/24
Agent
Chitra East OCP



21/05/2024
Area Manager (PC&D)
SP Mines Area



21/05/24
Area Env. Officer
SP Mines Area

| | | |
|----|--|-------------------|
| 15 | The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance. | Noted |
| 16 | A copy of the EC. Letter shall be uploaded on the company's website. The compliance status of environmental clearance conditions shall also be uploaded by the project authority in their website so as to bring the same in the public domain and regularly updated at least once every six months. The monitoring data on environmental quality parameters such as air (including PM 10, PM 2.5 NO _x and SO _x), water, noise and soil or critical sectorial parameters indicted for the project shall also be displayed at the entrance of the project premises and mines office and in corporate office and also regularly up loaded on the company's website. | Noted |
| 17 | The project proponents shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitoring data (both by hard copied and by E-mail) to the respective Regional Office of MOEF, respective Zonal office of the CPCB and SPCB. | It is being done. |
| 18 | The Regional office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulate conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional office by furnishing the requisite data/information/monitoring reports. | Noted |



21/05/24
Area General Manager
SP Mines Area


21/05/24
Agent
Chitra East OCP



21/05/2024
Area Manager (PC&D)
SP Mines Area



21/05/24
Area Env. Officer
SP Mines Area

| | | |
|----|---|-------------------|
| 19 | The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986 and its subsequent amendments shall also be put on the company's website. | It is being done. |
|----|---|-------------------|


21/05/24
Area General Manager
SP Mines Area


21/05/24
Agent
Chitra East OCP


21/05/2024
Area Manager (PC&D)
SP Mines Area


21/05/24
Area Env. Officer
SP Mines Area



AMBIENT AIR QUALITY DATA

Name of the Customer: Eastern Coalfield Limited, Borachak House, P.O.-Sitarampur, Distt.-Paschim Bardhaman, West Bengal.

First fortnight:

| Station Code | Station Name | Category of station | Date of Sampling | Parameter | Analytical Results ($\mu\text{g}/\text{m}^3$) | Name of method | Detection limit ($\mu\text{g}/\text{m}^3$) |
|--------------|--|---------------------|------------------|-------------------|---|-----------------------------|--|
| 13A1 | Attendance Room Near Store | Industrial | 05-Oct-23 | SPM | 136.3 | IS 5182 (Part 4):1999, R: | 5.0 |
| | | | | PM ₁₀ | 83.2 | IS 5182 (Part 23): 2006, R: | 3.5 |
| | | | | PM _{2.5} | 26.2 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: | 10 |
| | | | | NO _x | 14.0 | IS 5182 (Part 6): 2006, R: | 10 |
| 13A2 | Weigh Bridge Near Sales Office | Industrial | 05-Oct-23 | SPM | 114.2 | IS 5182 (Part 4):1999, R: | 5.0 |
| | | | | PM ₁₀ | 76.4 | IS 5182 (Part 23): 2006, R: | 3.5 |
| | | | | PM _{2.5} | 21.5 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: | 10 |
| 13A3 | Chitra Guest House | Residential | 06-Oct-23 | PM ₁₀ | 38.8 | IS 5182 (Part 23): 2006, R: | 3.5 |
| | | | | PM _{2.5} | 18.2 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: | 10 |
| | | | | NO _x | 13.0 | IS 5182 (Part 6): 2006, R: | 10 |
| 13A4 | ECL Office at Jamtara Railway Siding | Industrial | 05-Oct-23 | SPM | 104.5 | IS 5182 (Part 4):1999, R: | 5.0 |
| | | | | PM ₁₀ | 74.8 | IS 5182 (Part 23): 2006, R: | 3.5 |
| | | | | PM _{2.5} | 15.6 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: | 10 |
| | | | | NO _x | 12.0 | IS 5182 (Part 6): 2006, R: | 10 |
| 13A5 | Weigh Bridge of Jamtara Railway Siding | Industrial | 06-Oct-23 | SPM | 115.6 | IS 5182 (Part 4):1999, R: | 5.0 |
| | | | | PM ₁₀ | 77.1 | IS 5182 (Part 23): 2006, R: | 3.5 |
| | | | | PM _{2.5} | 23.3 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: | 10 |
| 13A6 | Railway Substation near Jamtara Railway Siding | Industrial | 06-Oct-23 | SPM | 93.5 | IS 5182 (Part 4):1999, R: | 5.0 |
| | | | | PM ₁₀ | 62.5 | IS 5182 (Part 23): 2006, R: | 3.5 |
| | | | | PM _{2.5} | 20.3 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: | 10 |
| | | | | NO _x | 14.0 | IS 5182 (Part 6): 2006, R: | 10 |



Second fortnight:

| Station Code | Station Name | Category of station | Date of Sampling | Parameter | Analytical Results ($\mu\text{g}/\text{m}^3$) | Name of method | Detection limit ($\mu\text{g}/\text{m}^3$) |
|--------------|--|---------------------|------------------|-------------------|---|----------------------------------|--|
| 13A1 | Attendance Room Near Store | Industrial | 26-Oct-23 | SPM | 292.8 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 202.1 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 51.2 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 16.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A2 | Weigh Bridge Near Sales Office | Industrial | 26-Oct-23 | SPM | 231.6 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 163.2 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 50.8 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A3 | Chitra Guest House | Residential | 27-Oct-23 | PM ₁₀ | 101.5 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 39.4 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A4 | ECL Office at Jamtara Railway Siding | Industrial | 26-Oct-23 | SPM | 198.1 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 135.4 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 52.1 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 11.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A5 | Weigh Bridge of Jamtara Railway Siding | Industrial | 27-Oct-23 | SPM | 266.5 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 150.4 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 57.0 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 13.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A6 | Railway Substation near Jamtara Railway Siding | Industrial | 27-Oct-23 | SPM | 183.4 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 119.6 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 46.2 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |

*BDL – Below Detection Limit.



cmpdi
A Mini Ratna Company

ISO 9001: 2015 Certified Company
Environment Laboratory, CMPDIL, RI-I, Asansol

Environmental Standards for Ambient Air Quality (AAQ):

| | | | | | | | | | |
|---|------------------|-------------------|-----------------|-----------------|---|------------------|-------------------|-----------------|-----------------|
| Environmental standard for Raniganj Coalfield vide MOEF, Govt. of India, Gazette Notification No. GSR 742 (E) dated 25.09.2000 for 24 hourly samples at 500 meters from dust generating point | | | | | National Ambient Air Quality Standards (NAAQS), 2009 for industrial, residential and rural areas for 24 hours samples | | | | |
| Pollutant Concentration ($\mu\text{g}/\text{m}^3$) | | | | | Pollutant Concentration ($\mu\text{g}/\text{m}^3$) | | | | |
| SPM | PM ₁₀ | PM _{2.5} | SO ₂ | NO _x | SPM | PM ₁₀ | PM _{2.5} | SO ₂ | NO _x |
| 600.0 | 300.0 | Not Specified | 120.0 | 120.0 | Not Specified | 100.0 | 60.0 | 80.0 | 80.0 |



