महाप्रबंधक का कार्यालय-सातग्राम-श्रीपुर क्षेत्र जिला: पश्चिम बर्दमान पोस्ट ऑफिस: देवचंदनगर पिनकोड:713332 पश्चिमबंगाल ईमेल: gm.satgram@gmail.com पर्यावरण विभाग सी.आइ.एन.- U10101WB1975GOI030295 वेबसाइट- www.easterncoal.nic.in	ECL Eastern Coalfields Limited	**EASTERN COALFIELDS LIMITED** Office of the General Manager Satgram -Sripur Area, District : Paschim Burdwan P.O Devchandnagar Pin:713332 W.B Email: gm.satgram@gmail.com Environment Department CIN-U10101WB1975GOI030295 Website- www.easterncoal.nic.in

Ref: ECL/SSA/GM/ENV/24-25/02

Date:18.04.2024

UNDERTAKING

The Information provided in the cluster 9 EC compliance report for the period Oct 2023 to March 2024 for the following mines under Satgram-Sripur Area, ECL is true to best of my knowledge:

Sno.	Name of the Mine	Name of the Agent	Signature of the Agent
1	Nimcha UG and Amkola Nimcha OCP	Shri. Dharmendra Kumar Singh	18/4/24
2	JK Nagar UG & OC and Puresearsol UG	Shri. Manoj Kumar	18/04/2024

ECL
Eastern Coalfields Limited
Eastern Coalfields Limited
(A Subsidiary of Coal India Limited)
Office of the Chief Manager (M)/Agent
Amritnagar Group of Mines, Kunustoria Area
P.O.- Searsole-Rajbari, Dist.- Paschim Bardhaman
(W.B.) PIN - 713358

Ref. No. :- Agent/ANC/4100/24-25/ 296 **Dated:-** 24-4-24

Undertaking

Information provided in half yearly EC compliance report for the period of October 2023 to March 2024 in respect of the following mines of Cluster No 09 is true to the best of my knowledge:

SI No.	Mine	Name of the Manager	Signature of the Manager
1	Amritnagar UG	Sri Prashant Singh	23/4/24
2	Narainkuri UG & OC	Sri Suman Kumar	23/4/24

24/4/24

Agent/ Project Proponent
Amritnagar Group of Mines

Ch. Manager
Amritnagar Group of Mines
Kunustoria Area P.O.

Six Monthly EC Compliance Report Eastern Coalfields Limited -Cluster 9 (October 2023- March 2024)

<table>
<tr><td>Condition no. i)</td><td>The maximum production from the mine at any given time shall not exceed the limit as prescribed in the EC.</td></tr>
<tr><td>Compliance</td><td>Complied
<table>
<tr><td>Mine</td><td>Peak EC Capacity (MTPA)</td><td>Production in MT (Oct 2023 to Apr 2024)</td><td>Production in MT in FY 2023-24</td></tr>
<tr><td>Amritnagar UG</td><td>0.60</td><td>0.028538</td><td>0.051827</td></tr>
<tr><td>Mahabir-Narainkuri UG & OC</td><td>2.88</td><td>0.26779908</td><td>0.421603020</td></tr>
<tr><td>Ratibati UG</td><td>0.04</td><td>Production suspended</td><td>Production suspended</td></tr>
<tr><td>Chapuikhas UG& OCP</td><td>0.06</td><td>0.0141</td><td>0.0238</td></tr>
<tr><td>Tirat-Kuardih UG & OCP</td><td>0.15</td><td>Production Suspended</td><td>Production Suspended</td></tr>
<tr><td>Nimcha UG & Amkola /Nimcha OC Patch</td><td>1.43</td><td>0.371</td><td>0.5905</td></tr>
<tr><td>Ghusick-Musila UG & OC</td><td>1.93</td><td>0.00</td><td>0.00</td></tr>
<tr><td>Kalipahari UG and OC</td><td>0.40</td><td>0.00</td><td>0.00</td></tr>
<tr><td>Jemehari UG</td><td>0.04</td><td>Production Suspended</td><td>Production Suspended</td></tr>
<tr><td>JK Nagar UG & OC and Puresearsol UG</td><td>0.42</td><td>0.0742</td><td>0.171</td></tr>
<tr><td>Damara UG</td><td>0.05</td><td>0.00</td><td>0.00</td></tr>
<tr><td>Total</td><td>8.00</td><td>0.75563708</td><td>1.25873002</td></tr>
</table></td></tr>
<tr><td>Condition no. ii)</td><td>The validity of the EC is for the life of the mine or as specified in the EIA Notification, 2006, whichever is earlier.</td></tr>
<tr><td>Compliance</td><td>Agreed.</td></tr>
<tr><td>Condition no. iii)</td><td>The quality of water should conform to the prescribed standards before discharged into nallahs.</td></tr>
<tr><td>Compliance</td><td>Regular monitoring of quality of water is carried out by CMPDIL and found to conform to standards prescribed by CPCB. (enclosed)</td></tr>
<tr><td>Condition no. iv)</td><td>The EC be only for peak value only. PP should ensure the mine water discharge shall comply to the prescribed standards.</td></tr>
<tr><td>Compliance</td><td>Production from all the mines are done as per EC peak value.</td></tr>
<tr><td>Condition no. v)</td><td>All commitments made in the Public Hearing shall be fully implemented.</td></tr>
</table>

Compliance	All efforts are made to implement the commitments made in the Public Hearing under CSR and R&R Policy of the Company.
Condition no. vi)	Adequate measures shall be taken to mitigate subsidence as per DGMS stipulations.
Compliance	Regular inspection is being done by pit Safety committee headed by Safety Officers on the surface over and around the working area for any sign of subsidence.
Condition no. vii)	There shall be no voids and OB dumps after the end of mining.
Compliance	All mines are backfilled and reclaimed with plantation by State Forest Department (WBWDCL).
Condition no. viii)	The lands shall be brought back for agricultural use at the end of mining.
Compliance	Agreed
Condition no. ix)	Existing voids shall be brought back to atleast to a level adequate for pisciculture.
Compliance	Agreed
Condition no. x)	New voids shall be completely filled up to near ground position.
Compliance	Agreed
Condition no. xi)	50% of old voids shall be filled up and other 50% of old voids shall be filled upto 15 meter for the purpose of pisciculture.
Compliance	Agreed
Condition no. xii)	There shall be no flyash utilization in the mine voids. Fire in the OBDs shall be quenched by blanketing and shall be re-vegetated.
Compliance	There is no flyash utilization in the mine voids. No fire in the OBDs observed
Condition no. xiii)	The surface drainages shall be preserved.
Compliance	Surface drainages are being preserved and maintained for its natural flow.
Condition no. xiv)	All safety measures shall be taken as per CMR, 1957 and related Circulars.
Compliance	All safety measures are being taken as provided in CMR- 1957 & related Circulars.
Condition no. xv)	The production shall be within the same Mining Lease area.
Compliance	The production is within the same Mining Lease
Condition no. xvi)	Coal shall be transported by rail only. Coal transportation from mine to siding should be by conveyor belt. The loading to siding by payloaders into railway wagons.
Compliance	As of now, Coal transportation from the mines to railway siding are being done by fully tarpaulin covered trucks. The loaded trucks are made wet and then covered with tarpaulins before transportation.
Condition no. xvii)	Independent network of railway sidings inside cluster be developed. Railway sidings should be constructed at the earliest and till then proponent may use mechanically covered trucks for transportation of coal.

<table>
<tr><td>Compliance</td><td>There are currently two railway sidings (MS Siding & Nimcha Railway Siding) serving to the mines under cluster 9. Coal is transported to railway sidings from the mines by dedicated black-topped road especially constructed for the purpose.</td></tr>
<tr><td>Condition no. xviii)</td><td>Three tier green belts shall be raised around the railway sidings and along the road sides to prevent duct and noise pollution.</td></tr>
<tr><td>Compliance</td><td>Healthy natural vegetation is present along the road sides and railway siding to prevent air and noise pollution and due to restriction of space no additional plantation around railway siding is possible. Further a thick brick wall of 10 feet height approx. is present around the siding to prevent air and noise pollution.
Details of Plantation around Railway Siding and along coal transportation road:
<table>
<tr><th>SI. No.</th><th>Financial Year</th><th>Description</th><th>Area in Ha./Length in Km.</th></tr>
<tr><td>1</td><td>2021-22</td><td>J K Nagar (MS Siding)</td><td>800 m</td></tr>
</table></td></tr>
<tr><td>Condition no. xix)</td><td>Stowing and depillaring shall be as per the recommendations of the DGMS.</td></tr>
<tr><td>Compliance</td><td>Stowing and depillaring will be as per the recommendations of the DGMS</td></tr>
<tr><td>Condition no. xx)</td><td>The proponent must comply with Raniganj Action Plan. The unstable areas within the cluster will be brought under plantation after the population residing over these areas is rehabilitated under the master plan for Raniganj Coalfield to be implemented by ADDA.</td></tr>
<tr><td>Compliance</td><td>Is complied with the master plan for Raniganj coalfields which is implemented by ADDA, Govt. of West Bengal.</td></tr>
<tr><td>Condition no. xxi)</td><td>Trees with deep rooted system should be planted so as to prevent soil erosion.</td></tr>
<tr><td>Compliance</td><td>Trees with deep-rooted system are planted in consultation with state forest dept. to prevent soil erosion. Deep rooted tree species planted are as follows:
Neem, Seemul, Karanch, Shisham, Arjun, Babool & Sirish.</td></tr>
<tr><td>Condition no. xxii)</td><td>Proponent should plant additional 10 Ha/ year over the next 10 years at various locations within this Cluster.</td></tr>
<tr><td>Compliance</td><td>Plantation in Kunustoria Area in 2022-23 under Cluster 09: 17 Ha in Amritnagar Colliery.
Plantation in Satgram-Sripur Area in FY 23-24
Plantation Site Area and No of sapling
Nimcha Amkola OCP 10 Ha, 25,000 saplings
JK Nagar UG 16.03 Ha, 40,075 saplings</td></tr>
<tr><td>Condition no. xxiii)</td><td>River/ nallahs shall be desilted and restored back to functional state.</td></tr>
<tr><td>Compliance</td><td>All rivers/nallahs under the mine lease are maintained for its natural flow</td></tr>
<tr><td>Condition no. xxiv)</td><td>Wild life conservation plan be prepared and submitted to the MOEFCC with the approval of State Gov.</td></tr>
<tr><td>Compliance</td><td>Wildlife conservation plan has been prepared and submitted to State Forest Dept., Govt. of West Bengal.</td></tr>
<tr><td>Condition no. xxv)</td><td>Proponent shall use high resolution image of all clusters for evaluating land use, plantation etc.</td></tr>
</table>

<table>
<tr><td>Compliance</td><td>Land use pattern and plantation is being monitored by satellite surveillance based on satellite imagery</td></tr>
<tr><td>Condition no. xxvi)</td><td>Separate drainage pattern be provided.</td></tr>
<tr><td>Compliance</td><td>Separate drainage pattern will be provided where required.</td></tr>
<tr><td>Condition no. xxvii)</td><td>Sand stowing must be used as recommended by CMPDI.</td></tr>
<tr><td>Compliance</td><td>Sand stowing is being used as recommended by CMPDI.</td></tr>
<tr><td>Condition no. xxviii)</td><td>Action plan for prevention and mitigation of subsidence be prepared and implemented.</td></tr>
<tr><td>Compliance</td><td>Action plan for prevention and mitigation of subsidence has been prepared and implemented as per DGMS guidelines.</td></tr>
<tr><td>Condition no. xxix)</td><td>The OC Patches to be operated will be completely filled-up after exhaustion of reserves and reclaimed with plantation.</td></tr>
<tr><td>Compliance</td><td>Agreed. Shall be complied as per Mine Closure Plan.</td></tr>
<tr><td>Condition no. xxx)</td><td>The OB shall be completely re-handled at the end of the mining.</td></tr>
<tr><td>Compliance</td><td>Agreed. Shall be complied as per Mine Closure Plan.</td></tr>
<tr><td>Condition no. xxxi)</td><td>There shall be no residual OB dump after the mining.</td></tr>
<tr><td>Compliance</td><td>Agreed. Shall be complied as per Mine Closure Plan.</td></tr>
<tr><td>Condition no. xxxii)</td><td>After completion of mining activities, the subsided areas shall be graded and planted upon.</td></tr>
<tr><td>Compliance</td><td>Agreed.</td></tr>
<tr><td>Condition no. xxxiii)</td><td>Coal Extraction shall also be optimized in areas where agricultural production is continuing. Some pillars shall be left below the agricultural land. No depillaring and coal extraction should be carried out below habitation, H.T. lines and beneath road, water bodies.</td></tr>
<tr><td>Compliance</td><td>Coal Extraction is being carried out as per DGMS permissions and guidelines</td></tr>
<tr><td>Condition no. xxxiv)</td><td>The land excavated after mining must be brought back to original condition for agricultural / plantation purpose</td></tr>
<tr><td>Compliance</td><td>Noted and Agreed</td></tr>
<tr><td>Condition no. xxxv)</td><td>Mine discharge water is being treated in slow sand filter/ pressure filter along with chlorination and used for drinking water.</td></tr>
<tr><td>Compliance</td><td>Mine discharge water is being treated in slow sand filter/ pressure filter along with chlorination and used for drinking water.

