

**HALF - YEARLY**  
**ENVIRONMENT CLEARANCE COMPLIANCE REPORT**  
**OF**  
**CLUSTER NO. 12**  
**(Group of Mines)**  
**J-11015/76/2010-IA-II.(M)**  
**For**  
**October 2020 to March 2021**



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

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

Office of the Agent  
Khandra 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.:


Dated:

## UNDERTAKING

Information provided in Half yearly EC compliance report for the period October'20 to March'21 in respect of the Khandra UG of Cluster No. 11 is true to the best of my knowledge.

  
19/5/21

Chief Manager (Mining)/Agent  
Khandra Colliery

  
19/5/21

Manager  
Khandra Colliery

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

Office of the Agent  
Bankola Colliery



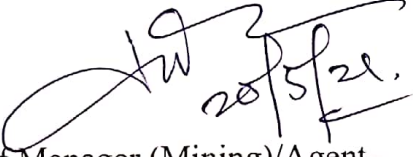
P.O. Ukhra  
District : Paschim Burdwan  
West Bengal-713363  
CIN: U10101WB1975GOI030295  
Ph.: No. 0341-2665491/492/493/494  
Fax No. 0341-2665366

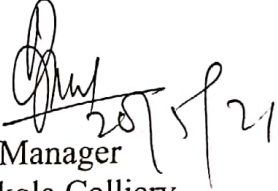
Ref. No.: EEL/BC/A/21-22/2056

Dated: 20/5/21

### UNDERTAKING

Information provided in Half yearly EC compliance report for the period October'20 to March'21 in respect of the Bankola UG of Cluster No. 12 is true to the best of my knowledge.

  
Chief Manager (Mining)/Agent  
Bankola Colliery

  
Manager  
Bankola Colliery

**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

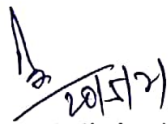
CIN: U10101WB1975GOI030295


Ph.: No. 0341-2665491/492/493/494  
Fax No. 0341-2665366

Ref. No.: KA/AGENT/EC COMPLIANCE/21/500. Dated: 20.5.2021

### UNDERTAKING

Information provided in Half yearly EC compliance report for the period October'20 to March'21 in respect of the Kumardihi 'A' UG of Cluster No. 12 is true to the best of my knowledge.

  
Chief Manager (Mining) / Agent  
Kumardihi 'A' Colliery

  
Manager  
Kumardihi 'A' 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/AG/EC/2021-22/49

Dated: 20.5.2021.

### UNDERTAKING

Information provided in Half yearly EC compliance report for the period October'20 to March'21 in respect of the Tilaboni UG of Cluster No. 12 is true to the best of my knowledge.

  
20/5/21  
Chief Manager (Mining) / Agent  
Tilaboni Colliery

  
20/5/2021  
Manager  
Tilaboni Colliery

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

Office of the Agent  
Moira Colliery



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

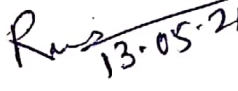
Ref. No.:

Dated:

### UNDERTAKING

Information provided in Half yearly EC compliance report for the period October'20 to March'21 in respect of the Moira UG of Cluster No. 10 is true to the best of my knowledge.

  
Chief Manager (Mining)/Agent  
Moira Colliery

  
Manager  
Moira Colliery

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

Office of the Agent  
Kumardihi 'A' Colliery



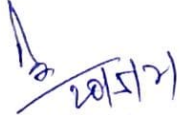
P.O. Ukhra  
District : Paschim Burdwan  
West Bengal-713363  
CIN: U10101WB1975GOI030295  
Ph. No. 0341-2665491/492/493/494  
Fax No. 0341-2665366


Ref. No.: KA/AGENT/EC COMPLIANCE/21/500.

Dated: 20.5.2021

## UNDERTAKING

Information provided in Half yearly EC compliance report for the period October'20 to March'21 in respect of the Kumardihi 'A' UG of Cluster No. 12 is true to the best of my knowledge.

  
Chief Manager (Mining) / Agent  
Kumardihi 'A' Colliery

  
Manager  
Kumardihi 'A' Colliery

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/AG/EC/2021-22/49

Dated: 20.5.2021.

## UNDERTAKING

Information provided in Half yearly EC compliance report for the period October'20 to March'21 in respect of the Tilaboni UG of Cluster No. 12 is true to the best of my knowledge.

  
20/5/21  
Chief Manager (Mining) / Agent  
Tilaboni Colliery

  
20/5/2021  
Manager  
Tilaboni Colliery



Eastern Coalfields Limited  
( A Subsidiary of Coal India Limited)  
Office of the Agent-Nakrakonda-Kumardihi B Colliery, Bankola Area  
PO-UKHRA Dist-Burdwan. Pin-713363(WB)

Ref.No.NK-KB/AGT/2021/2435

Date: 21-05-2021.

## UNDERTAKING

Information provided in half yearly EC compliance report for the period October 2020 to March 2021 in respect of the Nakrakonda-Kumardihi B Colliery U.G. & O.C. of cluster No.12 is true to the best of my knowledge.

*Atalade*  
21/5/2021

Chief Manager (Mining)  
Nakrakonda-Kumardihi B Colliery

*[Signature]*  
21/05/2021

Manager  
Nakrakonda-Kumardihi B Colliery

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

Office of the Agent  
Shyamsundarpur Colliery



P.O. Ukhra  
District : Paschim Burdwan  
West Bengal-713363

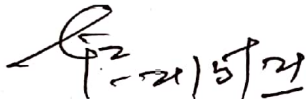
CIN: U10101WB1975GOI030295  
Ph.: No. 0341-2665491/492/493/494  
Fax No. 0341-2665366


Ref. No.: Shyam/Agut/2021/1325

Dated: 21.05.2021

## UNDERTAKING

Information provided in Half yearly EC compliance report for the period October'20 to March'21 in respect of the Shyamsundarpur UG of Cluster No. 12 is true to the best of my knowledge.

  
By General Manager (Mining) / Agent  
Shyamsundarpur Colliery

  
Manager  
Shyamsundarpur Colliery  
21/5/2021



Eastern Coalfields Limited  
( A Subsidiary of Coal India Limited)  
Office of the Agent-Nakrakonda-Kumardihi B Colliery, Bankola Area  
PO-UKHRA Dist-Burdwan. Pin-713363(WB)

Ref.No.NK-KB/AGT/2021/2435

Date: 21-05-2021.

## UNDERTAKING

Information provided in half yearly EC compliance report for the period October 2020 to March 2021 in respect of the Nakrakonda-Kumardihi B Colliery U.G. & O.C.of cluster No.12 is true to the best of my knowledge.

*Atalade*  
21/5/2021

Chief Manager (Mining)  
Nakrakonda-Kumardihi B Colliery

*[Signature]*  
21/05/2021

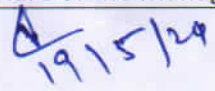
Manager  
Nakrakonda-Kumardihi B Colliery

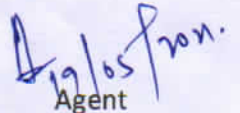


**Eastern Coalfields Limited**  
(A Subsidiary of Coal India Limited)  
Office of the Agent  
Jhanjra Project Colliery  
P.O.: Laudoha (B.O.), PIN: 713385  
Dist.: Burdwan, W.B.  
Ph: 0341- 2670618, Fax: 0341-2672352

## UNDERTAKING

Information provided in Half yearly EC compliance report for the period **Sept 2020 to March 2021** 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	Satish Sharma	 19/5/20

  
Agent  
Jhanjra Project Colliery





**Eastern Coalfields Limited**

(A subsidiary of Coal India Limited)

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

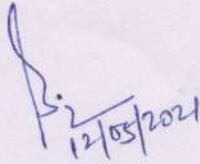
P.O. – Pandaveswar , Dist.- Paschim Bardhaman, PIN-713346, W.B.

Ref No.:

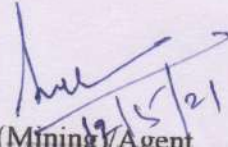
Date: 12/05/2021

**UNDERTAKING**

Information provided in the Half yearly EC compliance report for the period of October 2020 to March 2021 in respect of Dalurband OC Phase-III mine under Pandaveswar-Dalurband UG & OC group of mines of Cluster no.12 is true to the best of my knowledge.

  
12/05/2021

Manager  
Dalurband OC Phase-III

  
12/05/21

Dy. GM(Mining)/Agent  
Dalurband OC Phase-III  
Dy. G.M.(Min.)/AGENT  
Dalurband Colliery



**Eastern Coalfields Limited**

(A subsidiary of Coal India Limited)

**Office of the Agent, Khottadih OCP**

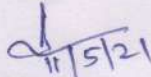
P.O. – Khottadih , Dist.- Paschim Bardhaman, PIN-713378

Ref No.:

Dated: 11/05/2021

**UNDERTAKING**

Information provided in Half yearly EC compliance report for the period of October 2020 to March 2021 in respect of Khottadih OCP under Khottadih UG&OC mine of Cluster no. 12 is true to the best of my knowledge.

  
11/5/21  
Manager  
Khottadih OCP  


  
11/5/21  
Dy. GM (Mining) / Agent  
Khottadih OCP  
प्रमोद कुमार  
PRAMOD KUMAR  
उप महा प्रबंधक (खनन) / अधिकारी  
Dy. G.M (Mining) / Agent  
खोदटाडीह ओ.सी.पी  
Khottadih O.C.I



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

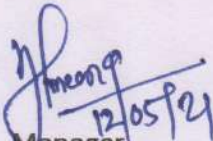
P.O. – Khottadih , Dist.- Paschim Bardhaman, PIN-713378

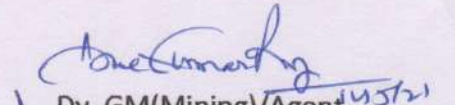
Ref. No.:

Dated: 12/05/2021

**UNDERTAKING**

Information provided in Half yearly EC compliance report for the period of October 2020 to March 2021 in respect of Khottadih UGP under Khottadih UG&OC mine of Cluster no.12 is true to the best of my knowledge.