First fortnight:

| Sl. No. | Parameters | Analytical results | General Standards for Discharge of Effluent (Schedule VI) | Name of Method | Detection Limit |
|---------|------------------|--------------------|---|--------------------------|-----------------|
| | Station Code | 13MW1 | | | |
| | Date of sampling | 07-Oct-23 | | | |
| 1 | pH | 7.38 | 5.5 - 9.0 | IS 3025 (Part 11): 2003 | 2.0 |
| 2 | TSS | BDL | 100 | IS 3025 (Part 17): 1984 | 10.0 |
| 3 | TDS | 514 | Not specified | IS 3025 (Part 16): 1984 | 25.0 |
| 4 | Oil & Grease | BDL | 10 | IS 3025 (Part 39): 1991 | 2.0 |
| 5 | COD | 16 | 250 | APHA 5220C Closed Reflux | 4.0 |

Second fortnight:

| Sl. No. | Parameters | Analytical results | General Standards for Discharge of Effluent (Schedule VI) | Name of Method | Detection Limit |
|---------|------------------|--------------------|---|--------------------------|-----------------|
| | Station Code | 13MW1 | | | |
| | Date of sampling | 28-Oct-23 | | | |
| 1 | pH | 7.97 | 5.5 - 9.0 | IS 3025 (Part 11): 2003 | 2.0 |
| 2 | TSS | BDL | 100 | IS 3025 (Part 17): 1984 | 10.0 |
| 3 | TDS | 531 | Not specified | IS 3025 (Part 16): 1984 | 25.0 |
| 4 | Oil & Grease | BDL | 10 | IS 3025 (Part 39): 1991 | 2.0 |
| 5 | COD | 8 | 250 | APHA 5220C Closed Reflux | 4.0 |

*BDL-Below Detection Limit.

All values are expressed in mg/l except pH.



NOISE LEVEL DATA

Name of the Customer: Eastern Coalfield Limited, Borachak House, P.O.-Sitarampur, Distt.-Paschim Bardhaman, West Bengal.

First fortnight:

| Station Code | Station Name | Date of sampling | Sampling duration (hrs.) | Day – time Noise Level dB(A) Leq | Night – time Noise Level dB(A) Leq | Day – Night Noise Level dB(A) Leq |
|--------------|--------------------------------|------------------|--------------------------|----------------------------------|------------------------------------|-----------------------------------|
| 13N1 | Attendance Room near store | 06-Oct-23 | 10.22 to 10.06 | 71.36 | 51.28 | 69.62 |
| 13N2 | Weigh Bridge Near sales office | 05-Oct-23 | 10.28 to 9.36 | 69.43 | 57.38 | 67.72 |
| 13N3 | Chitra guest house | 05-Oct-23 | 11.18 to 9.41 | 54.72 | 49.64 | 53.47 |
| 13N4 | Jamtara railway siding | 06-Oct-23 | 9.38 to 9.15 | 72.34 | 61.24 | 70.74 |

Second fortnight:

| Station Code | Station Name | Date of sampling | Sampling duration (hrs.) | Day – time Noise Level dB(A) Leq | Night – time Noise Level dB(A) Leq | Day – Night Noise Level dB(A) Leq |
|--------------|--------------------------------|------------------|--------------------------|----------------------------------|------------------------------------|-----------------------------------|
| 13N1 | Attendance Room near store | 26-Oct-23 | 11.19 to 10.49 | 69.42 | 57.42 | 67.71 |
| 13N2 | Weigh Bridge Near sales office | 27-Oct-23 | 10.21 to 9.16 | 73.42 | 51.28 | 71.58 |
| 13N3 | Chitra guest house | 27-Oct-23 | 11.28 to 10.18 | 59.42 | 47.28 | 57.70 |
| 13N4 | Jamtara railway siding | 26-Oct-23 | 10.29 to 9.38 | 78.38 | 62.34 | 76.58 |

Noise Pollution (Regulation and Control) Rules published in Gazette of India, vide S. O. 123 (E) dated 14.02.2000 under Environment Protection Act, 1986.

| Station Category | Limits for noise (Leq dB (A)) | |
|------------------|-------------------------------|----------------------------------|
| | Day Time: 6.00 AM to 10.00 PM | Night Time: 10.00 PM to 6.00 AM. |
| Industrial | 75.0 | 70.0 |
| Commercial | 65.0 | 55.0 |
| Residential | 55.0 | 45.0 |
| Silence Zone | 50.0 | 40.0 |



AMBIENT AIR QUALITY DATA

Name of the Customer: Eastern Coalfield Limited, Borachak House, P.O.-Sitarampur, Distt.-Paschim Bardhaman, West Bengal.

First fortnight:

| Station Code | Station Name | Category of station | Date of Sampling | Parameter | Analytical Results ($\mu\text{g}/\text{m}^3$) | Name of method | Detection limit ($\mu\text{g}/\text{m}^3$) |
|--------------|--|---------------------|------------------|-------------------|---|----------------------------------|--|
| 13A1 | Attendance Room Near Store | Industrial | 09-Nov-23 | SPM | 348.8 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 257.4 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 54.7 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 12.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A2 | Weigh Bridge Near Sales Office | Industrial | 10-Nov-23 | SPM | 380.4 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 272.1 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 49.8 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 11.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A3 | Chitra Guest House | Residential | 09-Nov-23 | PM ₁₀ | 98.3 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 35.9 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 10.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A4 | ECL Office at Jamtara Railway Siding | Industrial | 10-Nov-23 | SPM | 316.8 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 211.3 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 55.1 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 14.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A5 | Weigh Bridge of Jamtara Railway Siding | Industrial | 09-Nov-23 | SPM | 328.6 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 194.9 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 63.7 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 11.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A6 | Railway Substation near Jamtara Railway Siding | Industrial | 10-Nov-23 | SPM | 248.6 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 143.8 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 46.2 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 14.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |



Second fortnight:

| Station Code | Station Name | Category of station | Date of Sampling | Parameter | Analytical Results ($\mu\text{g}/\text{m}^3$) | Name of method | Detection limit ($\mu\text{g}/\text{m}^3$) |
|--------------|--|---------------------|------------------|-------------------|---|----------------------------------|--|
| 13A1 | Attendance Room Near Store | Industrial | 27-Nov-23 | SPM | 265.0 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 192.7 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 44.7 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A2 | Weigh Bridge Near Sales Office | Industrial | 27-Nov-23 | SPM | 316.6 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 224.3 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 50.1 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 10.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A3 | Chitra Guest House | Residential | 28-Nov-23 | PM ₁₀ | 284.2 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 56.3 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A4 | ECL Office at Jamtara Railway Siding | Industrial | 28-Nov-23 | SPM | 310.9 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 216.8 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 54.2 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 16.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A5 | Weigh Bridge of Jamtara Railway Siding | Industrial | 27-Nov-23 | SPM | 291.6 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 190.6 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 56.8 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 10.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A6 | Railway Substation near Jamtara Railway Siding | Industrial | 28-Nov-23 | SPM | 224.8 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 145.3 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 43.4 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 16.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |

*BDL – Below Detection Limit.