Details of water treatment facility at is given below.

<table>
<tr><td>SI. No.</td><td>Name of the Location/ colliery/ unit of the Plant</td><td>Rated Capacity</td><td>Technology used</td><td>Source of water</td></tr>
<tr><td></td><td>Mahabir Colliery</td><td>7500 GPH</td><td>Pressure Filter Plant</td><td>Mine water</td></tr>
</table>
</td></tr>
</table>

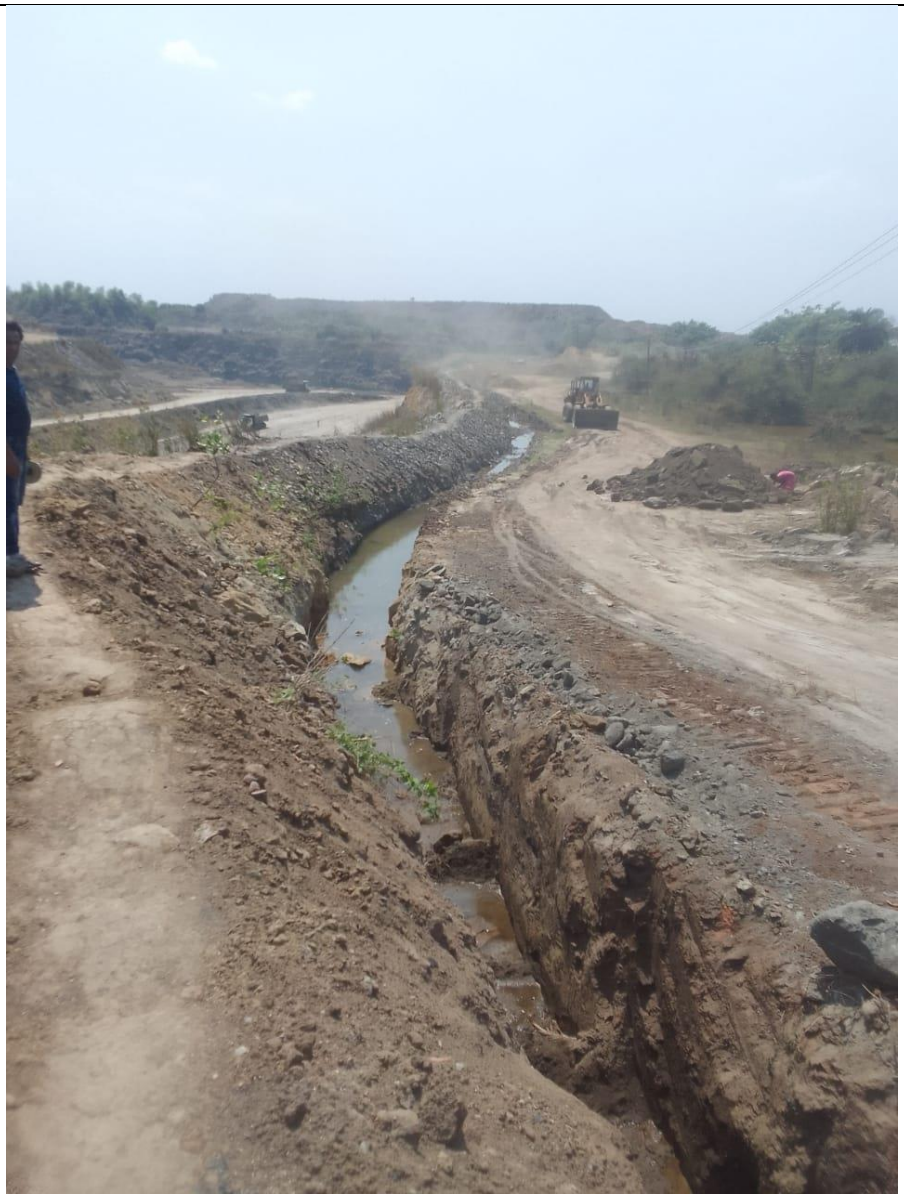
	Part of the Mine Water Discharge is used for Dust Suppression. Furthermore, mine water is not acidic, as such there is no requirement of acid mine drainage treatment facility. Mine water quality monitoring is being done by CMPDI, RI-1. The discharged mine waters is fortnightly tested for parameters namely pH, TSS, TDS, Oil &Grease and COD and conforms to the MoEF Schedule-VI Standards.
Condition no. xxxvi)	Regular monitoring of subsidence movement on the surface over and around the working area and impact on natural drainage pattern, water bodies, vegetation, structure, roads and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate effective corrective measures shall be taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable material.
Compliance	Regular inspection is being done by the pit safety committee headed by Safety Officer on the surface over and around the working area for any sign of subsidence.
Condition no. xxxvii)	If subsidence is found exceeding the permitted limits, then the landowners shall be adequately compensated with mutual agreement of the landowners.
Compliance	If subsidence is found exceeding the permitted limits, then the landowners will be adequately compensated with mutual agreement of the landowners.
Condition no. xxxviii)	Water sprinkling system shall be provided to check fugitive emissions from loading operations, conveyor system, haulage roads, transfer points, etc. Major approach roads shall be black topped and properly maintained.
Compliance	Water sprinkling system have been provided and major approach road has been blacktopped and properly maintained.
Condition no. xxxix)	The CSR cost should be Rs. 5 per Tonne of Coal produced which should be adjusted as per the annual inflation.
Compliance	CSR cost as per the CSR policy of the company has been kept for the purpose.
Condition no. xl)	The mining in the existing mines should be phased out after expiry of the current mining lease and after reclamation of the mined-out area. The operating mines may be analysed and monitored for compliance of conditions, bearing with movement of wildlife and until such time they are closed/ phased out.
Compliance	Agreed
Condition no. xli)	Everybody in the core area should be provided with mask for protection against fugitive dust emissions.
Compliance	In order to provide protection against fugitive dust emission, dust masks are being provided to people working in the core area
Condition no. xlii)	Dust mask to be provided to everyone working in the mining area.
Compliance	Dust mask have been provided to everyone working in the mining area
Condition no. xliii)	The supervisory staff should be held personally responsible for ensuring compulsory regarding wearing of dust mask in the core area.
Compliance	Supervisory staff ensures compulsory wearing of the dust masks in the core area
Condition no. xliv)	People working in the core area should be periodically tested for the lung diseases and the burden of cost on account of working in the coal mining area.

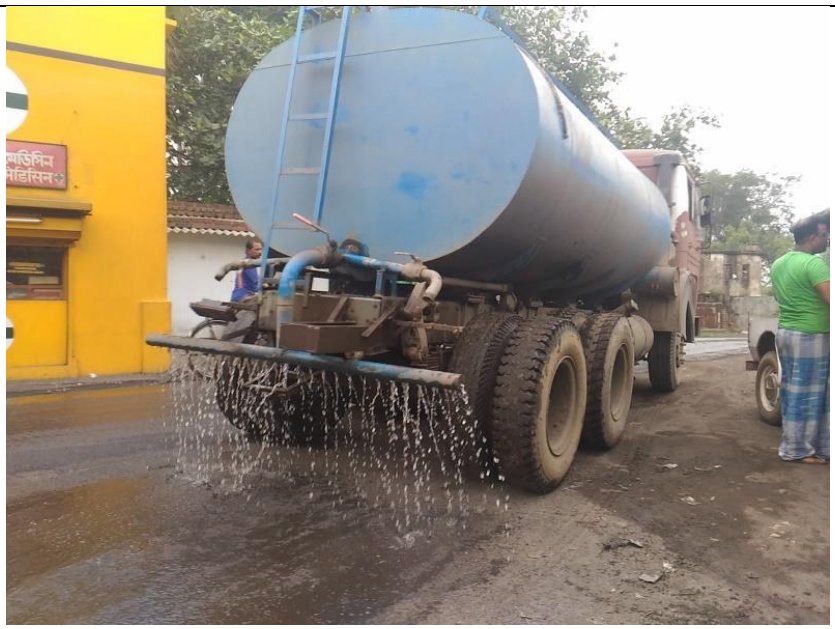
Compliance	20 % of the work force is covered under periodic medical examination each year including lung diseases.
Condition no. xlv)	The mining area should be grounded by green belt having thick closed thick canopy of the tree cover.
Compliance	Most of the mines in this cluster are UG mines and as such pollution load is concentrated in mine working faces. However, the region has Natural Vegetation. Additional Plantation is being done at the rate of 10Ha/year.

Sno		Year of Creation	Location	Area of Plantation
1	Satgram Area	2018-19	Mallik Basti OCP	3.5 Ha
2		2018-19	Sitaldasji OCP	6.5 Ha
3		2019-20	Nimcha-Amkola OCP	05 Ha
4		2021-22	Satgram UG	05 Ha
5		2022-23	Nimcha-Amkola OCP	05 Ha
6		2022-23	Kalidaspur Project	05 Ha
7	Sripur Area	2019-20	Sripur Seam Incline	20 Ha
8		2019-20	Sripur Seam Incline	20 Ha
9		2021-22	Sripur UG Area	20 Ha
10		2021-22	Sripur SSI	20 Ha
11		2022-23	Sripur UG A B Pit Area	5 Ha
12		2022-23	Sripur Girmint Colliery Area	10 Ha
13		2017-18	KDI &b Damra	10 Ha

	14	Kunustoria Area	2020-21	Amritnagar UG	5 Ha	
	15		2022-23	Amritnagar UG	17 Ha	
	16		2023-24	Amritnagar UG	5.02 Ha	
	17		2023-24	Mahabir OCP	4.80 Ha	
Condition no. xlvi)	Besides carrying out regular periodic health check-up of their workers,10% of the workers identified from workforce engaged in the active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, through an specialized agency/institution within the District/State and the results reported to this ministry and to DGMS.					
Compliance	Periodical Medical Examination (PME) are carried out for all employees once in every 5 years (@ 20% employees/year). This PME is mandatory for all employees. Special cases diagnosed during such PMEs are monitored at shorter intervals as directed by the PME Board of Doctors. All serious diseases and impairments are reported to DGMS at regular intervals. Also, Occupational health check-up of 10% of the workers identified from workforce engaged in the active mining operations has been conducted through NIOH.					
Condition no. xlvii)	The embankment constructed along the river boundary shall be of suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side and stabilized with plantation so as to withstand the peak water flow and prevent mine inundation.					
Compliance	The embankment constructed along the river boundary will be of suitable dimensions and critical patches will be strengthened by stone pitching on the river front side and stabilized with plantation so as to withstand the peak water flow and prevent mine inundation.					
Condition no. xlviii)	There shall be no overflow of OB into the river and into the agricultural fields and massive plantation of native species shall be taken up in the area between the river and the project.					
Compliance	There shall be no overflow of OB into the river and into the agricultural fields and massive plantation of native species will be taken up in the area between the river and the project.					
Condition no. xlix)	Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flow from soil, OB and mineral dumps. The water so collected shall be regularly watering the mine area, roads, green belt development, etc. The drains shall be regularly desilted and maintained properly. Garland drains (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 settling of silt material.					
Compliance	Sedimentation tank in Amritnagar Colliery at Pit No 3 and 7. Mine discharged water from UG Mine is channeled into 2 Nos. of Sedimentation Tank to settle out the					

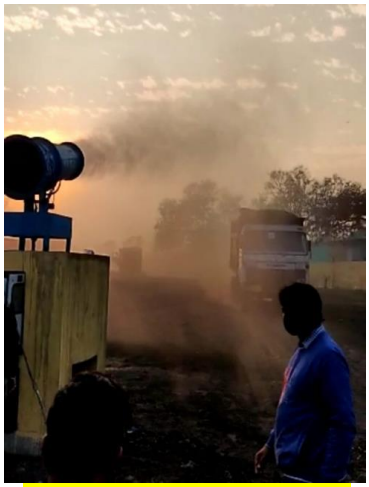
	suspended solids thereby reducing the TSS before discharging outside. The water is further used for plantation and upkeep of nursery. 
Condition no. I	Garland drains (size, gradient & length) around the safety areas such as mine shaft and low lying areas and sump capacity shall be resigned keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. Sump capacity shall also provide adequate retention period to allow proper settling of silt material.
Compliance	Garland drain present at Narainkuri OCP.