  
12/05/21  
Manager  
Khottadih UGP

  
Dy. GM(Mining)/Agent 12/5/21  
Khottadih UGP  
Khottadih Colliery (ECL)



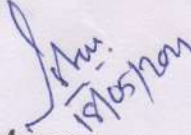
**Eastern Coalfields Limited**  
(A subsidiary of Coal India Limited)  
**Office of the Agent, Madhaipur UG&OC**  
**Pandaveswar Area**  
P.O. – Nutandanga , Dist.- Paschim Bardhaman, PIN-713381

Ref. No:

Dated: 18/05/2021

UNDERTAKING

Information provided in Half yearly EC compliance report for the period of October 2020 to March 2021 in respect of Madhaipur UG under Madhaipur UG&OC mine of Cluster no.12 is true to the best of my knowledge.

  
18/05/2021  
Manager  
Madhaipur UG&OC

  
18/05/21  
Dy. GM(Mining)/Agent  
Madhaipur UG&OC  
AGENT  
MADHAIPUR COLLIERY




**Eastern Coalfields Limited**  
(A subsidiary of Coal India Limited)  
**Office of the Agent, Manderboni- South Samla (A) UG**  
**Pandaveswar Area**  
P.O. – Gogla, Dist.- Paschim Bardhaman, PIN-713381

Ref. No.:ECL/PAND/AGT/MSAM/2021-22/

Dated: 18/05/2021

**UNDERTAKING**

Information provided in the Half yearly EC compliance report for the period of October 2020 to March 2021 in respect of Manderboni- South Samla Amalgamated UG mine of Cluster no.12 is true to the best of my knowledge.

  
18/5/2021  
Manager  
Manderboni- South Samla (A) UG

  
18/5/21  
Dy. GM(Mining)/Agent  
Manderboni- South Samla (A) UG



**Eastern Coalfields Limited**

(A subsidiary of Coal India Limited)

**Office of the Agent, Pandaveswar UG**

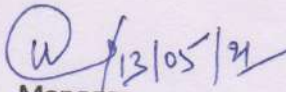
P.O. – Pandaveswar , Dist.- Paschim Bardhaman, PIN-713346

Ref. No.:

Dated: 13/05/2021

**UNDERTAKING**

Information provided in Half yearly EC compliance report for the period of October 2020 to March 2021 in respect of Pandaveswar UG mine under Pandaveswar-Dalurband UG&OC group of mines of Cluster no.12 is true to the best of my knowledge.

  
Manager  
Pandaveswar UG

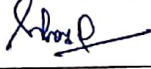
  
Dy. GM(Mining)/Agent  
Pandaveswar UG  
Dy G.M., MINVAgc.  
Pandaveswar

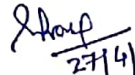


**EASTERN COALFIELDS LIMITED**  
(A Subsidiary of Coal India Limited)  
O/o The Agent, Sonapur Bazari Project  
PO: Sonapur-713378, Dist.: Paschim Bardhaman

## UNDERTAKING

Information provided in Half Yearly EC compliance report for the period Oct'2020 to March'2021 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 Sudhakar Prasad	

  
27/4/21  
Agent/ Project Proponent  
(Sonapur Bazari Project)

## Half Yearly EC Compliance report of Cluster 12, ECL

Period: - October 2020 to March 2021

<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	<p>Complied. No mining activity shall be carried out in forest area before obtaining prior approval under FC Act 1980.</p> <p>At present, forest clearance of Tilaboni UG (39.98 Ha) for Stage-I FC under Process. Land schedule is finalized by BLRO. Online application is submitted for FC of Tilaboni UG. Model seam plan received from Prof. B.K. Srivastava (IIT-BHU) as a reference to prepare the sample subsidence prediction modelling. EDS is Generated by MoEF&amp;CC. Meeting with ADM (Envt.), Paschim Barddhaman with ECL was organised. ADM was requested again to expedite the Gram Sabha procedure. EDS related document submitted to MOEF &amp;CC along with signed GPS plan. Tree enumeration proceedings has been completed.</p> <p>Stage-II Forest Clearance for 32.65 Ha Forest Land in Sonepur Bazari OCP has been obtained by MoEFCC vide reference no. 5-WBC063/2013-BHU Dated 28<sup>th</sup> March, 2017. Forest land handed over to ECL vide letter no. 01/8-3 Dated 21.07.2017. Payment of Rs 79,20,000 has been made for tree felling through Demand Draft in favour of 'Divisional Forest Officer, Durgapur Division' on 23/08/18 vide reference no. GM/SBA/18/127.</p> <p>FC off all Forest land within the leasehold boundary of Jhanjra Area has been obtained. Stage II Forest clearance has been obtained for diversion of 78 Ha forest land (vide 8-101/2014-FC dated 14<sup>th</sup> March, 2016) and renewal of lease of 90.30 Ha forest land (vide 8-68/1992-FC dated 16<sup>th</sup> August, 2016) at Jhanjra.</p>		
Condition (II)	The maximum production from the mine at any given time shall not exceed the limit as prescribed in the EC.		

## Half Yearly EC Compliance report of Cluster 12, ECL

Period: - October 2020 to March 2021

Compliance	Maximum production from the mines at any given time did not exceed the limit as prescribed in the EC.			
	Sl No.	Name of the Mine	Peak EC Capacity (MTY)	Production in April 2020 to March 2021 in MT
	1	Pandaveswar-Dalurband UG & OC	2.25	0.376721
	2	Manderboni-South Samla UG	0.28	0.081160
	3	Madhaipur UG&OC	0.65	0.174495
	4	Samla UG & OC	0.6	Nil
	5	Kottadih UG&OC	2.7	0.960484
	6	Jhanjra UG	5.0	3.56 MT
	7	Sonepur Bazari	12.0	9.48 MT
	8	Bankola UG	0.3	89175
	9	Shyamsundarpur UG	1.59	385245
	10	Tilaboni UG	2.14	74070
	Kumardihi A UG	0.2	32965	
11	NKD-KUMB UG and OC	4.12	284575	
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 (IV)	All safety measures shall be taken as per CMR, 1957 & related Circulars.			
Compliance	All safety measures are being taken as per revised 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	Pandaveswar Area- Coal is being transported by rail only. Coal is transported to railway			

## Half Yearly EC Compliance report of Cluster 12, ECL

Period: - October 2020 to March 2021

	<p>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 are 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 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>Jhanjra- Coal is transported by trucks covered by tarpaulin over black topped roads from mine to railway siding located at a distance of 4-6 kms from mine to POCP Railway Siding at Jhanjra.</p> <p>Construction of a dedicated railway siding at Jhanjra is under process. The DPR has been approved by Eastern Railway on 05.12.2019. Further, work Order for construction of railway siding has been given to RITES Ltd on 08.01.2020 of Rs. 241.01 Crores. Estimated time of completion as per work order is 03 years the construction work for which has already begun.</p> <p>Sonepur Bazari- Coal is transported by rail through Sitalpur, Dalurband Railway sidings and newly constructed railway siding within our mine premises. Pay loaders are used for loading into railway wagons. Rapid Loading system with Silo facility is under construction and will be soon in operation.</p> <p>Bankola- There are currently active 2 railways sidings (Bankola I &amp; Bankola II) and POCP-II siding serving for Bankola Area in Cluster 12. 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 is done through tarpaulin covered trucks.</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	There are currently active 4 railways sidings (Bankola, Purushottampur, Selected Samla and Dalurband) serving to the mines in Cluster 12. A new railway siding is in operation at Sonepur Bazari Project within the project premises. Construction of a dedicated railway siding at Jhanjra is under process. The DPR has been approved by Eastern Railway on 05.12.2019. Further, work Order for construction of railway siding has been given to RITES Ltd on 08.01.2020 of Rs. 241.01 Crores. Estimated time of completion as per work order is 03 years. Construction work has already begun for the railway corridor. There are currently active 2 railways sidings (Bankola I & Bankola II) and POCP-II siding serving for Bankola Area in Cluster 12. Coal is transported to railway sidings from the mines outlet by dedicated black-topped road especially constructed for the purpose. Transportation of coal from mine to railway siding is being done by tarpaulin covered trucks.

## Half Yearly EC Compliance report of Cluster 12, ECL

Period: - October 2020 to March 2021

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 and Jhanjra Area-POCP 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. Additionally, plantation over 1 Ha. area has been carried out in the FY 2019-20 at POCP I and II Railway Siding. an Park, namely Chandrashekhar Azad Udyan has also been developed at the POCP railway siding. In FY 2021-22, additional 2 tier of plantation will be carried out at the railway siding and along the coal transport road.</p> <p>Plantation of 25000 saplings has been done over 10 Ha land nearby the Selected Samla Railway Siding during the year 2018-19.</p> <p>Sonepur Bazari- Continuous avenue plantation is being done along roadside.9 Ha of plantation has been done between NH 60 and railway siding FY 2017-18 and 10 Ha roadside plantation has been done FY 2015-16. 12 Ha plantation in around railway siding and roadside is completed in the FY 2020-21.</p> <p>Bankola Area- Both sides of connecting roadway are well vegetated naturally. Roadside Plantation along 5.5 km roadways has been done along coal transportation road and siding. A boundary wall is also constructed around Bankola Siding-I &amp; Siding-II to prevent dust and noise pollution.</p>
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	Complied.
Condition (XI)	Trees with deep rooted system should be planted so as to prevent soil erosion.
Compliance	<p>Plantation work in ECL is carried out each year by West Bengal State Forest Department. In Pandaveswar Trees with deep rooted system are being planted every year over the OB dumps of mine. In the year, 2014-15, 2015-16, 2016-17 and 2017-18 plantation was done over areas of 10 Ha, 20 Ha, 10 Ha and 16 Ha respectively at Khottadih OCP.</p> <p>During the year 2018-19 and 2019-20 plantation was done over 15 Ha and 5 Ha land respectively. During the year 2020-21, plantation of 81250 nos of tree saplings has been done over 32.5 Ha land under Khottadih OC&amp;UG. Deep rooted tree species planted are as follows-</p> <p>Neem, Seemul, Karanch, Shisham, Arjun, Babool &amp; Sirish</p> <p>In Sonepur Bazari 15 Ha plantation has been done in FY 2019-20. Deep rooted local mixed species are being planted to prevent soil erosion. A project on "Mine Site Restoration through Erosion Prevention and Soil Dump Stabilization and Development for horticulture and plantation for Economic post mining land use" was conducted by IIT Kharagpur. Plantation of vetiver (it has very deep roots) along with others species has been done in monsoon season of 2017-18 &amp; 2018-19 by IIT Kharagpur at OB dump of</p>

