

**HALF YEARLY**  
**ENVIRONMENT CLEARANCE COMPLIANCE REPORT**  
**OF**  
**CLUSTER 12**  
**J-11015/76/2011-IA.II(M)**  
**FOR THE PERIOD OF**  
**April 2018 TO September 2018**



***Eastern Coalfields Limited***  
***(A subsidiary of Coal India Ltd.)***

**EASTERN COALFIELDS LIMITED**  
(A Subsidiary of Coal India Limited)

Office of the Agent  
Shyamsundarpur Colliery




P.O. Ukhra  
District : Paschim Burdwan  
West Bengal-713363  
CIN: U10101WB1975GOI030295  
Ph.: No. 0341-2665491/492/493/494  
Fax No. 0341-2665366

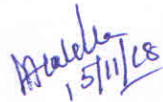
Ref. No.: *Sham/AG/2018/2819*

Dated: *16.11.2018*

## UNDERTAKING

Information provided in Half yearly EC compliance report for the period April'18 to September'18 in respect of the Shyamsundarpur Colliery of Cluster No. 12 is true to the best of my knowledge:

  
Agent *15/11/18*  
Shyamsundarpur Colliery

  
Manager  
Shyamsundarpur Colliery

**EASTERN COALFIELDS LIMITED**

**(A Subsidiary of Coal India Limited)**

Office of the Agent  
Tilaboni Colliery



P.O. Ukhra  
District : Paschim Burdwan  
West Bengal-713363  
CIN: U10101WB1975GOI030295  
Ph.: No. 0341-2665491/492/493/494  
Fax No. 0341-2665366

Ref. No.: *TC/092/18-19/2099*

Dated: *16-11-18*

## UNDERTAKING

Information provided in Half yearly EC compliance report for the period April'18 to September'18 in respect of the Tilaboni Colliery of Cluster No. 12 is true to the best of my knowledge:

*[Signature]*  
*16/11/18*

Agent  
Tilaboni Colliery

*[Signature]*  
*16/11/18*

Manager  
Tilaboni Colliery

**EASTERN COALFIELDS LIMITED**  
**(A Subsidiary of Coal India Limited)**  
Office of the General Manager  
Bankola Area, Distt. Burdwan  
West Bengal – 713 363




Environment Department  
CIN – U10101WB1975GOI030295  
Ph.: No. 0341-2665491/492/493/494  
Fax No. 0341-2665366  
Email: gmbankola@gmail.com  
Website- www.easterncoal.gov.in

**Ref. No.:**

**Dated:**

### UNDERTAKING

Information provided in half yearly Environmental Compliance (EC) report for the period April'18- Sep'18 in respect of Nakrakonda Colliery of Cluster no:12 is true to best of my knowledge.

  
Agent  
Nakrakonda Colliery  
Bankola Area, E.C.L.

Manager  
Nakrakonda Colliery  
Bankola Area, E.C.L.

**EASTERN COALFIELDS LIMITED**  
**(A Subsidiary of Coal India Limited)**

Office of the Agent  
Kumardihi 'A' Colliery



P.O. Ukhra  
District : Paschim Burdwan  
West Bengal-713363  
CIN: U10101WB1975GOI030295  
Ph.: No. 0341-2665491/492/493/494  
Fax No. 0341-2665366


Ref. No.: KA/Agent/2018/1213

Dated: 16/11/2018

## UNDERTAKING

Information provided in Half yearly EC compliance report for the period April'18 to September'18 in respect of the Kumardihi 'A' Colliery of Cluster No. 12 is true to the best of my knowledge:

  
16/11/18  
Agent  
Kumardihi 'A' Colliery

  
16/11/18  
Manager  
Kumardihi 'A' Colliery

**EASTERN COALFIELDS LIMITED**  
(A Subsidiary of Coal India Limited)

Office of the Agent  
Bankola Colliery



P.O. Ukhra  
District : Paschim Burdwan  
West Bengal-713363  
CIN: U10101WB1975GOI030295  
Ph.: No. 0341-2665491/492/493/494  
Fax No. 0341-2665366

Ref. No.: BC/A/LT/1151

Dated: 16.11.2018

## UNDERTAKING

Information provided in Half yearly EC compliance report for the period April'18 to September'18 in respect of the Bankola Colliery of Cluster No. 12 is true to the best of my knowledge:

  
Agent  
Bankola Colliery  
15/11/18

  
15/11/18  
Manager  
Bankola Colliery



## Eastern Coalfields Limited

(A subsidiary of Coal India Limited)


### Office of the Agent, Dalurband OC Phase-III

P.O. – Pandaveswar , Dist.- Paschim Bardhaman, PIN-713346

### UNDERTAKING

Information provided in Half yearly EC compliance report for the period of April 2018 to September 2018 in respect of Dalurband OC Phase-III of Cluster no.12 is true to the best of my knowledge.

SL NO.	Name of the mine	Name of the manager	Signature of the manager
1	Dalurband OC Phase-III	SANJAY KUMAR	

  
Dy. GM(Mining)/Agent  
Dalurband OC Phase-III  
(SIGNATURE WITH SEAL)

Agent  
DALURBAND O.C. PANDAVESWAR



## Eastern Coalfields Limited

(A subsidiary of Coal India Limited)

### Office of the Agent, Khottadih OCP

P.O. -- Khottadih , Dist.- Paschim Bardhaman, PIN-713378

### UNDERTAKING

Information provided in Half yearly EC compliance report for the period of April 2018 to September 2018 in respect of Khottadih OCP of Cluster no. 12 is true to the best of my knowledge.

SL NO.	Name of the mine	Name of the Manager	Signature of the Manager
1.	Khottadih OCP	P. Chatterji	

2/11/18  
Dy. GM(Mining)/Agent  
Khottadih OCP  
(SIGNATURE WITH SEAL)

Dy. GM(MINING)  
Khottadih OCP



## Eastern Coalfields Limited

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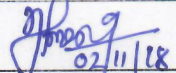
### Office of the Agent, Khottadih UGP


Pandaveswar Area


P.O. – Khottadih , Dist.- Paschim Bardhaman, PIN-713378

### UNDERTAKING

Information provided in Half yearly EC compliance report for the period of April 2018 to September 2018 in respect of Khottadih UGP of Cluster no.12 is true to the best of my knowledge.

SL NO.	Name of the mine	Name of the Manager	Signature of the Manager
1.	Khottadih UGP	NANDKISHORE MEENA	 02/11/18

  
Dy. GM(Mining)/Agent  
Khottadih UGP  
(SIGNATURE WITH SEAL)

  
Dy. G.M.(M)/AGENT  
KHOTTADIH COALFIELD (UGP)  
Pandaveswar Area



## Eastern Coalfields Limited

(A subsidiary of Coal India Limited)

### Office of the Agent, Madhaipur OC

Pandaveswar Area

P.O. – Nutandanga , Dist.- Paschim Bardhaman, PIN-713381

### UNDERTAKING

Information provided in Half yearly EC compliance report for the period of April 2018 to September 2018 in respect of Madhaipur OC Patch of Cluster no.12 is true to the best of my knowledge.

SL NO.	Name of the Mine	Name of the Manager	Signature of the Manager
1	Madhaipur OC Patch	SAYED ISTAK HOSSAIN	

*Ae*  
*29/10/18*  
Dy. GM (Mining) Agent  
Madhaipur OC Patch  
(SIGNATURE WITH SEAL)



**Eastern Coalfields Limited**  
(A subsidiary of Coal India Limited)  
**Office of the Agent, Madhaipur Colliery**  
**Pandaveswar Area**

P.O. – Nutandanga , Dist.- Paschim Bardhaman, PIN-713381

UNDERTAKING

Information provided in Half yearly EC compliance report for the period of April 2018 to September 2018 in respect of Madhaipur UG of Cluster no.12 is true to the best of my knowledge.