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Environmental Standards for Ambient Air Quality (AAQ):

| | | | | | | | | | |
|---|------------------|-------------------|-----------------|-----------------|---|------------------|-------------------|-----------------|-----------------|
| Environmental standard for Raniganj Coalfield vide MOEF, Govt. of India, Gazette Notification No. GSR 742 (E) dated 25.09.2000 for 24 hourly samples at 500 meters from dust generating point | | | | | National Ambient Air Quality Standards (NAAQS), 2009 for industrial, residential and rural areas for 24 hours samples | | | | |
| Pollutant Concentration ($\mu\text{g}/\text{m}^3$) | | | | | Pollutant Concentration ($\mu\text{g}/\text{m}^3$) | | | | |
| SPM | PM ₁₀ | PM _{2.5} | SO ₂ | NO _x | SPM | PM ₁₀ | PM _{2.5} | SO ₂ | NO _x |
| 600.0 | 300.0 | Not Specified | 120.0 | 120.0 | Not Specified | 100.0 | 60.0 | 80.0 | 80.0 |



First fortnight:

| Sl. No. | Parameters | Analytical results | General Standards for Discharge of Effluent (Schedule VI) | Name of Method | Detection Limit |
|---------|------------------|--------------------|---|--------------------------|-----------------|
| | Station Code | 13MW1 | | | |
| | Date of sampling | 10-Nov-23 | | | |
| 1 | pH | 8.17 | 5.5 - 9.0 | IS 3025 (Part 11): 2003 | 2.0 |
| 2 | TSS | BDL | 100 | IS 3025 (Part 17): 1984 | 10.0 |
| 3 | TDS | 532 | Not specified | IS 3025 (Part 16): 1984 | 25.0 |
| 4 | Oil & Grease | BDL | 10 | IS 3025 (Part 39): 1991 | 2.0 |
| 5 | COD | 16 | 250 | APHA 5220C Closed Reflux | 4.0 |

Second fortnight:

| Sl. No. | Parameters | Analytical results | General Standards for Discharge of Effluent (Schedule VI) | Name of Method | Detection Limit |
|---------|------------------|--------------------|---|--------------------------|-----------------|
| | Station Code | 13MW1 | | | |
| | Date of sampling | 29-Nov-23 | | | |
| 1 | pH | 8.12 | 5.5 - 9.0 | IS 3025 (Part 11): 2003 | 2.0 |
| 2 | TSS | BDL | 100 | IS 3025 (Part 17): 1984 | 10.0 |
| 3 | TDS | 540 | Not specified | IS 3025 (Part 16): 1984 | 25.0 |
| 4 | Oil & Grease | BDL | 10 | IS 3025 (Part 39): 1991 | 2.0 |
| 5 | COD | 16 | 250 | APHA 5220C Closed Reflux | 4.0 |

*BDL-Below Detection Limit.

All values are expressed in mg/l except pH.



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Ground water level for the month of November, 2023

| Sl. No. | Station Code | Location of Dugwell | Date of measurement | Water level below ground level (mtr.) | Measurement point above ground level (mtr.) | Depth of dugwell (mtr.) | Diameter of dugwell (mtr.) | Owner of dugwell | Utility of dugwell |
|---------|--------------|-------------------------------------|---------------------|---------------------------------------|---|-------------------------|----------------------------|------------------|--------------------|
| 1 | 13GWL1 | Dukhiababa mandir of Chitra village | 29-Nov-23 | 6.1 | 0.9 | 10.5 | 2.2 | ECL | Domestic |
| 2 | 13GWL2 | West side Barmaria village | 29-Nov-23 | 10.85 | 0.4 | 12.5 | 1.8 | Private | Domestic |
| 3 | 13GWL3 | Jamnitand village near Transformer | 29-Nov-23 | 6.85 | 0.5 | 16.4 | 1.9 | Private | Domestic |
| 5 | 13GWL5 | Murgabari near J.P. Mahato's house | 29-Nov-23 | 5.2 | 0.4 | 14.6 | 1.4 | Private | Domestic |



Piezometer water level for the month of November, 2023

3.4 **Location of Piezometer sites and their rationale:** Total 30 nos. of piezometers have been constructed by ECL at different locations in clusters and standalone projects for measurement of ground water level. Ground water level is measured in all piezometers on quarterly basis to assess the impact of mining activities on ground water level. The following piezometer has been constructed in SP Mines, Chitra OC Project:

i) **SP Mines (Chitra Magazine house) (CPZ-01):** A piezometer has been constructed to measure the ground water level at Chitra OCP campus, S. P. mines area.

| Sl. No. | Station Code | Location of Piezometer | Date of measurement | Water level below ground level (mtr.) |
|---------|--------------|---------------------------------|---------------------|---------------------------------------|
| 1 | CPZ-01 | SP Mines, Chitra Magazine house | 29-Nov-23 | 11.05 |



NOISE LEVEL DATA

Name of the Customer: Eastern Coalfield Limited, Borachak House, P.O.-Sitarampur, Distt.-Paschim Bardhaman, West Bengal.

First fortnight:

| Station Code | Station Name | Date of sampling | Sampling duration (hrs.) | Day – time Noise Level dB(A) Leq | Night – time Noise Level dB(A) Leq | Day – Night Noise Level dB(A) Leq |
|--------------|--------------------------------|------------------|--------------------------|----------------------------------|------------------------------------|-----------------------------------|
| 13N1 | Attendance Room near store | 10-Nov-23 | 10.45 to 9.34 | 73.45 | 58.74 | 71.76 |
| 13N2 | Weigh Bridge Near sales office | 10-Nov-23 | 9.36 to 9.15 | 68.94 | 61.27 | 67.54 |
| 13N3 | Chitra guest house | 09-Nov-23 | 11.33 to 10.27 | 55.38 | 44.38 | 53.79 |
| 13N4 | Jamtara railway siding | 09-Nov-23 | 10.28 to 9.11 | 76.22 | 51.46 | 74.47 |

Second fortnight:

| Station Code | Station Name | Date of sampling | Sampling duration (hrs.) | Day – time Noise Level dB(A) Leq | Night – time Noise Level dB(A) Leq | Day – Night Noise Level dB(A) Leq |
|--------------|--------------------------------|------------------|--------------------------|----------------------------------|------------------------------------|-----------------------------------|
| 13N1 | Attendance Room near store | 28-Nov-23 | 10.33 to 9.53 | 76.28 | 63.27 | 74.63 |
| 13N2 | Weigh Bridge Near sales office | 29-Nov-23 | 9.48 to 8.18 | 68.37 | 58.74 | 66.84 |
| 13N3 | Chitra guest house | 29-Nov-23 | 10.28 to 9.47 | 56.74 | 47.58 | 55.23 |
| 13N4 | Jamtara railway siding | 28-Nov-23 | 9.48 to 9.27 | 66.38 | 49.36 | 64.66 |

