

HALF YEARLY
ENVIRONMENT CLEARANCE COMPLIANCE REPORT
OF
CLUSTER 11
J-11015/245/2011-IA.II(M)
FOR THE PERIOD OF
April 2018 TO September 2018



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



EASTERN COAL FIELDS LIMITED
A subsidiary of Coal India Limited.
Office of the Agent
Lower Kenda & Bahula , Kenda Area.
P.O:- Bahula , Dist: - Burdwan.
Pin:-713322. West Bengal

UNDERTAKING

Information provided in Half yearly EC compliance report for the period April '18 to Sept '18 in respect of the following mines of Cluster no. 11 is true to the best of my knowledge:

SL NO.	MINES	NAME OF THE MANAGER	SIGNATURE OF THE MANAGER
1.	Lower Kenda (UG)	B.R. Manna	
2.	Bahula (UG)	S. Anand	

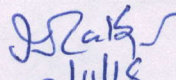
Agent
(Bahula & Lower Kenda Mines)



EASTERN COAL FIELDS LIMITED
A subsidiary of Coal India Limited.
Office of the Agent
New Kenda Group of Mines, Kenda Area.
P.O:- Kenda , Dist: - Burdwan.
Pin:-713342. West Bengal

UNDERTAKING

Information provided in half yearly EC compliance report for the period April '18 to Sept'18 in respect of the following mines of Cluster no. 11 is true to the best of my knowledge:

SL NO.	MINES	NAME OF THE MANAGER	SIGNATURE OF THE MANAGER
1.	New Kenda (UG)	INDRANATH CHATTERJEE	 02/11/18
2.	W kenda OC Patch/mine(49 Ha)		
3.	New Kenda OC mine		

Agent
(New Kenda Group of Mines) 02/11/18

Ret no: -sid/Agmt/PNT/18/2285

DT-31/10/18



EASTERN COAL FIELDS LIMITED
A subsidiary of Coal India Limited.
Office of the Agent
C L Jambad & Siduli , Kenda Area.
P.O:- Bahula , Dist: - Burdwan.
Pin:-713322. West Bengal

UNDERTAKING

Information provided in Half yearly EC compliance report for the period April '18 to Sept'18 in respect of the following mines of Cluster no. 11 is true to the best of my knowledge:

SL NO.	MINES	NAME OF THE MANAGER	SIGNATURE OF THE MANAGER
1.	CL Jambad (UG)	T. JANA	
2.	Siduli (UG + OC)	R.K.P. SINGH	

30/10/18

Agent
(CL Jambad & Siduli Mines)



EASTERN COAL FIELDS LIMITED
A subsidiary of Coal India Limited.
Office of the Agent
Chora Haripur Group of Mines, Kenda Area.
P.O:- Haripur, Dist: - Burdwan.
Pin:-713378. West Bengal

UNDERTAKING

Information provided in Half yearly EC compliance report for the period April '18 to Sept '18 in respect of the following mines of Cluster no. 11 is true to the best of my knowledge:

SL NO.	MINES	NAME OF THE MANAGER	SIGNATURE OF THE MANAGER
1.	Krishnagar(UG)		
2.	Haripur group of Mines	Badrinath Singh	Badrinath Singh 16/11/18
i)	Haripur (UG + OC)		
ii)	Chora 10 pit	Subimal Acharya	
iii)	Chora 7,9 pit	Abhijit Kundu	

Agent

(Krishnanagar/Haripur(UG+OC)/Chora 7,9 pit/Chora 10 pit)



EASTERN COAL FIELDS LIMITED
A subsidiary of Coal India Limited.
Office of the Agent
CBI/Shankarpur OC Patch/Bonbahal OC, Kenda Area.
P.O:- Bahula , Dist: - Burdwan.
Pin:-713322. West Bengal

UNDERTAKING

Information provided in Half yearly EC compliance report for the period April '18 to Sept '18 in respect of the following mines of Cluster no. 11 is true to the best of my knowledge:

SL NO.	MINES	NAME OF THE MANAGER	SIGNATURE OF THE MANAGER
1.	CBI(UG)	<i>Rinosh Sharma.</i>	<i>[Signature]</i> 05/11/18
2.	Bonbahal OC Patch(25 Ha)		
3.	Shankarpur/CL Jambad OC Patch/mine(52 Ha)		

[Signature]
Agent

(CBI (UG)/ Bonbahal OC Patch/ Shankarpur OC Patch mines)

EASTERN COALFIELDS LIMITED
(A Subsidiary of Coal India Limited)

Office of the Agent
Shankarpur 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.: *SNP/mgr/2018/A/352*

Dated: *16.11.2018*

UNDERTAKING

Information provided in Half yearly EC compliance report for the period April'18 to September'18 in respect of the Shankarpur Colliery of Cluster No. 11 is true to the best of my knowledge:

B. 16/11/18
Agent

Shankarpur Colliery

B. 16/11/18
Manager

Shankarpur Colliery

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.: Ag/KC/Env/18/406

Dated: 16-11-2018

UNDERTAKING

Information provided in Half yearly EC compliance report for the period April'18 to September'18 in respect of the Khandra Colliery of Cluster No. 11 is true to the best of my knowledge:


Agent
Khandra Colliery

Specific conditions:

Condition no.(i)	The Maximum production from the mine at any given time shall not exceed the limit as prescribed in the EC.		
Compliance	Complied		
	S.No	Name of Mines	Peak EC Capacity (MTPA)
			Production from(April '18 to Sept '18) (MT)
	1	Krishnanagar (U/G)	0.05
			Temporarily closed.
	2	Haripur Group of Mines	2.30
			0.370258
	A	Haripur(U/G + OC)	0.75
			Haripur UG is Temporarily closed & OCP Not yet started.
	B	CBI(U/G)	0.10
			0.028345
	C	Chora 7,9 & 10 pit(U/G)	0.15
			0.071937
	D	Bonbahal OC Patch(OCP)	0.5
			0.084846
	E	Shankarpur/CL Jambad OC Patch/Mine(52 Ha)	0.8
			0.18513
	3	New Kenda Group of Mines	2.00
			0.007056
	A	New Kenda (UG)	0.05
			0.007056
	B	West Kenda OC Patch/Mines	0.75
			Not yet started.
	C	New Kenda OC mine(240 Ha)	1.2
			Production from the mines not yet started.
	4	Bahula Group of Mines	0.45
			0.132497
	A	Lower Kenda(U/G)	0.15
			0.027904
	B	Bahula (U/G)	0.25
			0.080047
	C	CL Jambad (U/G)	0.05
			0.024546
	5	Siduli(U/G +OC)	1.2
			0.050335, OCP not yet started.
	6	Khandra U/G	0.39
			0.041606
	7	Shankarpur U/G	2.30
			0.078826
	8	Khandra U/G	0.39
			0.041606
	9	Shankarpur U/G	2.30
			0.078826

Kenda area, Half Yearly Compliance Report for (Cluster -11)
 EC No. (J-11015/245/2011-IA-II.(M)),Dt.29th November 2016)
 Period: April '2018 to Sept '2018

Condition(ii)	The validity of the EC is for the life of mine or as specified in the EIA Notification, 2006 whichever is earlier.
Compliance	Agreed.
Condition(iii)	The socio economic study conducted by PP needs to be authenticated by an institute of repute such as Indian institute of forest Management /XLRI, Jamshedpur.
Compliance	This condition contained in EC letter No. J-11015/245/2011/-IA-II(M),dated 21st July 2015, with amendment dated 29th November 2016 of Cluster 11 has been deleted as per letter no. J-11015/245/2011/-IA-II(M),Dated 10th Sept. 2018 issued by MoEF. (As per Annexure-I)
Condition (iv)	All safety measures shall be taken as per CMR, 1957 & related circulars.
compliance	All safety measures are being taken as per CMR- 1957 & related Circulars.
Condition(v)	The production shall be within mining lease area.
Compliance	The production is within the same Mining lease.
Condition(vi)	The loading system from Continuous Miner to Mine Car needs to be improved to utilize the continuous miner efficiently.
Compliance	Kenda: There is no continuous miner in the Kenda & Bankola area of cluster No.11. Bankola: Not applicable. There is no continuous miner in Khandra and Shankarpur Colliery under Bankola Area.
Condition(vii)	There shall be no external dump and mine voids at the end of mining. The land shall be brought back the surface level for agricultural use.
compliance	Kenda: The backfilling is being done as per mine closure plan and after technical reclamation, biological reclamation is being done as per MCP. Bankola: Not applicable since there is no OC in Cluster 11 under Bankola Area.
Condition(viii)	Controlled blasting in all the mines to be resorted to.
compliance	Noted and Agreed.
Condition(ix)	Till the OB dump is re-handled, it shall be covered with grass cover.
compliance	Noted and Agreed.
Condition(x)	Suitable garland drains and settling tank be provided.
compliance	Garland drains have been provided wherever is required.
Condition(xi)	Socio-economic study to be carried out in order to establish the necessity of mining on New Kenda OC Patch. Presently, EC is recommended to the cluster without New Kenda OCP.
compliance	This condition contained in EC letter No. J-11015/245/2011/-IA-II(M),dated 21st July 2015, with amendment dated 29th November 2016 of Cluster 11 has been deleted as per letter no. J-11015/245/2011/-IA-II(M),Dated 10th Sept. 2018 issued by MoEF. (As Per Annexure-I).