SL NO.	Name of the Mine	Name of the Manager	Signature of the Manager
1	Madhaipur UG	SAYED ISTAK HOSSAIN	

Dy. GM (Mining) Agent  
Madhaipur UG  
(SIGNATURE WITH SEAL)



**Eastern Coalfields Limited**  
(A Subsidiary of Coal India Limited)  
Office of the Agent  
Jhanjra Project Colliery  
P.O.: Laudoha (B.O.), PIN: 713385  
Dist.: Burdwan, W.B.  
Ph: 0341- 2670618, Fax: 0341-2672352

## UNDERTAKING

Information provided in Half yearly EC compliance report for the period April'18 to September'18 in respect of Jhanjra UGP of Cluster no. 12 is true to the best of my knowledge:

S. No.	Name of the mine	Name of the Manager	Signature of the Manager
1.	Jhanjra UG	P. K. Mondal	

G.M. (M)/Agent  
Jhanjra Project Colliery  
  
Agent  
Jhanjra Project Colliery  
Eastern Coalfields Limited



Phone: (0341) 2667481(O)

Fax: (0341) 2667274(O)

**EASTERN COALFIELDS LIMITED**

(A Subsidiary of Coal India Limited)

**O/o The Agent, Sonapur Bazari Project**


PO: Sonapur-713378, Dist.: Paschim Bardhaman

Ref No - E.C.L.SBP/Agent/G.M(OP)/18/1877

Dt. 26.10.18

## UNDERTAKING

Information provided in half yearly EC compliance report for the period April'18 to September'18 in respect of the following mines of Cluster no. 12 is true to the best of my knowledge:

SL. NO.	MINES	NAME OF THE AGENT	SIGNATURE OF THE AGENT
1	Sonapur Bazari OCP	Shri Amitanjan Nandi	 25/10/18

  
Agent/ Project Proponent  
(Sonapur Bazari Project)

(P)

<b>SPECIFIC CONDITIONS</b>				
Condition (I)	Grant of EC is only for the non-forest area plus the forest area within the mining lease for which FC is available. No mining activities will be allowed in forest area for which FC is not available as per the following table:			
	#	Name of Mine	Forest Clearance Not available (Ha.)	
	1	JhanjraUGP (Expansion)	99 Ha	
	2	Tilaboni UGP (Expansion)	64.8 Ha	
	3	Rangamati A UGP	91.0 Ha	
	4	Sonepur-Bazari OCP	32.65 Ha	
	<b>Total</b>	<b>287.45 Ha</b>		
Compliance	Forest area does not lie under the lease areas of mines under Pandaveswar Area.			
Condition (II)	The maximum production from the mine at any given time shall not exceed the limit as prescribed in the EC.			
Compliance	Maximum production from the mines at any given time did not exceed the limit as prescribed in the EC.			
	<b>Sl No.</b>	<b>Name of the Mine</b>	<b>Peak EC Capacity (MTY)</b>	<b>Production (April 2018 to September 2018) MT</b>
	1	Pandaveswar UG & OC	2.45	0.236042
	2	Dalurband OC & UG		
	3	Manderboni South Samla Amalgamated UG	0.17	0.042639
	4	Madhaipur UG	0.21	0.032932
	5	Madhaipur OC	0.57	0.079040
	6	Nutandanga UG	0.12	Nil
	7	Kendra UG	0.10	Nil
	8	Samla UG & OC	0.12	Nil
	9	Kottadih UG & OC	3.10	0.634196
	10	Manderboni Extension/ Rangamati A UGP	0.98	Nil
	11	Madhaipur Extension / Rangamati B UGP	0.48	Nil
	12	Jhanjra	5.00	1.361
	13	Sonepur Bazari OCP	12	9.72 (2017-18)
Condition (III)	The validity of the EC is for the life of the mine or as specified in the EIA Notification, 2006, whichever is earlier.			
Compliance	Agreed.			
Condition	All safety measures shall be taken as per CMR, 1957 & related Circulars.			

(IV)	
Compliance	All safety measures are being taken as per CMR- 2017 & related Circulars.
Condition (V)	The production shall be within the same Mining Lease area.
Compliance	The production is within the same Mining Lease area.
Condition (VI)	Coal shall be transported by rail only. Coal transportation from mine to siding should be by conveyor belt. The loading to siding by pay loaders into railway wagons.
Compliance	<p>Jhanjra: Coal is transported by trucks covered by tarpaulin over black topped roads from mine to railway siding located at a distance of 6-9 kms from mine to POCP Railway Siding at Jhanjra. Construction of a dedicated railway siding at Jhanjra is under processing.</p> <p>Pandaveswar: Coal is being transported by rail only. Coal is transported to railway sidings from the mines outlet by dedicated black-topped road especially constructed for the purpose. Coal transportation from mine to siding through belt conveyors is not feasible because, the capacity of the mines is less and the belt has to cross densely populated area. Coal from Khottadih OCP, Khottadih UGP, Dalurband OC Phase-III and Pandaveswar UG is transported by trucks covered with tarpaulin over black topped roads to Selected Samla Railway Siding, located at a distance of 1.5 to 4 kms from mines. Coal produced from South Samla UG mine is transported by rail from nearby present POCP Railway Siding. Coal produced from Madhaipur UG and Madhaipur OC is transported by tarpaulin covered trucks to POCP Railway Siding which is present at a distance of 9.0 Km from Madhaipur UG and Madhaipur OC. Coal produced from Manderboni UG is transported by tarpaulin covered to POCP Railway Siding situated at a distance of 5 km from the mine.</p> <p>Sonepur Bazari: Coal is transported by rail through Sitalpur and Dalurband Railway sidings. Pay loaders are used for loading into railway wagons. New Railway Siding in our premises is under construction.</p>
Condition (VII)	Independent network of railway siding 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.
Compliance	<p>Bankola: There are currently active 4 railways sidings (Bankola, Purushottampur, Selected Samla and Dalurband) serving to the mines in Cluster 12.</p> <p>Transportation of coal from mine to railway siding is being done by tarpaulin covered trucks.</p> <p>At Sonepur Bazari A new railway siding is under construction at Sonepur Bazari project. Necessary steps in this direction are being taken to complete Railway Sidings at the earliest. Transportation of coal is being done by Trucks covered manually with Tarpaulin cover because mechanically covered trucks are not available in India.</p>
Condition (VIII)	Three tier green belt shall be raised around the railway sidings and along the road sides to prevent dust and noise pollution.
Compliance	<p>Pandaveswar: Plantation already exist around Selected Samla and POCP Railway Sidings.</p> <p>Jhanjra: The siding is bound by a thick brick wall of 10 feet height approx. Dust suppression system is installed in POCP Railway siding. Plantation already exists along the POCP Railway Siding at Jhanjra.</p> <p>Sonepur Bazari: Three tier green belts will be raised around Railway siding after the completion</p>

	of the same. Continuous avenue plantation is being done along roadside.9 Ha of plantation has been done along NH 60 FY 2017-18 and 10 Ha roadside plantation has been done FY 2015-16.
Condition (IX)	Stowing and depillaring shall be as per the recommendations of the DGMS.
Compliance	Stowing and depillaring are being done in all the mines as per the recommendations of the DGMS.
Condition (X)	The proponent must comply with the 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.
Compliance	Job is being implemented by ADDA.
Condition (XI)	Trees with deep rooted system should be planted so as to prevent soil erosion.
Compliance	Deep rooted tree species planted are as follows- Neem,Seemul,Karanch,Shisham,Arjun,Babool&Sirish
Condition (XII)	Proponent should plant additional 10 Ha/year over the next 10 years at various locations in the cluster.
Compliance	Pandaveswar: 40000 saplings were planted during 2017-18 over 16 Ha land of Khottadih OCP under Pandaveswar Area. During 2018-19, 25000 and 12500 nos of saplings were planted over 10 Ha and 5 Ha lands of Pandaveswar UG and Dalurband OC Phase-III respectively. Jhanjra: Plantation over 10 Ha. Land has been completed for the year 2018-19 at Jhanjra Area. Total Plantation done till date 224.50 Ha. Sonepur Bazari: Additional 10 Ha road side plantation has been carried out in the FY 2015-16.And 9.0 Hec. Plantation has been done during the FY 2017-18.
Condition (XIII)	River/Nallah shall be desilted and restored back to functional state.
Compliance	Garland drains and Catch drains and siltation sump of appropriate size has been constructed to arrest silt and sediment flows from soil, OB dump. The water so collected in the main sump within the mine is utilized for dust suppression in mine Area, roads and green belt development. Garland drains and catch drains are regularly desilted and maintained properly.
Condition (XIV)	Wild life conservation plan be prepared and submitted to the MoEF& CC with the approval of the State Govt.
Compliance	Wildlife Conservation plan of entire Raniganj Coalfield has been prepared and sent to Addl. PCCF (Wildlife), Govt. of West Bengal for approval. No forest land falls under the mining lease areas of mines under Pandaveswar Area. Sonepur Bazari: Noted and agreed.
Condition (XV)	Proponent shall use high resolution image of all clusters for evaluating land use, plantation etc.
Compliance	Complied.
Condition (XVI)	Separate drainage pattern be provided.
Compliance	At Pandaveswar Area garland drain have been built over the mine boundaries of Khottadih OCP and Dalurband OC Phase-III for proper drainage.
Condition	Sand stowing must be done as recommended by CMPDI.