Noise Pollution (Regulation and Control) Rules published in Gazette of India, vide S. O. 123 (E) dated 14.02.2000 under Environment Protection Act, 1986.

| Station Category | Limits for noise (Leq dB (A)) | |
|------------------|-------------------------------|----------------------------------|
| | Day Time: 6.00 AM to 10.00 PM | Night Time: 10.00 PM to 6.00 AM. |
| Industrial | 75.0 | 70.0 |
| Commercial | 65.0 | 55.0 |
| Residential | 55.0 | 45.0 |
| Silence Zone | 50.0 | 40.0 |



AMBIENT AIR QUALITY DATA

Name of the Customer: Eastern Coalfield Limited, Borachak House, P.O.-Sitarampur, Distt.-Paschim Bardhaman, West Bengal.

First fortnight:

| Station Code | Station Name | Category of station | Date of Sampling | Parameter | Analytical Results ($\mu\text{g}/\text{m}^3$) | Name of method | Detection limit ($\mu\text{g}/\text{m}^3$) |
|--------------|--|---------------------|------------------|-------------------|---|----------------------------------|--|
| 13A1 | Attendance Room Near Store | Industrial | 14-Dec-23 | SPM | 386.7 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 203.2 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 60.5 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 12.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A2 | Weigh Bridge Near Sales Office | Industrial | 15-Dec-23 | SPM | 246.9 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 172.2 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 53.8 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A3 | Chitra Guest House | Residential | 14-Dec-23 | PM ₁₀ | 126.8 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 48.6 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 11.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A4 | ECL Office at Jamtara Railway Siding | Industrial | 15-Dec-23 | SPM | 281.9 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 189.3 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 53.4 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 12.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A5 | Weigh Bridge of Jamtara Railway Siding | Industrial | 14-Dec-23 | SPM | 309.3 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 161.4 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 56.2 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 13.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A6 | Railway Substation near Jamtara Railway Siding | Industrial | 15-Dec-23 | SPM | 223.5 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 144.2 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 50.2 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |



Second fortnight:

| Station Code | Station Name | Category of station | Date of Sampling | Parameter | Analytical Results ($\mu\text{g}/\text{m}^3$) | Name of method | Detection limit ($\mu\text{g}/\text{m}^3$) |
|--------------|--|---------------------|------------------|-------------------|---|----------------------------------|--|
| 13A1 | Attendance Room Near Store | Industrial | 28-Dec-23 | SPM | 308.3 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 203.3 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 71.3 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 14.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A2 | Weigh Bridge Near Sales Office | Industrial | 28-Dec-23 | SPM | 273.5 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 178.6 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 54.2 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 11.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A3 | Chitra Guest House | Residential | 29-Dec-23 | PM ₁₀ | 131.7 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 52.1 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A4 | ECL Office at Jamtara Railway Siding | Industrial | 29-Dec-23 | SPM | 278.3 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 185.8 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 56.1 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A5 | Weigh Bridge of Jamtara Railway Siding | Industrial | 28-Dec-23 | SPM | 276.3 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 160.5 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 50.3 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 14.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A6 | Railway Substation near Jamtara Railway Siding | Industrial | 29-Dec-23 | SPM | 220.7 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 141.7 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 48.6 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 10.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |

*BDL – Below Detection Limit.



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Environmental Standards for Ambient Air Quality (AAQ):

| | | | | | | | | | |
|---|------------------|-------------------|-----------------|-----------------|---|------------------|-------------------|-----------------|-----------------|
| Environmental standard for Raniganj Coalfield vide MOEF, Govt. of India, Gazette Notification No. GSR 742 (E) dated 25.09.2000 for 24 hourly samples at 500 meters from dust generating point | | | | | National Ambient Air Quality Standards (NAAQS), 2009 for industrial, residential and rural areas for 24 hours samples | | | | |
| Pollutant Concentration ($\mu\text{g}/\text{m}^3$) | | | | | Pollutant Concentration ($\mu\text{g}/\text{m}^3$) | | | | |
| SPM | PM ₁₀ | PM _{2.5} | SO ₂ | NO _x | SPM | PM ₁₀ | PM _{2.5} | SO ₂ | NO _x |
| 600.0 | 300.0 | Not Specified | 120.0 | 120.0 | Not Specified | 100.0 | 60.0 | 80.0 | 80.0 |



First fortnight:

| Sl. No. | Parameters | Analytical results | General Standards for Discharge of Effluent (Schedule VI) | Name of Method | Detection Limit |
|---------|------------------|--------------------|---|--------------------------|-----------------|
| | Station Code | 13MW1 | | | |
| | Date of sampling | 15-Dec-23 | | | |
| 1 | pH | 8.08 | 5.5 - 9.0 | IS 3025 (Part 11): 2003 | 2.0 |
| 2 | TSS | BDL | 100 | IS 3025 (Part 17): 1984 | 10.0 |
| 3 | TDS | 526 | Not specified | IS 3025 (Part 16): 1984 | 25.0 |
| 4 | Oil & Grease | BDL | 10 | IS 3025 (Part 39): 1991 | 2.0 |
| 5 | COD | 16 | 250 | APHA 5220C Closed Reflux | 4.0 |

Second fortnight:

| Sl. No. | Parameters | Analytical results | General Standards for Discharge of Effluent (Schedule VI) | Name of Method | Detection Limit |
|---------|------------------|--------------------|---|--------------------------|-----------------|
| | Station Code | 13MW1 | | | |
| | Date of sampling | 30-Dec-23 | | | |
| 1 | pH | 7.96 | 5.5 - 9.0 | IS 3025 (Part 11): 2003 | 2.0 |
| 2 | TSS | BDL | 100 | IS 3025 (Part 17): 1984 | 10.0 |
| 3 | TDS | 513 | Not specified | IS 3025 (Part 16): 1984 | 25.0 |
| 4 | Oil & Grease | BDL | 10 | IS 3025 (Part 39): 1991 | 2.0 |
| 5 | COD | 8 | 250 | APHA 5220C Closed Reflux | 4.0 |

*BDL-Below Detection Limit.

All values are expressed in mg/l except pH.



DRINKING WATER QUALITY

Name of the Customer: Eastern Coalfield Limited, Borachak House, P.O.-Sitarampur, Distt.-Paschim Bardhaman.