Kenda area, Half Yearly Compliance Report for (Cluster -11)
 EC No. (J-11015/245/2011-IA-II.(M)),Dt.29th November 2016)
 Period: April '2018 to Sept '2018

Condition(xii)	Coal transportation shall be: in pit underground mine-coal tubs at the faces are being hauled by Tugger Haulage; opencast mine-coal at surface is transported to the nearby coal depot by dumpers through tippers, surface to siding by dumpers.
compliance	It is being complied.
Condition(xiii)	Independent network of railway sidings inside the cluster to be developed and should be constructed at the earliest till then proponent may use mechanically covered trucks for transportation of coal.
compliance	Kenda: Bahula railway siding is inside the cluster. Coal transportation to railway siding from coal depot is being done by tarpaulin covered truck . Bankola: There are currently active 2 railways sidings (Bankola I and Bankola II) serving to the mines under Bankola Area. Transportation of coal from mine to railway siding is being done by tarpaulin covered trucks.
Condition(xiv)	Three tier green plants shall be raised around the railway sidings and along the road side to prevent dust and noise pollution.
compliance	Both sides of connecting roadway are well vegetated naturally. Plantation along 5.5km roadways has been done along coal transportation road and siding. The species planted are as follows- <ul style="list-style-type: none"> • Tagar nana • Duranta goldiana • Ixora nana • Hibiscus • Mosanda • Almunda • Phutus • Palm • Spathodia • Lagerstroema • Cassia delonix • Ashok • Polyalthia • Callistemon
Condition(xv)	Stowing and depillaring shall be as per the recommendations of the DGMS.
compliance	Stowing and depillaring is being done as per recommendations of the DGMS.
Condition(xvi)	The proponent must comply with the Raniganj Action Plan .The unstable area within the cluster will be brought under the plantation after the population residing over these areas is rehabilitated under the Master Plan for Raniganj Coalfields to be implemented by ADDA.
compliance	Job is being implemented by ADDA.
Condition(xvii)	Trees with deep rooted system should be planted so as to prevent soil erosion.
compliance	Deep rooted tree species planted are as follows- Neem, Seemul, Karanch, Shisham, Arjun, Babool & Sirish in consultation with DFO, Durgapur.
Condition(xviii)	Proponent should plant additional 10 Ha/year over the next 10 years at various locations in the cluster.

Kenda area, Half Yearly Compliance Report for (Cluster -11)
 EC No. (J-11015/245/2011-IA-II.(M)),Dt.29th November 2016)
 Period: April '2018 to Sept '2018

compliance	<p>At Kenda Area, during 2015-16, 10 Ha plantation, in 2016-17, 16 Ha of plantation & in 2018-19, 3 Ha of plantation with density 2500 species /Ha have been planted in kenda area under cluster 11. The details of plantation is as follows:-</p> <ol style="list-style-type: none"> 1. OB Dump Area-----14 Ha (10 Ha in FY 2015-16 & 4 Ha in FY 2016-17). 2. Backfilled Area-----3 Ha(in FY 2016-17). 3. Others-----9 Ha (in FY 2016-17). 4. Backfilled Area-----3 Ha (in FY 2018-19). <p>At Bankola Area, 12 ha plantation and 5.5 km roadside plantation has been completed in 2016-17. In Bankola: 12 ha plantaion and 5.5 km roadside plantation has been completed in Bankola Area in 2016-17.</p>
Condition(xix)	Rivers/nallahs shall be desilted and restored back to functional state.
Compliance	<p>Kenda: There is no siltation from the mine into Rivers/Nallahs. However cleaning of nallahs is an annual pre monsoon activity in each mine of the cluster.</p> <p>Bankola: At present 2 nos. UG mines are working under Bankola Area in Cluster-11.No activity is carried out in the UG mines which may cause siltation in any river/nallah in vicinity. However, river/nallah shall be desilted and restored back to functional state when required.</p>
Condition(xx)	Wildlife conservation plan be prepared and submitted to MOEFCC with the approval of the state Govt.
compliance	No forest /Wildlife area falls under mining lease areas of mines under Cluster 11.
Condition(xxi)	Proponent shall use high resolution image of all clusters for evaluating land use, plantation etc.
compliance	Land use pattern and plantation is being monitored by satellite surveillance based on satellite imagery.
Condition(xxii)	Separate drainage pattern be provided with the approval of competent authority.
compliance	Noted and Agreed.
Condition(xxiii)	Sand stowing must be used as recommended by CMPDI.
compliance	Sand stowing is being used as recommended by CMPDIL.
Condition(xxiv)	Action plan for prevention and mitigation of subsidence be prepared and implemented.
compliance	Agreed.
Condition(xxv)	The OC Patch to be operated will be completely filled-up after exhaustion of reserves and reclaimed with plantation.
Compliance	<p>Kenda: The OC Patch to be operated is being filled up as per approved mine closure plan and at the end of technical reclamation, Biological reclamation will be done as per Approved mine closure plan.</p> <p>Bankola: Not applicable since there is no OC in Cluster 11 under Bankola Area.</p>
Condition(xxvi)	After completion of mining activities, the subsided areas shall be graded and planted upon.
Compliance	Noted and Agreed.

Kenda area, Half Yearly Compliance Report for (Cluster -11)
EC No. (J-11015/245/2011-IA-II.(M)),Dt.29th November 2016)
Period: April '2018 to Sept '2018

Condition(xxvii)	Coal Extraction shall also be optimized in areas where agricultural 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	Coal Extraction is being carried out as per DGMS permissions and guidelines.
Condition(xxviii)	Water discharged from the mine should be as good as surface drinking water.
compliance	<p>Kenda: The Mine water is fortnightly tested for parameters namely pH, TSS, TDS, Oil and Grease and COD and conforms to MoEF Schedule-VI standards.(As per Annexure-II). At Present, in Kenda area, Water treatment plant (having pressure filter and chlorination unit) at Bahula Colliery, Siduli colliery, New Kenda Colliery, Lower Kenda ,Haripur, C L Jambad, Chora 7,9 Pit (Not fully commissioned) have been installed and at Shankarpur Colliery of Bankola Area one pressure filter have been commissioned. Commissioning and installation of one Filter plant at New kenda for kenda village under CSR Activity is under progress.</p> <p>Bankola: Mine discharge water is being treated in</p> <ul style="list-style-type: none"> i) Pressure filter – 1 unit each at Kumardihi ‘B’, Bankola, Shankarpur, Kumardihi ‘A’, and Tilaboni colliery. 2 units at SSP colliery. ii) Slow Sand Filter – 1 unit each at Moira Colliery and Area Complex. 2 units each at Khandra colliery and SSP colliery. iii) Rapid Gravity Filter – 1 unit at Bankola Colliery. iv) Reverse Osmosis Plant – 1 unit at Bankola Colliery. <p>The water is fortnightly tested for parameters namely pH, TSS, TDS, Oil & Grease and COD and conforms to the MoEF Schedule-VI Standards. The water is then used for domestic and mining uses.</p> <p>Bankola: Mine discharge water is being treated in</p> <ul style="list-style-type: none"> i) Pressure filter – 1 unit each at Kumardihi ‘B’, Bankola, Shankarpur, Kumardihi ‘A’, and Tilaboni colliery. 2 units at SSP colliery. ii) Slow Sand Filter – 1 unit each at Moira Colliery and Area Complex. 2 units each at Khandra colliery and SSP colliery. iii) Rapid Gravity Filter – 1 unit at Bankola Colliery. iv) Reverse Osmosis Plant – 1 unit at Bankola Colliery. <p>The water is fortnightly tested for parameters namely pH, TSS, TDS, Oil & Grease and COD and conforms to the MoEF Schedule-VI Standards. The water is then used for domestic and mining uses.</p>
Condition(xxix)	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, surroundings, shall be continued till movement ceases completely. In case of observation of high rate of subsidence movement, appropriate effective corrective measure shall be