(XVII)	
Compliance	Sand stowing is being done as recommended by CMPDIL.
Condition (XVIII)	Action plan for prevention and mitigation of subsidence be prepared and implemented.
Compliance	<p>Action plan for prevention and mitigation of subsidence have been prepared and it is being implemented.</p> <p>At Bankola the Major Roads, Railway line and nallah flowing through the cluster. Coal pillars are left intact vertically below and within the angle of draw of villages and other surface features. Depillaring is done with sand stowing in Bankola UG and Shyamsundarpur UG. The mining method adopted in consultation with DGMS with their approval.</p>
Condition (XIX)	The OC patches to be operated will be completely filled-up after exhaustion of reserves and reclaimed with plantation.
Compliance	<p>Pandaveswar: At Khottadih OCP and Dalurband OC Phase-III mines under Pandaveswar Area, OB is being concurrently backfilled into the mined out areas. At Khottadih OCP, 219.50 Ha area land has been excavated till September 2018 out of which 170.64 Ha area has been backfilled. Plantation over 16 Ha area of Khottadih OCP has been done during the year 2017-18.</p> <p>At Dalurband OC Phase-III 36.92 Ha land area has been excavated till September 2018 out of which backfilling has been carried out in 23.59 Ha area. Total plantation till date on backfilled areas and external dump is back on track as per EMP calendar plan. 71 Ha plantation has been done so far including 10Ha of plantation at Pandaveswar UG and 5 Ha plantation in Dalurband OC Phase-III in FY 2018-19.</p> <p>Jhanjra: This condition is not applicable.</p> <p>Bankola: Not applicable – for Kumardihi B UG, Nakrakonda UG, Kumardihi A UG, Tilaboni UG, Shyamsundarpur UG, Bankola UG.</p> <p>Kumardihi B OCP is completely filled up, Query no.2 at Kumardihi-A has been converted to a park, Dihi Park. Dihi Park is proposed to be developed in to an ecological park. Nakrakonda B OCP and Nakrakonda B OCP (Extension) are partially filled so as to keep way for transport road for the upcoming Nakrakonda-Kumardihi 'B' mega OCP.</p>
Condition (XX)	The OB shall be completely re-handled at the end of the mining.
Compliance	Noted and agreed.
Condition (XXI)	There shall be no residual OB dump after the mining.
Compliance	Noted and agreed.
Condition (XXII)	After completion of mining activities, the subsided areas shall be graded and planted upon.
Compliance	Noted and agreed
Condition (XXIII)	Action plan for prevention and mitigation of subsidence be prepared and implemented.
Compliance	Action plan for prevention and mitigation of subsidence has been prepared and implemented as per DGMS guidelines.
Condition	Rehabilitation of the households falling within this cluster to be carried out in two phases within

(XXIV)	10 years.								
Compliance	<p>Rehabilitation to be done at Khottadih OCP under Pandaveswar is as follows:-</p> <table border="1"> <thead> <tr> <th>Sl No.</th> <th>Name of the village</th> <th>No. of PAFS (approx.)</th> <th>Expected year of shifting of the village</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Bilpahari</td> <td>771</td> <td>2018-19</td> </tr> </tbody> </table> <p>Sonepur Bazari: Phase-wise rehabilitation of the households is being carried out. Total 1221 PAFs have been shifted till now.</p>	Sl No.	Name of the village	No. of PAFS (approx.)	Expected year of shifting of the village	1	Bilpahari	771	2018-19
Sl No.	Name of the village	No. of PAFS (approx.)	Expected year of shifting of the village						
1	Bilpahari	771	2018-19						
Condition (XXV)	The land excavated after mining must be brought back to original condition for agricultural/plantation purpose.								
Compliance	Agreed. Shall be carried out as per Mine Closure Plan.								
Condition (XXVI)	Water discharged from the mine should be as good as surface drinking water.								
Compliance	<p>Pandaveswar: Mine discharge water is being treated in pressure filter along with chlorination at Dalurband and Khottadih villages. The water is then used for domestic uses.</p> <p>The discharged mine waters is treated through pressure filters and is fortnightly tested for parameters namely pH, TSS, TDS, Oil &amp; Grease and COD and conforms to the MoEF Schedule-VI Standards.</p> <p>Jhanjra: The discharged mine waters is treated through pressure filters and is fortnightly tested for parameters namely pH, TSS, TDS, Oil &amp; Grease and COD and conforms to the MoEF Schedule-VI Standards.</p> <p>At Jhanjra, a part of mine water is also supplied for domestic purposes after treatment through water treatment plant and 5000 LPH Capacity RO Plant.</p> <p>Bankola: Mine discharge water is being treated in</p> <ol style="list-style-type: none"> <li>i) Pressure filter – 1 unit each at Kumardihi ‘B’, Bankola, Shankarpur, Kumardihi ‘A’, and Tilaboni colliery. 2 units at SSP colliery.</li> <li>ii) Slow Sand Filter – 1 unit each at Moira Colliery and Area Complex. 2 units each at Khandra colliery and SSP colliery.</li> <li>iii) Rapid Gravity Filter – 1 unit at Bankola Colliery.</li> <li>iv) Reverse Osmosis Plant – 1 unit at Bankola Colliery.</li> </ol> <p>The water is fortnightly tested for parameters namely pH, TSS, TDS, Oil &amp; Grease and COD and conforms to the MoEF Schedule-VI Standards. The water is then used for domestic and mining uses.</p>								
Condition (XXVII)	Final mine void 453 Ha and depth will not be more than 20-30 m. The void area will be converted into water body. The mine void should be used for pisciculture purpose.								
Compliance	Noted and agreed. Not applicable for underground mine.								
Condition (XXVIII)	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 carried out by the Safety committee headed by Safety Officer on the surface over and around the working area for any sign of subsidence. It is pertinent to point out that underground mining is being carried out in conjunction with hydraulic sand stowing as per DGMS stipulations. Crack filling is also carried out wherever required.								
Condition (XXIX)	If subsidence is found exceeding the permitted limits, then the landowners shall be adequately compensated with mutual agreement of the landowners.								
Compliance	Surface land is already acquired under CBA Act and Compensation as per Company's R&R Policy is given to the land owners prior to subsidence.								
Condition (XXX)	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	<p>Pandaveswar: The coal transportation roads from colliery to Railway Siding are black topped and Water Sprinkling is being done on the approach road with Mobile Water tankers. Regular sprinkling of water is carried out over the surface through mobile sprinklers to check fugitive emissions at Railway Siding, Transfer Points, Haulage Roads etc.</p> <p>Jhanjra: Fixed water sprinklers have been installed at POCP Railway Siding, Jhanjra UGP. Regular sprinkling of water is also carried out over the surface through fixed and mobile sprinklers to check fugitive emissions at Railway Siding, Transfer Points, Transport Roads etc.</p> <p>Sonepur Bazari: Water sprinkling system has been provided to check fugitive emissions. Water sprinklers with mist formation have been provided at input hopper, transfer point and discharge chutes. Mobile sprinkler with mist formation have also been provided on haulage road Major approach roads are black topped. Proper maintenance of roads is done regularly. Water sprinkling on the roads is done with the help of mobile water sprinklers.</p> <p>Bankola: Regular sprinkling of water is carried out over the surface through fixed and mobile sprinklers to check fugitive emissions at Railway Siding, Fixed water sprinklers have been installed at Bankola I and Bankola II Railway Sidings under Bankola Area.</p>								
Condition (XXXI)	The CSR cost should be Rs 5 per Tonne of Coal produced which should be adjusted as per the annual inflation. Rs 1358 Lakh/annum shall be earmarked for holding medical camps from CSR fund.								
Compliance	<p>As per the revised CSR policy of CIL 2% of the average profit of preceding 3 years is the norms for CSR expenditure in the entire ECL command areas.</p> <p>During 2016-17, construction of 1.38 Km concrete road was done inside Khottadih Village and the cost of this construction was Rs. 5748372.00.</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Name of the work</th> <th>Expenditure (In Rs.)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">2017-18</td> <td>Solar Street light at Laskarbandh village</td> <td>2.72 Lakh</td> </tr> <tr> <td>Medical Activities under CSR</td> <td>0.70 Lakh</td> </tr> </tbody> </table> <p>Sonepur Bazari: CSR project is being implemented.</p> <p>The CSR activities at Sonepur Bazari OCP are done under following heads:</p> <ul style="list-style-type: none"> <li>• Heath Care</li> <li>• Infrastructure</li> <li>• Education Development</li> <li>• Water Supply</li> </ul>	Year	Name of the work	Expenditure (In Rs.)	2017-18	Solar Street light at Laskarbandh village	2.72 Lakh	Medical Activities under CSR	0.70 Lakh
Year	Name of the work	Expenditure (In Rs.)							
2017-18	Solar Street light at Laskarbandh village	2.72 Lakh							
	Medical Activities under CSR	0.70 Lakh							