	
Condition no. li)	Dimensions of the retaining wall at the toe of the dumps and OB benches within the mine to check rum-off and siltation will be based on the rainfall data.
Compliance	Dimensions of the retaining wall at the toe of the dumps and OB benches within the mine to check rum-off and siltation will be based on the rainfall data.
Condition no.lii)	Crushers at the CHP of adequate capacity for the expansion project shall be operated with high efficiency bag filters, water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc.
Compliance	No CHP is present in the mine, water sprinkling system will be done by mobile sprinklers in coal transportation roads. Fixed Dust Suppression System and Mist Canon present at Railway Sidings.



Contractual Mobile Sprinkling at JK Nagar Railway Siding

Fixed Type Water Sprinklers at JK Nagar Railway Siding

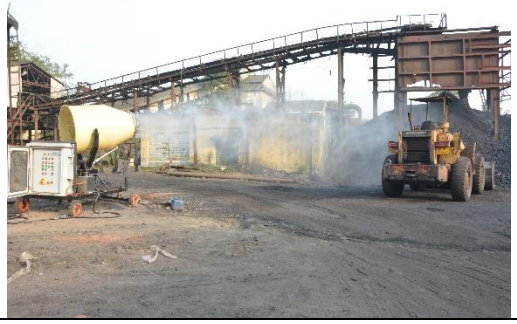


Picture 1: Mist Canon 01at JK Nagar Railway Siding

Picture 2: Mist Canon 01 at JK Nagar Railway Siding

Picture 3: Trolley Mounted Mist Canon at JK Nagar Railway Siding

Picture 4: 28 Nos Fixed Type Water Sprinklers at JK Nagar Railway Siding



Mist Canon at Coal Stockyard at Amritnagar UG

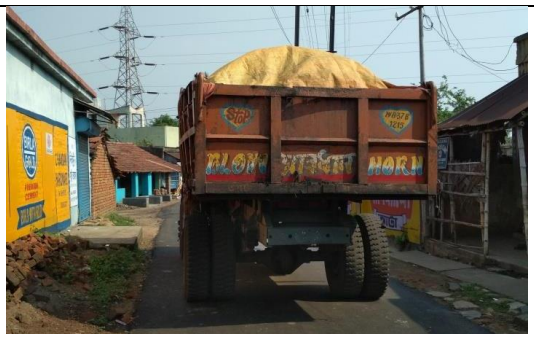
Condition no. liii)	Mine Discharge water outside the ML shall be monitored, particularly for TDS and treated to conform to prescribed levels before discharge into the natural environment.
Compliance	Mine discharge quality complies with prescribed standards. Regular monitoring is done by CMPDI (Report Enclosed).
Condition no. liv)	Drills shall be wet operated.
Compliance	Sprinkling arrangement is present at all the coal faces and water is sprinkled before and after blasting in underground mines.
Condition no. lv)	The project authorities shall undertake regular repairing and tarring of roads used for mineral transportation. A 3- tier green belt comprising of a mix of native species shall be developed all along the major approach roads.
Compliance	As per requirement, regular repairing and tarring of roads are being taken on priority basis. Both sides of approach roadway are well vegetated naturally.
Condition no.lvi)	Controlled blasting shall be practiced with use of delay detonators and only during daytime. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.
Compliance	Delay detonators are being used in OCP with all safety and noise& Vibrations mitigation measures however in UG mines solid blasting is used and no restriction on timing of blasting is required.
Condition no. lvii)	A progressive afforestation plan shall be implemented covering an area of 972.84 ha at the end of mining, which includes Excavation area (441.25 Ha), OB dump area (53.11 ha), Mine Infrastructure/ Built-up area (100 ha); F\Green Belt (20 Ha), built up area (118.37 Ha) and subside area (240.11 ha) and in township located outside the lease by planting native species in consultation with the local DFO/ Agriculture Department. The density of the trees shall be around 2500 plants per ha. Massive plantation shall be carried out in open spaces in and around the mine and a 3-Teir plantation along the main approach roads to the mine.
Compliance	It is proposed to plant 10Ha per year within cluster 9 at the density of 2500 plants/Ha by planting native species in consultation with the local DFO.
Condition no. lviii)	The proponent should prepare restoration and reclamation plan for the degraded area. The land be used in a productive and sustainable manner.

Compliance	Mine closure plan has already been prepared for the purpose. Restoration and reclamation shall be done accordingly.
Condition no. lix)	Compensatory Ecological & Restoration of waste land, other degraded lands and OB dumps in lieu of breaking open the land be carried out.
Compliance	Mine Closure Plan has already been prepared for the purpose. Compensatory ecological and restoration of wasteland shall be done accordingly.
Condition no. lx)	No groundwater shall be used for mining operations
Compliance	No ground water is being used for mining operation.
Condition no. lxi)	An estimated total 56.98 Mm^3 of OB will be generated during the entire life of the mine. Out of which 32.56 Mm^3 of OB will be dumped in fourteen external dumps 24.42 Mm^3 in eight internal OB Dumps. The OB dump height is upto 60 m. The maximum slope of the dump shall not exceed 28 degrees. Monitoring and management of reclaimed dump sites shall continue till the vegetation becomes self-sustaining and compliance status shall be submitted to MOEF&CC and its regional office on yearly basis.
Compliance	Agreed.
Condition no. lxii)	Of the total quarry area 378 Ha. The backfilled quarry area of 378 Ha shall be reclaimed with plantation 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.
Compliance	Backfilling and reclamation with plantation of native species is being done through West Bengal Forest Department. The density of the trees are around 2500 plants per ha.
Condition no. lxiii)	Regular monitoring of ground water level quality shall be carried out by establishing a network of existing wells and construction of new peizometer. 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, Forests & Climate Change and to the Central Pollution Control Board quarterly within one month of monitoring.
Compliance	Regular monitoring of ground water quality and level is being done by CMPDIL, Asansol. The monitoring reports indicate that the quality of the water is meeting the drinking

	water quality standards. The measurement of water level is being carried out by piezometers.
Condition no. lxiv)	The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case monitoring indicates a decline in water table. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
Compliance	Roof-top rainwater harvesting and ground water recharging initiative have been taken up by the company at several places which face lowering of GWL during summer period.
Condition no. lxv)	Sewage treatment plants shall be installed in the existing colony. ETP shall also be provided for workshop and CHP wastewater.
Compliance	No CHP is in operation in the mine. A small workshop which caters to small repairing jobs of day to day nature like welding machining etc. discharges negligible amount of water, say about 10 litres/day for which ETP is not feasible.
Condition no. lxvi)	Land oustees shall be compensated as per the norms laid out R&R Policy of CIL or the National R&R Policy of the State Government whichever is higher.
Compliance	If required, Land outees shall be compensated as per the norms laid out in R & R Policy of CIL.
Condition no. lxvii)	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 the buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MOEF& CC and its concerned Regional Office.
Compliance	Land use pattern and plantation is being monitored by satellite surveillance based on satellite imagery.
Condition no. lxviii)	A Detailed Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment, Forest & Climate Change within 6 months of grant of Environment Clearance.
Compliance	Complied

Condition no.lxix)	The project authorities shall in consultation with the panchayats of the local villages and administration identify socio-economic and welfare measures under CSR to be carried on over the balance life of the mine.
Compliance	CSR activities are being carried out in consultation with local panchayats.
Condition no. lxx)	Corporate Environmental Responsibility:
(a)	The Company shall have a well laid down Environmental Policy approved by the Board of Directors
Compliance	Complied.
(b)	The Environmental Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
Compliance	Complied.
(c)	The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental conditions shall be furnished.
Compliance	Complied
(d)	To have proper checks and balances, the Company shall have a well laid down system of reporting of non-compliances/violations of environmental norms to the board of directors of the company and /or shareholders or stakeholders at large.
Compliance	The Company is having a well laid down system of reporting of non-compliance/violation of environmental norms to the Board of Directors of the company.
General conditions	
Condition no. i)	No. change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment, Forest & Climate Change
Compliance	Change in mining technology and scope of working, if any, shall be made with prior approval of the Ministry of Environment, Forests & Climate Change.
Condition no. ii)	No change in the calendar plan of production of quantum of mineral cost shall be made.
Compliance	There shall be no change in the calendar plan of production for quantum of mineral coal.

Condition no. iii)	Four ambient air quality monitoring stations shall be established in the core s\zone as well as in the buffer zone for PM_{10}, $PM_{2.5}$, SO_2 and NO_x monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc carried out at least once in six months.
Compliance	Air quality monitoring is carried out by CMPDIL on fortnightly basis and all desired parameters are well within the prescribed limits.
Condition no. iv)	Data on ambient air quality (PM_{10}, $PM_{2.5}$, SO_2 and NO_X) and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly submitted to the Ministry including its concerned Regional Office and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification Of samples through analysis from independent laboratories recognized under the EPA rules, 1986 shall be furnished as part of compliance report.
Compliance	Air quality monitoring is carried out by CMPDI on fortnightly basis and data on ambient air quality shall be regularly submitted to the Ministry including its concerned Regional Officer and to the State Pollution Control Board and the Central Pollution Control Board once in six months.
Condition no. v)	Adequate measures shall be taken for control of noise levels below 85dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.
Compliance	Noise level monitoring is carried out by CMPDIL on fortnightly basis. Noise level has always been below 85 dBA.
Condition no. vi)	Industrial Wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) dated 19th May 1993 and 31st December 1993 or as amended from time to time before discharge.Oil and grease trap shall be installed before discharge of workshop effluents.
Compliance	Mine discharge water samples are tested in laboratory at CMPDI on fortnightly basis. Mine water quality conforms to the standards prescribed under GSR 422(E) dated 19th May 1993 and 31st December 1993. Oil and Grease Trap has been installed at Mahabir-Narainkuri UG & OC.
Condition no. vii)	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the minerals shall be covered with tarpaulins and optimally loaded.
Compliance	Vehicular emissions are kept under control and regularly monitored. Vehicles used for transporting the minerals are covered with tarpaulins and optimally loaded.

	 Tarpulin Covered Coal Transportation- Vehicle No WB37B1215.
Condition no. viii)	Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analyzed through a laboratory recognized under EPA rules, 1986
Compliance	Monitoring of environmental parameters is carried out on regular basis by CMPDI. Laboratory at CMPDIL, Asansol is having all necessary facilities.
Condition no. ix)	Personnel working under dusty area shall wear protective respiratory devices and they shall also be provided with adequate training and information and information safety and health aspects.
Compliance	All protective devices have been provided to workmen and are replaced periodically. Adequate training to all personnel has also been provided. New recruits are trained at the VTC before their deployment. PMEs are carried out on all employees once in 5 years.
Condition no. x)	Occupational health surveillance program of the workers shall be undertaken periodically to observe any contraction s due to exposure to dust and to take corrective measures, if needed and records maintained thereof. The quality of Environment due to outsourcing and the health and safety issues of the outsourced manpower should be addressed by the company while outsourcing.
Compliance	Periodical Medical Examination (PME) for all employees are carried out once in every 5 years (@ 20% employees/year). This PME is mandatory for all employees. Special cases diagnosed during such PMEs are monitored at shorter intervals as directed by the PME Board of Doctors. All serious diseases and impairments are reported to DGMS at regular intervals.
Condition no. xi)	A separate environmental management cell with suitable qualified personnel shall be set up under the control of a senior executive, who will report directly to the Head of the Company
Compliance	A separate environmental management cell with qualified personnel has established for the Area. The cell reports to the GM of the concerned Area under the cluster.
Condition no. xii)	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office.
Compliance	Funds for environmental protection as kept in budget each year is not diverted for any other purposes.