Name of station & code: 13DW1- 1.362 MLD water treatment plant at Chitra.

| Sl. No. | Parameters | Analytical Results | Indian Standard for Drinking Water (IS-10500 :2012) | | Method of detection | Detection Limit |
|---------|------------------------|--------------------|---|-------------------|------------------------------------|-----------------|
| | Sample code | 13DW01 | Acceptable Limit | Permissible Limit | | |
| | Sampling Date | 30-Dec-23 | | | | |
| 1 | Colour, Hazen | 2 | 5.0 | 15.0 | IS 3025 (Part 6): 2018 | 1.0 Hazen |
| 2 | Odour | Unobjectionable | Unobjectionable | | IS 3025 (Part 6): 2018 | - |
| 3 | Taste | Agreeable | Agreeable | | IS 3025 (Part 7): 1984 | - |
| 4 | Turbidity, NTU | BDL | 1 | 5 | IS 3025 (Part 10): 1984 | 1.0 NTU |
| 5 | pH | 7.96 | 6.5-8.5 | No relaxation | IS 3025 (Part 11): 1983 | 2.0 |
| 6 | Total Hardness | 479.16 | 300 | 600 | IS 3025 (Part 21): 2009 | 4.0 |
| 7 | Iron | BDL | 0.3 | No relaxation | IS 3025 (Part 53): 2003 | 0.06 |
| 8 | Chlorides | 66.00 | 250 | 1000 | IS 3025 (Part 32): 1988 | 2.0 |
| 9 | Residual Free Chlorine | 0.03 | 0.2 | 1 | APHA 4500F DPD Ferrous Titrimetric | 0.02 |
| 10 | Dissolved Solids | 564 | 500 | 2000 | IS 3025 (Part 16): 1984 | 10.0 |
| 11 | Calcium | 96.81 | 75 | 200 | IS 3025 (Part 40): 1991 | 1.60 |
| 12 | Copper | BDL | 0.05 | 1.5 | APHA 3111B AAS Flame | 0.03 |
| 13 | Manganese | 0.02 | 0.1 | 0.3 | APHA 3111B AAS Flame | 0.02 |
| 14 | Sulphate | 330.22 | 200 | 400 | APHA 4500D Turbidimetric | 2.0 |
| 15 | Nitrate | 7.44 | 45 | No relaxation | IS 3025 (Part 34): 1988 | 0.5 |
| 16 | Fluoride | 0.52 | 1 | 1.5 | APHA 4500D SPANDS | 0.02 |
| 17 | Selenium | BDL | 0.01 | No relaxation | APHA 3111B AAS Flame | 0.002 |
| 18 | Arsenic | BDL | 0.01 | 0.05 | APHA 3112B AAS VGA | 0.002 |
| 19 | Lead | BDL | 0.01 | No relaxation | APHA 3113B AAS GTA | 0.005 |
| 20 | Zinc | 0.01 | 5 | 15 | APHA 3111B AAS Flame | 0.01 |
| 21 | Hex Chromium | BDL | 0.05 | 0.05 | APHA 3500B Colorimetric | 0.01 |
| 22 | Boron | BDL | 0.5 | 1 | IS 3025 (Part 57): 2005 | 0.20 |
| 23 | Coliforms (MPN) | NIL | Not Specified | | APHA Multiple Tube Fermentation | 1.0 |
| 24 | Phenolics | BDL | 0.001 | 0.002 | IS 3025 (Part 43): 1992 | 0.001 |
| 25 | Alkalinity | 222.24 | 200 | 600 | IS 3025 (Part 23): 1986 | 4.0 |
| 26 | Cadmium | BDL | 0.003 | No relaxation | APHA 3113B AAS GTA | 0.0005 |

* BDL- Below Detection Limit.

All values are expressed in mg/l unless specified.



NOISE LEVEL DATA

Name of the Customer: Eastern Coalfield Limited, Borachak House, P.O.-Sitarampur, Distt.-Paschim Bardhaman, West Bengal.

First fortnight:

| Station Code | Station Name | Date of sampling | Sampling duration (hrs.) | Day – time Noise Level dB(A) Leq | Night – time Noise Level dB(A) Leq | Day – Night Noise Level dB(A) Leq |
|--------------|--------------------------------|------------------|--------------------------|----------------------------------|------------------------------------|-----------------------------------|
| 13N1 | Attendance Room near store | 15-Dec-23 | 11.46 to 10.48 | 68.34 | 54.24 | 66.57 |
| 13N2 | Weigh Bridge Near sales office | 15-Dec-23 | 10.43 to 10.27 | 66.45 | 47.34 | 64.72 |
| 13N3 | Chitra guest house | 14-Dec-23 | 11.33 to 10.49 | 61.34 | 43.27 | 59.52 |
| 13N4 | Jamtara railway siding | 14-Dec-23 | 10.38 to 10.11 | 72.45 | 58.34 | 70.77 |

Second fortnight:

| Station Code | Station Name | Date of sampling | Sampling duration (hrs.) | Day – time Noise Level dB(A) Leq | Night – time Noise Level dB(A) Leq | Day – Night Noise Level dB(A) Leq |
|--------------|--------------------------------|------------------|--------------------------|----------------------------------|------------------------------------|-----------------------------------|
| 13N1 | Attendance Room near store | 29-Dec-23 | 11.38 to 10.18 | 68.35 | 56.81 | 66.65 |
| 13N2 | Weigh Bridge Near sales office | 28-Dec-23 | 10.37 to 10.26 | 72.34 | 57.34 | 70.56 |
| 13N3 | Chitra guest house | 28-Dec-23 | 11.29 to 10.46 | 61.34 | 56.82 | 60.23 |
| 13N4 | Jamtara railway siding | 29-Dec-23 | 11.06 to 10.37 | 73.45 | 58.72 | 71.67 |

Noise Pollution (Regulation and Control) Rules published in Gazette of India, vide S. O. 123 (E) dated 14.02.2000 under Environment Protection Act, 1986.

| Station Category | Limits for noise (Leq dB (A)) | |
|------------------|-------------------------------|----------------------------------|
| | Day Time: 6.00 AM to 10.00 PM | Night Time: 10.00 PM to 6.00 AM. |
| Industrial | 75.0 | 70.0 |
| Commercial | 65.0 | 55.0 |
| Residential | 55.0 | 45.0 |
| Silence Zone | 50.0 | 40.0 |



AMBIENT AIR QUALITY DATA

Name of the Customer: Eastern Coalfield Limited, Borachak House, P.O.-Sitarampur, Distt.-Paschim Bardhaman, West Bengal.