	Following expenditure were made in CSR from March 2018- September 2018 Construction of library cum community hall at Khas Kenda Village- Rs. 660887																																																																																	
Condition (XXXII)	The mining in the existing mines should be phased out after expiry of the current mining lease and after reclamation of mined over area. The operating mines may be analyzed and monitored for compliance of conditions, bearing with movement of wildlife and until such time they are closed/phased out.																																																																																	
Compliance	Noted and agreed. Shall be complied as per Mine Closure Plan (MCP).																																																																																	
Condition (XXXIII)	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. Protection against dust is provided as per the Regulation 143 of CMR, 2017																																																																																	
Condition (XXXIV)	Dust mask to be provided to everyone working in the mining area.																																																																																	
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Condition (XXXV)	The supervisory staff should be held personally responsible for ensuring compulsory regarding wearing of dust mask in the core area.																																																																																	
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Condition (XXXVI)	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 mine area.																																																																																	
Compliance	20 % of the work force is covered under periodic medical examination each year including lung diseases the cost of which is borne by the company. Details of PME done in Pandaveswar Area from April 2018 to September 2018 is as follows:																																																																																	
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	<p>including lung diseases the cost of which is borne by the company.  Sonepur Bazari: Complied with.  PME of employees is being done regularly.Total 235 PME of company employees has been done in the FY 2017-18.  Bankola: 20% of the work force is covered under periodic medical examination each year including lung diseases the cost of which is borne by the company. Periodic Medical Examination (PME) of 766 employees has been done within Apr'18-Sep'18 in FY 2018-19.</p>																																																					
Condition (XXXVII)	The mining area should be surrounded by green belt having thick closed canopy of the tree cover.																																																					
Compliance	<p>Jhanjra: A total of 224.50 Ha. of plantation has been carried out over the leasehold of Jhanjra till 2018-19. Plantation over total area of 10 Ha. has been done in 2018-19 at Jhanjra.</p> <table border="1"> <thead> <tr> <th>Yearly</th> <th>Year</th> <th>Name of Species</th> <th>Location</th> <th>Area in Ha</th> <th>No. of saplings</th> <th>Density</th> <th>Survival rate</th> </tr> </thead> <tbody> <tr> <td></td> <td>2014-15</td> <td>Chatim</td> <td rowspan="4">Khottadih OCP</td> <td>10</td> <td>25000</td> <td>2500/ha</td> <td>85%</td> </tr> <tr> <td></td> <td>2015-16</td> <td>Krishnachura</td> <td>20</td> <td>50000</td> <td>2500/ha</td> <td>75%</td> </tr> <tr> <td></td> <td>2016-17</td> <td>Radhachura</td> <td>10</td> <td>25000</td> <td>2500/ha</td> <td>75%</td> </tr> <tr> <td></td> <td>2017-18</td> <td>Sonajhuri</td> <td>16</td> <td>40000</td> <td>2500/ha</td> <td>75%</td> </tr> <tr> <td></td> <td>2018-19</td> <td>Karanch</td> <td>Pandaveswar UG near SS Siding</td> <td>10</td> <td>25000</td> <td>2500/ha</td> <td>95%</td> </tr> <tr> <td></td> <td></td> <td>Amla , Neem, Shimul, Shisham, Sirish, Arjun, Babool</td> <td>OB Dump of Dalurband OC Phase-III</td> <td>5</td> <td>12500</td> <td>2500/ha</td> <td>80%</td> </tr> </tbody> </table> <p>plantation will be carried out over the available land in future as well.</p> <p>Sonepur Bazari: Noted and agreed.  Plantation in 7.5 meter strip all along the boundary of the lease boundary within the mine lease area will be done. Rs. 1,23,75,000.00 have been deposited in Ad-hoc CAMPA A/c for this purpose.  Bankola: UG mines cause very low pollution load which is concentrated in mine working faces and transfer points. The collieries are surrounded by densely populated village and private agricultural lands. Natural vegetation exist around mines. Plantation is being carried out wherever land is available. However, at Bankola Area, 12 ha plantation along with 5.5 km roadside plantation is created on 2016-17.</p>	Yearly	Year	Name of Species	Location	Area in Ha	No. of saplings	Density	Survival rate		2014-15	Chatim	Khottadih OCP	10	25000	2500/ha	85%		2015-16	Krishnachura	20	50000	2500/ha	75%		2016-17	Radhachura	10	25000	2500/ha	75%		2017-18	Sonajhuri	16	40000	2500/ha	75%		2018-19	Karanch	Pandaveswar UG near SS Siding	10	25000	2500/ha	95%			Amla , Neem, Shimul, Shisham, Sirish, Arjun, Babool	OB Dump of Dalurband OC Phase-III	5	12500	2500/ha	80%
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Condition (XXXVIII)	Besides carrying out regular periodic health check-up of their workers, 10% of the workers identified from workforce engaged in 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	Noted and agreed. PME is being carried out for all employees once in every 5 years (@ 20% employees/year). Special cases diagnosed during such PME 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 (XXXIX)	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	Pandaveswar: Embankment made against Ajay River, which flows nearby the Pandaveswar UG, is of suitable dimension and critical patches have been strengthened by stone pitching on the river front side. Jhanjra: This condition is not applicable as no river exists within the leasehold of Jhanjra. Bankola: Not applicable as there is no river within the mine lease area of the collieries under Bankola Area.
Condition (XL)	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	Noted and agreed.
Condition (XLI)	Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt 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 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	Pandaveswar: At Khottadih OCP garland drains have been provided along the toe of external dump for collecting and discharging rain water from soil & OB dumps. Catch drains are being maintained properly & cleaning is being done regularly according to the monsoon preparation plan. Sonepur Bazari : Garland drain has been provided along the toe of external dump for collecting and discharging rain water from soil & OB dumps. Drain is being maintained properly & cleaning is being done regularly.
Condition (XLII)	Garland drains (size, gradient and length) around the safety areas such as mine shaft and low lying areas 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 sites. Sump capacity shall also provide adequate retention period to allow proper settling of silt material.
Compliance	Pandaveswar: Total length of garland drain at Khottadih OCP is about 2 km. Width of garland drains are usually kept at 0.90 m while depth of the drain varies from 0.6 m to 1.5 m depending on the catchment and gradient of the drain. Garland drain wherever required are maintained and required sump capacity is also maintained in the mine. Sonepur Bazari: Garland drain has been constructed keeping sufficient safety margin over and above the peak sudden rainfall with an average width of 3m & average depth of 1.5 to 2.5 m. Bankola: Garland drain is present at Sarpi sub-station, Sarpi pumping station, ESP pit,

	<p>transformer room, incline mouth and CHP. Total length of garland length is about 5 km. Width of garland drains are usually kept at 0.90 m while depth of the drain varies from 0.6 m to 1.5 m depending on the catchment and gradient of the drain.</p> <p>Garland drain wherever required are maintained and required sump capacity is also maintained in the mine. Catch drains are being maintained properly &amp; cleaning is being done regularly according to the monsoon preparation plan.</p>
Condition (XLIII)	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.
Compliance	To check run-off and siltation proper benching in dumps is being done while maintaining slope stability as per norms to check run-off from OB dumps. Also regular plantation on OB dumps is carried out to stabilize the dumps and check run-off.
Condition (XLIV)	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	<p>Pandaveswar: The CHP at Khottadih Colliery under Pandaveswar Area is equipped with water sprinkler to arrest fugitive emissions. There is no crusher at the CHP of Khottadih Colliery (UG).</p> <p>Sonepur Bazari: Water sprinklers with mist formation have been installed at input hopper, transfer point and discharge Chutes in the CHP to check fugitive emissions.</p> <p>Bankola: Complied. The CHPs of Shyamsundarpur Colliery under Bankola Area is equipped with water sprinkler to arrest fugitive emissions. Sprinkling on CHP approach road is being done through mobile water sprinklers.</p>
Condition (XLV)	Mine discharge water outside the mining lease shall be monitored, particularly for TDS and treated to conform to prescribed levels before discharge into the natural environment.
Compliance	Mine water discharge quality complies with prescribed standards. Regular monitoring is done by CMPDIL. The quality of mine water is within permissible limits.
Condition (XLVI)	Drills shall be wet operated.
Compliance	<p>Sonepur Bazari: Wet drilling is being carried out.</p> <p>Total population of drills with such arrangement is given below :</p> <p>Model 70E – 9 (nine) nos,</p> <p>Model 650D – 4 (four) nos</p> <p>Dust guards are also provided in the drills.</p> <p>Pandaveswar: Water spraying is done for dust suppression before drilling in underground and OC mines.</p>
Condition (XLVII)	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	<p>Pandaveswar: As per requirement, regular repairing and tarring of roads are being taken on priority basis. Both sides of approach roadway are well vegetated naturally.</p> <p>Sonepur Bazari: Regular repairing &amp; maintenance of roads is being done. Tree plantation along the approach roads is being carried out. 9 Ha of road side avenue plantation was done FY 2017-18.</p> <p>Bankola: As per requirement, Regular repairing and tarring of roads are being taken on priority</p>

basis. Both sides of approach roadway are well vegetated naturally. Plantation Done:					
Year	Name of Species	Area in Ha	No. of saplings	Density	Survival rate
2016-17	Kamini, Rangan, Krishna chura, Jaba, Karabi, Bougen velia, Pathodia, Jamun, Radhachura etc.	5.5 Km (Roadside)	-	-	80%
2016-17	Chatim, Krishna chura, Radhachura, Karanch, Aamla etc.	12 Ha	22500	2500/Ha	90%
Condition (XLVIII)	Controlled blasting shall be practiced with use of delay detonators and only during daytime. The mitigate measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.				
Compliance	Controlled blasting is being done as per DGMS permission and conditions. Blasting pattern and vibration studies is being carried out by CMPDI on regular basis and is strictly followed in the project.				
Condition (XLIX)	A Progressive afforestation plan shall be implemented covering an area of 6215.5 ha at the end of mining, which includes reclaimed external OB dump area (404.74 Ha), internal dump area (1856.54 ha), and Green belt land (364.57 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-tier avenue plantation along the main approach roads to the mine.				
Compliance	Pandaveswar: The mine is in Cluster 12 and it is proposed to plant 10 Ha per year within the cluster at the density of 2500 plants/Ha. During 2018-19, plantation was done over 10 Ha and 5 Ha area of Pandaveswar UG and Dalurband OC Phase-III respectively. Density of the trees is maintained at 2500 plants per Ha.				