Condition no. xiii)	The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at the website of the Ministry of Environment, Forest and Climate Change at http://envfor.nic.in.
Compliance	All the ECs are published in two local newspapers widely circulated around the project area.
Condition no. xiv)	A copy of the environmental clearance letter shall be marked to concern Panchayat/ZilaParishad, Municipal Corporation or Urban local body and local NGO, if any, from whom any suggestions/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on Company's website.
Compliance	A copy of the environmental clearance letter for cluster 9 has been marked to concerned Panchayats. A copy of the clearance letter is also available in Company's website.
Condition no. xv)	A copy of the environmental clearance letter shall also be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the regional office, District Industry Sector and Collector's Office/Tehsildar's Office for 30 days.
Compliance	The EC letter is uploaded on the company's website.
Condition no. xvi)	The clearance letter shall be uploaded on the Company's website. The compliance status of the stipulated environmental clearance conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in public domain. The monitoring data of the environmental quality parameters (air, water, noise & soil) and critical pollutant such as PM_{10}, $PM_{2.5}$, SO_2 and NO_X(ambient) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mine office and in corporate office and on Company's website.
Compliance	The monitoring data of environmental quality parameter (air, water and noise) and critical pollutant such as PM_{10}, $PM_{2.5}$, SO_2 and NOx (ambient) and critical sectoral parameters are being displayed on Company's website.
Condition no. xvii)	The Project Proponent shall submit six monthly compliance reports on statue of compliance of the stipulated environmental clearance conditions (both in hard copy and in e- mail) to the respective Regional Office of the Ministry, respective Zonal Offices of CPCB and the SPCB.
Compliance	Six monthly reports are submitted to the Regional Office of the Ministry, respective Zonal Offices of CPCB and the SPCB. Also, the reports are available in company's website. Link is given below- www.easterncoal.gov.in
Condition no. xviii)	The Regional Office of the Ministry located in the Region shall monitor compliances of the stipulated conditions. The Project authorities shall extend full cooperation to the

	office(s) of the Regional Office by furnishing the requisite data/information/monitoring reports.
Compliance	Agreed.
Condition no. xix)	The environmental statement for each financial year ending 31 march in form-V is mandated to be submitted by the project proponent for the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the Company's website along the status of the EC conditions and shall be sent to the respective Regional Offices of the MOEFCC by e-mail.
Compliance	Complied.

STRICTLY RESTRICTED
FOR COMPANY USE ONLY RESTRICTED
The information given in this report is not to be communicated either directly or indirectly to the press or to any person not holding an official position in the CIL / GOVERNMENT.

ENVIRONMENT MONITORING REPORT OF CLUSTER NO. 9

(FOR THE MONTH OF MARCH, 2024)

(SATGRAM, KUNUSTORIA & SRIPUR AREA)

Eastern Coalfields Limited

Regional Institute-1
Asansol (WB)

CHAPTER - I
INTRODUCTION

1.0 The environmental monitoring has been carried out as per conditions laid down by MoEF&CC while granting environmental clearance to different projects. CMPDIL has trained manpower and well equipped laboratory to carry out monitoring, analysis and R&D work in the field of environment. Reports have been prepared for submission to MoEF&CC, SPCB and other statutory authorities.

CHAPTER-II
AMBIENT AIR QUALITY MONITORING

2.0 Ambient air quality sampling stations: Ambient air quality monitoring stations have been classified in to residential and industrial based on their locations in different clusters of mines. The following sampling stations have been selected to monitor the ambient air quality in cluster no. 9:

i) **Lamp cabin, New Ghusik colliery (9A1):** The sampler was placed at Ghusik colliery lamp cabin to assess the ambient air quality of industrial area.
ii) **J K Nagar project (9A2):** The sampler was placed at JK Nagar project to assess the impact of coal transport activities on ambient air quality in industrial area of core zone.
iii) **Agent office, Amrit Nagar colliery (9A3):** The sampler was placed at agent office of Amrit Nagar colliery. This station was selected to assess the ambient air quality in industrial Area in the core zone where mining activities are in progress.
iv) **Raniganj College (9A4):** The sampler was placed at Raniganj mining college to assess the present ambient air quality status in residential area.
v) **ECL Colony, Kalidaspur Project (9A5)**: The air sampler was placed at CISF office of Kalidaspur project which is in the core zone of Kalidaspur project. The station was selected to represent the impact of mining activities of Kalidaspur project in core zone.
vi) **Kalikapur village (9A6)**: The sampler was placed in Kalikapur village. This site was selected to assess the present ambient air quality status in residential area of core zone of Ardhagram colliery of Satgram area.
vii) **Mejia BDO Office (9A7):** The sampler was placed at Mejia block office. This site was selected to assess the present ambient air quality status in residential area of buffer zone of Ardhagram colliery of Satgram area.

2.1 Methodology of sampling and analysis: The air quality sampling stations have been chosen keeping in view predominant wind direction and have been classified as permanent, pre monsoon (April – September) & post monsoon (October – March) air sampling stations. Particulate Matter (PM_{10}), Fine Particulate Matter ($PM_{2.5}$), Suspended Particulate Matter (SPM), Sulphur Dioxide (SO_2) and Oxides of Nitrogen (NO_x) are monitored on fortnightly basis. A few polluted sampling stations are monitored twice in a week. Heavy metals like Arsenic (As), Cadmium (Cd), Chromium (Cr), Mercury (Hg), Nickel (Ni) and Lead (Pb) are monitored half yearly.

The Respirable Suspended Particulate Matter (RSPM) Sampler & $PM_{2.5}$ Sampler machines are used for sampling of ambient air. The samples are collected and transported to Environmental Laboratory of CMPDI, RI-I, Asansol for analysis work.

2.2 Results & Interpretations: The observed value of Suspended Particulate Matter (SPM) varies from 126.2 to 316.2 µg/m^3 in industrial areas. The observed value of Particulate Matter (PM_{10}) varies from 73.6 to 224.3 µg/m^3 in industrial areas & from 128.3 to 174.3 µg/m^3 in residential areas. The observed value of Fine Particulate Matter ($PM_{2.5}$) varies from 26.9 to 58.6 µg/m^3 in industrial areas & from 38.6 to 53.2 µg/m^3 in residential areas· The observed value of Sulphur Dioxide (SO_2) has been found to be below 10 µg/m^3 in both industrial & residential areas· The observed value of Oxides of Nitrogen (NO_x) varies from 19.0 to 34.0 µg/m^3 in industrial areas & from 25.0 to 35.0 µg/m^3 in residential areas.

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 (µg/m^3)	Name of method	Detection limit (µg/m^3)
9A1	Lamp cabin, New Ghusik colliery	Industrial	08-Mar-24	SPM	264.3	IS 5182 (Part 4):1999, R: 2019	5.0
				PM_{10}	178.4	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	30.0	IS 5182 (Part 6): 2006, R: 2017	10
9A3	Agent office, Amrit Nagar colliery	Industrial	08-Mar-24	SPM	283.2	IS 5182 (Part 4):1999, R: 2019	5.0
				PM_{10}	197.2	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	58.6	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
9A4	Raniganj mining college	Residential	11-Mar-24	PM_{10}	167.8	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	49.4	IS 5182 (Part 24): 2019	2.0
				SO_2	BDL	IS 5182 (Part 2): 2001, R: 2017	10
				NO_x	25.0	IS 5182 (Part 6): 2006, R: 2017	10
9A5	ECL Colony, Kalidaspur Project	Residential	11-Mar-24	PM_{10}	146.3	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	41.6	IS 5182 (Part 24): 2019	2.0
				SO_2	BDL	IS 5182 (Part 2): 2001, R: 2017	10
				NO_x	35.0	IS 5182 (Part 6): 2006, R: 2017	10
9A6	Kalikapur village	Residential	11-Mar-24	PM_{10}	139.4	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	40.2	IS 5182 (Part 24): 2019	2.0
				SO_2	BDL	IS 5182 (Part 2): 2001, R: 2017	10
				NO_x	34.0	IS 5182 (Part 6): 2006, R: 2017	10
9A7	Mejia BDO Office	Residential	11-Mar-24	PM_{10}	151.6	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	46.5	IS 5182 (Part 24): 2019	2.0
				SO_2	BDL	IS 5182 (Part 2): 2001, R: 2017	10
				NO_x	28.0	IS 5182 (Part 6): 2006, R: 2017	10

*BDL- Below Detection Limit.

Second fortnight:

Station Code	Station Name	Category of station	Date of Sampling	Parameter	Analytical Results (µg/m^3)	Name of method	Detection limit (µg/m^3)
9A1	Lamp cabin, New Ghusik colliery	Industrial	19-Mar-24	SPM	273.6	IS 5182 (Part 4):1999, R: 2019	5.0
				PM_{10}	182.3	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	47.3	IS 5182 (Part 24): 2019	2.0
				SO_2	BDL	IS 5182 (Part 2): 2001, R: 2017	10
				NO_x	34.0	IS 5182 (Part 6): 2006, R: 2017	10
9A3	Agent office, Amrit Nagar colliery	Industrial	19-Mar-24	SPM	316.2	IS 5182 (Part 4):1999, R: 2019	5.0
				PM_{10}	224.3	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	49.8	IS 5182 (Part 24): 2019	2.0
				SO_2	BDL	IS 5182 (Part 2): 2001, R: 2017	10
				NO_x	22.0	IS 5182 (Part 6): 2006, R: 2017	10
9A4	Raniganj mining college	Residential	19-Mar-24	PM_{10}	174.3	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	26.0	IS 5182 (Part 6): 2006, R: 2017	10
9A5	ECL Colony, Kalidaspur Project	Residential	19-Mar-24	PM_{10}	154.3	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	32.0	IS 5182 (Part 6): 2006, R: 2017	10
9A6	Kalikapur village	Residential	19-Mar-24	PM_{10}	128.3	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	38.6	IS 5182 (Part 24): 2019	2.0
				SO_2	BDL	IS 5182 (Part 2): 2001, R: 2017	10
				NO_x	28.0	IS 5182 (Part 6): 2006, R: 2017	10
9A7	Mejia BDO Office	Residential	19-Mar-24	PM_{10}	174.3	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	32.0	IS 5182 (Part 6): 2006, R: 2017	10

*BDL- Below Detection Limit.

Twice in a week Monitoring

Station Code	Station Name	Category of station	Date of Sampling	Parameter	Analytical Results (µg/m^3)	Name of method	Detection limit (µg/m^3)
9A2	J K Nagar Project	Industrial	04-Mar-24	SPM	161.1	IS 5182 (Part 4):1999, R: 2019	5.0
				PM_{10}	90.1	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	48.0	IS 5182 (Part 24): 2019	2.0
				SO_2	BDL	IS 5182 (Part 2): 2001, R: 2017	10
				NO_x	31.0	IS 5182 (Part 6): 2006, R: 2017	10
			05-Mar-24	SPM	220.4	IS 5182 (Part 4):1999, R: 2019	5.0
				PM_{10}	144.1	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	48.3	IS 5182 (Part 24): 2019	2.0
				SO_2	BDL	IS 5182 (Part 2): 2001, R: 2017	10
				NO_x	21.0	IS 5182 (Part 6): 2006, R: 2017	10
			11-Mar-24	SPM	206.3	IS 5182 (Part 4):1999, R: 2019	5.0
				PM_{10}	136.2	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	42.1	IS 5182 (Part 24): 2019	2.0
				SO_2	BDL	IS 5182 (Part 2): 2001, R: 2017	10
				NO_x	28.0	IS 5182 (Part 6): 2006, R: 2017	10
			12-Mar-24	SPM	204.6	IS 5182 (Part 4):1999, R: 2019	5.0
				PM_{10}	138.4	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	41.6	IS 5182 (Part 24): 2019	2.0
				SO_2	BDL	IS 5182 (Part 2): 2001, R: 2017	10
				NO_x	30.0	IS 5182 (Part 6): 2006, R: 2017	10
			18-Mar-24	SPM	156.2	IS 5182 (Part 4):1999, R: 2019	5.0
				PM_{10}	95.4	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	34.4	IS 5182 (Part 24): 2019	2.0
				SO_2	BDL	IS 5182 (Part 2): 2001, R: 2017	10
				NO_x	22.0	IS 5182 (Part 6): 2006, R: 2017	10
			19-Mar-24	SPM	126.2	IS 5182 (Part 4):1999, R: 2019	5.0
				PM_{10}	73.6	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	28.4	IS 5182 (Part 24): 2019	2.0
				SO_2	BDL	IS 5182 (Part 2): 2001, R: 2017	10
				NO_x	32.0	IS 5182 (Part 6): 2006, R: 2017	10
			25-Mar-24	SPM	131.4	IS 5182 (Part 4):1999, R: 2019	5.0
				PM_{10}	81.6	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	26.9	IS 5182 (Part 24): 2019	2.0
				SO_2	BDL	IS 5182 (Part 2): 2001, R: 2017	10
				NO_x	34.0	IS 5182 (Part 6): 2006, R: 2017	10
			26-Mar-24	SPM	160.3	IS 5182 (Part 4):1999, R: 2019	5.0
				PM_{10}	93.2	IS 5182 (Part 23): 2006, R: 2022	3.5
				$PM_{2.5}$	34.2	IS 5182 (Part 24): 2019	2.0
				SO_2	BDL	IS 5182 (Part 2): 2001, R: 2017	10
				NO_x	32.0	IS 5182 (Part 6): 2006, R: 2017	10

*BDL- Below Detection Limit.