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	Sonepur Bazari Project. 12 Ha plantation on plain land and 8 Ha plantation on OB dump has been completed in the FY 2020-21.
Condition (XII)	Proponent should plant additional 10 Ha/year over the next 10 years at various locations in the cluster.
Compliance	<p>Plantation work in ECL is carried out each year by West Bengal State Forest Department. In Pandaveswar Trees with deep rooted system are being planted every year over the OB dumps of mine. In the year, 2014-15, 2015-16, 2016-17 and 2017-18 plantation was done over areas of 10 Ha, 20 Ha, 10 Ha and 16 Ha respectively at Khottadih OCP.</p> <p>During the year 2018-19 and 2019-20 plantation was done over 15 Ha and 5 Ha land respectively. During the year 2020-21, plantation of 81250 nos of tree saplings has been done over 32.5 Ha land under Khottadih OC&amp;UG. Deep rooted tree species planted are as follows-</p> <p>Neem, Seemul, Karanch, Shisham, Arjun, Babool &amp; Sirish</p> <p>In Sonepur Bazari 15 Ha plantation has been done in FY 2019-20. Deep rooted local mixed species are being planted to prevent soil erosion. A project on "Mine Site Restoration through Erosion Prevention and Soil Dump Stabilization and Development for horticulture and plantation for Economic post mining land use" was conducted by IIT Kharagpur. Plantation of vetiver (it has very deep roots) along with others species has been done in monsoon season of 2017-18 &amp; 2018-19 by IIT Kharagpur at OB dump of Sonepur Bazari Project. 12 Ha plantation on plain land and 8 Ha plantation on OB dump has been completed in the FY 2020-21.</p>
Condition (XIII)	River/Nallah shall be desilted and restored back to functional state.
Compliance	<p>No siltation occurs in the nearby flowing Tumni Nallah due to mine water discharge from the mine.</p> <p>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.</p>
Condition (XIV)	Wild life conservation plan be prepared and submitted to the MoEF& CC with the approval of the State Govt.
Compliance	Study for preparation of wildlife conservation plan has been completed.
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	Garland drain have been built over the mine boundaries of Khottadih OCP, Madhaipur OC Patch and Dalurband OC Phase-III for proper drainage.
Condition (XVII)	Sand stowing must be done as recommended by CMPDI.

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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	Action plan for prevention and mitigation of subsidence have been prepared and it is being implemented.
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, 227.5 Ha area land has been excavated till March 2021 out of which 177.20 Ha area has been backfilled. Plantation over 88.5 Ha area of Khottadih OCP has been done since 2014-15.</p> <p>At Dalurband OC Phase-III 47.55 Ha land area has been excavated till March 2021 out of which backfilling has been carried out in 29.85 Ha area.</p> <p>At Madhaipur OC Patch 16.18 Ha land Area has been excavated till March 2021 out of which backfilling has been carried out in 4.19 Ha area. Total plantation till date on backfilled areas and external dump is back on track as per EMP calendar plan. 108.5 Ha plantation has been done so far since 2014-15. During 2020-21, plantation over 32.5 Ha land has been done, out of which plantation over 26 Ha internal OB dump has been done at Khottadih OCP, 0.5 Ha plantation inside the Bauri Para Rehab Site of Khottadih OCP, 1 Ha plantation along the 1.1 Km coal transport road of Khottadih OCP and 5 Ha plantation over external OB dump created by Dalurband OC Phase-III at Bilpahari.</p> <p>Sonepur Bazari- OB is being concurrently backfilled into the decoaled areas. Plantation is also being done simultaneously as the dumping is completed.</p> <p>Total 907.20 Ha area has been excavated till March, 2021 out of which backfilling is being carried out in 618.49 Ha area. Plantation in 181.00 Ha area has been done on these backfilled dumps.</p> <p>Bankola Area- Overburden is being re-handled to fill mine voids. Nakrakonda-Kumardihi 'B' OCP will be completely filled-up after exhaustion of reserves and reclaimed with plantation as per approved MCP.</p>
Condition (XX)	The OB shall be completely re-handled at the end of the mining.
Compliance	It will be done as per the mine closure plan.
Condition (XXI)	There shall be no residual OB dump after the mining.
Compliance	It will be done as per the mine closure plan.
Condition (XXII)	After completion of mining activities, the subsided areas shall be graded and planted upon.
Compliance	Noted and agreed.
Condition (XXIII)	Coal Extraction shall also be optimized in areas where agricultural production is continuing. Some pillars shall be left below the agricultural land. No depillaring & coal extraction should be carried out below habitation, H.T. Lines & beneath road, water bodies.
Compliance	No depillaring activity takes place without acquiring the land above. No depillaring and

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	coal extraction is being carried out below habitation, H.T. Lines & beneath road, water bodies.
Condition (XXIV)	Rehabilitation of the households falling within this cluster to be carried out in two phases within 10 years.
Compliance	395 PAFs out of 771 has been rehabilitated from Bilpahari village at Khottadih OCP under Pandaveswar Area. Total 1425 PAFs have been shifted till now at Sonepur Bazari.
Condition (XXV)	The land excavated after mining must be brought back to original condition for agricultural/plantation purpose.
Compliance	It is being done as per the Mine closure Plan.
Condition (XXVI)	Water discharged from the mine should be as good as surface drinking water.
Compliance	<p>Mine water discharged is being treated in –</p> <ul style="list-style-type: none"> <li>i) Pressure filters- Operating at Khottadih Colliery (UG) and Dalurband</li> <li>ii) Reverse osmosis plant-Functioning at Khottadih Colliery (UG)</li> <li>iii) 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.</li> <li>iv) At Bankola- Pressure filter – 1 unit each at Kumardihi ‘B’, Bankola, Shankarpur, Kumardihi ‘A’, and Tilaboni colliery. 2 units at SSP colliery.</li> <li>v) At Bankola- Slow Sand Filter – 1 unit each at Moira Colliery, Khandra Colliery, and Area Complex. 2 units at SSP colliery.</li> <li>vi) At Bankola- Rapid Gravity Filter – 1 unit at Bankola Colliery.</li> <li>vii) At Bankola -Reverse Osmosis Plant – 1 unit each at Bankola, Colliery, Khandra Colliery, Shankarpur Colliery, and Shyamsundarpur Colliery.</li> </ul> <p>The water is fortnightly          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 &amp; Grease and COD and conforms to the MoEF Schedule-VI Standards.</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	Shall be complied as per Mine Closure Plan.
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	If subsidence is found exceeding the permitted limits, then the landowners shall be

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(XXIX)	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>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. 13 Nos Fixed water sprinklers have been installed at POCP I Railway Siding, Jhanjra UGP and 16 Nos Fixed water sprinklers have been installed at POCP-2 Railway Siding. Regular sprinkling of water is also carried out over the surface through fixed and 03 Nos mobile sprinklers to check fugitive emissions at Railway Siding, Transfer Points, Transport Roads etc.</p> <p>Water sprinkling system has been provided to check fugitive emissions. Water sprinklers have been provided at input hopper, transfer point and discharge chutes. Mobile sprinklers 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>The coal transportation road from colliery to Railway Siding has been black topped in order to prevent fugitive dust emission. Water Sprinkling is being done on the approach road with Mobile Water tankers. 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 (22 nos) have been installed at Bankola I and Bankola II Railway Sidings.</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	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. CSR project is being implemented. The budget for CSR activities is centrally controlled by ECL HQ.
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	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

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	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.						
Compliance	Dust mask have been provided to everyone working in the mining area. Protection against dust is provided as per the Regulation 143 of CMR, 2017						
Condition (XXXV)	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 Protection against dust is provided as per the Regulation 143 of CMR, 2017						
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 2020 to March 2021 is as follows:						
	<b>Month</b>	<b>Khottadih UG&amp; OC</b>	<b>Madhaipur UG &amp;OC</b>	<b>Manderboni -South Samla UG</b>	<b>Pandaveswar -Dalurband UG&amp;OC</b>	<b>Local Contractors</b>	
	April 2020	00	00	0	0	0	
	May 2020	00	00	05	0	06	
	June 2020	37	3	15	19	72	
	July 2020	53	09	27	16	25	
	August 2020	72	26	70	29	18	
	September 2020	73	21	58	41	04	
	October 2020	36	8	26	14	42	
	November 2020	36	6	6	14	11	
	December 2020	91	13	4	5	2	
	January 2021	13	12	0	0	46	
	February 2021	42	12	2	0	35	
	March 2021	5	16	13	0	37	
	<b>TOTAL:</b>	<b>458</b>	<b>126</b>	<b>226</b>	<b>138</b>	<b>298</b>	
	<b>Name of mine</b>	<b>Oct-20</b>	<b>Nov-20</b>	<b>Dec-20</b>	<b>Jan-21</b>	<b>Feb-21</b>	<b>March-21</b>
	Bankola	17	10	44	12	15	6

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	Colliery						
	S.S.Pur Colliery	2	5	1	26	20	57
	Kumardihi A Colliery	9	9	5	0	2	8
	KDH-NK Colliery	9	20	31	6	0	9
	Tilaboni Colliery	8	0	8	7	1	7
	Sonepur Bazari- PME of employees is being done regularly. Total 82 PME/IME of employees has been done from April 2020 March 2021 of which 59 are departmental worker and 23 are contractual worker.						
Condition (XXXVII)	The mining area should be surrounded by green belt having thick closed canopy of the tree cover.						