	<p>Jhanjra: Plantation over total area of 10 Ha. has been done in 2018-19 at Jhanjra. Total plantation in 224.50 Ha. has been done till now through Forest Department, Durgapur &amp; West Bengal Wasteland Development Corporation Limited and Panchayat. Density of the trees is maintained at 2500 plants per Ha.</p> <p>Sonepur Bazari : Total plantation in 243.20 Ha has been done till now. Details of which are given in the following table:</p> <table border="1"> <thead> <tr> <th>S No.</th> <th>Location</th> <th>Plantation</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>External OB Dumps</td> <td>51.0 Hec.</td> </tr> <tr> <td>2</td> <td>Internal OB Dumps</td> <td>107.0 Hec</td> </tr> <tr> <td>3</td> <td>Plain Land (including CHP, along approach roads etc.)</td> <td>85.2 Hec.</td> </tr> <tr> <td colspan="2"><b>Total</b></td> <td><b>243.20 Hec</b></td> </tr> </tbody> </table> <p>Plantation in 25 Ha is done on internal OB dumps FY 2018-19 and 34 Ha land on OB dumps along with 9.0 Ha roadside plantation done in FY 2017-18.</p>	S No.	Location	Plantation	1	External OB Dumps	51.0 Hec.	2	Internal OB Dumps	107.0 Hec	3	Plain Land (including CHP, along approach roads etc.)	85.2 Hec.	<b>Total</b>		<b>243.20 Hec</b>
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<b>Total</b>		<b>243.20 Hec</b>														
Condition (L)	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 (LI)	Compensatory Ecological & Restoration of waste land, other degraded land and OB dumps in lieu of breaking open the land be carried out.															
Compliance	Will be carried out as per Mine Closure Plan. Compensatory Ecological & Restoration of waste land is being carried out by spreading top soil & plantation over it.															
Condition (LII)	No groundwater shall be used for mining operations.															
Compliance	Being complied with. No groundwater is used for mining operations.															
Condition (LIII)	Quarry area is 2325 Ha. Backfilled quarry area of 1856 Ha shall be reclaimed with plantation by planting native plant species in consultation with the local DFO/Agriculture Department. The density of trees shall be around 2500 plants per ha.															
Compliance	<p>Pandaveswar: At Khottadih OCP, 219.50 Ha area land has been excavated till September 2018 out of which 170.64 Ha area has been backfilled. Plantation over 16 Ha area of Khottadih OCP has been done during the year 2017-18. Since 2014-15, plantation has been done over 56 Ha land under Khottadih OCP.</p> <p>At Dalurband OC Phase-III 36.92 Ha land area has been excavated till September 2018 out of which backfilling has been carried out in 23.59 Ha area. During 2018-19 plantation has been done over 5 Ha OB dump of Dalurband OC Phase-III.</p> <p>Jhanjra: This condition is not applicable.</p> <p>Sonepur Bazari: Continuous back filling is being done in quarried area. 785.70 Ha of land has</p>															

	<p>been excavated till September 2018 of which 397.1 Ha is backfilled. Dumps are being finally reclaimed by planting native species through Forest Department &amp; West Bengal Wasteland Development Corporation Limited under the supervision of DFO Durgapur.</p> <p>Density of the trees is kept 2500 plants per Ha.</p> <p>Plantation in 158.0 Ha area has been done so far OB Dumps.</p> <p>Bankola: Agreed. Not applicable for UG mines.</p> <p>Continuous back filling is being done in quarried area at Kumardihi-B, Nakrakonda, and Nakrakonda (extension) OCP. Total 85.1 Ha area has been excavated till September 2017 out of which backfilling is being carried out in 291.0 Ha area.</p>
Condition (LIV)	Regular monitoring of groundwater 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, Forests & Climate Change and to the Central Pollution Control Board quarterly within one month of monitoring.
Compliance	Ground water level monitoring is being done regularly by CMPDIL. Ground water quality is tested and compared to Indian Drinking Water Standard (IS-10500) by CMPDIL. Piezometers are installed in all areas under this cluster to monitor groundwater.
Condition (LV)	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	<p>Pandaveswar: In underground mines, recharging of water at surface will further add to the quantum of water percolating into the underground workings. Also, no declining trend has been noticed in the mine leasehold.</p> <p>The mine discharge is effectively being utilized to meet the domestic demands of the community thus reducing the strain on ground water resources.</p> <p>In Pandaveswar Area mine water is supplied to Khottadih, Aam Bagan and Dalurband villages after treatment of mine water by Pressure filters present at Khottadih and Dalurband Villages.</p> <p>Jhanjra: The mine discharge is effectively being utilized to meet the domestic demands of the community thus reducing the strain on ground water resources.</p> <p>The total domestic water demand of Jhanjra Area is met by rainwater harvesting project at Purushottampur OCP. Rain water harvesting system has also been setup at Jhanjra Area Office and Jhanjra House and Chinese Hostel. The water requirement of local villages is being fulfilled by the project authorities.</p> <p>Bankola: In underground mines, recharging of water at surface will further add to the quantum of water percolating into the underground workings. Also, no declining trend has been noticed in the mine leasehold.</p> <p>Mine discharged water is supplied by tanker or pipeline to Ukhra village, Shankarpur Village, Kumardihi village, Lal Bangla, Shyamsundarpur village and other locations.</p>
Condition (LVI)	Sewage treatment plant shall be installed in the existing colony. ETP shall also be provided for workshop and CHP wastewater.

Compliance	At Khottadih OCP an ETP of capacity 500 KL/Day has been installed for the treatment of wastewater generated from the workshop. Sonepur Bazari: A Sewage Treatment Plant with capacity 600 cum/d is under construction at R.N. Colony of Sonepur Bazari Project. An Effluent Treatment Plant with capacity 7200 cum/d is under construction for workshop and CHP waste water. Work order issued on 21.10.2017 for construction of ETP & STP, work is going on full fledge and will complete soon.		
Condition (LVII)	Land oustees shall be compensated as per the norms laid out R&R Policy of CIL or the National R&R Policy or R&R Policy of the State Government whichever is higher.		
Compliance	Land outsees are being compensated as per the norms laid out R&R Policy of CIL.		
Condition (LVIII)	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 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	A proposal has been initiated from ECL HQ to CMPDI for monitoring land use and plantation by carrying out satellite imaginary at every three year's interval starting 2015 (Ref. No.: ECL/ENV/15/420 dt.12.08.15).		
Condition (LIX)	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 Environmental Clearance.		
Compliance	MCP for all mines have been prepared.		
Condition (LX)	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 out over the balance life of the mine.		
Compliance	List of CSR activities carried out in Pandaveswar Area during last three years is as follows–		
	<b>Year</b>	<b>Activity</b>	<b>Expenditure</b>
	2016-17	Construction of Cement concrete road at Khottadih Village.	57.20 Lakh
	2016-17	Medical Activities under CSR	0.54 Lakh
	2017-18	Solar Street light at Laskarbandh village	2.72 Lakh
		Medical Activities under CSR	0.70 Lakh
	2018-19	Construction of boundary wall, community shed, community room and cultural stage at Govindpur Village Of Pandaveswar Area for an amount of Rs.1667024.77.	Work under progress.
		Mobile medical van covering 40 no. of villages in Pandaveswar, Jhanjra and Bankola Area	7974000.00
		Distribution of aids and appliances for Dibyang people in Pandaveswar	634638.00

	Area	
	<p>Jhanjra: Complied.            CSR works are being carried out time to time in accordance with the Company's Act, 2013.            Sonapur Bazari:            Socio-economic and other welfare measures under CSR are identified in consultation with the Panchayats of the local villages and administration.            Socio-economic study of following 07 Tribal villages has been completed :</p> <p>i) Arsola, ii) Kuchibeda, iii) Banghat            iv) Bangapada v) Basak danga            vi) Nichu Basak Danga vii) Chatim Danga            Socio-economic study of Sonapur Village has also been completed</p>	
Condition (LXI)	<p>Corporate Environment Responsibility:</p> <p>a) The Company shall have a well laid down Environment Policy approved by the Board of Directors.</p> <p>b) The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/ deviation /violation of the environmental or forest norms/conditions.</p> <p>c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.</p> <p>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.</p>	
Compliance	<p>Complied.</p> <p>“Corporate Environmental Policy 2012” of Coal India Limited has already been formulated.</p> <p>“Corporate Environmental Policy 2012” of Coal India Limited has prescribed standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/condition.</p> <p>The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions has been furnished in “Corporate Environmental Policy 2012” of Coal India Limited.</p> <p>The company is having a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company.</p> <p>Socio-economic and other welfare measures under CSR are identified in consultation with the Panchayats of the local villages and administration.</p>	
<b>GENERAL CONDITIONS</b>		