Kenda area, Half Yearly Compliance Report for (Cluster -11)
 EC No. (J-11015/245/2011-IA-II.(M)),Dt.29th November 2016)
 Period: April '2018 to Sept '2018

	taken to avoid loss of life and material. Cracks shall be effectively plugged with blast and clayey soil/suitable material.												
compliance	Regular inspection is being done by the pit safety committee headed by Safety Officer on the surface over and around the working area for any sign of subsidence.												
Condition(xxx)	If subsidence is found exceeding the permitted limits, then the landowner shall be adequately compensated with mutual agreement of the landowners.												
compliance	Noted and Agreed.												
Condition(xxxi.)	Water sprinkler 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	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.21 Nos. of fixed type sprinkler has been installed along Bahula railway sidings under Kenda Area (ECL). Fixed water sprinklers have been installed at Bankola I and Bankola II Railway Sidings under Bankola Area.												
Condition(xxxii)	The CSR cost should be Rs 5 per tonnes of coal produced which should be adjusted as per the annual inflation.												
compliance	<p>Bankola: 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. No CSR expenditures has yet incurred in FY 2018-19. (Annexure-A).</p> <p>Kenda: As per the revised CSR policy of CIL, 2% of the avg. net profit of preceding three years is the norm for CSR activities in the entire ECL command area. The following CSR activity which is in progress in Kenda Area (ECL) is mentioned below:-</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">S. No.</th> <th style="width: 35%;">Name of the activity</th> <th style="width: 20%;">Awarded value of work</th> <th style="width: 30%;">Status of activity</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1.</td> <td>Water supply arrangements to Kenda Village, Kenda Mouza, Kenda Area (ECL)</td> <td style="text-align: center;">Rs. 75,26,610.08</td> <td>Work is in progress.</td> </tr> <tr> <td style="text-align: center;">2.</td> <td>Repairing of 4 Nos. damaged Class rooms of Ukhra Nehru Vidyapith Higher Secondary School.</td> <td style="text-align: center;">Rs. 19,788,16</td> <td>Work is in progress.</td> </tr> </tbody> </table>	S. No.	Name of the activity	Awarded value of work	Status of activity	1.	Water supply arrangements to Kenda Village, Kenda Mouza, Kenda Area (ECL)	Rs. 75,26,610.08	Work is in progress.	2.	Repairing of 4 Nos. damaged Class rooms of Ukhra Nehru Vidyapith Higher Secondary School.	Rs. 19,788,16	Work is in progress.
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Kenda area, Half Yearly Compliance Report for (Cluster -11)
 EC No. (J-11015/245/2011-IA-II.(M)),Dt.29th November 2016)
 Period: April '2018 to Sept '2018

Condition(xxxiii)	The mining in the existing mines should be phased out after expiry of the current mining lease and after reclamation of the mines over area. The operating mine may be analyzed and monitored for compliance of conditions, bearing with movement of wildlife and until such time they are closed /phased out.																			
compliance	Noted and Agreed.																			
Condition(xxxiv)	Everybody in the core area should be provided with mask for protection against fugitive dust emissions.																			
compliance	In order to provide protection against fugitive dust emission, dust masks are being provided to people working in the core area.																			
Condition(xxxv)	Dust mask to be provided to everyone working in the mining area.																			
compliance	Dust mask have been provided to everyone working in the mining area.																			
Condition(xxxvi)	The supervisory staff should be held personally responsible for ensuring compulsory regarding wearing of dust mask in the core area.																			
compliance	Supervisory staff ensures compulsory wearing of the dust masks in the core area.																			
Condition(xxxvii)	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	<p>Bankola: 20% of the work force is covered under periodic medical examination each year including lung diseases the cost of which is borne by the company. Periodic Medical Examination (PME) of 766 employees has been done within Apr'18-Sep'18 in FY 2018-19.</p> <p>Kenda: 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. Total no. of person which has gone through PME in the FY 2018-19 till Sept'2018 is given below:-</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Name of the Area</th> <th>Month</th> <th>PME achievement for the Month (Nos. of Person)</th> </tr> </thead> <tbody> <tr> <td rowspan="6" style="text-align: center;">Kenda Area</td> <td>April'2018</td> <td style="text-align: center;">46</td> </tr> <tr> <td>May'2018</td> <td style="text-align: center;">78</td> </tr> <tr> <td>June'2018</td> <td style="text-align: center;">65</td> </tr> <tr> <td>July'2018</td> <td style="text-align: center;">146</td> </tr> <tr> <td>August'2018</td> <td style="text-align: center;">123</td> </tr> <tr> <td>September'2018</td> <td style="text-align: center;">96</td> </tr> <tr> <td colspan="2" style="text-align: center;">Total</td> <td style="text-align: center;">554</td> </tr> </tbody> </table>	Name of the Area	Month	PME achievement for the Month (Nos. of Person)	Kenda Area	April'2018	46	May'2018	78	June'2018	65	July'2018	146	August'2018	123	September'2018	96	Total		554
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Condition(xxxviii)	<p>Bankola: UG mines cause very low pollution load which is concentrated in mine working faces and transfer points. The collieries are surrounded by densely populated village and private agricultural lands. Natural vegetation exist around mines. Plantation is being carried out wherever land is available. However, at Bankola Area, 12 ha plantation along with 5.5 km roadside plantation is created on 2016-17.</p> <p>Kenda: The mining area should be surrounded by green belt having thick closed thick canopy of the tree cover.</p>																			

Kenda area, Half Yearly Compliance Report for (Cluster -11)
 EC No. (J-11015/245/2011-IA-II.(M)),Dt.29th November 2016)
 Period: April '2018 to Sept '2018

compliance	Noted and Agreed.																			
Condition(xxxix)	Besides carrying out periodic health check up of their worker,10 % of the worker 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	<p>Bankola: We are carrying out Periodical Medical Examination (PME) for all employees once in every 5 years (@ 20% employees/year). This PME is mandatory for all employees. Special cases diagnosed during such PMEs are monitored at shorter intervals as directed by the PME Board of Doctors. All serious diseases and impairments are reported to DGMS at regular intervals. The details are given in Annexure B. Noted and agreed.</p> <p>Kenda: 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. Total no. of person which has gone through PME in the FY 2018-19, till Sept'18 is given below:-</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Name of the Area</th> <th style="width: 30%;">Month</th> <th style="width: 40%;">PME achievement for the Month (Nos. of Person)</th> </tr> </thead> <tbody> <tr> <td rowspan="6" style="text-align: center;">Kenda Area</td> <td>April'2018</td> <td style="text-align: center;">46</td> </tr> <tr> <td>May'2018</td> <td style="text-align: center;">78</td> </tr> <tr> <td>June'2018</td> <td style="text-align: center;">65</td> </tr> <tr> <td>July'2018</td> <td style="text-align: center;">146</td> </tr> <tr> <td>August'2018</td> <td style="text-align: center;">123</td> </tr> <tr> <td>September'2018</td> <td style="text-align: center;">96</td> </tr> <tr> <td colspan="2" style="text-align: center;">Total</td> <td style="text-align: center;">554</td> </tr> </tbody> </table>	Name of the Area	Month	PME achievement for the Month (Nos. of Person)	Kenda Area	April'2018	46	May'2018	78	June'2018	65	July'2018	146	August'2018	123	September'2018	96	Total		554
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Total		554																		
Condition(xl)	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	Not applicable as there is no river within the mine leased area of the colliery.																			
Condition(xli)	There shall be no overflow of OB into the river and into the agricultural fields and massive plantation of native species shall be taken up in the area between the river and the project.																			
compliance	There is no river in the vicinity of the cluster.																			
Condition(xlii)	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																			

Kenda area, Half Yearly Compliance Report for (Cluster -11)
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	maintained properly. Garland drains (size, gradient, 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	Catch drains and siltation ponds have been provided at the toe of the dumps wherever required.
Condition(xliii)	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 site. Sump capacity shall also provide adequate retention period to allow proper settling of silt material.
compliance	<p>Kenda: Noted and Agreed.</p> <p>Bankola: 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. Width of garland drains are usually kept at 0.90 m while depth of the drain varies from 0.6 m to 1.5 m depending on the catchment and gradient of the drain.</p> <p>Garland drain wherever required are maintained and required sump capacity is also maintained in the mine.</p>
Condition(xliv)	Dimension of the retaining wall at the toe of dumps and OB benches within the mine to check runoff and siltation shall be based on the rainfall data.
compliance	To check runoff and siltation, proper benching in dump is being done while maintaining slope stability. Regular Plantation on OB dumps is being done to stabilize the dumps.
Condition(xlv)	Crushers at the CHP of adequate capacity for the expansion project shall be operated with high efficiency bag filters, water sprinkler system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points etc.
compliance	<p>Kenda: The CHP of Bahula siding inside the cluster is equipped with water sprinkler to arrest fugitive emissions from crushing operations. Apart from tha, fixed type sprinkler has been installed along bahula railway sidings under Kenda Area (ECL).</p> <p>Bankola: Not applicable as there are no CHP under Bankola Area within the cluster.</p>
Condition(xlvi)	Mine discharge water outside the ML shall be monitored, particularly for TDS, and treated to conform to prescribed levels before discharge into natural environment.