First fortnight:

| Station Code | Station Name | Category of station | Date of Sampling | Parameter | Analytical Results ($\mu\text{g}/\text{m}^3$) | Name of method | Detection limit ($\mu\text{g}/\text{m}^3$) |
|--------------|--|---------------------|------------------|-------------------|---|----------------------------------|--|
| 13A1 | Attendance Room Near Store | Industrial | 04-Jan-24 | SPM | 279.3 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 189.6 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 54.2 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 14.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A2 | Weigh Bridge Near Sales Office | Industrial | 05-Jan-24 | SPM | 332.5 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 234.1 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 68.3 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A3 | Chitra Guest House | Residential | 04-Jan-24 | PM ₁₀ | 123.4 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 46.2 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A4 | ECL Office at Jamtara Railway Siding | Industrial | 04-Jan-24 | SPM | 318.1 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 231.2 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 64.6 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 12.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A5 | Weigh Bridge of Jamtara Railway Siding | Industrial | 05-Jan-24 | SPM | 259.2 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 164.3 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 62.3 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 15.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A6 | Railway Substation near Jamtara Railway Siding | Industrial | 05-Jan-24 | SPM | 217.4 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 143.8 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 49.6 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 11.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |



Second fortnight:

| Station Code | Station Name | Category of station | Date of Sampling | Parameter | Analytical Results ($\mu\text{g}/\text{m}^3$) | Name of method | Detection limit ($\mu\text{g}/\text{m}^3$) |
|--------------|--|---------------------|------------------|-------------------|---|----------------------------------|--|
| 13A1 | Attendance Room Near Store | Industrial | 24-Jan-24 | SPM | 255.2 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 169.7 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 79.6 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 15.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A2 | Weigh Bridge Near Sales Office | Industrial | 23-Jan-24 | SPM | 354.6 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 239.2 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 81.3 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A3 | Chitra Guest House | Residential | 24-Jan-24 | PM ₁₀ | 237.9 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 68.3 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 12.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A4 | ECL Office at Jamtara Railway Siding | Industrial | 23-Jan-24 | SPM | 278.6 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 188.9 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 53.2 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A5 | Weigh Bridge of Jamtara Railway Siding | Industrial | 23-Jan-24 | SPM | 229.1 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 162.3 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 44.0 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 13.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A6 | Railway Substation near Jamtara Railway Siding | Industrial | 24-Jan-24 | SPM | 231.8 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 141.9 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 51.6 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |

*BDL – Below Detection Limit.



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Environmental Standards for Ambient Air Quality (AAQ):

| | | | | | | | | | |
|---|------------------|-------------------|-----------------|-----------------|---|------------------|-------------------|-----------------|-----------------|
| Environmental standard for Raniganj Coalfield vide MOEF, Govt. of India, Gazette Notification No. GSR 742 (E) dated 25.09.2000 for 24 hourly samples at 500 meters from dust generating point | | | | | National Ambient Air Quality Standards (NAAQS), 2009 for industrial, residential and rural areas for 24 hours samples | | | | |
| Pollutant Concentration ($\mu\text{g}/\text{m}^3$) | | | | | Pollutant Concentration ($\mu\text{g}/\text{m}^3$) | | | | |
| SPM | PM ₁₀ | PM _{2.5} | SO ₂ | NO _x | SPM | PM ₁₀ | PM _{2.5} | SO ₂ | NO _x |
| 600.0 | 300.0 | Not Specified | 120.0 | 120.0 | Not Specified | 100.0 | 60.0 | 80.0 | 80.0 |



First fortnight:

| Sl. No. | Parameters | Analytical results | General Standards for Discharge of Effluent (Schedule VI) | Name of Method | Detection Limit |
|---------|------------------|--------------------|---|--------------------------|-----------------|
| | Station Code | 13MW1 | | | |
| | Date of sampling | 06-Jan-24 | | | |
| 1 | pH | 8.02 | 5.5 - 9.0 | IS 3025 (Part 11): 2003 | 2.0 |
| 2 | TSS | BDL | 100 | IS 3025 (Part 17): 1984 | 10.0 |
| 3 | TDS | 512 | Not specified | IS 3025 (Part 16): 1984 | 25.0 |
| 4 | Oil & Grease | BDL | 10 | IS 3025 (Part 39): 1991 | 2.0 |
| 5 | COD | 8 | 250 | APHA 5220C Closed Reflux | 4.0 |

Second fortnight:

| Sl. No. | Parameters | Analytical results | General Standards for Discharge of Effluent (Schedule VI) | Name of Method | Detection Limit |
|---------|------------------|--------------------|---|--------------------------|-----------------|
| | Station Code | 13MW1 | | | |
| | Date of sampling | 25-Jan-24 | | | |
| 1 | pH | 8.17 | 5.5 - 9.0 | IS 3025 (Part 11): 2003 | 2.0 |
| 2 | TSS | BDL | 100 | IS 3025 (Part 17): 1984 | 10.0 |
| 3 | TDS | 521 | Not specified | IS 3025 (Part 16): 1984 | 25.0 |
| 4 | Oil & Grease | BDL | 10 | IS 3025 (Part 39): 1991 | 2.0 |
| 5 | COD | 8 | 250 | APHA 5220C Closed Reflux | 4.0 |

*BDL-Below Detection Limit.

All values are expressed in mg/l except pH.



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Ground water level for the month of January'24

| Sl. No. | Station Code | Location of Dugwell | Date of measurement | Water level below ground level (mtr.) | Measurement point above ground level (mtr.) | Depth of dugwell (mtr.) | Diameter of dugwell (mtr.) | Owner of dugwell | Utility of dugwell |
|---------|--------------|---|---------------------|---------------------------------------|---|-------------------------|----------------------------|------------------|--------------------|
| 1 | 13GWL1 | Dukhiababa mandir of Chitra Village | 5-Jan-24 | 4.60 | 0.9 | 10.5 | 2.2 | ECL | Domestic |
| 2 | 13GWL2 | West side Barmaria Village | 5-Jan-24 | 7.50 | 0.4 | 12.5 | 1.8 | Private | Domestic |
| 3 | 13GWL3 | Jamnitand Village near Transformer | 5-Jan-24 | 3.90 | 0.5 | 16.4 | 1.9 | Private | Domestic |
| 4 | 13GWL4 | Patrika Village, Khun Village, Bhadoor Mahato | 5-Jan-24 | Dry | 0.8 | Dry | 2.5 | Private | Domestic |
| 5 | 13GWL5 | Murgabari near J.p. Mahato's House | 5-Jan-24 | 3.80 | 0.4 | 14.6 | 1.4 | Private | Domestic |



Piezometer water level for the month of January'24

3.4 Location of Piezometer sites and their rationale: Total 30 nos. of piezometers have been constructed by ECL at different locations in clusters and standalone projects for measurement of ground water level. Ground water level is measured in all piezometers on quarterly basis to assess the impact of mining activities on ground water level. The following piezometer has been constructed in SP Mines, Chitra OC Project:

- i) **SP Mines (Chitra Magazine house) (CPZ-01):** A piezometer has been constructed to measure the ground water level at Chitra OCP campus, S. P. mines area.

| Sl. No. | Station Code | Location of Piezometer | Date of measurement | Water level below ground level (mtr.) |
|---------|--------------|---------------------------------|---------------------|---------------------------------------|
| 1 | CPZ-01 | SP Mines, Chitra magazine house | 24-Jan-24 | 12.30 |



NOISE LEVEL DATA

Name of the Customer: Eastern Coalfield Limited, Borachak House, P.O.-Sitarampur, Distt.-Paschim Bardhaman, West Bengal.