Condition (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, is being made with prior approval of the Ministry of Environment, Forests & Climate Change.
Condition (II)	No change in the calendar plan of production of quantum of mineral cost shall be made.
Compliance	Being followed. Production of coal as well as OB is done as per the calendar plan.
Condition (III)	Four ambient air quality monitoring stations shall be established in the core s\zone as well as in the buffer zone for PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>x</sub> 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	Ambient air quality monitoring is being done at cluster level. 14 (fourteen) ambient air quality monitoring stations have been established within cluster 12, after detailed study of the project area and local meteorology. Quarterly monitoring is carried out on the above stations regularly through CMPDIL.
Condition (IV)	Data on ambient air quality (PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>x</sub> ) 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	Ambient air quality monitoring for PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>x</sub> and heavy metals such as Hg, As, Ni, Cd, Cr is being carried out on regular basis. Monitoring data are sent 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 with six monthly EC Compliance.
Condition (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	The monitoring report is being submitted quarterly to MoEF. <ul style="list-style-type: none"> <li>• All HEMM and light vehicles are provided with silencers</li> <li>• Noise monitoring is being carried out regularly and found to be within permissible levels. Noise Level Reports are being attached as Annexure -</li> <li>• Workers exposed to high sound levels are provide with ear muffs and their working hours are reduced to prevent long exposure time.</li> </ul> Periodical Medical Examinations of workers is being carried out at 5 year intervals in which audiometric tests are carried out.
Condition (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 19 <sup>th</sup> May 1993 and 31 <sup>st</sup> December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.
Compliance	Water discharged from the mine is being regularly analyzed by CMPDIL and found conforming

	<p>to the MoEF Schedule VI Standards for discharge of effluents.  At Pandaveswar Area an ETP has been built at Khottadih OCP for treatment of workshop effluents.  Sonepur Bazari : Sedimentation of mine water takes place in the mine sump where sufficient retention time for siltation process is given to set down properly.  Construction of an Effluent Treatment Plant for treatment of waste water from workshop &amp; CHP is under process.  Oil and grease trap has been provided at workshop.</p>
Condition (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. Coal transportation from Colliery to railway siding is being done by tarpaulin covered trucks. The loaded trucks are made wet at first and then covered with tarpaulins for transportation.
Condition (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 CMPDIL. Laboratory at CMPDIL, Asansol is having all necessary facilities.
Condition (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	Protective wears are being supplied and used by workmen judiciously. Occupational health surveillance i. e. Periodic Health Examination (PME) are being done as per norms at Central Hospital, Kalla.
Condition (X)	Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions 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	<p>Every year, 20% of the workforce is covered under occupational health surveillance programme in the form of Periodical Medical Examinations.  Regular PME of employees, workers is done for any contractions due to exposure to dust and for other health related issues.  PME of Contractual workers is also done. At Pandaveswar Area PME of 765 employees was done in Pandaveswar Area from October 2017 to March 2018. During April 2018 to September 2018 PME of 703 workers was done in Pandaveswar Area.  Sonepur Bazari: Regular PME of employees, workers is done for any contractions due to exposure to dust and for other health related issues.  PME of Contractual workers is also done. In the year 2017-18, PME of 490 contractual workers</p>

	<p>&amp; 100 company workers has been done.</p> <p>Bankola: PME of 742 workers has been conducted in Bankola Area in the year 2017-18 along with 20 Spirometry and 20 Audiometry tests. Details can be found in Annexure B.</p>		
<b>Condition (XI)</b>	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.		
<b>Compliance</b>	<p>A separate environmental management cell with qualified personnel has been established for all the Areas under Cluster 12. The cell reports to the respective Area GM and GM, Environment and Forest; ECL.</p> <p>Sonepur Bazari: Environment Management cell has been formed with Senior Executive of Mining Cadre- Sr. Manager( Min), SBA, Senior Executive of Civil Cadre- AE(Civil), SBA, Environmental Engineer- MT (Envt),SBA, Survey Officer- Area Survey Officer, SBA under General Manager SB Area in supervision of G.M. (Envt. &amp; F) at E.C.L. Head Quarter.</p>		
<b>Condition (XII)</b>	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.		
<b>Compliance</b>	F/Y	Name of Work	Amount (in Rs.)
	2017-18	Plantation of 40000 nos. saplings in 16 Ha Reclaimed Land at Khottadih OCP	2827200.00
	2018-19	Plantation of total 37500 nos. of saplings in 10 Ha and 5 Ha land of Pandaveswar UG and Dalurband OC Phase-III respectively.	50% amount i.e. Rs. 1352250.00 have been paid till now.
	Bankola:		
	Expenditure is given as follows:		
	F/Y	Name of Work	Amount
	2016-17	Installation of Dust Suppression System at Bankola No. I and Bankola No II siding	Rs. 24.85 lac
		Rooftop Solar Power Generation at Bankola Area Office	Rs. 20.35 lac
<b>Condition (XIII)</b>	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 <a href="http://envfor.nic.in">http://envfor.nic.in</a> .		
<b>Compliance</b>	Complied.		
<b>Condition (XIV)</b>	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.		

<b>Compliance</b>	Complied.
<b>Condition (XV)</b>	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.
<b>Compliance</b>	To be complied by State Pollution Control Board.
<b>Condition (XVI)</b>	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 <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>x</sub> (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.
<b>Compliance</b>	Being complied. The clearance letter has been uploaded on the company's website. The compliance status of the stipulated environmental clearance conditions is being regularly uploaded on the website.
<b>Condition (XVII)</b>	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.
<b>Compliance</b>	Being Complied.
<b>Condition (XVIII)</b>	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.
<b>Compliance</b>	Noted and agreed.
<b>Condition (XIX)</b>	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.
<b>Compliance</b>	Being complied. Environmental Statement for each financial year is being submitted regularly.

**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.

# **ENVIRONMENTAL MONITORING REPORT OF CLUSTER NO. 12**

**(FOR THE MONTH OF AUGUST, 2018)**

**(BANKOLA, JHANJRA, PANDAVESWAR &  
SONEPUR BAZARI AREA)**

# **Eastern Coalfields Limited**



***cmpdi***  
*A Mini Ratna Company*

**Regional Institute-1  
Asansol (WB)**

**ENVIRONMENT MONITORING REPORT  
FOR  
CLUSTER NO. 12**

**(For the Month of August, 2018)**

**CONTENTS**

<b>SL. NO.</b>	<b>CHAPTER</b>	<b>PARTICULARS</b>	<b>PAGE NO.</b>
1.	CHAPTER- I	INTRODUCTION	1
2.	CHAPTER-II	AMBIENT AIR SAMPLING & ANALYSIS	2-5
3.	CHAPTER-III	WATER SAMPLING & ANALYSIS	6-11
4.	CHAPTER-IV	WATER SAMPLING & ANALYSIS	12-14

**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. CMPDI has trained manpower and well equipped laboratory to carry out monitoring, analysis and R&D work in the field of environment.

Reports have prepared for submission to MoEFCC & SPCB and other statutory authorities.



## CHAPTER-II

**AMBIENT AIR QUALITY MONITORING**

## 2.1 Location of sampling station and their rationale:

2.1.1 **Ambient Air Quality Sampling Locations****I. Industrial Area Monitoring Location****i) Kendra village (12A1): Industrial Area**

The sampler was placed in Khandra Workshop. This site was selected to assess the present ambient air quality status in residential area of core zone of Khandra Project.

**ii) Dalurband village (12A10): Industrial Area**

The sampler was placed at Agent office of Dalurband Colliery. This station was selected to assess the ambient air quality of Industrial Area in the core zone where mining activities are in progress.

**iii) Mandarboni village (12A11): Industrial Area**

The sampler was placed at Co-Operative office. This station was selected to assess the ambient air quality of Industrial Area in the core zone where mining activities are in progress.

**iv) Pandaveswar village (12A12): Industrial Area**

The sampler was placed at Canteen of Pandaveswar Colliery. This station was selected to assess the ambient air quality of Industrial Area in the core zone where mining activities are in progress.

**v) Madhaipur village (12A13): Industrial Area**

The sampler was placed at Pit Office of Madhaipur Colliery. This station was selected to assess the ambient air quality of Industrial Area in the core zone where mining activities are in progress.

**II. Residential Area Monitoring Location****vi) Kumardihi village (12A2) : Residential Area**

The sampler was placed at Agent Banglow of Kumardihi A Colliery This site was selected to assess the present ambient air quality status in residential area of core zone of Kumardihi Colliery..

**vii) Danya village (12A3): Residential Area**

The Air sampler was placed at Danya Village of Khotadih ECL Colony Quarter. This site was selected to assess the present ambient air quality status in residential area of buffwe zone of Kumardihi Colliery.

**viii) Barajora village, (12A7): Residential Area.**

The sampler was placed Charigram Village. This site was selected to assess the present ambient air quality status in residential area of buffer zone of Pandaveswar Colliery

**ix) Konda village, (12A8): Residential Area.**

The sampler was placed at Area Hospital of Konda Area. This site was selected to assess the present ambient air quality status in residential area of buffer zone of Madhaiganj Colliery.

**x) Tajpur village, (12A9): Residential Area.**

The sampler was placed at Chapla Village. This site was selected to assess the present ambient air quality status in residential area of buffer zone of Madhiganj Colliery.