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 (µg/m^3)					Pollutant Concentration (µg/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

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			APHA 3114B AAS VGA	APHA 3113B AAS GTA	APHA 3111B AAS Flame	APHA 3112B AAS VGA	APHA 3113 B AAS GTA	APHA 3113 B AAS GTA
Detection Limit			**1.0**	**0.001**	**0.01**	**0.001**	**0.10**	**0.005**
9A1	Lamp Cabin, New Ghusick Colliery	8-Mar-24	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
9A2	J K Nagar Project	8-Mar-24	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
9A3	Agent Office, Amritnagar Colliery	8-Mar-24	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
9A4	Raniganj Mining College	11-Mar-24	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
9A5	ECL Colony, Kalidaspur Project	11-Mar-24	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
9A6	Kalikapur village	11-Mar-24	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
9A7	BDO Office, Mejia	11-Mar-24	<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

CHAPTER – III
WATER QUALITY MONITORING

3.1 Mine water sampling stations:

i) **Ratibati UG (9MW1):** This location has been selected to monitor the discharge quality of mine effluent to natural surface streams.

ii) Chapuikhas UG (9MW2): This location has been selected to monitor the discharge quality of mine effluent to natural surface streams.

iii) **Amritnagar UG (9MW3)**: This location has been selected to monitor the discharge quality of mine effluent to natural surface streams after siltation pond.

iv) **Kuardih UG (9MW4)**: This location has been selected to monitor the discharge quality of mine effluent to natural surface streams after siltation pond.

v) **Nimcha UG (9MW5)**: This location has been selected to monitor the discharge quality of mine effluent after sedimentation tank.

vi) **Kalipahari UG (9MW6)**: This location has been selected to monitor the discharge quality of mine effluent discharged to natural surface streams.

vii) **Muslia UG (9MW7)**: This location has been selected to monitor the discharge quality of mine effluent to natural surface streams.

viii) **New Ghusick UG (9MW8)**: This location has been selected to monitor the discharge quality of mine effluent after sedimentation tank.

ix) **J K Nagar UG (9MW9)**: This location has been selected to monitor the discharge quality of mine effluent after sedimentation tank.

3.2 Methodology of sampling and analysis: The water samples are collected as per standard practice and transported to environment laboratory for analysis work.

The mine water samples are collected and analysed for five parameters on fortnightly basis except during the months of March and September when mine water samples are analysed for 29 parameters.

The ground water samples are collected and analysed for 26 parameters during the month of May. Water samples from filter plants are collected and analysed quarterly in the months of June, September, December and March.

3.3 Results & Interpretations: The results are given in tabular form along with the applicable standards. Results are compared with General Standards for Discharge of Effluent (Schedule VI) in case of effluent/mine water samples and compared with IS.10500: 2012 in case of drinking/ground water samples.

First fortnight:

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

Station name and Station Code: 9MW1- Ratibati UG

MINE WATER QUALITY

Sl. No.	Parameters / Date of Sampling	Analytical Results 04-Mar-24	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
1	Colour	5	Unobjectionable	IS 3025 (Part 4): 2021	1.0
2	Odour	Unobjectionabl	Unobjectionable	IS 3025 (Part 6): 1983, R: 2018	-
3	TSS	BDL	100	IS 3025 (Part 17):1984, R: 2017	10
4	pH	7.58	5.5-9.0	IS 3025 (Part 11): 1983, R: 2017	2.0
5	Temperature (^{0}C)	24.0	Shall not exceed 5 ^{0}C above the receiving water temperature	IS 3025 (Part 9): 1984, R: 2017	5.0
6	Oil & Grease	BDL	10	IS 3025 (Part 39): 1991, R: 2019	2.0
7	Total Residual Chlorine	BDL	1.0	APHA, 4500-Cl G. DPD Colorimetric	0.02
8	Ammonical Nitrogen	0.84	50	IS 3025 (Part 34): 1988, R: 2019	0.01
9	Total Kjeldahl Nitrogen	2.35	100	APHA 4500-N_{org} B. Macro-Kjeldahl	1.0
10	Free Ammonia	BDL	5.0	IS 3025 (Part 34): 1988, R: 2019	0.02
11	BOD	BDL	30	IS 3025 (Part 44): 1993, R: 2019	2.0
12	COD	16	250	APHA 5220C Closed Reflux	4.0
13	Arsenic	BDL	0.2	APHA 3112B AAS VGA	0.002
14	Lead	BDL	0.1	APHA 3113B AAS GTA	0.005
15	Hexavalent Chromium	BDL	0.1	APHA, 3500 – Cr^{6+} B. Colorimetric	0.01
16	Total Chromium	BDL	2.0	IS 3025 (Part 52): 2003, R: 2019	0.04
17	Copper	BDL	3.0	IS 3025 (Part 42): 1992, R: 2019	0.03
18	Zinc	0.02	5.0	IS 3025 (Part 49):1994, R: 2019	0.01
19	Selenium	BDL	0.05	APHA 3111B AAS Flame	0.002
20	Nickel	BDL	3.0	IS 3025 (Part 54): 2003, R: 2019	0.01
21	Fluoride	0.38	2.0	APHA, 4500 –F D. SPADNS	0.02
22	Dissolved Phosphate	1.70	5.0	APHA, 4500-P C. Vanadomolybdophosphoric Acid Colorimetric	0.30
23	Sulphide	0.012	2.0	APHA, 4500 - S^{2-} D. Methylene Blue	0.005
24	Phenolics	BDL	1.0	APHA, 5530 C. 4-Amino-Antipyrine-Chloroform Extraction	0.001
25	Manganese	BDL	2.0	IS 3025 (Part 59): 2006, R: 2017	0.02
26	Iron	BDL	3.0	IS 3025 (Part 53): 2003, R: 2019	0.06
27	Nitrate Nitrogen	1.37	10	APHA, 4500-NO_3^- B. UV-Spectrophotometric Screening	0.5
28	Cadmium	BDL	2.0	APHA 3113B AAS GTA	0.0005
29	Total Dissolved Solids	543	Not Specified	IS 3025 (Part 16): 1984, R: 2017	25.0

*BDL- Below Detection Limit. *All values are expressed in mg/l unless specified.*

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

Station name and Station Code: 9MW2- Chapuikhas UG.

MINE WATER QUALITY

Sl. No.	Parameters / Date of Sampling	Analytical Results (04-Mar-24)	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
1	Colour	4	Unobjectionable	IS 3025 (Part 4): 2021	1.0
2	Odour	Unobjectionable	Unobjectionable	IS 3025 (Part 6): 1983, R: 2018	-
3	TSS	BDL	100	IS 3025 (Part 17):1984, R: 2017	10
4	pH	7.76	5.5-9.0	IS 3025 (Part 11): 1983, R: 2017	2.0
5	Temperature (^{0}C)	24.0	Shall not exceed 5 ^{0}C above the receiving water temperature	IS 3025 (Part 9): 1984, R: 2017	5.0
6	Oil & Grease	BDL	10	IS 3025 (Part 39): 1991, R: 2019	2.0
7	Total Residual Chlorine	BDL	1.0	APHA, 4500-Cl G. DPD Colorimetric	0.02
8	Ammonical Nitrogen	0.68	50	IS 3025 (Part 34): 1988, R: 2019	0.01
9	Total Kjeldahl Nitrogen	1.96	100	APHA 4500-N_{org} B. Macro-Kjeldahl	1.0
10	Free Ammonia	BDL	5.0	IS 3025 (Part 34): 1988, R: 2019	0.02
11	BOD	BDL	30	IS 3025 (Part 44): 1993, R: 2019	2.0
12	COD	8	250	APHA 5220C Closed Reflux	4.0
13	Arsenic	BDL	0.2	APHA 3112B AAS VGA	0.002
14	Lead	BDL	0.1	APHA 3113B AAS GTA	0.005
15	Hexavalent Chromium	BDL	0.1	APHA, 3500 – Cr^{6+} B. Colorimetric	0.01
16	Total Chromium	BDL	2.0	IS 3025 (Part 52): 2003, R: 2019	0.04
17	Copper	BDL	3.0	IS 3025 (Part 42): 1992, R: 2019	0.03
18	Zinc	0.03	5.0	IS 3025 (Part 49):1994, R: 2019	0.01
19	Selenium	BDL	0.05	APHA 3111B AAS Flame	0.002
20	Nickel	BDL	3.0	IS 3025 (Part 54): 2003, R: 2019	0.01
21	Fluoride	0.40	2.0	APHA, 4500 –F D. SPADNS	0.02
22	Dissolved Phosphate	1.58	5.0	APHA, 4500-P C. Vanadomolybdophosphoric Acid Colorimetric	0.30
23	Sulphide	0.020	2.0	APHA, 4500 - S^{2-} D. Methylene Blue	0.005
24	Phenolics	BDL	1.0	APHA, 5530 C. 4-Amino-Antipyrine-Chloroform Extraction	0.001
25	Manganese	0.02	2.0	IS 3025 (Part 59): 2006, R: 2017	0.02
26	Iron	BDL	3.0	IS 3025 (Part 53): 2003, R: 2019	0.06
27	Nitrate Nitrogen	1.31	10	APHA, 4500-NO_3^- B. UV-Spectrophotometric Screening	0.5
28	Cadmium	BDL	2.0	APHA 3113B AAS GTA	0.0005
29	Total Dissolved Solids	507	Not Specified	IS 3025 (Part 16): 1984, R: 2017	25.0

* BDL- Below Detection Limit. *All values are expressed in mg/l unless specified.*

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

Station name and Station Code: 9MW3- Amritnagar UG

MINE WATER QUALITY

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	04-Mar-24			
1	Colour	3	Unobjectionable	IS 3025 (Part 4): 2021	1.0
2	Odour	Unobjectionabl	Unobjectionable	IS 3025 (Part 6): 1983, R: 2018	-
3	TSS	BDL	100	IS 3025 (Part 17):1984, R: 2017	10
4	pH	7.72	5.5-9.0	IS 3025 (Part 11): 1983, R: 2017	0.01
5	Temperature (^{0}C)	24.0	Shall not exceed 5 ^{0}C above the receiving water temperature	IS 3025 (Part 9): 1984, R: 2017	0.1
6	Oil & Grease	BDL	10	IS 3025 (Part 39): 1991, R: 2019	2.0
7	Total Residual Chlorine	BDL	1.0	APHA, 4500-Cl G. DPD Colorimetric	0.02
8	Ammonical Nitrogen	0.48	50	IS 3025 (Part 34): 1988, R: 2019	0.01
9	Total Kjeldahl Nitrogen	1.68	100	APHA 4500-N_{org} B. Macro-Kjeldahl	1.0
10	Free Ammonia	BDL	5.0	IS 3025 (Part 34): 1988, R: 2019	0.02
11	BOD	BDL	30	IS 3025 (Part 44): 1993, R: 2019	2.0
12	COD	12	250	APHA 5220C Closed Reflux	4.0
13	Arsenic	BDL	0.2	APHA 3112B AAS VGA	0.002
14	Lead	BDL	0.1	APHA 3113B AAS GTA	0.005
15	Hexavalent Chromium	BDL	0.1	APHA, 3500 – Cr^{6+} B. Colorimetric	0.01
16	Total Chromium	BDL	2.0	IS 3025 (Part 52): 2003, R: 2019	0.04
17	Copper	BDL	3.0	IS 3025 (Part 42): 1992, R: 2019	0.03
18	Zinc	0.02	5.0	IS 3025 (Part 49):1994, R: 2019	0.01
19	Selenium	BDL	0.05	APHA 3111B AAS Flame	0.002
20	Nickel	BDL	3.0	IS 3025 (Part 54): 2003, R: 2019	0.01
21	Fluoride	0.37	2.0	APHA, 4500 –F D. SPADNS	0.02
22	Dissolved Phosphate	1.66	5.0	APHA, 4500-P C. Vanadomolybdophosphoric Acid Colorimetric	0.30
23	Sulphide	0.014	2.0	APHA, 4500 - S^{2-} D. Methylene Blue	0.005
24	Phenolics	BDL	1.0	APHA, 5530 C. 4-Amino-Antipyrine-Chloroform Extraction	0.001
25	Manganese	0.03	2.0	IS 3025 (Part 59): 2006, R: 2017	0.02
26	Iron	BDL	3.0	IS 3025 (Part 53): 2003, R: 2019	0.06
27	Nitrate Nitrogen	1.75	10	APHA, 4500-NO_3^- B. UV-Spectrophotometric Screening	0.5
28	Cadmium	BDL	2.0	APHA 3113B AAS GTA	0.0005
29	Total Dissolved Solids	604	Not Specified	IS 3025 (Part 16): 1984, R: 2017	25.0