compliance	Complied. Mine water discharge quality complies with prescribed standards. Regular monitoring is done by CMPDIL. The quality of mine water is within permissible limits. Mine water quality report are enclosed. (As per annexure II).																		
Condition(xlvii)	Drills shall be wet operated.																		
compliance	Noted and Agreed.																		
Condition(xlviii)	The project authority shall undertake regular repairing and tarring of roads used for mineral transportation. A 3-tier green plants comprising of a mix of native species shall be developed all along the major approach roads.																		
compliance	<p>Kenda: As per requirement, Regular repairing and tarring of roads are being taken on priority basis.</p> <p>Bankola: As per requirement, Regular repairing and tarring of roads are being taken on priority basis. Both sides of approach roadway are well vegetated naturally. Plantation Done:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Year</th> <th>Name of Species</th> <th>Area in Ha</th> <th>No. of saplings</th> <th>Density</th> <th>Survival rate</th> </tr> </thead> <tbody> <tr> <td>2016-17</td> <td>Kamini, Rangan, Krishnachura, Jaba, Karabi, Bougenvelia, Pathodia, Jamun, Radhachura etc.</td> <td>5.5 Km (Road side)</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> <td style="text-align: center;">35%</td> </tr> <tr> <td>2016-17</td> <td>Chatim, Krishnachura, Radhachura, Karanch, Amla etc.</td> <td>12 Ha</td> <td style="text-align: center;">22500</td> <td style="text-align: center;">2500/Ha</td> <td style="text-align: center;">75%</td> </tr> </tbody> </table>	Year	Name of Species	Area in Ha	No. of saplings	Density	Survival rate	2016-17	Kamini, Rangan, Krishnachura, Jaba, Karabi, Bougenvelia, Pathodia, Jamun, Radhachura etc.	5.5 Km (Road side)	-	-	35%	2016-17	Chatim, Krishnachura, Radhachura, Karanch, Amla etc.	12 Ha	22500	2500/Ha	75%
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Condition(xlix)	Controlled blasting shall be practiced with use of delay detonators and only during day time. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.																		
compliance	Complied. Controlled blasting is being done as per DGMS permission and conditions.																		

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Condition(l.)	A progressive afforestation plan shall be implemented covering an area of 845.59 ha at the end of mining, which includes reclaimed eternal OB dump area (142.34 Ha);internal OB dump area(408 ha);green belt(295.25 ha) in township located outside the lease by planting native species in consultation with the local DFO/Agricultural 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>Bankola: It is proposed to plant 10 Ha per year within the cluster at the density of 2500 plants/Ha.</p> <p>Kenda: In FY 2015-16 , 2016-17, & 2018-19,Total 29 Ha plantation have been done through Forest department, Durgapur & Waste Bengal Waste land Development Corporation Ltd. under the supervision of DFO, Durgapur. Density of the trees is maintained at 2500 Plants per Ha. Details of plantation done at Different location inside the cluster under Kenda Area, ECL is given below:-</p> <table border="1" data-bbox="483 891 1283 1576"> <thead> <tr> <th>Year</th> <th>Name of Species</th> <th>Area in Ha</th> <th>No. of Saplings</th> <th>Density</th> </tr> </thead> <tbody> <tr> <td>2015-16</td> <td>Kadam,P epal,Sona juri,Jamu n,Amla etc.</td> <td>10 Ha</td> <td>25000</td> <td>2500/ha</td> </tr> <tr> <td>2016-17</td> <td>Neem,Ka ranj,Sisoo ,Chatim etc.</td> <td>16 Ha</td> <td>40000</td> <td>2500/ha</td> </tr> <tr> <td>2018-19</td> <td>Neem,Ka ranj,Sisoo ,Chatim etc.</td> <td>3 Ha</td> <td>7500</td> <td>2500/ha</td> </tr> </tbody> </table>	Year	Name of Species	Area in Ha	No. of Saplings	Density	2015-16	Kadam,P epal,Sona juri,Jamu n,Amla etc.	10 Ha	25000	2500/ha	2016-17	Neem,Ka ranj,Sisoo ,Chatim etc.	16 Ha	40000	2500/ha	2018-19	Neem,Ka ranj,Sisoo ,Chatim etc.	3 Ha	7500	2500/ha
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Condition(li)	The proponent should prepare restoration and reclamation plan for the degraded area. The land be used in a productive and sustainable manner.																				
compliance	Mine closure Plan has already been prepared for the purpose. Restoration and reclamation shall be done accordingly.																				
Condition (lii.)	Compensatory Ecological and restoration of waste land, other degraded land and OB dumps in lieu of breaking open the land be carried out.																				
compliance	Mine closure Plan has already been prepared for the purpose. Compensatory ecological and restoration of wasteland shall be done accordingly. The details of plantation at different location in Kenda Area																				

Kenda area, Half Yearly Compliance Report for (Cluster -11)
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	<p>inside the cluster is given below:-</p> <ol style="list-style-type: none"> 1. OB Dump Area-----14 Ha (10 Ha in FY 2015-16 & 4 Ha in FY 2016-17). 2. Backfilled Area-----3 Ha(in FY 2016-17). 3. Others-----9 Ha (in FY 2016-17). 4. Backfilled Area-----3 Ha (in FY 2018-19). 																				
Condition(iii)	No ground water shall be used for mining operations.																				
compliance	No ground water is being used for mining operations.																				
Condition(iiv)	An estimated total 258.26Mm ³ of OB will be generated during the entire life of the mine. OB will be dumped in four internal dumps covering an area of 408 Ha of land. The OB dump height is up to 60m.the minimum slope of the dump shall not exceed 28 degrees. Monitoring and management of reclaimed dump site shall continue till the vegetation becomes self-sustaining and compliance status submitted to MOEF & CC and its regional office on yearly basis.																				
compliance	<p>Kenda: Agreed.</p> <p>Bankola: Not applicable since there is no OC in Cluster 11 under Bankola Area.</p>																				
Condition(iv.)	Of the total quarry area 408 Ha the backfilled quarry area of (408 Ha) shall be reclaimed with plantation by planting native plant species in consultation with the local DFO /Agricultural department The density of the trees shall be around 2500 Plants per Ha.																				
compliance	<p>Agreed. In FY 2015-16, 2016-17 & 2018-19, Total 29 Ha plantation has been done at different location in kenda area with the help of Forest Department. The details of Plantation is given below:-</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Year</th> <th>Name of Species</th> <th>Area in Ha</th> <th>No. of Saplings</th> <th>Density</th> </tr> </thead> <tbody> <tr> <td>2015-16</td> <td>Kadam,P epal,Sona juri,Jamu n,Amla etc.</td> <td>10 Ha</td> <td>25000</td> <td>2500/ha</td> </tr> <tr> <td>2016-17</td> <td>Neem,Ka ranj,Sisoo ,Chatim etc.</td> <td>16 Ha</td> <td>40000</td> <td>2500/ha</td> </tr> <tr> <td>2018-19</td> <td>Neem,Ka ranj,Sisoo ,Chatim</td> <td>3 Ha</td> <td>7500</td> <td>2500/ha</td> </tr> </tbody> </table>	Year	Name of Species	Area in Ha	No. of Saplings	Density	2015-16	Kadam,P epal,Sona juri,Jamu n,Amla etc.	10 Ha	25000	2500/ha	2016-17	Neem,Ka ranj,Sisoo ,Chatim etc.	16 Ha	40000	2500/ha	2018-19	Neem,Ka ranj,Sisoo ,Chatim	3 Ha	7500	2500/ha
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	etc.				
Condition(lvi.)	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 quality 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 Ministry of Environment, Forests and climate change and to central pollution control board quarterly within one month of monitoring.				
compliance	For construction of new piezometers, work order has been awarded to construct the piezometer at C L Jambad & New Kenda Colliery under Kenda Area ECL & work is in progress. At present, Ground water level monitoring is done through a network of existing wells. Water Table Monitoring report (As per Annexure-II) & ground water quality report are enclosed herewith.(As per Annexure –II).				
Condition(lvii)	The company shall put up artificial groundwater recharge measures for augmentation of ground water resource in case monitoring indicates a decline in water table. The project authority shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.				
compliance	<p>Kenda: Rainwater harvesting at Chora Hospital and Kenda Area office is targeted to be completed in FY 2018-19 & its work is in progress. 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>Bankola: In underground mines, recharging of water at surface will further add to the quantum of water percolating into the underground workings. Also, no declining trend has been noticed in the mine leasehold.</p> <p>Mine discharged water is supplied by tanker or pipeline to Ukhra village, Shankarpur Village, Kumardihi village, Lal Bangla, Shyamsundarpur village and other locations.</p>				
Condition(lviii)	Sewage treatment plant shall be installed in the existing colony. ETP shall also be provided for workshop and CHP waste water.				
compliance	<p>Kenda: Work is in progress to install the ETP at Shankarpur OCP. For STP(Sewage Treatment Plant), work order has been awarded to CMPDIL, Ranchi for preparation of scheme for STP of New Kenda Colony, Kenda Area ECL.</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. Most of the sewage generated from residential colony goes to Septic</p>				