**xi) Bankola village (12A14): Residential Area**

The sampler was placed at GM Office of Bankola Colliery. This station was selected to assess the ambient air quality of Residential Area in the core zone of Bankola colliery,

**2.2 Methodology of sampling and analysis**

Parameters chosen for assessment of ambient air quality were Particulate Matter (PM 10), Particulate Matter (PM 2.5), Sulphur Di-oxide (SO<sub>2</sub>) and Nitrogen Oxides (NO<sub>x</sub>). Respirable Dust Samplers (RDS) & fine particulates for PM 2.5 sampler were used for sampling PM 10 & PM 2.5 respectively at 24 hours interval once in a fortnight and the same for the gaseous pollutants. The samples were analysed in Environmental Laboratory of CMPDI, RI-I, Asansol.

**2.3 Results & Interpretations**

The results of Ambient Air Quality are presented in tabular form along with for each monitoring station. Sampling stations are chosen as permanent Air Sampling station, Pre monsoon ( April – September ) & Post monsoon ( October – March). The interpretations of different parameters are given below:

**2.3.1 Ambient air quality****Particulate Matter PM<sub>10</sub>**

In Industrial area varies from 91.6 to 97.2 µg/m<sup>3</sup> & in Residential area from 91.9 to 96.7 µg/m<sup>3</sup>.

**Fine Particulate Matter (PM<sub>2.5</sub>)**

In Industrial area from 36.5 to 42.5 µg/m<sup>3</sup> & in Residential area from 36.2 to 41.2 µg/m<sup>3</sup>

**Sulphur Dioxide (SO<sub>2</sub>):**

In Industrial area below 10 µg/m<sup>3</sup> & in Residential area below 10 µg/m<sup>3</sup>.

**Oxides of Nitrogen (NO<sub>x</sub>)**

In Industrial area varies from 16.2 to 19.1 µg/m<sup>3</sup> & in Residential area from 16.7 to 19.7 µg/m<sup>3</sup>.

## AMBIENT AIR QUALITY DATA

Name of the Company: **Eastern Coalfield Limited**Year: **2018**Name of the Project: **Mines of Cluster No. 12**Month : **August**

### Industrial Area

#### 1<sup>st</sup> fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>
12A1	Kendra village	2-Aug-18	92.7	36.5	<10.0	17.2
12A10	Dalurband village near Railway siding	11-Aug-18	92.3	37.9	<10.0	17.7
12A11	Mandarboni village near Railway siding	14-Aug-18	97.2	42.5	<10.0	19.1
12A12	Pandaveswar village near Railway siding	2-Aug-18	94.5	38.9	<10.0	16.9
12A13	Madhaipur village near Railway siding	9-Aug-18	91.1	37.2	<10.0	16.1

#### 2<sup>nd</sup> fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>
12A1	Kendra village	23-Aug-18	92.3	36.1	<10.0	16.8
12A10	Dalurband village near Railway siding	20-Aug-18	92.7	37.5	<10.0	17.4
12A11	Mandarboni village near Railway siding	20-Aug-18	96.6	41.7	<10.0	18.3
12A12	Pandaveswar village near Railway siding	16-Aug-18	93.7	38.4	<10.0	16.2
12A13	Madhaipur village near Railway siding	21-Aug-18	91.6	37.6	<10.0	16.6

### National Ambient Air Quality Standards (NAAQS)

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

Pollutant	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>
Concentration	100.0	60.0	80.0	80.0

➤ All values are expressed in microgram per cubic meter.

## AMBIENT AIR QUALITY DATA

Name of the Company: **Eastern Coalfield Limited**Year : **2018**Name of the Project: **Mines of Cluster No. 12**Month : **August.**

### Residential Area

#### 1<sup>st</sup> fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>
12A2	Kumardihi village	14-Aug-18	93.4	36.2	<10.0	16.7
12A3	Danya village	2-Aug-18	94.2	37.1	<10.0	17.2
12A7	Barajora village	7-Aug-18	95.9	39.4	<10.0	18.5
12A8	Konda village	14-Aug-18	96.2	41.2	<10.0	19.7
12A9	Tajpur village	1-Aug-18	96.7	40.9	<10.0	17.2
12A14	Bankola village	9-Aug-18	91.9	38.8	<10.0	18.2

#### 2<sup>nd</sup> fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>
12A2	Kumardihi village	24-Aug-18	93.1	35.8	<10.0	16.5
12A3	Danya village	24-Aug-18	93.7	36.9	<10.0	16.9
12A7	Barajora village	23-Aug-18	94.7	38.7	<10.0	18.2
12A8	Konda village	24-Aug-18	95.6	40.2	<10.0	12.3
12A9	Tajpur village	23-Aug-18	95.9	40.7	<10.0	16.8
12A14	Bankola village	21-Aug-18	91.2	38.2	<10.0	18.5

### National Ambient Air Quality Standards (NAAQS)

National Ambient Air Quality Standards (NAAQS) for residential and rural areas for 24 hours samples:

Pollutant	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>
Concentration	100.0	60.0	80.0	80.0

➤ All values are expressed in microgram per cubic meter.

## CHAPTER – III

### WATER QUALITY MONITORING

#### 3.1 Location of sampling sites and their rationale

- i) **Pandaveswar UG (12MW1)**  
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after sedimentation tank.
- ii) **Dalurband OC Phase-III (12MW2)**  
This location has been selected to monitor the discharge quality of Mine effluent used for sparking at road and mining area.
- iii) **Manderboni UG (12MW3)**  
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams.
- iv) **South Samla UG (12MW4)**  
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams.
- v) **Madhaipur UG (12MW5)**  
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after sedimentation tank.
- vi) **Sonepur Bazari OC (12MW6)**  
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after siltation pond.
- vii) **Kumardihi B UG (12MW7)**  
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after sedimentation tank.
- ix) **Nakrakonda UG (12MW9)**  
This location has been selected to monitor the discharge quality of Mine effluent use in boiler and remaining discharge to natural surface streams after sedimentation tank.
- x) **Jhanjra UG (12MW10)**  
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after sedimentation tank.
- xi) **Tilaboni UG (12MW11)**  
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after sedimentation tank.
- xii) **Shyamsundarpur UG (12MW12)**  
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after sedimentation tank.

- xiii) **Bankola UG (12MW13)**  
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams
- xiv) **Kottadih UG & OC (12MW14)**  
This location has been selected to monitor the discharge quality of Mine effluent use for boiler and remaining discharge to natural surface streams after sedimentation tank.
- xv) **Kumardihi A UG (12MW15)**  
This location has been selected to monitor the discharge quality of Mine effluent use for boiler and remaining discharge to natural surface streams after sedimentation tank.
- xvi) **Madhaipur OC(12MW16)**  
This location has been selected to monitor the discharge quality of Mine effluent discharge to natural surface streams.

### 3.2 Methodology of sampling and analysis

Water samples were collected as per standard practice. The effluent samples were collected and analysed for five parameters on fortnightly basis and all parameters on Half-yearly basis. The Ground water samples were collected and analysed for all parameters on annualy basis. Parameters like pH and Free Residual Chlorine were analysed on-site while collecting the samples. Thereafter the samples were preserved and analysed at the field laboratory located at RI-I Office campus.

### 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 sample and compared with IS.10500: 2012 in case of drinking water sample. Results show that most of the parameters are within the permissible limits.

**Cluster No. 12**

CMPDI

**WATER QUALITY DATA**  
(Effluent Water)

Name of the Company: **Eastern Coalfield Limited**

Year : **2018**

Name of the Project: **Mines of Cluster No. 12**

Month: **August.**

Name of the Stations & Code : **1. 12MW1- Pandaveswar UG    2. 12MW2- Dalurband UG    3. 12MW3- Manderboni UG**  
**4. 12MW4- South Samla UG    5. 12MW5- Madhaipur UG**

**First Fortnight data**

Sl. No.	Parameters						General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		12MW1	12MW2	12MW3	12MW4	12MW5			
		2-Aug-18	2-Aug-18	2-Aug-18	2-Aug-18	9-Aug-18			
1	pH	8.37	6.63	7.74	8.19	8.25	5.5 - 9.0	pH meter	0.01
2	TSS	18	20	14	30	16	100 (Max)	Spectrophotometric	5.0
3	TDS	472	670	328	440	360	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	16	28	12	36	20	250 (Max)	Closed Reflux	4.0

**Second Fortnight data**

Sl. No.	Parameters						General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		12MW1	12MW2	12MW3	12MW4	12MW5			
		24-Aug-18	24-Aug-18	25-Aug-18	25-Aug-18	25-Aug-18			
1	pH	8.23	6.52	7.80	8.35	8.43	5.5 - 9.0	pH meter	0.01
2	TSS	20	30	18	20	18	100 (Max)	Spectrophotometric	5.0
3	TDS	456	644	358	476	330	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	24	36	16	28	24	250 (Max)	Closed Reflux	4.0

*All values are expressed in mg/L unless specified.*

**Cluster No. 12**

CMPDI

**WATER QUALITY DATA**  
(Effluent Water)

Name of the Company: **Eastern Coalfield Limited**

Year : **2018.**

Name of the Project: **Mines of Cluster No. 12**

Month: **August**

Name of the Stations & Code : **6. 12MW6- Sonapur Bazari OC 7. 12MW7- Kumardihi B UG 9. 12MW9- Nakrakonda UG**