*BDL- Below Detection Limit. *All values are expressed in mg/l unless specified.*

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

Station name and Station Code: 9MW4- Kuardih UG

MINE WATER QUALITY

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	07-Mar-24			
1	Colour	4	Unobjectionable	IS 3025 (Part 4): 2021	1.0
2	Odour	Unobjectionable	Unobjectionable	IS 3025 (Part 6): 1983, R: 2018	-
3	TSS	BDL	100	IS 3025 (Part 17):1984, R: 2017	10
4	pH	7.99	5.5-9.0	IS 3025 (Part 11): 1983, R: 2017	2.0
5	Temperature (^{0}C)	24.2	Shall not exceed 5 ^{0}C above the receiving water temperature	IS 3025 (Part 9): 1984, R: 2017	5.0
6	Oil & Grease	BDL	10	IS 3025 (Part 39): 1991, R: 2019	2.0
7	Total Residual Chlorine	BDL	1.0	APHA, 4500-Cl G. DPD Colorimetric	0.02
8	Ammonical Nitrogen	0.84	50	IS 3025 (Part 34): 1988, R: 2019	0.01
9	Total Kjeldahl Nitrogen	1.68	100	APHA 4500-N_{org} B. Macro-Kjeldahl	1.0
10	Free Ammonia	BDL	5.0	IS 3025 (Part 34): 1988, R: 2019	0.02
11	BOD	BDL	30	IS 3025 (Part 44): 1993, R: 2019	2.0
12	COD	12	250	APHA 5220C Closed Reflux	4.0
13	Arsenic	BDL	0.2	APHA 3112B AAS VGA	0.002
14	Lead	BDL	0.1	APHA 3113B AAS GTA	0.005
15	Hexavalent Chromium	BDL	0.1	APHA, 3500 – Cr^{6+} B. Colorimetric	0.01
16	Total Chromium	BDL	2.0	IS 3025 (Part 52): 2003, R: 2019	0.04
17	Copper	BDL	3.0	IS 3025 (Part 42): 1992, R: 2019	0.03
18	Zinc	0.03	5.0	IS 3025 (Part 49):1994, R: 2019	0.01
19	Selenium	BDL	0.05	APHA 3111B AAS Flame	0.002
20	Nickel	BDL	3.0	IS 3025 (Part 54): 2003, R: 2019	0.01
21	Fluoride	0.38	2.0	APHA, 4500 –F D. SPADNS	0.02
22	Dissolved Phosphate	1.86	5.0	APHA, 4500-P C. Vanadomolybdophosphoric Acid Colorimetric	0.30
23	Sulphide	0.016	2.0	APHA, 4500 - S^{2-} D. Methylene Blue	0.005
24	Phenolics	BDL	1.0	APHA, 5530 C. 4-Amino-Antipyrine-Chloroform Extraction	0.001
25	Manganese	0.02	2.0	IS 3025 (Part 59): 2006, R: 2017	0.02
26	Iron	BDL	3.0	IS 3025 (Part 53): 2003, R: 2019	0.06
27	Nitrate Nitrogen	1.47	10	APHA, 4500-NO_3^- B. UV-Spectrophotometric Screening	0.5
28	Cadmium	BDL	2.0	APHA 3113B AAS GTA	0.0005
29	Total Dissolved Solids	672	Not Specified	IS 3025 (Part 16): 1984, R: 2017	25.0

*BDL- Below Detection Limit. *All values are expressed in mg/l unless specified*.

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

Station name and Station Code: 9MW5- Nimcha UG

MINE WATER QUALITY

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	07-Mar-24			
1	Colour	4	Unobjectionable	IS 3025 (Part 4): 2021	1.0
2	Odour	Unobjectionable	Unobjectionable	IS 3025 (Part 6): 1983, R: 2018	-
3	TSS	BDL	100	IS 3025 (Part 17):1984, R: 2017	10
4	pH	8.08	5.5-9.0	IS 3025 (Part 11): 1983, R: 2017	2.0
5	Temperature (^{0}C)	24.2	Shall not exceed 5 ^{0}C above the receiving water temperature	IS 3025 (Part 9): 1984, R: 2017	5.0
6	Oil & Grease	BDL	10	IS 3025 (Part 39): 1991, R: 2019	2.0
7	Total Residual Chlorine	BDL	1.0	APHA, 4500-Cl G. DPD Colorimetric	0.02
8	Ammonical Nitrogen	0.56	50	IS 3025 (Part 34): 1988, R: 2019	0.01
9	Total Kjeldahl Nitrogen	2.18	100	APHA 4500-N_{org} B. Macro-Kjeldahl	1.0
10	Free Ammonia	BDL	5.0	IS 3025 (Part 34): 1988, R: 2019	0.02
11	BOD	BDL	30	IS 3025 (Part 44): 1993, R: 2019	2.0
12	COD	16	250	APHA 5220C Closed Reflux	4.0
13	Arsenic	BDL	0.2	APHA 3112B AAS VGA	0.002
14	Lead	BDL	0.1	APHA 3113B AAS GTA	0.005
15	Hexavalent Chromium	BDL	0.1	APHA, 3500 – Cr^{6+} B. Colorimetric	0.01
16	Total Chromium	BDL	2.0	IS 3025 (Part 52): 2003, R: 2019	0.04
17	Copper	BDL	3.0	IS 3025 (Part 42): 1992, R: 2019	0.03
18	Zinc	0.04	5.0	IS 3025 (Part 49):1994, R: 2019	0.01
19	Selenium	BDL	0.05	APHA 3111B AAS Flame	0.002
20	Nickel	BDL	3.0	IS 3025 (Part 54): 2003, R: 2019	0.01
21	Fluoride	0.38	2.0	APHA, 4500 –F D. SPADNS	0.02
22	Dissolved Phosphate	1.72	5.0	APHA, 4500-P C. Vanadomolybdophosphoric Acid Colorimetric	0.30
23	Sulphide	0.014	2.0	APHA, 4500 - S^{2-} D. Methylene Blue	0.005
24	Phenolics	BDL	1.0	APHA, 5530 C. 4-Amino-Antipyrine-Chloroform Extraction	0.001
25	Manganese	BDL	2.0	IS 3025 (Part 59): 2006, R: 2017	0.02
26	Iron	BDL	3.0	IS 3025 (Part 53): 2003, R: 2019	0.06
27	Nitrate Nitrogen	1.39	10	APHA, 4500-NO_3^- B. UV-Spectrophotometric Screening	0.5
28	Cadmium	BDL	2.0	APHA 3113B AAS GTA	0.0005
29	Total Dissolved Solids	452	Not Specified	IS 3025 (Part 16): 1984, R: 2017	25.0

*BDL- Below Detection Limit. *All values are expressed in mg/l unless specified.*

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

Station name and Station Code: 9MW6- Kalipahari UG

MINE WATER QUALITY

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	07-Mar-24			
1	Colour	3	Unobjectionable	IS 3025 (Part 4): 2021	1.0
2	Odour	Unobjectionable	Unobjectionable	IS 3025 (Part 6): 1983, R: 2018	-
3	TSS	BDL	100	IS 3025 (Part 17):1984, R: 2017	10
4	pH	8.13	5.5-9.0	IS 3025 (Part 11): 1983, R: 2017	2.0
5	Temperature (^{0}C)	24.2	Shall not exceed 5 ^{0}C above the receiving water temperature	IS 3025 (Part 9): 1984, R: 2017	5.0
6	Oil & Grease	BDL	10	IS 3025 (Part 39): 1991, R: 2019	2.0
7	Total Residual Chlorine	BDL	1.0	APHA, 4500-Cl G. DPD Colorimetric	0.02
8	Ammonical Nitrogen	0.84	50	IS 3025 (Part 34): 1988, R: 2019	0.01
9	Total Kjeldahl Nitrogen	1.96	100	APHA 4500-N_{org} B. Macro-Kjeldahl	1.0
10	Free Ammonia	BDL	5.0	IS 3025 (Part 34): 1988, R: 2019	0.02
11	BOD	BDL	30	IS 3025 (Part 44): 1993, R: 2019	2.0
12	COD	12	250	APHA 5220C Closed Reflux	4.0
13	Arsenic	BDL	0.2	APHA 3112B AAS VGA	0.002
14	Lead	BDL	0.1	APHA 3113B AAS GTA	0.005
15	Hexavalent Chromium	BDL	0.1	APHA, 3500 – Cr^{6+} B. Colorimetric	0.01
16	Total Chromium	BDL	2.0	IS 3025 (Part 52): 2003, R: 2019	0.04
17	Copper	BDL	3.0	IS 3025 (Part 42): 1992, R: 2019	0.03
18	Zinc	0.03	5.0	IS 3025 (Part 49):1994, R: 2019	0.01
19	Selenium	BDL	0.05	APHA 3111B AAS Flame	0.002
20	Nickel	BDL	3.0	IS 3025 (Part 54): 2003, R: 2019	0.01
21	Fluoride	0.35	2.0	APHA, 4500 –F D. SPADNS	0.02
22	Dissolved Phosphate	1.79	5.0	APHA, 4500-P C. Vanadomolybdophosphoric Acid Colorimetric	0.30
23	Sulphide	0.018	2.0	APHA, 4500 - S^{2-} D. Methylene Blue	0.005
24	Phenolics	BDL	1.0	APHA, 5530 C. 4-Amino-Antipyrine-Chloroform Extraction	0.001
25	Manganese	BDL	2.0	IS 3025 (Part 59): 2006, R: 2017	0.02
26	Iron	BDL	3.0	IS 3025 (Part 53): 2003, R: 2019	0.06
27	Nitrate Nitrogen	1.58	10	APHA, 4500-NO_3^- B. UV-Spectrophotometric Screening	0.5
28	Cadmium	BDL	2.0	APHA 3113B AAS GTA	0.0005
29	Total Dissolved Solids	538	Not Specified	IS 3025 (Part 16): 1984, R: 2017	25.0

*BDL- Below Detection Limit. *All values are expressed in mg/l unless specified.*