Kenda area, Half Yearly Compliance Report for (Cluster -11)
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	Tank.												
Condition(lviv)	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	If required, Land oustees shall be compensated as per the norms laid out in R & R Policy of CIL.												
Condition(lvv)	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 the end of mine life shall be prepared once in 3 years (for any one particular season which is consistent with time series),and the report submitted to MOEF&CC and its concerned regional office.												
compliance	Agreed and noted. A proposal has been initiated from ECL HQ to CMPDI for monitoring land use and plantation by carrying out satellite imaginary at every three year's interval starting 2015 (Ref. No.: ECL/ENV/15/420 dt.12.08.15).												
Condition(lvvi)	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 EC.												
compliance	Complied. MCP for all collieries have been prepared.												
Condition(lvvii)	The project authority shall in consultation with the Panchayats of the local villages and administration identify socio-economic and welfare measures under CSR to be carried out over the balance of the mine.												
compliance	Bankola: Compiled. Kenda: Socio economic and other welfare measures under CSR are identified in consultation with the panchayat of the local villages and administration. The following CSR activity which is in progress in Kenda Area (ECL) is mentioned below:-												
	<table border="1"> <thead> <tr> <th>S. No.</th> <th>Name of the activity</th> <th>Awarded value of work</th> <th>Status of activity</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Water supply arrangements to Kenda Village, Kenda Mouza, Kenda Area (ECL)</td> <td>Rs. 75,26,610.08</td> <td>Work is in progress.</td> </tr> <tr> <td>2.</td> <td>Repairing of 4 Nos. damaged Class rooms of Ukhra Nehru</td> <td>Rs. 19,788,16</td> <td>Work is in progress.</td> </tr> </tbody> </table>	S. No.	Name of the activity	Awarded value of work	Status of activity	1.	Water supply arrangements to Kenda Village, Kenda Mouza, Kenda Area (ECL)	Rs. 75,26,610.08	Work is in progress.	2.	Repairing of 4 Nos. damaged Class rooms of Ukhra Nehru	Rs. 19,788,16	Work is in progress.
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	Vidyapith Higher Secondary School.		
Condition(lvvii)	<p>Corporate Environment Responsibility:</p> <p>a) The Company shall have a well laid down Environment Policy approved by the Board of Directors.</p> <p>b) The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/ deviation /violation of the environmental or forest norms/conditions.</p> <p>c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.</p> <p>d) To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances /violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.</p>		
compliance	<p>Complied.</p> <p>“Corporate Environmental Policy 2012” of Coal India Limited has already been formulated.</p> <p>“Corporate Environmental Policy 2012” of Coal India Limited has prescribed standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/condition.</p> <p>The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions has been furnished in “Corporate Environmental Policy 2012” of Coal India Limited.</p> <p>The company is having a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company.</p>		

General Conditions

Condition(i)	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment, Forests & Climate Change.
Compliance	<p>Complied.</p> <p>Change in mining technology and scope of working, if any, is being made with prior approval of the Ministry of Environment, Forests &</p>

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	Climate Change.
Condition(ii)	No change in the calendar plan of production for quantum of mineral coal shall be made.
Compliance	Noted and agreed.
Condition(iii)	Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM 10, PM 2.5, SO ₂ ,NO monitoring. Locations of the stations shall be decided based on the meteorological data, topographical features, and environmentally and ecologically sensitive targets in consultation with state pollution control board. Monitoring of heavy metals such as Hg,As, Ni,Cd, Cr etc carried out atleast once in six months.
Compliance	Air quality monitoring is carried out by CMPDIL on every fortnight and all desired parameters are well within the prescribed limits. Ambient air quality report are enclosed. (As per Annexure- II).
Condition(iv)	Data on ambient air quality (PM ₁₀ ,PM _{2.5} ,SO ₂ ,and NO) 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 sample through analysis from independent laboratories recognized under EPA rules,1986 shall be furnished as part of compliance report.
Compliance	Air quality monitoring is carried out by CMPDIL on every fortnight and all desired parameters are well within the prescribed limits. Ambient air quality report are enclosed. (As per Annexure- II).
Condition(v)	Adequate measure shall be taken for control of noise level below 85 (dBA) in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.
Compliance	Noise level monitoring is carried out by CMPDIL on fortnightly basis. Noise Data are enclosed. (As per Annexure-II).
Condition(vi)	Industrial wastewater (waste water and workshop from the mine) shall be properly collected, treated so as to conform to the standards conform to the standards prescribed under GSR 422(E) dated 19 th May 1993 and 31 st December 1993 or as amended from time to time before discharge.oil and grease trap shall be installed before discharge of workshop effluents.
Compliance	Water discharged from the mine are tested in laboratory at CMPDI on fortnightly basis and found conforming to the MoEF schedule VI standards for discharge of effluents. Reports are enclosed. (As per

	annexure –II). ETP at Shankarpur /C L Jambad OC Patch/Mine is proposed for treatment of workshop effluent and its work is under progress and targeted to be completed by FY 2018-19.
Condition(vii.)	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the minerals shall be covered with the tarpaulins and optimally loaded.
Compliance	Vehicular emissions are kept under control and regularly monitored. Coal transportation from the mine to railway siding is being done by tarpaulin covered trucks.
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 state pollution control board and data got analysed through a laboratory recognized under EPA Rules, 1986 .
Compliance	Monitoring of environmental parameters is carried out on regular basis by CMPDI. Laboratory at CMPDIL, Asansol is having all necessary facilities.
Condition(ix.)	Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training on information on safety and health aspects.
Compliance	All protective devices have been provided to workmen and are replaced periodically. Adequate training to all personnel has also been provided. New recruits are trained at the VTC before their deployment. PME's are carried out on all employees once in 5 years.
Condition(x.)	Occupational health surveillance programme of workers Shall be undertaken periodically to observe any contractions due to exposure due to dust and to take corrective measure, if needed and records there of .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	Complied. 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. This PME is mandatory for all employees. Special cases diagnosed during such PME's 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. PME of 766 workers has been conducted in Bankola Area in the year

	<p>2018-19 along with 20 Spirometry and 20 Audiometry tests. Details can be found in Annexure B.</p> <p>Every year, 20% of the workforce is covered under occupational health surveillance programme in form of Periodical Medical Examinations. Total no. of person which have gone through the PME in FY 2018-19, till Sept'2018 is given below:-</p> <table border="1" data-bbox="507 472 1404 891"> <thead> <tr> <th data-bbox="507 472 794 584">Name of the Area</th> <th data-bbox="794 472 1102 584">Month</th> <th data-bbox="1102 472 1404 584">PME achievement for the Month (Nos. of Person)</th> </tr> </thead> <tbody> <tr> <td data-bbox="507 584 794 853" rowspan="6" style="text-align: center;">Kenda Area</td> <td data-bbox="794 584 1102 629" style="text-align: center;">April'2018</td> <td data-bbox="1102 584 1404 629" style="text-align: center;">46</td> </tr> <tr> <td data-bbox="794 629 1102 674" style="text-align: center;">May'2018</td> <td data-bbox="1102 629 1404 674" style="text-align: center;">78</td> </tr> <tr> <td data-bbox="794 674 1102 719" style="text-align: center;">June'2018</td> <td data-bbox="1102 674 1404 719" style="text-align: center;">65</td> </tr> <tr> <td data-bbox="794 719 1102 763" style="text-align: center;">July'2018</td> <td data-bbox="1102 719 1404 763" style="text-align: center;">146</td> </tr> <tr> <td data-bbox="794 763 1102 808" style="text-align: center;">August'2018</td> <td data-bbox="1102 763 1404 808" style="text-align: center;">123</td> </tr> <tr> <td data-bbox="794 808 1102 853" style="text-align: center;">September'2018</td> <td data-bbox="1102 808 1404 853" style="text-align: center;">96</td> </tr> <tr> <td colspan="2" data-bbox="507 853 1102 891" style="text-align: center;">Total</td> <td data-bbox="1102 853 1404 891" style="text-align: center;">554</td> </tr> </tbody> </table>	Name of the Area	Month	PME achievement for the Month (Nos. of Person)	Kenda Area	April'2018	46	May'2018	78	June'2018	65	July'2018	146	August'2018	123	September'2018	96	Total		554
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Condition(xi.)	A separate environmental management cell with suitable qualified personnel shall be setup under the control of a senior executive, who will report directly to the head of the company.																			
Compliance	<p>Kenda: Complied. A separate environmental management cell with qualified personnel has been established for Kenda Area under Cluster 11. The cell reports to the respective Area GM and GM, Environment and Forest; ECL.</p> <p>Bankola: A separate environmental management cell with qualified personnel has been established for all the Areas under Cluster 11. The cell reports to the respective Area GM and GM, Environment and Forest; ECL.</p> <p>List of the executives in EMC enclosed. (ANNEXURE-D).</p>																			
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 concerned Regional office.																			
Compliance	<p>Bankola: Funds for environmental protection as kept in budget each year is not diverted for other purposes.</p> <p>Kenda: Funds for environmental protection as kept in budget each year is not diverted for other purposes. The amount spent for environmental activity under capital head is as follows.</p> <table border="1" data-bbox="507 1877 1404 2002"> <thead> <tr> <th data-bbox="507 1877 783 2002">FY(2018-19), till Sept' 2018.</th> <th data-bbox="783 1877 1123 2002">Name of Work</th> <th data-bbox="1123 1877 1404 2002">Capital Expenditure till Sept'2018 (In Rs.</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	FY(2018-19), till Sept' 2018.	Name of Work	Capital Expenditure till Sept'2018 (In Rs.																
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			Lakh)
		1. Socio economic study of New Kenda OCP .	14.07136
		2. Installation of fixed type sprinkler along with pump house at bahula Railway Sidings under Kenda Area (ECL).	20.17
		Total	34.24136 Lakh
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, Forests & Climate Change at http://envfor.nic.in .		
Compliance	Complied.		
Condition(xiv.)	A copy of the environmental clearance letter shall be marked to concern Panchayat /Zila Parishad, Municipal Corporation or Urban local body and local NGO, if any, from whom any suggestion/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on company's website.		
Compliance	A copy of the environmental clearance letter for cluster 11 has been marked to concerned Panchayat / Zila Parishad, Municipal Corporation or Urban local body.		
Condition(xv.)	A copy of the environmental clearance letter shall be shall also be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Sector and Collector's Office/Tehsildar's Office for 30 days.		
Compliance	To be complied by State Pollution Control Board.		
Condition(xvi.)	The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated environmental clearance		

	conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in public domain. The monitoring data of environmental quality parameter (air, water, noise and soil) and critical pollutant such as PM IO, PM25, S02 and NOx (ambient) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mine office and in corporate office and on company's website.
Compliance	The monitoring data of environmental quality parameter (air, water and noise) and critical pollutant such as PM ₁₀ , PM _{2.5} , SO ₂ and NOx (ambient) and critical sectoral parameters are being displayed on Company's website. Monitoring Reports are enclosed. (As per Annexure –II).
Condition(xvii.)	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.
Compliance	Complied. The EC letter is uploaded on the company's website. The link is given below : www.easterncol.gov.in
Condition (xviii.)	The Regional Office of the Ministry located in the Region shall monitor compliances of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/information/monitoring reports.
Compliance	Agreed.
Condition(xix)	The Environmental statement for each financial year ending 31 March in For -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 with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MoEF CC by e-mail.
Compliance	Complied.

Additional Condition

Condition	The soil contamination through oil spillage/leakage should either be bio-remediated using specific technology available in the market, or sent to secured land fill facility authorized by the SPCB.
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Kenda area, Half Yearly Compliance Report for (Cluster -11)
EC No. (J-11015/245/2011-IA-II.(M)),Dt.29th November 2016)
Period: April '2018 to Sept '2018

Compliance	Noted and Agreed.
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F. No.J-11015/245/2011-IA-II(M)
Government of India
Ministry of Environment, Forest and Climate Change
IA-II (Coal Mining) Division

Indira Paryavaran Bhawan,
Jorbagh Road, N Delhi - 3
Dated: 10th September, 2018

To

The General Manager,
M/s Eastern Coalfields Limited,
Asansol,
District **Burdwan** (West Bengal) Email: enecl@yahoo.com

Sub: Cluster No.11 (Group of 11 mixed mines) of production capacity 8.20 MTPA (peak) of M/s Eastern Coalfields Limited in ML area of 4218 ha in Raniganj Coalfields, District Burdwan (West Bengal) - Amendment in EC - reg.

Sir,

This is with reference to your letter no. ECL/ENV/EC/18/260 dated 6th July, 2018 and online proposal No. IA/WB/CMIN/35633/2015 dated 6th July, 2018 on the above mentioned subject.

2. The Ministry of Environment, Forest and Climate Change has considered the proposal for amendment in the environmental clearance dated 21st July, 2015 granted by the Ministry in favour of M/s Easter Coalfields Ltd for Cluster No.11 Coal Mining project (Group of 11 mixed OC/UG mines) of combined production capacity of 10.90 MTPA (peak) in total mine lease area of 4218 ha located in Raniganj Coalfields, District Burdwan (West Bengal).

The said environmental clearance was amended vide this Ministry's letter dated 29th November, 2016 for revision in peak production capacity from 10.90 MTPA to 8.20 MTPA in the same total mine lease area.

3. Now, further amendment has been sought in the environmental clearance for review of specific conditions (iii) and (xi) stipulated therein, regarding socio-economic study to establish the necessity of mining in New Kenda OC Patch duly authenticated by a reputed organization/institute. These conditions are reproduced below:

Specific condition (iii) - The Socio-economic study conducted by PP needs to be authenticated by an institute of repute such as Indian Institute of Forest Management/XLRI, Jamshedpur.

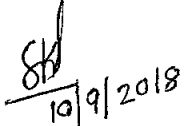
Specific condition (xi) - Socio-economic Study to be carried out in order to establish the necessity of mining on New Kenda OC Patch. Presently EC is recommended to the cluster without the New Kenda OC Patch.

4. The proposal was considered by the Expert Appraisal Committee (EAC) in the Ministry for Thermal & Coal Mining Sector in its 34th meeting held on 24th July, 2018. The EAC has recommended for deletion of specific conditions (iii) & (xi) of the environmental clearance dated 21st July, 2015, amended on 29th November, 2016.



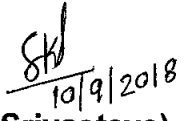
5. Based on recommendations of the EAC, the Ministry of Environment, Forest and Climate Change hereby accords approval for amendment in the environmental clearance dated 21st July read with amendment dated 29th November, 2016, to the above said project, as recommended by the EAC as stated in **para 4** above.

6. All other terms and conditions stipulated in the EC dated 21st July, 2015 read with amendment therein vide letter dated 29th November, 2016, shall remain unchanged.


(S. K. Srivastava)
Scientist E

Copy to:

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi
2. The Secretary, Department of Environment & Forests, Government of West Bengal, Secretariat, Kolkata
3. The Additional Principal Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, A-31, Chandershekharpur, Bhubaneswar - 751023 (Odisha)
4. The Member Secretary, West Bengal State Pollution Control Board, Paribesh Bhawan, 10A, Block LA, Sector-III, Salt Lake City, Kolkata - 98
5. The Member Secretary, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 32
6. The Member Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi
7. The Advisor, Coal India Limited, SCOPE Minar, Core-I, 4t Floor, Vikas Marg, Laxmi Nagar, New Delhi
8. The District Collector, Burdwan, Government of West Bengal
9. Monitoring File 10. Guard File 11. Record File. 12. Notice Board


(S. K. Srivastava)
Scientist E

AMBIENT AIR QUALITY DATAName of the Company: **Eastern Coalfield Limited** Year : **2018**Name of the Project : **Kenda Area** Month. : **April****Industrial Area****1st fortnight**

Station Code	Station Name	Date of Sampling	Parameters			
			PM 10	PM 2.5	SO ₂	NO _x
11A1	Haripur village	03.04.2018	83.2	34.5	<10.0	17.2
11A8	Basabdanga village	03.04.2018	84.7	32.5	<10.0	12.5

2nd fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM 10	PM 2.5	SO ₂	NO _x
11A1	Haripur village	18.04.2018	83.9	34.2	<10.0	16.7
11A8	Basabdanga village	23.04.2018	84.2	31.9	<10.0	14.2

Residential Area**1st fortnight**

Station Code	Station Name	Date of Sampling	Parameters			
			PM 10	PM 2.5	SO ₂	NO _x
11A2	Shankarpur village	04.04.2018	84.4	35.5	<10.0	17.4
11A6	Bahadurpur village	05.04.2018	85.8	34.5	<10.0	14.5
11A7	Chichuria village	03.04.2018	82.7	32.4	<10.0	14.7

2nd fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM 10	PM 2.5	SO ₂	NO _x
11A2	Shankarpur village	18.04.2018	85.1	35.2	<10.0	17.1
11A6	Bahadurpur village	18.04.2018	85.2	34.9	<10.0	14.7
11A7	Chichuria village	20.04.2018	83.3	32.2	<10.0	14.3

National Ambient Air Quality Standards (NAAQS)

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

Pollutant	PM 10	PM 2.5	SO ₂	NO _x
Concentration	100.0	60.0	80.0	80.0

➤ All values are expressed in microgram per cubic meter.