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Compliance	<p>In Pandaveswar Area plantation is being done at various locations since 2014-15 by Wbfdcl. Details of plantation is as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 10%;">Year</th> <th style="width: 15%;">Name of Species</th> <th style="width: 20%;">Location</th> <th style="width: 10%;">Area in Ha</th> <th style="width: 10%;">No. of saplings</th> <th style="width: 10%;">Density</th> <th style="width: 10%;">Survival rate</th> </tr> </thead> <tbody> <tr> <td>2014-15</td> <td rowspan="4">Chatim Krishnachura Radhachura Sonajhuri Karanch</td> <td rowspan="4">Khottadih OCP</td> <td>10</td> <td>25000</td> <td>2500/Ha</td> <td>85%</td> </tr> <tr> <td>2015-16</td> <td>20</td> <td>50000</td> <td>2500/Ha</td> <td>75%</td> </tr> <tr> <td>2016-17</td> <td>10</td> <td>25000</td> <td>2500/Ha</td> <td>75%</td> </tr> <tr> <td>2017-18</td> <td>16</td> <td>40000</td> <td>2500/Ha</td> <td>75%</td> </tr> <tr> <td>2018-19</td> <td rowspan="2">Amla , Neem, Shimul, Shisham, Sirish, Arjun, Babool</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>OB Dump of Dalurband OC Phase-III</td> <td>5</td> <td>12500</td> <td>2500/Ha</td> <td>80%</td> </tr> <tr> <td>2019-20</td> <td></td> <td>Khottadih OCP View Point, B/W Bilpahari Rahab Site and NH 60</td> <td>5</td> <td>12500</td> <td>2500/Ha</td> <td>95%</td> </tr> <tr> <td rowspan="4">2020-21</td> <td></td> <td>Internal OB dump of Khottadih OCP</td> <td>26 Ha</td> <td>65000</td> <td>2500/Ha</td> <td>98%</td> </tr> <tr> <td></td> <td>Both sides of coal transport road of Khottadih OCP from workshop to C-type quarters (length 1.1 Km)</td> <td>1 Ha</td> <td>2500</td> <td>2500/Ha</td> <td>95%</td> </tr> <tr> <td></td> <td>Inside Bauri Para Rehab site</td> <td>0.5 Ha</td> <td>1250</td> <td>2500/Ha</td> <td>95%</td> </tr> <tr> <td></td> <td>Internal OB dump of Old Bilpahari OC Patch (Dump created by Dalurband OC Phase-III)</td> <td>5 Ha</td> <td>12500</td> <td>2500/Ha</td> <td>95%</td> </tr> </tbody> </table> <p>A total of 244.50 Ha. of plantation has been carried out over the leasehold of Jhanjra till 2020-21. Plantation over total area of 10 Ha. has been done in 2020-21 at Jhanjra. Yearly plantation will be carried out over the available land in future as well. 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 at Bankola Area. Plantation of 181 Ha in OB dump and 97.2 Ha at other area has been done till date. 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</p>						Year	Name of Species	Location	Area in Ha	No. of saplings	Density	Survival rate	2014-15	Chatim Krishnachura Radhachura Sonajhuri Karanch	Khottadih OCP	10	25000	2500/Ha	85%	2015-16	20	50000	2500/Ha	75%	2016-17	10	25000	2500/Ha	75%	2017-18	16	40000	2500/Ha	75%	2018-19	Amla , Neem, Shimul, Shisham, Sirish, Arjun, Babool	Pandaveswar UG near SS Siding	10	25000	2500/Ha	95%		OB Dump of Dalurband OC Phase-III	5	12500	2500/Ha	80%	2019-20		Khottadih OCP View Point, B/W Bilpahari Rahab Site and NH 60	5	12500	2500/Ha	95%	2020-21		Internal OB dump of Khottadih OCP	26 Ha	65000	2500/Ha	98%		Both sides of coal transport road of Khottadih OCP from workshop to C-type quarters (length 1.1 Km)	1 Ha	2500	2500/Ha	95%		Inside Bauri Para Rehab site	0.5 Ha	1250	2500/Ha	95%		Internal OB dump of Old Bilpahari OC Patch (Dump created by Dalurband OC Phase-III)	5 Ha	12500	2500/Ha	95%
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	for this purpose. Plantation of 7.5 meter strip all along the boundary lease will be done by West Bengal Forest Department at Sonepur Bazari.
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 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, work has been initiated for conducting occupational health check-up of 10% of the workers identified from workforce engaged in active mining operations by NIOH.
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	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.
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	No overflow of OB takes place into the river and into the agricultural fields from the mines of Pandaveswar Area.
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	Garland drain has been provided along the toe of external dump for collecting and discharging rain water from soil & OB dumps. 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 at sonepur Bazari. In Pandaveswar Area garland drains have been constructed at Madhaipur OC Patch, Khottadih OCP and Dalurband OC Phase-III for containment of storm water. Settling tank has also been constructed at Khottadih OCP for settling of suspended particles in the mine water. At Bankola, permanent masonry drains of size range 200 to 600 m, 0.90 m to 2 m and 0.6 m to 2 m depth and 1 in 30 gradients, depending on the catchment have been constructed for evacuation of rain water. The drains are being maintained properly & cleaning is being done regularly.

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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	At 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. In Pandaveswar Area garland drains have been constructed at Madhaipur OC Patch, Khottadih OCP and Dalurband OC Phase-III for containment of storm water. 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 is present at Sarpi sub-station, Sarpi pumping station, ESP pit, transformer room, incline mouth and CHP. Total length of garland length is about 5 km. Garland drains are maintained and required sump capacity is also maintained in the mine.
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	At 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. The CHP at Khottadih Colliery under Pandaveswar Area is equipped with water sprinkler to arrest fugitive emissions. 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.
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	There is zero discharge of water outside the mine lease. All the mine water is being used for industrial purposes. Sedimentation of mine water takes place in the mine sump where sufficient retention time for siltation process is given to set down properly. The quality of mine water is within permissible limits.
Condition (XLVI)	Drills shall be wet operated.
Compliance	Wet drilling is being carried out. Total no. of drills with such arrangement is given below : Model 70E – 9 (nine) nos, Model 650D – 4 (four) nos Dust guards are also provided in the drills.

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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>As per requirement, regular repairing and tarring of roads are being taken on priority basis. During the year 2020-21, three tier plantations has been done along both sides of coal transport road of length 1.1 Km of Khottadih OCP. Tree plantation along the approach roads is being carried out. 9Ha road side plantation was done in year 2017-2018. 12Ha road side plantation is being carried out between NH-60 and railway siding for FY 2020-2021. Further, plantation already exists along both sides of most of the coal transport road coming under ECL land. The following plantation has been done in Bankola Area-</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Year</th> <th>Name of Species</th> <th>Area in Ha</th> </tr> </thead> <tbody> <tr> <td>2020-21</td> <td>Chatim, Krishnachura, Radhachura, Karanch, Aamla etc.</td> <td>10 ha</td> </tr> <tr> <td>2016-17</td> <td>Kamini, Rangan, Krishnachura, Jaba, Karabi, Bougenvelia, Pathodia, Jamun, Radhachura etc.</td> <td>5.5 Km (Roadside)</td> </tr> <tr> <td>2016-17</td> <td>Chatim, Krishnachura, Radhachura, Karanch, Aamla etc.</td> <td>12 Ha</td> </tr> </tbody> </table>	Year	Name of Species	Area in Ha	2020-21	Chatim, Krishnachura, Radhachura, Karanch, Aamla etc.	10 ha	2016-17	Kamini, Rangan, Krishnachura, Jaba, Karabi, Bougenvelia, Pathodia, Jamun, Radhachura etc.	5.5 Km (Roadside)	2016-17	Chatim, Krishnachura, Radhachura, Karanch, Aamla etc.	12 Ha
Year	Name of Species	Area in Ha											
2020-21	Chatim, Krishnachura, Radhachura, Karanch, Aamla etc.	10 ha											
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2016-17	Chatim, Krishnachura, Radhachura, Karanch, Aamla etc.	12 Ha											
Condition (XLVIII)	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	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	<p>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.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Year</th> <th>Name of</th> <th>Area</th> <th>No. of</th> <th>Density</th> <th>Surviva</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p style="text-align: center;">Details of plantation being done in Pandaveswar Area since 2014-15 is as follows:</p>	Year	Name of	Area	No. of	Density	Surviva						
Year	Name of	Area	No. of	Density	Surviva								

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		Species	Location	in Ha	saplings		l 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,		OB Dump of Dalurband OC Phase-III	5	12500	2500/Ha	80%								
	2019-20	Sirish, Arjun, Babool	Khottadih OCP View Point, B/W Bilpahari Rahab Site and NH 60	5	12500	2500/Ha	95%									
	2020-21		Internal OB dump of Khottadih OCP	26 Ha	65000	2500/Ha	98%									
			Both sides of coal transport road of Khottadih OCP from workshop to C-type quarters (length 1.1 Km)	1 Ha	2500	2500/Ha	95%									
			Inside Bauri Para Rehab site	0.5 Ha	1250	2500/Ha	95%									
			Internal OB dump of Old Bilpahari OC Patch (Dump created by Dalurband OC Phase-III)	5 Ha	12500	2500/Ha	95%									
<p>Sonepur Bazari-Plantation is being done on reclaimed external dumps, internal dumps, in the plain land including CHP, along the approach roads, townships etc. through Forest Department, Durgapur &amp; West Bengal Wasteland Development Corporation Limited under the supervision of DFO Durgapur.</p> <p>Density of the trees is maintained at 2500 plants per Ha.</p> <p>Total plantation in 278.20 Ha has been done till now. Details of which are given in the following table:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <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>130.0 Hec</td> </tr> </tbody> </table>								S No.	Location	Plantation	1	External OB Dumps	51.0 Hec.	2	Internal OB Dumps	130.0 Hec
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1	External OB Dumps	51.0 Hec.														
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	3	Plain Land (including CHP, along approach roads etc.)	97.2 Hec.
	<b>Total</b>		<b>278.20 Hec</b>
	<p>Plantation in 15 Ha was done on internal OB dumps in FY 2019-20 and 25 Ha land on OB dumps was done in FY 2018-19. 20 Ha roadside and OB plantation has been done in FY 2020-2021.</p> <p>Jhanjra- Plantation over total area of 10 Ha. has been done in 2020-21 at Jhanjra. Total plantation in 244.50 Ha. has been done till now through Forest Department, Durgapur &amp; West Bengal Wasteland Development Corporation Limited and Local Panchayat. Density of the trees is maintained at 2500 plants per Ha.</p> <p>Bankola Area- It is proposed to plant 10 Ha per year within the cluster at the density of 2500 plants/Ha according to the available land area.</p>		
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	Concurrent reclamation of the decoaled area is being carried out using the land in a sustainable manner. Mine Closure plan has been prepared and shall be adhered to for restoration and reclamation.		
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	It is being done as per mine closure plan. Mine Closure Plan has already been prepared for the purpose. Compensatory ecological and restoration of wasteland shall be done accordingly. An Ecological/Herbal park at Bankola Area Hospital is proposed to be constructed in the FY 19-20. The initial civil work has already been started .		
Condition (LII)	No groundwater shall be used for mining operations.		
Compliance	No ground water is being 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>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, 227.5 Ha area land has been excavated till March 2021 out of which 177.20 Ha area has been backfilled. Plantation over 88.5 Ha area of Khottadih OCP has been done since 2014-15.</p> <p>At Dalurband OC Phase-III 47.55 Ha land area has been excavated till March 2021 out of which backfilling has been carried out in 29.85 Ha area.</p> <p>At Madhaipur OC Patch 16.18 Ha land Area has been excavated till March 2021 out of which backfilling has been carried out in 4.19 Ha area. Total plantation till date on backfilled areas and external dump is back on track as per EMP calendar plan. 108.5 Ha plantation has been done so far since 2014-15. During 2020-21, plantation over 32.5 Ha land has been done, out of which plantation over 26 Ha internal OB dump has been done at Khottadih OCP, 0.5 Ha plantation inside the Bauri Para Rehab Site of Khottadih OCP, 1 Ha plantation along the 1.1 Km coal transport road of Khottadih OCP and 5 Ha</p>		