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

Station name and Station Code: 9MW7- Muslia UG

MINE WATER QUALITY

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	07-Mar-24			
1	Colour	5	Unobjectionable	IS 3025 (Part 4): 2021	1.0
2	Odour	Unobjectionable	Unobjectionable	IS 3025 (Part 6): 1983, R: 2018	-
3	TSS	BDL	100	IS 3025 (Part 17):1984, R: 2017	10
4	pH	7.82	5.5-9.0	IS 3025 (Part 11): 1983, R: 2017	2.0
5	Temperature (^{0}C)	24.2	Shall not exceed 5 ^{0}C above the receiving water temperature	IS 3025 (Part 9): 1984, R: 2017	5.0
6	Oil & Grease	BDL	10	IS 3025 (Part 39): 1991, R: 2019	2.0
7	Total Residual Chlorine	BDL	1.0	APHA, 4500-Cl G. DPD Colorimetric	0.02
8	Ammonical Nitrogen	0.44	50	IS 3025 (Part 34): 1988, R: 2019	0.01
9	Total Kjeldahl Nitrogen	1.93	100	APHA 4500-N_{org} B. Macro-Kjeldahl	1.0
10	Free Ammonia	BDL	5.0	IS 3025 (Part 34): 1988, R: 2019	0.02
11	BOD	BDL	30	IS 3025 (Part 44): 1993, R: 2019	2.0
12	COD	20	250	APHA 5220C Closed Reflux	4.0
13	Arsenic	BDL	0.2	APHA 3112B AAS VGA	0.002
14	Lead	BDL	0.1	APHA 3113B AAS GTA	0.005
15	Hexavalent Chromium	BDL	0.1	APHA, 3500 – Cr^{6+} B. Colorimetric	0.01
16	Total Chromium	BDL	2.0	IS 3025 (Part 52): 2003, R: 2019	0.04
17	Copper	BDL	3.0	IS 3025 (Part 42): 1992, R: 2019	0.03
18	Zinc	0.02	5.0	IS 3025 (Part 49):1994, R: 2019	0.01
19	Selenium	BDL	0.05	APHA 3111B AAS Flame	0.002
20	Nickel	BDL	3.0	IS 3025 (Part 54): 2003, R: 2019	0.01
21	Fluoride	0.32	2.0	APHA, 4500 –F D. SPADNS	0.02
22	Dissolved Phosphate	1.77	5.0	APHA, 4500-P C. Vanadomolybdophosphoric Acid Colorimetric	0.30
23	Sulphide	0.007	2.0	APHA, 4500 - S^{2-} D. Methylene Blue	0.005
24	Phenolics	BDL	1.0	APHA, 5530 C. 4-Amino-Antipyrine-Chloroform Extraction	0.001
25	Manganese	0.02	2.0	IS 3025 (Part 59): 2006, R: 2017	0.02
26	Iron	BDL	3.0	IS 3025 (Part 53): 2003, R: 2019	0.06
27	Nitrate Nitrogen	1.82	10	APHA, 4500-NO_3^- B. UV-Spectrophotometric Screening	0.5
28	Cadmium	BDL	2.0	APHA 3113B AAS GTA	0.0005
29	Total Dissolved Solids	422	Not Specified	IS 3025 (Part 16): 1984, R: 2017	25.0

*BDL- Below Detection Limit. *All values are expressed in mg/l unless specified.*

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

Station name and Station Code: 9MW8- New Ghusick UG

MINE WATER QUALITY

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	11-Mar-24			
1	Colour	3	Unobjectionable	IS 3025 (Part 4): 2021	1.0
2	Odour	Unobjectionable	Unobjectionable	IS 3025 (Part 6): 1983, R: 2018	-
3	TSS	BDL	100	IS 3025 (Part 17):1984, R: 2017	10
4	pH	7.71	5.5-9.0	IS 3025 (Part 11): 1983, R: 2017	2.0
5	Temperature (^{0}C)	24.8	Shall not exceed 5 ^{0}C above the receiving water temperature	IS 3025 (Part 9): 1984, R: 2017	5.0
6	Oil & Grease	BDL	10	IS 3025 (Part 39): 1991, R: 2019	2.0
7	Total Residual Chlorine	BDL	1.0	APHA, 4500-Cl G. DPD Colorimetric	0.02
8	Ammonical Nitrogen	0.52	50	IS 3025 (Part 34): 1988, R: 2019	0.01
9	Total Kjeldahl Nitrogen	2.01	100	APHA 4500-N_{org} B. Macro-Kjeldahl	1.0
10	Free Ammonia	BDL	5.0	IS 3025 (Part 34): 1988, R: 2019	0.02
11	BOD	7.34	30	IS 3025 (Part 44): 1993, R: 2019	2.0
12	COD	8	250	APHA 5220C Closed Reflux	4.0
13	Arsenic	BDL	0.2	APHA 3112B AAS VGA	0.002
14	Lead	BDL	0.1	APHA 3113B AAS GTA	0.005
15	Hexavalent Chromium	BDL	0.1	APHA, 3500 – Cr^{6+} B. Colorimetric	0.01
16	Total Chromium	BDL	2.0	IS 3025 (Part 52): 2003, R: 2019	0.04
17	Copper	BDL	3.0	IS 3025 (Part 42): 1992, R: 2019	0.03
18	Zinc	0.03	5.0	IS 3025 (Part 49):1994, R: 2019	0.01
19	Selenium	BDL	0.05	APHA 3111B AAS Flame	0.002
20	Nickel	BDL	3.0	IS 3025 (Part 54): 2003, R: 2019	0.01
21	Fluoride	0.27	2.0	APHA, 4500 –F D. SPADNS	0.02
22	Dissolved Phosphate	1.69	5.0	APHA, 4500-P C. Vanadomolybdophosphoric Acid Colorimetric	0.30
23	Sulphide	0.013	2.0	APHA, 4500 - S^{2-} D. Methylene Blue	0.005
24	Phenolics	BDL	1.0	APHA, 5530 C. 4-Amino-Antipyrine-Chloroform Extraction	0.001
25	Manganese	0.02	2.0	IS 3025 (Part 59): 2006, R: 2017	0.02
26	Iron	BDL	3.0	IS 3025 (Part 53): 2003, R: 2019	0.06
27	Nitrate Nitrogen	1.65	10	APHA, 4500-NO_3^- B. UV-Spectrophotometric Screening	0.5
28	Cadmium	BDL	2.0	APHA 3113B AAS GTA	0.0005
29	Total Dissolved Solids	632	Not Specified	IS 3025 (Part 16): 1984, R: 2017	25.0

* BDL- Below Detection Limit. *All values are expressed in mg/l unless specified.*

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

Station name and Station Code: 9MW9- J K Nagar UG

MINE WATER QUALITY

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	11-Mar-24			
1	Colour	4	Unobjectionable	IS 3025 (Part 4): 2021	1.0
2	Odour	Unobjectionabl	Unobjectionable	IS 3025 (Part 6): 1983, R: 2018	-
3	TSS	BDL	100	IS 3025 (Part 17):1984, R: 2017	10
4	pH	7.80	5.5-9.0	IS 3025 (Part 11): 1983, R: 2017	2.0
5	Temperature (^{0}C)	24.8	Shall not exceed 5 ^{0}C above the receiving water temperature	IS 3025 (Part 9): 1984, R: 2017	5.0
6	Oil & Grease	BDL	10	IS 3025 (Part 39): 1991, R: 2019	2.0
7	Total Residual Chlorine	BDL	1.0	APHA, 4500-Cl G. DPD Colorimetric	0.02
8	Ammonical Nitrogen	0.68	50	IS 3025 (Part 34): 1988, R: 2019	0.01
9	Total Kjeldahl Nitrogen	1.68	100	APHA 4500-N_{org} B. Macro-Kjeldahl	1.0
10	Free Ammonia	BDL	5.0	IS 3025 (Part 34): 1988, R: 2019	0.02
11	BOD	7.68	30	IS 3025 (Part 44): 1993, R: 2019	2.0
12	COD	24	250	APHA 5220C Closed Reflux	4.0
13	Arsenic	BDL	0.2	APHA 3112B AAS VGA	0.002
14	Lead	BDL	0.1	APHA 3113B AAS GTA	0.005
15	Hexavalent Chromium	BDL	0.1	APHA, 3500 – Cr^{6+} B. Colorimetric	0.01
16	Total Chromium	BDL	2.0	IS 3025 (Part 52): 2003, R: 2019	0.04
17	Copper	BDL	3.0	IS 3025 (Part 42): 1992, R: 2019	0.03
18	Zinc	0.04	5.0	IS 3025 (Part 49):1994, R: 2019	0.01
19	Selenium	BDL	0.05	APHA 3111B AAS Flame	0.002
20	Nickel	BDL	3.0	IS 3025 (Part 54): 2003, R: 2019	0.01
21	Fluoride	0.29	2.0	APHA, 4500 –F D. SPADNS	0.02
22	Dissolved Phosphate	1.44	5.0	APHA, 4500-P C. Vanadomolybdophosphoric Acid Colorimetric	0.30
23	Sulphide	0.014	2.0	APHA, 4500 - S^{2-} D. Methylene Blue	0.005
24	Phenolics	BDL	1.0	APHA, 5530 C. 4-Amino-Antipyrine-Chloroform Extraction	0.001
25	Manganese	BDL	2.0	IS 3025 (Part 59): 2006, R: 2017	0.02
26	Iron	BDL	3.0	IS 3025 (Part 53): 2003, R: 2019	0.06
27	Nitrate Nitrogen	1.48	10	APHA, 4500-NO_3^- B. UV-Spectrophotometric Screening	0.5
28	Cadmium	BDL	2.0	APHA 3113B AAS GTA	0.0005
29	Total Dissolved Solids	517	Not Specified	IS 3025 (Part 16): 1984, R: 2017	25.0

*BDL- Below Detection Limit. *All values are expressed in mg/l unless specified.*

Second fortnight:

Sl. No.	Parameters	Analytical results				General Standards for Discharge of Effluent (Schedule VI)	Name of Method	Detection Limit
	Station Code	9MW1	9MW2	9MW3	9MW4			
	Date of sampling	26-Mar-24	26-Mar-24	26-Mar-24	26-Mar-24			
1	pH	7.64	7.79	7.67	7.96	5.5 - 9.0	IS 3025 (Part 11) : 1983, R: 2017	2.0
2	TSS	BDL	BDL	BDL	BDL	100	IS 3025 (Part -17): 1984, R: 2017	10.0
3	TDS	548	522	573	618	Not specified	IS 3025 (Part -16): 1984, R: 2017	25.0
4	Oil & Grease	BDL	BDL	BDL	BDL	10	IS 3025 (Part 39) : 1991, R: 2019	2.0
5	COD	16	12	8	28	250	APHA 5220C Closed Reflux	4.0

Sl. No.	Parameters	Analytical results					General Standards for Discharge of Effluent (Schedule VI)	Name of Method	Detection Limit
	Station Code	9MW5	9MW6	9MW7	9MW8	9MW9			
	Date of sampling	19-Mar-24	19-Mar-24	19-Mar-24	19-Mar-24	19-Mar-24			
1	pH	8.17	8.20	7.87	7.95	7.69	5.5 - 9.0	IS 3025 (Part 11) : 1983, R: 2017	2.0
2	TSS	BDL	BDL	BDL	BDL	BDL	100	IS 3025 (Part -17): 1984, R: 2017	10.0
3	TDS	417	538	562	621	527	Not specified	IS 3025 (Part -16): 1984, R: 2017	25.0
4	Oil & Grease	BDL	BDL	BDL	BDL	BDL	10	IS 3025 (Part 39) : 1991, R: 2019	2.0
5	COD	20	16	24	20	12	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: **9DW3- Incline pressure filter at Satgram**
9DW4- RO filter plant at Satgram project

Sl. No.	Parameters / Sample code / Sampling Date	Analytical Results 9DW3	9DW4	Indian Standard Drinking Water (IS-10500 :2012) Acceptable Limit	Permissible Limit	Method of detection	Detection Limit
		7-Mar-24	7-Mar-24				
1	Colour, Hazen	2	3	5.0	15.0	IS 3025 (Part 4): 2021	1.0
2	Odour	Unobjectionable	Unobjectionable	Unobjectionable		IS 3025 (Part 6): 1983, R: 2018	-
3	Taste	Agreeable	Agreeable	Agreeable		IS 3025 (Part 7): 1984	-
4	Turbidity, NTU	BDL	BDL	1	5	IS 3025 (Part 10): 1984; R: 2017	1.0 NTU
5	pH	7.90	7.47	6.5-8.5	No relaxation	IS 3025 (Part 11): 1983, R: 2017	2.0
6	Total Hardness	234.84	41.20	300	600	IS 3025 Part 21: 2009, R: 2019	4.0
7	Iron	BDL	BDL	0.3	No relaxation	IS 3025 (Part 53): 2003, R: 2019	0.06
8	Chlorides	55.40	4.70	250	1000	IS 3025 Part 32-1988, R: 2019	2.0
9	Residual Free Chlorine	0.03	0.03	0.2	1	APHA, 4500-Cl G. DPD Colorimetric	0.02
10	Dissolved Solids	369	262	500	2000	IS 3025 (Part 16): 1984, R: 2017	25.0
11	Calcium	39.62	8.25	75	200	IS 3025 Part 40 : 1991, R: 2019	1.60
12	Copper	BDL	BDL	0.05	1.5	APHA 3111B AAS Flame	0.03
13	Manganese	BDL	BDL	0.1	0.3	APHA 3111B AAS Flame	0.02
14	Sulphate	50.24	60.26	200	400	APHA, 4500-SO_4^{2-} E. Turbidimetric	2.0
15	Nitrate	1.65	1.54	45	No relaxation	APHA, 4500-NO_3^- B. UV-Spectrophotometric Screening	0.5
16	Fluoride	0.50	0.46	1	1.5	APHA, 4500 –F D. SPADNS	0.02
17	Selenium	BDL	BDL	0.01	No relaxation	APHA 3111B AAS Flame	0.002
18	Arsenic	BDL	BDL	0.01	0.05	APHA 3112B AAS VGA	0.002
19	Lead	BDL	BDL	0.01	No relaxation	APHA 3113B AAS GTA	0.005
20	Zinc	0.05	0.03	5	15	APHA 3111B AAS Flame	0.01
21	Hexavalent Chromium	BDL	BDL	0.05	0.05	APHA 3500B Colorimetric	0.01
22	Boron	BDL	BDL	0.5	1	APHA, 4500 B Curcumine	0.20
23	Coliforms (MPN)	Nil	Nil	Not Specified		APHA, 9221 B. Standard Total Coliform Fermentation	1.0
24	Phenolics	BDL	BDL	0.001	0.002	IS 3025 (Part 43): 2022	0.001
25	Alkalinity	227.40	32.90	200	600	IS 3025 Part 23: 1986, R: 2019	4.0
26	Cadmium	BDL	BDL	0.003	No relaxation	APHA 3113B AAS GTA	0.0005