AMBIENT AIR QUALITY DATAName of the Company: **Eastern Coalfield Limited** Year : **2018**Name of the Project : **Mines of Cluster No. 11** Month. : **May****Industrial Area****1st fortnight**

Station Code	Station Name	Date of Sampling	Parameters			
			PM 10	PM 2.5	SO ₂	NO _x
11A1	Haripur village	11-May-18	87.5	34.1	<10.0	17.8
11A8	Basabdanga village	11-May-18	89.5	34.9	<10.0	14.2

2nd fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM 10	PM 2.5	SO ₂	NO _x
11A1	Haripur village	24-May-18	85.4	33.3	<10.0	16.5
11A8	Basabdanga village	22-May-18	91.2	36.4	<10.0	13.7

Residential Area**1st fortnight**

Station Code	Station Name	Date of Sampling	Parameters			
			PM 10	PM 2.5	SO ₂	NO _x
11A2	Shankarpur village	11-May-18	89.9	35.5	<10.0	17.1
11A6	Bahadurpur village	5-May-18	90.2	37.2	<10.0	15.3
11A7	Chichuria village	5-May-18	88.6	33.2	<10.0	14.9

2nd fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM 10	PM 2.5	SO ₂	NO _x
11A2	Shankarpur village	24-May-18	87.2	34.4	<10.0	16.3
11A6	Bahadurpur village	24-May-18	89.9	36.2	<10.0	14.6
11A7	Chichuria village	28-May-18	90.3	34.9	<10.0	14.2

National Ambient Air Quality Standards (NAAQS)

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

Pollutant	PM 10	PM 2.5	SO ₂	NO _x
Concentration	100.0	60.0	80.0	80.0

➤ All values are expressed in microgram per cubic meter.

AMBIENT AIR QUALITY DATAName of the Company: **Eastern Coalfield Limited**Year : **2018**Name of the Project : **Mines of Cluster No. 11**Month. : **June****Industrial Area****1st fortnight**

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A1	Haripur village	2-Jun-18	87.3	34.2	<10.0	17.9
11A8	Basabdanga village	11-Jun-18	92.5	35.6	<10.0	16.2

2nd fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A1	Haripur village	23-Jun-18	87.1	33.9	<10.0	17.5
11A8	Basabdanga village	25-Jun-18	93.3	37.8	<10.0	17.8

Residential Area**1st fortnight**

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A2	Shankarpur village	11-Jun-18	90.2	35.8	<10.0	17.3
11A6	Bahadurpur village	2-Jun-18	91.6	38.4	<10.0	16.7
11A7	Chichuria village	2-Jun-18	90.3	35.5	<10.0	16.4

2nd fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A2	Shankarpur village	23-Jun-18	89.8	35.2	<10.0	16.9
11A6	Bahadurpur village	25-Jun-18	91.3	37.2	<10.0	16.2
11A7	Chichuria village	25-Jun-18	90.7	36.4	<10.0	17.2

National Ambient Air Quality Standards (NAAQS)

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

Pollutant	PM ₁₀	PM _{2.5}	SO ₂	NO _x
Concentration	100.0	60.0	80.0	80.0

➤ All values are expressed in microgram per cubic meter.

AMBIENT AIR QUALITY DATAName of the Company: **Eastern Coalfield Limited** Year : **2018**Name of the Project : **Mines of Cluster No. 11** Month. : **July.****Industrial Area****1st fortnight**

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A1	Haripur village	4-Jul-18	86.4	34.1	<10.0	17.6
11A8	Basabdanga village	3-Jul-18	91.8	34.8	<10.0	15.2

2nd fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A1	Haripur village	31-Jul-18	87.8	34.6	<10.0	17.9
11A8	Basabdanga village	18-Jul-18	92.1	35.2	<10.0	15.1

Residential Area**1st fortnight**

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A2	Shankarpur village	6-Jul-18	89.4	35.3	<10.0	16.9
11A6	Bahadurpur village	11-Jul-18	90.8	37.7	<10.0	16.1
11A7	Chichuria village	4-Jul-18	89.4	34.9	<10.0	15.8

2nd fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A2	Shankarpur village	31-Jul-18	90.3	35.4	<10.0	17.3
11A6	Bahadurpur village	18-Jul-18	91.5	36.6	<10.0	16.7
11A7	Chichuria village	18-Jul-18	90.3	34.3	<10.0	16.2

National Ambient Air Quality Standards (NAAQS)

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

Pollutant	PM ₁₀	PM _{2.5}	SO ₂	NO _x
Concentration	100.0	60.0	80.0	80.0

➤ All values are expressed in microgram per cubic meter.

AMBIENT AIR QUALITY DATAName of the Company: **Eastern Coalfield Limited**Year : **2018**Name of the Project : **Mines of Cluster No. 11**Month. : **August.****Industrial Area****1st fortnight**

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A1	Haripur village	2-Aug-18	90.2	37.3	<10.0	17.3
11A8	Basabdanga village	9-Aug-18	93.9	37.7	<10.0	15.6

2nd fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A1	Haripur village	29-Aug-18	90.5	38.4	<10.0	17.7
11A8	Basabdanga village	29-Aug-18	92.8	36.8	<10.0	16.2

Residential Area**1st fortnight**

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A2	Shankarpur village	9-Aug-18	92.6	38.2	<10.0	17.2
11A6	Bahadurpur village	1-Aug-18	95.6	39.7	<10.0	17.6
11A7	Chichuria village	1-Aug-18	91.3	36.8	<10.0	16.5

2nd fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A2	Shankarpur village	29-Aug-18	91.9	37.7	<10.0	16.6
11A6	Bahadurpur village	16-Aug-18	94.4	38.5	<10.0	17.2
11A7	Chichuria village	16-Aug-18	90.8	35.7	<10.0	16.2

National Ambient Air Quality Standards (NAAQS)

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

Pollutant	PM ₁₀	PM _{2.5}	SO ₂	NO _x
Concentration	100.0	60.0	80.0	80.0

➤ All values are expressed in microgram per cubic meter.

Cluster 11

CMPDI

WATER QUALITY DATA (Effluent Water)

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

Year : **2018.**

Name of the Project : **Kenda Area**

Month: **April.**

Name of the Stations & Code : **1. 11MW4- Lower Kenda 2. 11MW5- Chora Block Incline 3. 11MW6- Chora 7, 9 & 10 Pits**

4. 11MW7- Bahula UG

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				As per MOEF General Standards for schedule VI	Method of Detection	Detection Limit
		11MW4	11MW5	11MW6	11MW7			
		05.04.18	05.04.18	03.04.18	09.04.18			
1	pH	7.34	8.48	7.70	7.48	5.5 - 9.0	pH meter	0.01
2	TSS	18	14	26	28	100 (Max)	Spectrophotometric	5.0
3	TDS	738	716	768	772	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	16	16	28	32	250 (Max)	Closed Reflux	4.0

Second Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				As per MOEF General Standards for schedule VI	Method of Detection	Detection Limit
		11MW4	11MW5	11MW6	11MW7			
		18.04.18	18.04.18	18.04.18	19.04.18			
1	pH	7.70	8.09	7.69	7.80	5.5 - 9.0	pH meter	0.01
2	TSS	20	16	30	32	100 (Max)	Spectrophotometric	5.0
3	TDS	780	744	784	738	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	12	16	24	32	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

Cluster 11

CMPDI

WATER QUALITY DATA (Effluent Water)

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

Year : **2018.**

Name of the Project : **Kenda Area**

Month: **April.**

Name of the Stations & Code : **5. 11MW8- C L Jambad UG**

6. 11MW9- Siduli UG

7. 11MW10- Khandra UG

8. 11MW11- Shankarpur UG

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				As per MOEF General Standards for schedule VI	Method of Detection	Detection Limit
		11MW8	11MW9	11MW10	11MW11			
		03.04.18	05.04.18	05.04.18	05.04.18			
1	pH	8.22	7.64	7.72	7.38	5.5 - 9.0	pH meter	0.01
2	TSS	30	16	20	24	100 (Max)	Spectrophotometric	5.0
3	TDS	706	822	758	748	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	44	24	28	32	250 (Max)	Closed Reflux	4.0

Second Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				As per MOEF General Standards for schedule VI	Method of Detection	Detection Limit
		11MW8	11MW9	11MW10	11MW11			
		19.04.18	19.04.18	28.04.18	23.04.18			
1	pH	8.58	7.75	7.27	7.74	5.5 - 9.0	pH meter	0.01
2	TSS	38	22	18	20	100 (Max)	Spectrophotometric	5.0
3	TDS	728	790	782	718	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	48	24	32	28	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

Cluster No. 11

CMPDI

WATER QUALITY DATA

(Effluent Water)

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

Year : **2018.**

Name of the Project: **Mines of Cluster No. 11**

Month: **May.**

Name of the Stations & Code : **1. 11MW4- Lower Kenda 2. 11MW5- Chora Block Incline 3. 11MW6- Chora 7, 9 & 10 Pits**

4. 11MW7- Bahula UG

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				As per MOEF General Standards for schedule VI	Method of Detection	Detection Limit
		11MW4	11MW5	11MW6	11MW7			
		03.05.18	03.05.18	03.05.18	03.05.18			
1	pH	7.54	8.20	7.51	7.48	5.5 - 9.0	Electrometric	0.01
2	TSS	22	18	16	28	100 (Max)	Gravimetric Method	5.0
3	TDS	760	720	780	774	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	16	24	32	32	250 (Max)	Closed Reflux	4.0