**10. 12MW10- Jhanjra UG 11. 12MW11- Tilaboni UG**

**First Fortnight data**

Sl. No.	Parameters						General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		12MW6	12MW7	12MW9	12MW10	12MW11			
		9-Aug-18	9-Aug-18	9-Aug-18	2-Aug-18	2-Aug-18			
1	pH	7.69	8.40	8.45	7.94	8.56	5.5 - 9.0	pH meter	0.01
2	TSS	28	20	16	30	28	100 (Max)	Spectrophotometric	5.0
3	TDS	604	632	652	400	392	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	32	24	20	40	32	250 (Max)	Closed Reflux	4.0

**Second Fortnight data**

Sl. No.	Parameters						General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		12MW6	12MW7	12MW9	12MW10	12MW11			
		25-Aug-18	21-Aug-18	25-Aug-18	25-Aug-18	21-Aug-18			
1	pH	7.92	8.23	8.31	7.53	8.52	5.5 - 9.0	pH meter	0.01
2	TSS	26	18	14	36	20	100 (Max)	Spectrophotometric	5.0
3	TDS	572	666	620	430	380	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	32	16	12	48	24	250 (Max)	Closed Reflux	4.0

*All values are expressed in mg/L unless specified.*

## Cluster No. 12

CMPDI

### WATER QUALITY DATA (Effluent Water)

Name of the Company: **Eastern Coalfield Limited**

Year : **2018.**

Name of the Project: **Mines of Cluster No. 12**

Month: **August**

Name of the Stations & Code : **12. 12MW12- Shyamsundarpur UG    13. 12MW13- Bankola UG    14. 12MW14- Kottadih UG & OC**

**15. 12MW15- Kumardihi A UG    15. 12MW16- Kottadih OC**

#### First Fortnight data

Sl. No.	Parameters	12MW12	12MW13	12MW14	12MW15	12MW16	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		7-Aug-18	7-Aug-18	2-Aug-18	2-Aug-18	2-Aug-18			
1	pH	7.81	8.47	8.35	7.59	8.34	5.5 - 9.0	pH meter	0.01
2	TSS	18	12	14	20	14	100 (Max)	Spectrophotometric	5.0
3	TDS	490	566	380	350	438	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	24	8	16	28	12	250 (Max)	Closed Reflux	4.0

#### Second Fortnight data

Sl. No.	Parameters	12MW12	12MW13	12MW14	12MW15	12MW16	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		21-Aug-18	21-Aug-18	24-Aug-18	21-Aug-18	21-Aug-18			
1	pH	7.96	8.46	8.24	7.42	8.15	5.5 - 9.0	pH meter	0.01
2	TSS	18	16	10	20	16	100 (Max)	Spectrophotometric	5.0
3	TDS	444	560	340	392	470	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	16	20	12	24	8	250 (Max)	Closed Reflux	4.0

*All values are expressed in mg/L unless specified.*

## Well water level for the month of August, 2018

Sl. No.	Station Code	Location of Dugwell	Date of measurement	Water level (in Meters) Below Ground Level
1	12GW1	Dugwell at NHS Qtrs Khottadih beside primary school	2-Aug-18	1.10
2	12GW2	Dugwell at Konda Regional Hospital	25-Aug-18	2.90
3	12GW3	Dugwell at NHS Qtrs of Danya village	25-Aug-18	1.75
4	12GW4	Dugwell at Ichhapur high school	30-Aug-18	1.75
5	12GW5	Dugwell at PHE water tank of Madhaigang	30-Aug-18	1.10
6	12GW6	Dugwell at Banbahal village near Kenda GM office	30-Aug-18	1.50
7	12GW7	Dugwell at roadside of Churat village near Barjor village	30-Aug-18	1.60
8	12GW8	Dugwell at Kumardih "A" colliery	21-Aug-18	3.70

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## CHAPTER - IV

### NOISE LEVEL QUALITY MONITORING

#### 4.1 Location of sampling sites and their rationale

- i) **Pandaveswar UG (12N1)**  
Noise level meter placed in Pandaveswar UG pit office to assess the noise level in mine site.
- ii) **Dalurband UG (12N2)**  
Noise level meter placed in Dalurband UG pit office to assess the noise level in mine site.
- iii) **Manderboni UG (12N3)**  
Noise level meter placed in Manderboni UG pit office to assess the noise level in mine site.
- iv) **South Samla UG (12N4)**  
Noise level meter placed in South Samla UG pit office to assess the noise level in mine site.
- v) **Madhaipur UG (12N5)**  
Noise level meter placed in Madhaipur UG pit office to assess the noise level in mine site.
- vi) **Sonepur Bazari OC (12N6)**  
Noise level meter placed at site office of Sonepur Bazari OCP to assess the noise level at mine site, the noise levels were recorded in the mine area where all mining activities are in progress.
- vii) **Kumardihi B UG (12N7)**  
Noise level meter placed in Kumardihi B UG pit office to assess the noise level in mine site.
- viii) **Nakrakonda B OC (Extension) (12N8)**  
Noise level meter placed at site office of Sonepur Bazari OCP to assess the noise level at mine site, the noise levels were recorded in the mine area where all mining activities are in progress.
- ix) **Nakrakonda UG (12N9)**  
Noise level meter placed in Nakrakonda UG pit office to assess the noise level in mine site
- x) **Jhanjra UG (12N10)**  
Noise level meter placed in Jhanjra Incline pit office to assess the noise level in mine site
- xi) **Tilaboni UG (12N11)**

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- Noise level meter placed Tilaboni UG pit office to assess the noise level in mine site
- xii) **Shyamsundarpur UG (12N12)**  
Noise level meter placed in Shyamsundarpur UG pit office to assess the noise level in mine site
- xiii) **Bankola UG (12N13)**  
Noise level meter placed in Bankola UG pit office to assess the noise level in mine site
- xiv) **Kottadih UG & OC (12N14)**  
Noise level meter placed in Madhaipur UG pit office to assess the noise level in mine site
- xv) **Kumardihi A UG (12N15)**  
Noise level meter placed in Kumardihi A UG pit office to assess the noise level in mine site
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#### 4.2 Methodology of sampling and analysis

Noise level monitoring is being carried out on quarterly basis. Noise level measurements were taken in form of 'Leq' using Integrated Data Logging Sound Level Meter (Make: RION, Model: NL-52). Noise levels were measured for about one hour. Noise levels were measured in Decibels, 'A' weighted average, i.e. dB(A).

#### 4.3 Results & Interpretations

Ambient noise levels were recorded during day time only. The observed values were compared with standards prescribed in NAAQS, 2009 in respect of noise for Industrial, Commercial and residential areas. The observed values at all the monitoring locations are found to be within permissible limits. The monitored values are presented in tabular form along with the applicable standard permissible limits.

**NOISE LEVEL DATA**Name of the Company: **Eastern Coalfield Limited**Year : **2018.**Name of the Project: **Bankola, Pandeveswer & Sonapur Bazari Area**Month. : **August.**

Name of the Stations & Code :

1. 12N1- Pandaveswar UG	2. 12N2- Dalurband UG
3. 12N3- Manderboni UG	4. 12N4- South Samla UG
5. 12N5- Madhaipur UG	6. 12N6- Sonapur Bazari OC
7. 12N7- Kumardihi B UG	8. 12N8- Nakrakonda B OC

Sl. No.	Station Code	Station Name	Measurement Details			Permissible Limit of Noise level in dB(A)
			Date	Duration (In Hrs.)	Noise level dB(A) Leq	
1	12N1	Pandaveswar UG	2-Aug-18	8.00 to 9.00	62.8	75
2	12N2	Dalurband UG	2-Aug-18	12.30 to 13.30	64.4	75
3	12N3	Manderboni UG	2-Aug-18	9.30 to 10.30	65.3	75
4	12N4	South Samla UG	2-Aug-18	11.00 to 12.00	67.9	75
5	12N5	Madhaipur UG	11-Aug-18	8.30 to 9.30	63.2	75
6	12N6	Sonapur Bazari	11-Aug-18	7.00 to 8.00	66.7	75
7	12N7	Kumardihi B UG	11-Aug-18	10.00 to 11.00	63.4	75
8	12N8	Nakrakonda B OC	7-Aug-18	12.00 to 13.00	62.6	75
9	12N9	Nakrakonda UG	7-Aug-18	13.30 to 14.30	61.8	75
10	12N10	Jhanjra UG	1-Aug-18	9.00 to 10.00	69.4	75
11	12N11	Tilaboni UG	1-Aug-18	7.30 to 8.30	66.8	75
12	12N12	Shyamsundarpur UG	1-Aug-18	10.30 to 11.30	63.4	75
13	12N13	Bankola UG	14-Aug-18	10.00 to 11.00	66.7	75
14	12N14	Kottadih UG & OC	14-Aug-18	8.30 to 9.30	69.5	75
15	12N15	Kumardihi A UG	14-Aug-18	7.00 to 8.00	64.8	75

National Ambient Air Quality Standards (NAAQS) in respect of noise for Industrial, commercial and residential areas.

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