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	<p>plantation over external OB dump created by Dalurband OC Phase-III at Bilpahari.</p> <p>Sonepur Bazari- Continuous back filling is being done in quarried area. Total 907.20 Ha area has been excavated till March, 2021 out of which backfilling is being carried out in 618.49 Ha area. 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. Plantation in 181.0 Ha area has been done so far OB Dumps.</p> <p>Bankola- Continuous back filling is being done in quarried area at Kumardihi-B, Nakrakonda, and Nakrakonda (extension) OCP. Total 124.48 Ha area has been excavated till September 2017 out of which backfilling is being carried out in 15.345 Ha area. Presently the operating mines are underground</p>
Condition (LIV)	<p>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 &amp; Climate Change and to the Central Pollution Control Board quarterly within one month of monitoring.</p>
Compliance	<p>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. For monitoring of groundwater level, Piezometric borewells have been installed at Madhaipur UG and Pandaveswar UG under Pandaveswar Area, Sonepur Bazari, Jhanjra and Bankola Area,</p>
Condition (LV)	<p>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.</p>
Compliance	<p>Rooftop rain water harvesting system has set up at Pandaveswar Area Office premises. No declining trend has been noticed in the water table in the mines 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>Bankola Area- 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. At present three artificial ground water recharge system is constructed i.e. Rainwater Harvesting system near SSpur Agent Office (Approximate quantity of the area covered: 1600 sqm), at Bankola Area Hospital (Approximate quantity of the area covered: 2500 sqm), and Bankola Area Office is constructed. Mine discharged water is supplied by tanker or pipeline to Ukhra village, Shankarpur Village, Kumardihi village, Lal Bangla, Shyamsundarpur village and other locations.</p> <p>Sonepur Bazari- Rainwater Water Harvesting system is installed in Project Office of</p>

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	<p>Sonepur Bazari Area and different colonies under S B Area. Artificial water recharge system like pond has been made in nearby villages. Tanker water is provided to nearby needy villages on demand basis regularly. Financial help is also provided on opening of new wells, their maintenance and installation of hand pumps.</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, Jhanjra Guest House, Chinese Hostel and Jhanjra DAV School. The water requirement of local villages is being fulfilled by the project authorities. A dedicated R.O. Plant of Capacity 5000 LPH for drinking water supply has also been set up at Jhanjra.</p>
Condition (LVI)	Sewage treatment plant shall be installed in the existing colony. ETP shall also be provided for workshop and CHP wastewater.
Compliance	<p>Pandaveswar-Colonies under mines are situated in scattered way and at present sewage generated in the colonies goes through septic tanks. Treatability study has been done for the treatment of sewage coming out of Khottadih colony by IIT (ISM) Dhanbad and recommendation has been done for STP based on SBR process. At present ETP has been constructed for Khottadih UG&amp;OC mine for the treatment of effluent.</p> <p>Jhanjra- Mine water discharge is treated through settling pond and pressure filters. The sewage generated from residential colony is treated through Septic Tanks.</p> <p>Sonepur Bazari- A Sewage Treatment Plant with capacity 600 cum/d is present at R.N. Colony of and an Effluent Treatment Plant with capacity 7200 cum/d is present at workshop for treating workshop and CHP waste water effluent.</p> <p>Bankola- Quantity of effluent generated from mining activities (viz. workshops) are very less, about 10 lit/day for which ETP is not required. Sewage generated from residential colony goes through Septic Tank. The feasibility study of STP at Colony has obtained. The same has already been sent to CMPDIL for Design and Estimation.</p>
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 oustees 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	Complied. Satellite monitoring of Sonepur Bazari Mine is done every year through CMPDIL Ranchi. Reports are being submitted to the MoEF & its Regional office and are also at the website of CMPDIL. Work has been done by CMPDI during the year 2020-21.
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 and approved.
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

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over the balance life of the mine.			
Compliance	<p>CSR works are being carried out time to time in accordance with the Company's Act, 2013.</p> <p>List of CSR activities carried out in Pandaveswar Area during last four financial years is as follows–</p>		
	<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 Area	634638.00
	2019-20	Installation of Solar Street Light in Kendra(GP) & Baidyanathpur(GP)	40.0 Lakhs
		Establishment of Mini science centre at Rakhal Chandra Balika Vidyalaya, Pandaveswar	5.0 Lakhs
		Operation of Mobile Medical Van-6	25.0 Lakhs
	2020-21	Distribution of food items	4.80 Lakhs
		Operation of Mobile Medical Van	8.86 Lakhs
		Training of 50 nos of mining sirdars of community	0.23 Lakhs
	<p>Sonepur Bazari- Socio-economic and other welfare measures under CSR are identified in consultation with the Panchayats of the local villages and administration.</p> <p>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</p> <p>Socio-economic study of Sonepur Village has also been completed.</p>		
	<b>Bankola Area</b>	<b>Distribution of ration</b>	<b>2020-2021</b>
			<b>Rs 4,99,968.00</b>

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		<b>to needy people for COVID-19 by Bankola Area</b>		
		<b>Providing Mining Sirdar training</b>	<b>2020-2021</b>	<b>Rs 21,249.00</b>
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>“Corporate Environment Policy has been formulated for Eastern Coalfields Limited and approved by the concerned Board of Directors. 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>			
<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 coal shall be made.			
Compliance	Complied.No change in the calendar plan of production of quantum of coal is made.			
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	Air quality monitoring is carried out by CMPDIL on fortnightly basis and all desired parameters are well within the prescribed limits.			
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			

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	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 CMPDIL fortnightly and data on ambient air quality are being 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. AAQ reports are enclosed.
Condition (V)	Adequate measures shall be taken for control of noise levels below 85sdBA 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 provided 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 years 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	Pandaveswar Area-Water discharged from the mine is being regularly analyzed by CMPDIL and found conforming 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. Effluent Treatment Plant is present at workshop for treatment of waste water from workshop & CHP. Jhanra- Water discharged from the mine is being regularly analyzed by CMPDIL and found conforming to the MoEF Schedule VI Standards for discharge of effluents. Pressure filters of 32000 GPH capacity exists at Jhanjra to treat the pumped out mine water.
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	

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	Monitoring of environmental parameters is carried out on fortnightly 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 regularly. 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.</p> <p>Regular PME of employees, workers are done for any contractions due to exposure to dust and for other health related issues.</p> <p>PME of Contractual workers is also done. PME done in Pandaveswar Area from April 2020 to March 2021 is as follows:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Month</th> <th>Khottadih UG &amp; OC</th> <th>Madhaipur UG &amp; OC</th> <th>Manderboni -South Samla UG</th> <th>Pandaveswar -Dalurband UG&amp;OC</th> <th>Local Contractors</th> </tr> </thead> <tbody> <tr> <td>April 2020</td> <td>00</td> <td>00</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>May 2020</td> <td>00</td> <td>00</td> <td>05</td> <td>0</td> <td>06</td> </tr> <tr> <td>June 2020</td> <td>37</td> <td>3</td> <td>15</td> <td>19</td> <td>72</td> </tr> <tr> <td>July 2020</td> <td>53</td> <td>09</td> <td>27</td> <td>16</td> <td>25</td> </tr> <tr> <td>August 2020</td> <td>72</td> <td>26</td> <td>70</td> <td>29</td> <td>18</td> </tr> <tr> <td>September 2020</td> <td>73</td> <td>21</td> <td>58</td> <td>41</td> <td>04</td> </tr> <tr> <td>October 2020</td> <td>36</td> <td>8</td> <td>26</td> <td>14</td> <td>42</td> </tr> <tr> <td>November 2020</td> <td>36</td> <td>6</td> <td>6</td> <td>14</td> <td>11</td> </tr> <tr> <td>December 2020</td> <td>91</td> <td>13</td> <td>4</td> <td>5</td> <td>2</td> </tr> <tr> <td>January 2021</td> <td>13</td> <td>12</td> <td>0</td> <td>0</td> <td>46</td> </tr> <tr> <td>February 2021</td> <td>42</td> <td>12</td> <td>2</td> <td>0</td> <td>35</td> </tr> <tr> <td>March 2021</td> <td>5</td> <td>16</td> <td>13</td> <td>0</td> <td>37</td> </tr> </tbody> </table>	Month	Khottadih UG & OC	Madhaipur UG & OC	Manderboni -South Samla UG	Pandaveswar -Dalurband UG&OC	Local Contractors	April 2020	00	00	0	0	0	May 2020	00	00	05	0	06	June 2020	37	3	15	19	72	July 2020	53	09	27	16	25	August 2020	72	26	70	29	18	September 2020	73	21	58	41	04	October 2020	36	8	26	14	42	November 2020	36	6	6	14	11	December 2020	91	13	4	5	2	January 2021	13	12	0	0	46	February 2021	42	12	2	0	35	March 2021	5	16	13	0	37
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## Half Yearly EC Compliance report of Cluster 12, ECL