First fortnight:

| Station Code | Station Name | Date of sampling | Sampling duration (hrs.) | Day – time Noise Level dB(A) Leq | Night – time Noise Level dB(A) Leq | Day – Night Noise Level dB(A) Leq |
|--------------|--------------------------------|------------------|--------------------------|----------------------------------|------------------------------------|-----------------------------------|
| 13N1 | Attendance Room near store | 04-Jan-24 | 11.18 to 10.32 | 72.34 | 58.37 | 70.58 |
| 13N2 | Weigh Bridge Near sales office | 05-Jan-24 | 12.36 to 11.22 | 68.25 | 61.22 | 66.83 |
| 13N3 | Chitra guest house | 04-Jan-24 | 11.46 to 10.51 | 53.27 | 43.27 | 51.64 |
| 13N4 | Jamtara railway siding | 05-Jan-24 | 13.22 to 10.47 | 69.81 | 60.28 | 68.02 |

Second fortnight:

| Station Code | Station Name | Date of sampling | Sampling duration (hrs.) | Day – time Noise Level dB(A) Leq | Night – time Noise Level dB(A) Leq | Day – Night Noise Level dB(A) Leq |
|--------------|--------------------------------|------------------|--------------------------|----------------------------------|------------------------------------|-----------------------------------|
| 13N1 | Attendance Room near store | 24-Jan-24 | 11.38 to 10.25 | 68.72 | 57.34 | 67.03 |
| 13N2 | Weigh Bridge Near sales office | 23-Jan-24 | 10.48 to 10.12 | 63.45 | 59.34 | 62.46 |
| 13N3 | Chitra guest house | 24-Jan-24 | 12.16 to 10.49 | 56.82 | 44.38 | 55.00 |
| 13N4 | Jamtara railway siding | 23-Jan-24 | 11.17 to 10.45 | 71.34 | 57.34 | 69.57 |

Noise Pollution (Regulation and Control) Rules published in Gazette of India, vide S. O. 123 (E) dated 14.02.2000 under Environment Protection Act, 1986.

| Station Category | Limits for noise (Leq dB (A)) | |
|------------------|-------------------------------|----------------------------------|
| | Day Time: 6.00 AM to 10.00 PM | Night Time: 10.00 PM to 6.00 AM. |
| Industrial | 75.0 | 70.0 |
| Commercial | 65.0 | 55.0 |
| Residential | 55.0 | 45.0 |
| Silence Zone | 50.0 | 40.0 |



AMBIENT AIR QUALITY DATA

Name of the Customer: Eastern Coalfield Limited, Borachak House, P.O.-Sitarampur, Distt.-Paschim Bardhaman, West Bengal.

First fortnight:

| Station Code | Station Name | Category of station | Date of Sampling | Parameter | Analytical Results ($\mu\text{g}/\text{m}^3$) | Name of method | Detection limit ($\mu\text{g}/\text{m}^3$) |
|--------------|--|---------------------|------------------|-------------------|---|----------------------------------|--|
| 13A1 | Attendance Room Near Store | Industrial | 05-Feb-24 | SPM | 321.4 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 216.6 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 72.5 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 16.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A2 | Weigh Bridge Near Sales Office | Industrial | 05-Feb-24 | SPM | 286.2 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 192.4 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 63.8 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 15.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A3 | Chitra Guest House | Residential | 06-Feb-24 | PM ₁₀ | 73.0 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 13.4 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 14.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A4 | ECL Office at Jamtara Railway Siding | Industrial | 05-Feb-24 | SPM | 191.5 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 118.0 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 42.7 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A5 | Weigh Bridge of Jamtara Railway Siding | Industrial | 06-Feb-24 | SPM | 180.8 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 116.2 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 36.0 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 18.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A6 | Railway Substation near Jamtara Railway Siding | Industrial | 06-Feb-24 | SPM | 176.2 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 108.3 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 42.5 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | BDL | IS 5182 (Part 6): 2006, R: 2017 | 10 |



Second fortnight:

| Station Code | Station Name | Category of station | Date of Sampling | Parameter | Analytical Results ($\mu\text{g}/\text{m}^3$) | Name of method | Detection limit ($\mu\text{g}/\text{m}^3$) |
|--------------|--|---------------------|------------------|-------------------|---|----------------------------------|--|
| 13A1 | Attendance Room Near Store | Industrial | 19-Feb-24 | SPM | 336.2 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 220.8 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 77.4 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 20.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A2 | Weigh Bridge Near Sales Office | Industrial | 20-Feb-24 | SPM | 289.4 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 186.4 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 62.3 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 19.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A3 | Chitra Guest House | Residential | 19-Feb-24 | PM ₁₀ | 128.2 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 45.8 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 12.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A4 | ECL Office at Jamtara Railway Siding | Industrial | 20-Feb-24 | SPM | 266.2 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 153.9 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 65.3 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 11.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A5 | Weigh Bridge of Jamtara Railway Siding | Industrial | 19-Feb-24 | SPM | 241.8 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 149.8 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 46.4 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 16.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |
| 13A6 | Railway Substation near Jamtara Railway Siding | Industrial | 20-Feb-24 | SPM | 193.4 | IS 5182 (Part 4):1999, R: 2019 | 5.0 |
| | | | | PM ₁₀ | 126.4 | IS 5182 (Part 23): 2006, R: 2022 | 3.5 |
| | | | | PM _{2.5} | 40.6 | IS 5182 (Part 24): 2019 | 2.0 |
| | | | | SO ₂ | BDL | IS 5182 (Part 2): 2001, R: 2017 | 10 |
| | | | | NO _x | 13.0 | IS 5182 (Part 6): 2006, R: 2017 | 10 |

*BDL – Below Detection Limit.