*BDL- Below Detection Limit. *All values are expressed in mg/l unless specified*

DRINKING WATER QUALITY

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

Name of station & code: **9DW5- RO filter plant at JK Nagar**

9DW6- Pressure filter at Amrit Nagar near dispensary

Sl. No.	Parameters / Sample code / Sampling Date	Analytical Results 9DW5	Analytical Results 9DW6	Indian Standard Drinking Water (IS-10500 :2012) Acceptable Limit	Indian Standard Drinking Water (IS-10500 :2012) Permissible Limit	Method of detection	Detection Limit
1	Colour, Hazen	3	2	5.0	15.0	IS 3025 (Part 4): 2021	1.0
2	Odour	Unobjectionable	Unobjectionable	Unobjectionable		IS 3025 (Part 6): 1983, R: 2018	-
3	Taste	Agreeable	Agreeable	Agreeable		IS 3025 (Part 7): 1984	-
4	Turbidity, NTU	BDL	BDL	1	5	IS 3025 (Part 10): 1984; R: 2017	1.0 NTU
5	pH	7.46	7.88	6.5-8.5	No relaxation	IS 3025 (Part 11): 1983, R: 2017	2.0
6	Total Hardness	28.84	391.40	300	600	IS 3025 Part 21: 2009, R: 2019	4.0
7	Iron	BDL	BDL	0.3	No relaxation	IS 3025 (Part 53): 2003, R: 2019	0.06
8	Chlorides	1.91	22.97	250	1000	IS 3025 Part 32-1988, R: 2019	2.0
9	Residual Free Chlorine	0.03	0.02	0.2	1	APHA, 4500-Cl G. DPD Colorimetric	0.02
10	Dissolved Solids	176	511	500	2000	IS 3025 (Part 16): 1984, R: 2017	25.0
11	Calcium	11.56	28.07	75	200	IS 3025 Part 40 : 1991, R: 2019	1.60
12	Copper	BDL	BDL	0.05	1.5	APHA 3111B AAS Flame	0.03
13	Manganese	BDL	BDL	0.1	0.3	APHA 3111B AAS Flame	0.02
14	Sulphate	BDL	130.80	200	400	APHA, 4500-SO_4^{2-} E. Turbidimetric	2.0
15	Nitrate	4.70	2.38	45	No relaxation	APHA, 4500-NO_3^- B. UV-Spectrophotometric Screening	0.5
16	Fluoride	0.54	0.48	1	1.5	APHA, 4500 –F D. SPADNS	0.02
17	Selenium	BDL	BDL	0.01	No relaxation	APHA 3111B AAS Flame	0.002
18	Arsenic	BDL	BDL	0.01	0.05	APHA 3112B AAS VGA	0.002
19	Lead	BDL	BDL	0.01	No relaxation	APHA 3113B AAS GTA	0.005
20	Zinc	0.02	0.04	5	15	APHA 3111B AAS Flame	0.01
21	Hexavalent Chromium	BDL	BDL	0.05	0.05	APHA 3500B Colorimetric	0.01
22	Boron	BDL	BDL	0.5	1	APHA, 4500 B Curcumine	0.20
23	Coliforms (MPN)	Nil	Nil	Not Specified		APHA, 9221 B. Standard Total Coliform Fermentation	1.0
24	Phenolics	BDL	BDL	0.001	0.002	IS 3025 (Part 43): 2022	0.001
25	Alkalinity	48.06	400.50	200	600	IS 3025 Part 23: 1986, R: 2019	4.0
26	Cadmium	BDL	BDL	0.003	No relaxation	APHA 3113B AAS GTA	0.0005

* BDL- Below Detection Limit. *All values are expressed in mg/l unless specified.*

DRINKING WATER QUALITY

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

Name of station & code: **9DW7- Pressure filter plant at Mithapur**
9DW8- RO filter plant at Nimcha

Sl. No.	Parameters / Sample code / Sampling Date	Analytical Results 9DW7	Analytical Results 9DW8	Indian Standard Drinking Water (IS-10500 :2012) Acceptable Limit	Indian Standard Drinking Water (IS-10500 :2012) Permissible Limit	Method of detection	Detection Limit
	Sampling Date	7-Mar-24	7-Mar-24				
1	Colour, Hazen	2	2	5.0	15.0	IS 3025 (Part 4): 2021	1.0
2	Odour	Unobjectionable	Unobjectionable	Unobjectionable		IS 3025 (Part 6): 1983, R: 2018	-
3	Taste	Agreeable	Agreeable	Agreeable		IS 3025 (Part 7): 1984	-
4	Turbidity, NTU	BDL	BDL	1	5	IS 3025 (Part 10): 1984; R: 2017	1.0 NTU
5	pH	7.67	7.78	6.5-8.5	No relaxation	IS 3025 (Part 11): 1983, R: 2017	2.0
6	Total Hardness	416.12	53.56	300	600	IS 3025 Part 21: 2009, R: 2019	4.0
7	Iron	BDL	BDL	0.3	No relaxation	IS 3025 (Part 53): 2003, R: 2019	0.06
8	Chlorides	36.37	1.91	250	1000	IS 3025 Part 32-1988, R: 2019	2.0
9	Residual Free Chlorine	0.02	0.03	0.2	1	APHA, 4500-Cl G. DPD Colorimetric	0.02
10	Dissolved Solids	532	154	500	2000	IS 3025 (Part 16): 1984, R: 2017	25.0
11	Calcium	39.62	18.16	75	200	IS 3025 Part 40 : 1991, R: 2019	1.60
12	Copper	BDL	BDL	0.05	1.5	APHA 3111B AAS Flame	0.03
13	Manganese	BDL	BDL	0.1	0.3	APHA 3111B AAS Flame	0.02
14	Sulphate	109.24	BDL	200	400	APHA, 4500-SO_4^{2-} E. Turbidimetric	2.0
15	Nitrate	2.84	0.58	45	No relaxation	APHA, 4500-NO_3^- B. UV-Spectrophotometric Screening	0.5
16	Fluoride	0.56	0.42	1	1.5	APHA, 4500 –F D. SPADNS	0.02
17	Selenium	BDL	BDL	0.01	No relaxation	APHA 3111B AAS Flame	0.002
18	Arsenic	BDL	BDL	0.01	0.05	APHA 3112B AAS VGA	0.002
19	Lead	BDL	BDL	0.01	No relaxation	APHA 3113B AAS GTA	0.005
20	Zinc	0.05	0.03	5	15	APHA 3111B AAS Flame	0.01
21	Hexavalent Chromium	BDL	BDL	0.05	0.05	APHA 3500B Colorimetric	0.01
22	Boron	BDL	BDL	0.5	1	APHA, 4500 B Curcumine	0.20
23	Coliforms (MPN)	Nil	Nil	Not Specified		APHA, 9221 B. Standard Total Coliform Fermentation	1.0
24	Phenolics	BDL	BDL	0.001	0.002	IS 3025 (Part 43): 2022	0.001
25	Alkalinity	416.52	53.40	200	600	IS 3025 Part 23: 1986, R: 2019	4.0
26	Cadmium	BDL	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 MONITORING

4.1 Location of sampling sites and their rationale

i) **Ratibati Workshop (Engg.) (9N1)**: Noise level meter placed at Ratibati Workshop to assess the noise level at workplace.

ii) **Chapuikhas UG (9N2)**: Noise level meter placed in Chapuikhas pit - top to assess the noise level at workplace.

iii) **Amritnagar UG (9N3)**: Noise level meter placed in Amritnagar pit - top to assess the noise level at workplace.

iv) **Kuardih/ Tirat UG (9N4)**: Noise level meter placed in Kuardih / Tirat pit - top to assess the noise level at workplace.

v) **Nimcha UG (9N5)**: Noise level meter placed in Nimcha pit - top to assess the noise level at workplace.

vi) **Kalipahari UG (9N6)**: Noise level meter placed in Kalipahari pit - top to assess the noise level at workplace.

vii) **Kalipahari OCP (9N7)**: Noise level meter placed at Kalipahari OCP attendance Office to assess the noise level at workplace.

viii) **Amkola / Nimcha OCP (9N8)**: Noise level meter placed at Amkola / Nimcha OCP attendance Office to assess the noise level at workplace.

ix) **J K Nagar UG (9N9)**: Noise level meter placed in J K Nagar pit - top to assess the noise level at workplace.

x) **Jamehari UG (9N10)**: Noise level meter placed in Jamrhari pit - top to assess the noise level at workplace.

xi) **Pure Searsole UG (9N11)**: Noise level meter placed in Pure Searsole pit - top to assess the noise level at workplace.

xii) **Egra OCP Patch (9N12)**: Noise level meter placed at Egra OCP attendance Office to assess the noise level at workplace.

xiii) **Naryankuri OCP (9N13)**: Noise level meter placed at Naryankuri OCP attendance Office to assess the noise level at workplace.

4.2 Methodology of sampling and analysis: Noise level monitoring is being carried out on quarterly basis at designated monitoring stations. The noise level is observed at the monitoring stations during day and night time. Noise level measurements are taken in form of 'Leq' using Integrated Data Logging Sound Level Meter. Noise levels are measured in decibels, 'A' weighted average, i.e. dB(A).

4.3 Results & Interpretations: The observed values of noise level measurements are compared with Noise Pollution (Regulation and Control) Rules, 2000. The observed values of noise level are as shown in table below:

NOISE LEVEL REPORT

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

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
9N1	Ratibati Workshop (Engg.)	12-Mar-24	15.31 to 12.57	62.08	51.58	60.23
9N2	Chapuikhas UG Pit Top	13-Mar-24	16.22 to 13.48	74.36	63.72	72.50
9N3	Amritnagar UG Pit Top	14-Mar-24	16.05 to 12.17	60.23	44.74	58.09
9N4	Kuardih / Tirat UG Pit Top	11-Mar-24	14.50 to 12.37	62.39	51.28	60.62
9N5	Nimcha UG Pit Top	29-Jan-24	14.21 to 13.11	68.36	55.63	66.63
9N6	Kalipahari UG Pit Top	31-Jan-24	16.15 to 13.37	75.42	65.21	73.58
9N7	Kalipahari OCP	1-Feb-24	16.33 to 14.02	69.20	56.29	67.25
9N8	Amkola / Nimcha OCP	2-Feb-24	15.35 to 12.42	55.37	47.71	53.72
9N9	J K Nagar UG Pit Top	30-Jan-24	15.41 to 14.12	73.01	61.30	71.31
9N10	Jamehari UG Pit Top	16-Mar-24	16.20 to 12.37	60.40	44.74	58.26
9N11	Pure Searsole UG Pit Top	28-Feb-24	13.26 to 12.31	76.29	57.09	74.46
9N12	Egra OCP Patch	27-Feb-24	14.12 to 12.45	67.85	50.89	66.04
9N13	Naryankuri OCP	29-Feb-24	12.53 to 12.30	69.67	39.64	67.91

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