Period: - October 2020 to March 2021

TOTAL:	458	126	226	138	298																																										
<p>Bankola- Every year, 20% of the employees, workers are covered under occupational health surveillance programme in the form of Periodical Medical Examinations for any contractions due to exposure to dust and for other health related issues.</p> <p>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.</p> <p>PME of 1173 workers was conducted in Bankola Area in FY 2020-21.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 15%;">Name of mine</th> <th style="width: 10%;">Oct-20</th> <th style="width: 10%;">Nov-20</th> <th style="width: 10%;">Dec-20</th> <th style="width: 10%;">Jan-21</th> <th style="width: 10%;">Feb-21</th> <th style="width: 10%;">March-21</th> </tr> </thead> <tbody> <tr> <td>Bankola Colliery</td> <td style="text-align: center;">17</td> <td style="text-align: center;">10</td> <td style="text-align: center;">44</td> <td style="text-align: center;">12</td> <td style="text-align: center;">15</td> <td style="text-align: center;">6</td> </tr> <tr> <td>S.S.Pur Colliery</td> <td style="text-align: center;">2</td> <td style="text-align: center;">5</td> <td style="text-align: center;">1</td> <td style="text-align: center;">26</td> <td style="text-align: center;">20</td> <td style="text-align: center;">57</td> </tr> <tr> <td>Kumardihi A Colliery</td> <td style="text-align: center;">9</td> <td style="text-align: center;">9</td> <td style="text-align: center;">5</td> <td style="text-align: center;">0</td> <td style="text-align: center;">2</td> <td style="text-align: center;">8</td> </tr> <tr> <td>KDH-NK Colliery</td> <td style="text-align: center;">9</td> <td style="text-align: center;">20</td> <td style="text-align: center;">31</td> <td style="text-align: center;">6</td> <td style="text-align: center;">0</td> <td style="text-align: center;">9</td> </tr> <tr> <td>Tilaboni Colliery</td> <td style="text-align: center;">8</td> <td style="text-align: center;">0</td> <td style="text-align: center;">8</td> <td style="text-align: center;">7</td> <td style="text-align: center;">1</td> <td style="text-align: center;">7</td> </tr> </tbody> </table>						Name of mine	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	March-21	Bankola Colliery	17	10	44	12	15	6	S.S.Pur Colliery	2	5	1	26	20	57	Kumardihi A Colliery	9	9	5	0	2	8	KDH-NK Colliery	9	20	31	6	0	9	Tilaboni Colliery	8	0	8	7	1	7
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<p>Sonepur Bazari-Regular PME of employees, workers is done for any contractions due to exposure to dust and for other health related issues.</p> <p>PME of employees is being done regularly. Total 82 PME/IME of employees has been done from April 2020 March 2021 of which 59 are departmental worker and 23 are contractual worker.</p>																																															
Condition (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 been established for all the Areas under Cluster 12. The cell reports to the respective Area GM and GM (Environment and Forest), ECL.																																														
Condition (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.																																														

## Half Yearly EC Compliance report of Cluster 12, ECL

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Compliance	The funds earmarked for environmental protection measures are kept in separate account and are diverted for other purpose. Year-wise expenditure details of plantation work is as follows: -			
	F/Y	Name of Work	Expenditure (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.	2704500.00	
	2019-20	Creation and maintenance of Plantation	3516105.00	
	2020-21	1.	Plantation over 32.5 Ha land and maintenance of plantation	8246250.00
		2.	Construction of Rainwater Harvesting Structure at Khottadih Hostel, Panthnagar Hospital and at DAV School, Pandaveswar	500000.00
		3.	Construction of Oil and Grease trap at Khottadih UG	109000.00
	Bankola Area-Expenditure details:			
	F/Y	Name of Work	Amount	
2018-19	Const. of Haz. Waste Storage Facility at Kum-B and NKD OCP	Rs 1.71 lac		
2018-19	Const. of Haz. Waste Storage Facility at Kum-S and TLB	Rs 1.54 lac		
2019-20	Rainwater Harvesting system at Bankola Area Guest House	Rs 1.83 lac		
2019-20	Const. of Oil & Grease trap at Bankola Colliery Workshop	Rs 1.41 lac		
Condition (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 <a href="http://envfor.nic.in">http://envfor.nic.in</a> .			
Compliance	Complied.			
Condition (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			

## Half Yearly EC Compliance report of Cluster 12, ECL

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	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>	The compliance reports on status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) are being submitted six monthly to the respective Regional Office of the Ministry, respective Zonal Offices of CPCB and the SPCB.
<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>	The EC letter is uploaded on the company's website. It can be found following the URL: <a href="http://www.easterncoal.gov.in/notices/envclr04032015.pdf">http://www.easterncoal.gov.in/notices/envclr04032015.pdf</a>
<b>Condition (XVII)</b>	The Project Proponent shall submit six monthly compliance reports on status 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>	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>	Complied.

### Jhanjra UG – EC Compliance dated 31<sup>st</sup> July, 2020

<b>Condition</b>	Production from Jhanjra shall be increased from 3.50 MTPA to 4.0 MTPA. However, the silo loading facilities should be completed within three years and the production from Jhanjra should be enhanced to 5 MTPA only after commissioning of both the new railway siding, and the silo loading facilities. Also, PP should not
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## Half Yearly EC Compliance report of Cluster 12, ECL

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	seek further extension and expansion without completion of this condition.
<b>Compliance</b>	<p>Agreed. The production of Jhanjra UG shall not be increased beyond 4 MTPA without silo loading and railway siding facilities.</p> <p>The production from 4 MTY to 5 MTY shall be increased only after the commissioning of new railway siding and the silo loading facility. The DPR has been approved by Eastern Railway on 05.12.2019. Further, work Order for construction of railway siding has been given to RITES Ltd on 08.01.2020 of Rs. 241.01 Crores. Estimated time of completion as per work order is 03 years.</p> <p>Also, the work order for construction of CHP of Capacity 5 MTY has been awarded to M/s Shapporji Pallonji Ltd for Rs. 233.69 Crore on 23.12.2020, the period of completion is 02 years. The construction work for CHP has already started.</p>
<b>Condition</b>	The project proponent shall obtain Consent to establish/operate from State Pollution Control Board for the proposed changes in production capacity prior to commencement of increased production.
<b>Compliance</b>	<p>Complied.</p> <p>CTE and CTO for expansion has been obtained on 17.12.2020 and 15.03.2021 respectively.</p>
<b>Condition</b>	Transportation of coal from Coal Handling Plant shall be through covered trucks
<b>Compliance</b>	Complied. The coal is transported through covered trucks.
<b>Condition</b>	To control the production of dust at source, the crusher and in-pit belt conveyors shall be provided with mist type sprinklers.
<b>Compliance</b>	<p>Continuous spraying of water through water spray nozzles is done at the Shearer of every machine for dust suppression at coal face. Fixed sprinklers are also installed along the conveyor belt to check the dust generation.</p> <p>In addition, water spray nozzles/wet fog system will be installed along the conveyor belt, drop points etc. to check fugitive emissions.</p>
<b>Condition</b>	Mitigating measures shall be undertaken to control dust and other fugitive emissions all along the roads by providing sufficient water sprinklers. Adequate corrective measures shall be undertaken to control dust emissions, which would include mechanized sweeping, water sprinkler/mist spraying on haul roads and loading sites, long range misting and fogging arrangement, wind barrier wall and vertical greenery system, green belt, dust suppression arrangement at loading and unloading points etc.
<b>Compliance</b>	<p>Currently, 13 fixed sprinklers are installed at POCP-I railway siding and 16 Nos fixed sprinklers have been installed at POCP-II railway siding and coal depot. In addition, regular spraying of transport road is done to check the fugitive emissions. There is a total of 244.50 Ha plantation at Jhanjra.</p> <p>In future, fixed sprinklers will be installed along the coal transport road under the command area of ECL and spraying of water through mobile sprinkler will be done through mobile sprinklers on the roads outside the command area of ECL.</p>

## Half Yearly EC Compliance report of Cluster 12, ECL

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	Dust suppression arrangements such as long range fogging and misting arrangements, mechanical sweeping, vertical greenery system, green belt will be adopted to minimize the fugitive emissions through dust.
<b>Condition</b>	Continuous monitoring of occupational safety and other health hazards, and the corrective actions need to be ensured.
<b>Compliance</b>	Continuous monitoring of occupational safety and other health hazards is being done as per the regulations and recommendations of DGMS
<b>Condition</b>	Persons of nearby villages shall be given training on livelihood and skill development to make them employable
<b>Compliance</b>	Persons of nearby villages are being given training on livelihood such as Katha stitch projects, vocational training etc under the CSR scheme.
<b>Condition</b>	Thick green belt of adequate width at the final boundary in the down wind direction of the project site shall be developed to mitigate/check the dust pollution
<b>Compliance</b>	Thick green belt in the downwind direction will be planted to check the dust pollution.
<b>Condition</b>	Efforts shall be made for utilizing alternate sources of surface water, abandoned mines or else whatsoever and thus minimizing the dependability on a single source.
<b>Compliance</b>	Techniques such as rainwater harvesting, re-use of mine water etc exists at Jhanjra UG to explore the alternate source of surface water. Domestic water supply at Jhanjra is also done through rainwater harvesting project at abandoned POCP mine.
<b>Condition</b>	Distance from the mine and OB dump shall be 150m away from river all along the bank of river.
<b>Compliance</b>	Not applicable as Jhanjra is a UG mine.
<b>Condition</b>	Continuous monitoring of occupational safety and other health hazards, and the corrective actions need to be ensured.
<b>Compliance</b>	It is being implemented as per DGMS guidelines and the recommendations for corrective actions are implemented.
<b>Condition</b>	A third party assessment of EC compliance shall be undertaken once in three years through reputed government institutes or any other expert agency identified by the ministry.
<b>Compliance</b>	Agreed and Noted.
<b>Condition</b>	Active OB dump should not be kept barren/open and should be covered by temporary grass to avoid air borne of particles.
<b>Compliance</b>	This condition is not applicable as Jhanjra is a UG mine.
<b>Condition</b>	Project proponent to plant 100,000 nos of native trees with broad leaves along the villages and 50,000 nos of native trees along transportation route to prevent the effect of air pollution in 2 years. After completion of tree plantation, number of trees shall be duly endorsed from District Forest Officer and Ministry's Regional Office
<b>Compliance</b>	Agreed. Native trees with broad leaves will be planted along the coal transportation route

## Half Yearly EC Compliance report of Cluster 12, ECL

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	and villages to minimize the air pollution in consultation with the state forest department.
<b>Condition</b>	Project proponent shall obtain blasting permission from DGMS for conducting mining operation near villages and also explore deployment of rock breakers of suitable capacity in the project to avoid blasting very near to villages. There shall be no damages caused to habitation/structures due to blasting activity.
<b>Compliance</b>	Jhanjra is a UG mine. Blasting and all other mining operation is done only after obtaining necessary statutory permissions from DGMS.
<b>Condition</b>	The project proponent shall comply with all the statutory requirements and judgment of Hon'ble Supreme Court dated the 2 <sup>nd</sup> August, 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors. State Govt shall ensure that the entire compensation levied, if any, for illegal mining paid by the project proponent through their respective Department in strict compliance of judgment of Hon'ble Supreme Court dated the 2 <sup>nd</sup> August 2017 in writ petition (Civil) No 114 of 2014 in the matter of common cause versus Union of India and ors.
<b>Compliance</b>	Noted and agreed.
<b>Condition</b>	Proponent shall appoint an occupational health specialist for regular and periodical medical examination of the workers engaged in the project and maintain records accordingly; also, Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smoking etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly. The recommendations of national institute for ensuring good occupational environment of the mine workers shall be implemented; the prevention measures for burns, malaria and provision of anti-snake venom including all other paramedical safeguards may be ensured before initiating the mining activities.
<b>Compliance</b>	Currently there is a 10 bedded hospital at Jhanjra. In additional, regular PME is carried out of employees for occupational and chronic diseases. In addition, health check up of workers working at Mine face will be carried out by NIOH. The recommendations of NIOH will be implemented.
<b>Condition</b>	Project Proponent shall follow the mitigation measures provided in Office Memorandum No Z-11013/57/2014-IA.II (M) dt 29 <sup>th</sup> October, 2014, titled "Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mining lease areas or Habitations and villages are surrounded by the mining lease area"
<b>Compliance</b>	Noted and agreed.
<b>Condition</b>	The illumination of sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PP's must ensure that the biological clock of the villagers is not disturbed; by orienting the flood lights/masks away from the villagers and keeping the noise levels within the prescribed limits for the day/night hours.