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Environmental Standards for Ambient Air Quality (AAQ):

| | | | | | | | | | |
|---|------------------|-------------------|-----------------|-----------------|---|------------------|-------------------|-----------------|-----------------|
| Environmental standard for Raniganj Coalfield vide MOEF, Govt. of India, Gazette Notification No. GSR 742 (E) dated 25.09.2000 for 24 hourly samples at 500 meters from dust generating point | | | | | National Ambient Air Quality Standards (NAAQS), 2009 for industrial, residential and rural areas for 24 hours samples | | | | |
| Pollutant Concentration ($\mu\text{g}/\text{m}^3$) | | | | | Pollutant Concentration ($\mu\text{g}/\text{m}^3$) | | | | |
| SPM | PM ₁₀ | PM _{2.5} | SO ₂ | NO _x | SPM | PM ₁₀ | PM _{2.5} | SO ₂ | NO _x |
| 600.0 | 300.0 | Not Specified | 120.0 | 120.0 | Not Specified | 100.0 | 60.0 | 80.0 | 80.0 |



First fortnight:

| Sl. No. | Parameters | Analytical results | General Standards for Discharge of Effluent (Schedule VI) | Name of Method | Detection Limit |
|---------|------------------|--------------------|---|--------------------------|-----------------|
| | Station Code | 13MW1 | | | |
| | Date of sampling | 07-Feb-24 | | | |
| 1 | pH | 8.82 | 5.5 - 9.0 | IS 3025 (Part 11): 2003 | 2.0 |
| 2 | TSS | BDL | 100 | IS 3025 (Part 17): 1984 | 10.0 |
| 3 | TDS | 502 | Not specified | IS 3025 (Part 16): 1984 | 25.0 |
| 4 | Oil & Grease | BDL | 10 | IS 3025 (Part 39): 1991 | 2.0 |
| 5 | COD | 16 | 250 | APHA 5220C Closed Reflux | 4.0 |

Second fortnight:

| Sl. No. | Parameters | Analytical results | General Standards for Discharge of Effluent (Schedule VI) | Name of Method | Detection Limit |
|---------|------------------|--------------------|---|--------------------------|-----------------|
| | Station Code | 13MW1 | | | |
| | Date of sampling | 23-Feb-24 | | | |
| 1 | pH | 8.27 | 5.5 - 9.0 | IS 3025 (Part 11): 2003 | 2.0 |
| 2 | TSS | BDL | 100 | IS 3025 (Part 17): 1984 | 10.0 |
| 3 | TDS | 513 | Not specified | IS 3025 (Part 16): 1984 | 25.0 |
| 4 | Oil & Grease | BDL | 10 | IS 3025 (Part 39): 1991 | 2.0 |
| 5 | COD | 20 | 250 | APHA 5220C Closed Reflux | 4.0 |

*BDL-Below Detection Limit.

All values are expressed in mg/l except pH.



NOISE LEVEL REPORT

Name of the Customer: Eastern Coalfield Limited, Borachak House, P.O.-Sitarampur, Distt.-Paschim Bardhaman, West Bengal.

First fortnight:

| Station Code | Station Name | Date of sampling | Sampling duration (hrs.) | Day – time Noise Level dB(A) Leq | Night – time Noise Level dB(A) Leq | Day – Night Noise Level dB(A) Leq |
|--------------|--------------------------------|------------------|--------------------------|----------------------------------|------------------------------------|-----------------------------------|
| 13N1 | Attendance Room near store | 07-Feb-24 | 11.38 to 10.51 | 74.36 | 66.48 | 72.87 |
| 13N2 | Weigh Bridge Near sales office | 08-Feb-24 | 11.28 to 10.47 | 71.26 | 58.94 | 69.62 |
| 13N3 | Chitra guest house | 08-Feb-24 | 12.37 to 11.35 | 58.34 | 43.27 | 56.56 |
| 13N4 | Jamtara railway siding | 07-Feb-24 | 10.48 to 10.12 | 68.72 | 51.27 | 66.91 |

Second fortnight:

| Station Code | Station Name | Date of sampling | Sampling duration (hrs.) | Day – time Noise Level dB(A) Leq | Night – time Noise Level dB(A) Leq | Day – Night Noise Level dB(A) Leq |
|--------------|--------------------------------|------------------|--------------------------|----------------------------------|------------------------------------|-----------------------------------|
| 13N1 | Attendance Room near store | 23-Feb-24 | 12.31 to 10.38 | 73.28 | 62.34 | 71.61 |
| 13N2 | Weigh Bridge Near sales office | 22-Feb-24 | 11.48 to 11.14 | 74.38 | 57.38 | 72.57 |
| 13N3 | Chitra guest house | 22-Feb-24 | 12.31 to 11.22 | 53.28 | 44.73 | 51.74 |
| 13N4 | Jamtara railway siding | 23-Feb-24 | 11.54 to 10.06 | 70.22 | 56.82 | 68.56 |

Noise Pollution (Regulation and Control) Rules published in Gazette of India, vide S. O. 123 (E) dated 14.02.2000 under Environment Protection Act, 1986.

| Station Category | Limits for noise (Leq dB (A)) | |
|------------------|-------------------------------|----------------------------------|
| | Day Time: 6.00 AM to 10.00 PM | Night Time: 10.00 PM to 6.00 AM. |
| Industrial | 75.0 | 70.0 |
| Commercial | 65.0 | 55.0 |
| Residential | 55.0 | 45.0 |
| Silence Zone | 50.0 | 40.0 |



AMBIENT AIR HEAVY METAL ANALYSIS REPORT

Name of the Customer: Eastern Coalfield Limited, Borachak House, P.O.-Sitarampur, Distt.-Paschim Bardhaman, West Bengal.

| Station No. | Station Name | Date of Sampling | Arsenic (ng/m ³) | Cadmium (µg/m ³) | Chromium (µg/m ³) | Mercury (µg/m ³) | Nickel (ng/m ³) | Lead (µg/m ³) |
|----------------------------|--|------------------|---|------------------------------|-------------------------------|------------------------------|-----------------------------|---------------------------|
| Method of Detection | | | Atomic Absorption Spectrophotometric (AAS) | | | | | |
| Detection Limit | | | 1.0 | 0.001 | 0.01 | 0.001 | 0.10 | 0.005 |
| 13A1 | Attendance Room Near Store | 4-Sep-23 | <1.0 | <0.001 | <0.01 | <0.001 | <0.10 | <0.005 |
| 13A2 | Weigh Bridge Near Sales Office | 4-Sep-23 | <1.0 | <0.001 | <0.01 | <0.001 | <0.10 | <0.005 |
| 13A3 | Chitra Guest House | 5-Sep-23 | <1.0 | <0.001 | <0.01 | <0.001 | <0.10 | <0.005 |
| 13A4 | ECL Office at Jamtara Railway Siding | 4-Sep-23 | <1.0 | <0.001 | <0.01 | <0.001 | <0.10 | <0.005 |
| 13A5 | Weigh Bridge Near Jamtara Railway Siding | 5-Sep-23 | <1.0 | <0.001 | <0.01 | <0.001 | <0.10 | <0.005 |
| 13A6 | Railway substation Near Jamtara Railway Siding | 5-Sep-23 | <1.0 | <0.001 | <0.01 | <0.001 | <0.10 | <0.005 |

Environmental standards:

National Ambient Air Quality Standards (NAAQS) for residential, industrial and rural areas for 24 hourly/yearly samples:

| Heavy Metal | Arsenic (ng/m ³) | Cadmium (µg/m ³) | Chromium (µg/m ³) | Mercury (µg/m ³) | Nickel (ng/m ³) | Lead (µg/m ³) |
|---------------|------------------------------|------------------------------|-------------------------------|------------------------------|-----------------------------|---------------------------|
| Concentration | 6 | Not specified | Not specified | Not specified | 20 | 0.5 |