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<b>Compliance</b>	Noted and agreed.
<b>Condition</b>	Project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered fauna, if any, spotted in the study area. Action plan for conservation of flora and fauna shall be prepared and implemented in consultation with the state forest and wildlife department. A copy of action plan shall be submitted to the Ministry of Environment, Forest and climate change.
<b>Compliance</b>	A wildlife plan is prepared by Divisional Forest Officer, Durgapur and is being implemented at Jhanjra at a cost of Rs. Rs. 53,64,500/-. The amount has already been deposited to adhoc CMAPA.
<b>Condition</b>	Hon'ble Supreme Court in a writ petition(s) Civil No 114/2014, common cause v/s union of India& ors. vide its judgement dated 8 <sup>th</sup> January, 2020 has directed Union of India to impose a condition in the mining lease and a similar condition in the environmental clearance and the mining plan to the effect that the mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. Compliance of this condition after the mining activity is over at the cost of the mining lease holders/project proponent. The implementation report of the above said condition shall be sent to the regional office of MoEFCC.
<b>Compliance</b>	Noted and agreed.

**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. 12**

**(FOR THE MONTH OF JANUARY, 2021)**

**(BANKOLA, JHANJRA, PANDVESHWAR  
AND SONEPUR BAZARI AREA)**

**Eastern Coalfields Limited**



*cmpdi*  
*A Mini Ratna Company*

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



*cmpdi*  
*A Mini Ratna Company*

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

## **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 sampling stations are as described below:

- i) **Agent office, Kottadih OCP (12A1):** The sampler was placed at agent office of Kottadih OCP. This site was selected to assess the present ambient air quality status in core zone of Kottadih OCP.
- ii) **Kumardihi A colliery store (12A2):** The sampler was placed at store office of Kumardihi colliery. This station was selected to assess the ambient air quality in the core zone where mining activities are in progress.
- iii) **Danya village (12A3):** The air sampler was placed at Danya village to assess the present ambient air quality status in residential area.
- iv) **GM Office Kenda Area (12A4):** The sampler was placed GM office of Kenda area. This site was selected to assess the present ambient air quality status in residential area of buffer zone of Shankarpur OCP of Kenda area.
- v) **Khandra Bisheswar Pit, (12A5):** The sampler was placed at Ichhapur High school. This site was selected to assess the present ambient air quality status in residential area of buffer zone of Madhaiganj colliery.
- vi) **Office of Jhanjra Incline, (12A6):** 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.
- vii) **Dalurband colliery office (12A10):** The sampler was placed at agent office of Dalurband colliery. This station was selected to assess the ambient air quality in the core zone where mining activities are in progress.
- viii) **Manderboni colliery office near railway siding (12A11):** The sampler was placed at pit office of Manderboni colliery. This station was selected to assess the ambient air quality in the core zone where mining activities are in progress.
- ix) **Pandaveshwar pit office near railway siding (12A12):** The sampler was placed at pit office of Pandaveshwar colliery. This station was selected to assess the ambient air quality in the core zone where mining activities are in progress.
- x) **Managers' office Madhaipur colliery near railway siding (12A13):** The sampler was placed at Managers' Office of Madhaipur Colliery. This station was selected to assess the ambient air quality in the core zone where mining activities are in progress.
- xi) **Bankola workshop near railway siding (12A14):** The sampler was placed at Bankola workshop. This station was selected to assess the ambient air quality in the core zone.

**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<sub>10</sub>), Fine Particulate Matter (PM<sub>2.5</sub>), Sulphur Dioxide (SO<sub>2</sub>) and Oxides of Nitrogen (NO<sub>x</sub>) are monitored on fortnight basis. 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<sub>2.5</sub> 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:** In industrial area PM<sub>10</sub> varies from 96.1 to 526.5 µg/m<sup>3</sup> & in residential area from 208.4 to 631.5 µg/m<sup>3</sup>. In industrial area PM<sub>2.5</sub> varies from 19.0 to 556.5 µg/m<sup>3</sup> & in residential area from 12.0 to 189.0 µg/m<sup>3</sup>. In industrial area & in residential area SO<sub>2</sub> below 10 µg/m<sup>3</sup>. In industrial area NO<sub>x</sub> varies from 13.1 to 19.7 µg/m<sup>3</sup> & in residential area from 13.8 to 19.7 µg/m<sup>3</sup>.



**AMBIENT AIR QUALITY DATA**

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

**First fortnight:**

Station Code	Station Name	Category of station	Date of Sampling	Parameter	Analytical Results ( $\mu\text{g}/\text{m}^3$ )	Name of method	Detection limit ( $\mu\text{g}/\text{m}^3$ )
12A1	Agent office, Kottadih OCP	Industrial	5-Jan-21	PM <sub>10</sub>	300.6	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	83.0	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	17.1	IS 5182 (Part 6): 2017	10
12A2	Kumardihi A colliery store	Residential	5-Jan-21	PM <sub>10</sub>	332.9	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	12.0	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	16.8	IS 5182 (Part 6): 2017	10
12A3	Danya village	Residential	4-Jan-21	PM <sub>10</sub>	267.3	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	91.0	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	15.4	IS 5182 (Part 6): 2017	10
12A4	GM Office Kenda Area	Residential	8-Jan-21	PM <sub>10</sub>	295.1	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	99.0	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	14.2	IS 5182 (Part 6): 2017	10
12A5	Khandra Bisheswar Pit	Residential	8-Jan-21	PM <sub>10</sub>	294.6	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	16.2	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	16.3	IS 5182 (Part 6): 2017	10
12A6	Office of Jhanjra Incline	Residential	8-Jan-21	PM <sub>10</sub>	346.7	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	189.0	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	18.7	IS 5182 (Part 6): 2017	10



Station Code	Station Name	Category of station	Date of Sampling	Parameter	Analytical Results ( $\mu\text{g}/\text{m}^3$ )	Name of method	Detection limit ( $\mu\text{g}/\text{m}^3$ )
12A10	Dalurband colliery office	Industrial	1-Jan-21	PM <sub>10</sub>	362.9	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	139.7	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	17.5	IS 5182 (Part 6): 2017	10
12A11	Manderboni colliery office near railway siding	Industrial	4-Jan-21	PM <sub>10</sub>	395.8	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	19.0	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	19.6	IS 5182 (Part 6): 2017	10
12A12	Pandaveshwar pit office near railway siding	Industrial	1-Jan-21	PM <sub>10</sub>	427.8	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	51.0	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	17.8	IS 5182 (Part 6): 2017	10
12A13	Managers' office Madhaipur colliery near railway siding	Industrial	4-Jan-21	PM <sub>10</sub>	235.5	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	61.8	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	15.7	IS 5182 (Part 6): 2017	10
12A14	Bankola workshop near railway siding	Industrial	5-Jan-21	PM <sub>10</sub>	526.5	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	556.5	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	19.4	IS 5182 (Part 6): 2017	10



**Second fortnight:**

Station Code	Station Name	Category of station	Date of Sampling	Parameter	Analytical Results ( $\mu\text{g}/\text{m}^3$ )	Name of method	Detection limit ( $\mu\text{g}/\text{m}^3$ )
12A1	Agent office, Kottadih OCP	Industrial	21-Jan-21	PM <sub>10</sub>	435.6	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	59.0	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	18.3	IS 5182 (Part 6): 2017	10
12A2	Kumardihi A colliery store	Residential	21-Jan-21	PM <sub>10</sub>	328.2	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	56.9	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	16.8	IS 5182 (Part 6): 2017	10
12A3	Danya village	Residential	22-Jan-21	PM <sub>10</sub>	631.5	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	127.0	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	19.7	IS 5182 (Part 6): 2017	10
12A4	GM Office Kenda Area	Residential	20-Jan-21	PM <sub>10</sub>	414.8	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	115.0	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	18.6	IS 5182 (Part 6): 2017	10
12A5	Khandra Bisheswar Pit	Residential	18-Jan-21	PM <sub>10</sub>	284.7	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	49.7	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	14.5	IS 5182 (Part 6): 2017	10
12A6	Office of Jhanjra Incline	Residential	18-Jan-21	PM <sub>10</sub>	208.4	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	40.4	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	13.8	IS 5182 (Part 6): 2017	10
12A10	Dalurband colliery office	Industrial	21-Jan-21	PM <sub>10</sub>	386.1	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	57.0	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	17.2	IS 5182 (Part 6): 2017	10



Station Code	Station Name	Category of station	Date of Sampling	Parameter	Analytical Results ( $\mu\text{g}/\text{m}^3$ )	Name of method	Detection limit ( $\mu\text{g}/\text{m}^3$ )
12A11	Manderboni colliery office near railway siding	Industrial	22-Jan-21	PM <sub>10</sub>	96.1	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	21.0	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	13.1	IS 5182 (Part 6): 2017	10
12A12	Pandaveshwar pit office near railway siding	Industrial	21-Jan-21	PM <sub>10</sub>	398.5	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	54.0	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	18.5	IS 5182 (Part 6): 2017	10
12A13	Managers' office Madhaipur colliery near railway siding	Industrial	22-Jan-21	PM <sub>10</sub>	404.6	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	32.0	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	19.7	IS 5182 (Part 6): 2017	10
12A14	Bankola workshop near railway siding (	Industrial	22-Jan-21	PM <sub>10</sub>	384.6	IS 5182 (Part 23): 2017	3.5
				PM <sub>2.5</sub>	71.3	IS 5182 (Part 24): 2019	2.0
				SO <sub>2</sub>	BDL	IS 5182 (Part 2): 2017	10
				NO <sub>x</sub>	17.4	IS 5182 (Part 6): 2017	10

**Environmental Standards for Ambient Air Quality (AAQ):**

Station Category	Environmental standard for Raniganj Coalfield vide MOEF, Govt. of India, Gazette Notification No. GSR 742 (E) dated 25.09.2000 for 24 hourly samples at 500 meters from dust generating point			National Ambient Air Quality Standards (NAAQS), 2009 for industrial, residential and rural areas for 24 hours samples	
	Pollutant Concentration ( $\mu\text{g}/\text{m}^3$ )				
		PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	PM <sub>2.5</sub>
Industrial	300.0	120.0	120.0	60.0	
Residential	100.0	80.0	80.0		



### CHAPTER – III WATER QUALITY MONITORING

#### 3.1 Mine water sampling stations:

- 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 sprinkling 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) **SonepurBazari 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
- x) **Jhanjra UG (12MW10):** This location has been selected to monitor the discharge quality of mine effluent to natural surface streams after sedimentation tank.
- x) **Tilaboni UG (12MW11):** This location has been selected to monitor the discharge quality of mine effluent to natural surface streams after sedimentation tank
- xi) **Shyamsundarpur UG (12MW12):** This location has been selected to monitor the discharge quality of mine effluent to natural surface streams after sedimentation tank.
- xii) **Bankola UG (12MW13):** This location has been selected to monitor the discharge quality of mine effluent to natural surface streams
- xiii) **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.
- xiv) **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.
- xv) **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:

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 month of September and September when mine water samples are analysed for 29 parameters.

The ground water samples were collected and analysed for 26 parameters during the month of May. Drinking water samples are collected and analysed during the month of September and September.

#### 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/ground water samples.



**First fortnight:**

Sl. No	Parameters	Analytical results (mg/l)					General Standards for Discharge of Effluent (Schedule VI)	Name of Method	Detection Limit (mg/l)
	Station Code	12MW1	12MW2	12MW3	12MW4	12MW5			
	Date of sampling	5-Jan-21	5-Jan-21	5-Jan-21	2-Jan-21	5-Jan-21			
1	pH value	6.83	7.37	7.80	7.58	6.76	5.5 - 9.0	IS 3025 (Part 11): 2017	0.01
2	TSS	14.8	15.4	16.4	18.6	18.4	100	IS 3025 (Part 17): 2017	10.0
3	TDS	671	394	373	464	554	Not specified	IS 3025 (Part 16): 2017	25.0
4	Oil & Grease	BDL	BDL	BDL	BDL	BDL	10	IS 3025 (Part 39): 2019	2.0
5	COD	32	24	16	24	32	250	APHA, 5220 C: 22 <sup>nd</sup> Edition	4.0

Sl. No.	Parameters	Analytical results (mg/l)					General Standards for Discharge of Effluent (Schedule VI)	Name of Method	Detection Limit (mg/l)
	Station Code	12MW6	12MW7	12MW10	12MW11	12MW12			
	Date of sampling	2-Jan-21	2-Jan-21	2-Jan-21	2-Jan-21	2-Jan-21			
1	pH value	6.88	6.93	8.03	7.44	7.89	5.5 - 9.0	IS 3025 (Part 11): 2017	0.01
2	TSS	15.8	15.8	17.6	15.2	16.0	100	IS 3025 (Part 17): 2017	10.0
3	TDS	534	546	328	358	475	Not specified	IS 3025 (Part 16): 2017	25.0
4	Oil & Grease	BDL	BDL	BDL	BDL	BDL	10	IS 3025 (Part 39): 2019	2.0
5	COD	24	36	16	24	28	250	APHA, 5220 C: 22 <sup>nd</sup> Edition	4.0



Sl. No.	Parameters	Analytical results (mg/l)				General Standards for Discharge of Effluent (Schedule VI)	Name of Method	Detection Limit (mg/l)	
		Station Code	12MW13	12MW14	12MW15				12MW16
		Date of sampling	2-Jan-21	5-Jan-21	2-Jan-21				5-Jan-21
1	pH value	6.74	7.37	7.22	7.41	5.5 - 9.0	IS 3025 (Part 11): 2017	0.01	
2	TSS	17.4	16.7	18.3	17.2	100	IS 3025 (Part 17): 2017	10.0	
3	TDS	254	546	421	337	Not specified	IS 3025 (Part 16): 2017	25.0	
4	Oil & Grease	BDL	BDL	BDL	BDL	10	IS 3025 (Part 39): 2019	2.0	
5	COD	32	36	40	28	250	APHA, 5220 C: 22 <sup>nd</sup> Edition	4.0	

**Second fortnight:**

Sl. No	Parameters	Analytical results (mg/l)					General Standards for Discharge of Effluent (Schedule VI)	Name of Method	Detection Limit (mg/l)	
		Station Code	12MW1	12MW2	12MW3	12MW4				12MW5
		Date of sampling	20-Jan-21	20-Jan-21	20-Jan-21	18-Jan-21				20-Jan-21
1	pH value	6.83	7.30	7.74	7.88	6.83	5.5 - 9.0	IS 3025 (Part 11):201	0.01	
2	TSS	14.2	15.1	16.3	16.3	18.0	100	IS 3025 (Part 17):201	10.0	
3	TDS	628	323	349	434	561	Not specified	IS 3025 (Part 16):	25.0	
4	Oil & Grease	BDL	BDL	BDL	BDL	BDL	10	IS 3025 (Part 39):	2.0	
5	COD	40	24	20	24	32	250	APHA, 5220 C: 22 <sup>nd</sup> Edition	4.0	



Sl. No.	Parameters	Analytical results (mg/l)					General Standards for Discharge of Effluent (Schedule VI)	Name of Method	Detection Limit (mg/l)	
		Station Code	12MW6	12MW7	12MW10	12MW11				12MW12
		Date of sampling	20-Jan-21	18-Jan-21	18-Jan-21	18-Jan-21				18-Jan-21
1	pH value	7.88	7.02	8.10	7.93	7.98	5.5 - 9.0	IS 3025 (Part 11):201	0.01	
2	TSS	15.2	17.0	17.2	16.9	18.4	100	IS 3025 (Part 17):201	10.0	
3	TDS	529	570	794	362	473	Not specified	IS 3025 (Part 16):	25.0	
4	Oil & Grease	BDL	BDL	BDL	BDL	BDL	10	IS 3025 (Part 39):	2.0	
5	COD	24	44	32	36	20	250	APHA, 5220 C: 22 <sup>nd</sup> Edition	4.0	

Sl. No.	Parameters	Analytical results (mg/l)				General Standards for Discharge of Effluent (Schedule VI)	Name of Method	Detection Limit (mg/l)	
		Station Code	12MW13	12MW14	12MW15				12MW16
		Date of sampling	18-Jan-21	20-Jan-21	18-Jan-21				20-Jan-21
1	pH value	6.86	7.18	7.16	7.32	5.5 - 9.0	IS 3025 (Part 11): 2017	0.01	
2	TSS	17.2	14.2	16.2	19.4	100	IS 3025 (Part 17): 2017	10.0	
3	TDS	276	578	431	352	Not specified	IS 3025 (Part 16): 2017	25.0	
4	Oil & Grease	BDL	BDL	BDL	BDL	10	IS 3025 (Part 39): 2019	2.0	
5	COD	24	36	32	28	250	APHA, 5220 C: 22 <sup>nd</sup> Edition	4.0	

\*BDL-Below Detection Limit

All values are expressed in mg/l except pH.



**cmpdi**  
*A Mini Ratna Company*

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Environment Laboratory, CMPDIL, RI-I, Asansol

**Ground water level for the month of January' 2021**

Sl. No.	Station Code	Location of Dugwell	Date of measurement	Water level (in Meters) Below Ground Level	MP (m)	Depth (m)	Dia (m)	Owner	Utility
1	12GWL1	Dugwell at NHS Qtrs Khottadih beside primary school	25-Jan-21	2.35	0.6	4.5	1.6	Govt. School	Domestic
2	12GWL2	Dugwell at Konda Regional Hospital	26-Jan-21	6.55	0.85	12.5	2.4	ECL	Domestic
3	12GWL3	Dugwell at NHS Qtrs of Danya village	25-Jan-21	3.55	0.95	6.9	1.05	ECL	Domestic
4	12GWL4	Dugwell at Ichhapur high school		Not done	0.6	18.5	1.8	Govt. School	Domestic
5	12GWL5	Dugwell at Kumardih "A" colliery	26-Jan-21	4.90	1.2	8.2	2.05	ECL	Domestic



**Piezometer water level for the month of January'2021**

3.4 **Location of Piezometer sites and their rationale:** Total 30 nos. of piezometers have been constructed by ECL at different locations in clusters and standalone projects for measurement of ground water level.

Ground water level is measured in all piezometers on quarterly basis to assess the impact of mining activities on ground water level. The following piezometer has been constructed in cluster 12

- i) **Jhanjra (Area office) (12/JH/JP-01):** A piezometer has been constructed to measure the ground water level at Jhanjra area of cluster 12.
- ii) **Sonepur Bazari (Near Magazine house) (12/SB/SP-03):** A piezometer has been constructed to measure the ground water level at Sonepur Bazari Area of cluster 12.
- iii) **Pandaveswar (Madhaipur UG) (12/PD/MP-08):** A piezometer has been constructed to measure the ground water level at Madhaipur UG, Pandaveswar Area of cluster 12.
- iv) **Pandaveswar (Pandaveswar UG) (12/PD/PP-10):** A piezometer has been constructed to measure the ground water level at Pandaveswar UG of cluster 12.
- v) **Bankola (Tilaboni) 12/BN/TP-11):** A piezometer has been constructed to measure the ground water level at Tilaboni Colliery, Bankola Area of cluster 12.

Sl. No.	Station Code	Location of Piezometer	Date of measurement	Water level (in Meters) Below Ground Level
1	12/JH/JP-01	Jhanjra (Area office)	27.01.21	5.60
2	12/SB/SP-03	Sonepur Bazari (Near Magazine house)	27.01.21	5.10
3	12/PD/MP-08	Pandaveswar (Madhaipur UG)	27.01.21	5.45
4	12/PD/PP-10	Pandaveswar (Pandaveswar UG)	27.01.21	16.55
5	12/BN/TP-11	Bankola(Tilaboni)	27.01.21	8.45