Second Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				As per MOEF General Standards for schedule VI	Method of Detection	Detection Limit
		11MW4	11MW5	11MW6	11MW7			
		25.05.18	25.05.18	30.05.18	30.05.18			
1	pH	7.89	8.32	7.65	7.49	5.5 - 9.0	Electrometric	0.01
2	TSS	20	16	14	22	100 (Max)	Gravimetric Method	5.0
3	TDS	782	736	756	750	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	24	28	36	32	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

Cluster No. 11

CMPDI

WATER QUALITY DATA

(Effluent Water)

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

Year : **2018.**

Name of the Project : **Mines of Cluster No. 11**

Month: **May.**

Name of the Stations & Code : **5. 11MW8- C L Jambad UG**

6. 11MW9- Siduli UG

7. 11MW10- Khandra UG

8. 11MW11- Shankarpur UG

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				As per MOEF General Standards for schedule VI	Method of Detection	Detection Limit
		11MW8	11MW9	11MW10	11MW11			
		04.05.18	04.05.18	07.05.18	07.05.18			
1	pH	8.36	7.56	7.38	7.89	5.5 - 9.0	Electrometric	0.01
2	TSS	30	18	20	22	100 (Max)	Spectrophotometric	5.0
3	TDS	718	826	786	700	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	40	20	28	24	250 (Max)	Closed Reflux	4.0

Second Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				As per MOEF General Standards for schedule VI	Method of Detection	Detection Limit
		11MW8	11MW9	11MW10	11MW11			
		26.05.18	30.05.18	28.05.18	28.05.18			
1	pH	8.03	7.76	7.42	7.41	5.5 - 9.0	Electrometric	0.01
2	TSS	26	16	18	20	100 (Max)	Spectrophotometric	5.0
3	TDS	738	800	760	728	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	44	16	40	32	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

Cluster No. 11

CMPDI

WATER QUALITY DATA (Effluent Water)

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

Year : **2018.**

Name of the Project : **Mines of Cluster No. 11**

Month: **June.**

Name of the Stations **1. 11MW4- Lower Kenda 2. 11MW5- Chora Block Incline 3. 11MW6- Chora 7, 9 & 10 Pits**

& Code : **4. 11MW7- Bahula UG**

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW4	11MW5	11MW6	11MW7			
		2-Jun-18	2-Jun-18	2-Jun-18	2-Jun-18			
1	pH	7.48	8.29	7.82	7.61	5.5 - 9.0	Electrometric	0.01
2	TSS	14	16	22	20	100 (Max)	Gravimetric Method	5.0
3	TDS	594	376	542	636	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	12	20	28	24	250 (Max)	Closed Reflux	4.0

Second Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW4	11MW5	11MW6	11MW7			
		21-Jun-18	21-Jun-18	20-Jun-18	20-Jun-18			
1	pH	7.83	8.07	7.43	7.96	5.5 - 9.0	Electrometric	0.01
2	TSS	20	26	12	14	100 (Max)	Gravimetric Method	5.0
3	TDS	552	338	584	610	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	24	32	16	20	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

Cluster No. 11

CMPDI

WATER QUALITY DATA
(Effluent Water)

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

Year : **2018.**

Name of the Project : **Mines of Cluster No. 11**

Month: **June.**

Name of the Stations **5. 11MW8- C L Jambad UG**

6. 11MW9- Siduli UG

7. 11MW10- Khandra UG

& Code : **8. 11MW11- Shankarpur UG**

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW8	11MW9	11MW10	11MW11			
		4-Jun-18	4-Jun-18	4-Jun-18	4-Jun-18			
1	pH	8.19	7.59	7.98	7.79	5.5 - 9.0	Electrometric	0.01
2	TSS	30	16	30	22	100 (Max)	Gravimetric Method	5.0
3	TDS	580	670	486	326	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	36	12	32	24	250 (Max)	Closed Reflux	4.0

Second Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW8	11MW9	11MW10	11MW11			
		20-Jun-18	25-Jun-18	25-Jun-18	25-Jun-18			
1	pH	8.19	7.48	7.83	7.97	5.5 - 9.0	Electrometric	0.01
2	TSS	22	16	22	14	100 (Max)	Gravimetric Method	5.0
3	TDS	540	690	512	350	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	28	8	24	16	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

Cluster No. 11

CMPDI

WATER QUALITY DATA (Effluent Water)

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

Year : **2018.**

Name of the Project : **Mines of Cluster No. 11**

Month: **July.**

Name of the Stations **1. 11MW4- Lower Kenda 2. 11MW5- Chora Block Incline 3. 11MW6- Chora 7, 9 & 10 Pits**

& Code : **4. 11MW7- Bahula UG**

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW4	11MW5	11MW6	11MW7			
		3-Jul-18	3-Jul-18	3-Jul-18	6-Jul-18			
1	pH	8.19	8.07	7.83	8.11	5.5 - 9.0	Electrometric	0.01
2	TSS	18	16	14	20	100 (Max)	Gravimetric Method	5.0
3	TDS	522	364	554	632	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	28	36	12	24	250 (Max)	Closed Reflux	4.0

Second Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW4	11MW5	11MW6	11MW7			
		18-Jul-18	18-Jul-18	18-Jul-18	18-Jul-18			
1	pH	8.36	8.28	7.58	8.27	5.5 - 9.0	Electrometric	0.01
2	TSS	22	18	16	22	100 (Max)	Gravimetric Method	5.0
3	TDS	502	344	584	610	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	20	48	24	32	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

Cluster No. 11

CMPDI

WATER QUALITY DATA (Effluent Water)

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

Year : **2018.**

Name of the Project : **Mines of Cluster No. 11**

Month: **July.**

Name of the Stations **5. 11MW8- C L Jambad UG**

6. 11MW9- Siduli UG

7. 11MW10- Khandra UG

& Code : **8. 11MW11- Shankarpur UG**

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW8	11MW9	11MW10	11MW11			
		6-Jul-18	6-Jul-18	9-Jul-18	9-Jul-18			
1	pH	8.02	7.72	8.23	8.02	5.5 - 9.0	Electrometric	0.01
2	TSS	16	20	22	16	100 (Max)	Gravimetric Method	5.0
3	TDS	528	728	484	338	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	32	16	36	28	250 (Max)	Closed Reflux	4.0

Second Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW8	11MW9	11MW10	11MW11			
		21-Jul-18	21-Jul-18	21-Jul-18	21-Jul-18			
1	pH	8.40	7.54	8.24	8.08	5.5 - 9.0	Electrometric	0.01
2	TSS	20	24	16	18	100 (Max)	Gravimetric Method	5.0
3	TDS	554	718	460	332	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	36	12	28	20	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

Cluster No. 11

CMPDI

WATER QUALITY DATA

(Effluent Water)

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

Year : **2018.**

Name of the Project: **Mines of Cluster No. 11**

Month: **August**

Name of the Stations & Code : **1. 11MW4- Lower Kenda 2. 11MW5- Chora Block Incline 3. 11MW6- Chora 7, 9 & 10 Pits**

4. 11MW7- Bahula UG

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW4	11MW5	11MW6	11MW7			
		1-Aug-18	9-Aug-18	9-Aug-18	1-Aug-18			
1	pH	7.77	8.24	8.44	7.86	5.5 - 9.0	Electrometric	0.01
2	TSS	14	30	16	22	100 (Max)	Gravimetric Method	5.0
3	TDS	564	310	598	602	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	16	36	20	28	250 (Max)	Closed Reflux	4.0

Second Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW4	11MW5	11MW6	11MW7			
		25-Aug-18	25-Aug-18	25-Aug-18	25-Aug-18			
1	pH	7.58	8.47	8.28	7.67	5.5 - 9.0	Electrometric	0.01
2	TSS	18	20	18	16	100 (Max)	Gravimetric Method	5.0
3	TDS	590	360	624	588	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	20	28	16	16	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

Cluster No. 11

CMPDI

WATER QUALITY DATA

(Effluent Water)

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

Year : **2018.**

Name of the Project: **Mines of Cluster No. 11**

Month: **August.**

Name of the **5. 11MW8- C L Jambad UG**

6. 11MW9- Siduli UG

7. 11MW10- Khandra UG

Stations & Code : **8. 11MW11- Shankarpur UG**

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW8	11MW9	11MW10	11MW11			
		1-Aug-18	1-Aug-18	1-Aug-18	1-Aug-18			
1	pH	8.27	8.53	7.76	8.43	5.5 - 9.0	pH meter	0.01
2	TSS	20	14	18	14	100 (Max)	Spectrophotometric	5.0
3	TDS	564	702	538	360	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	24	8	16	12	250 (Max)	Closed Reflux	4.0

Second Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW8	11MW9	11MW10	11MW11			
		20-Aug-18	25-Aug-18	25-Aug-18	25-Aug-18			
1	pH	8.01	8.44	7.82	8.17	5.5 - 9.0	pH meter	0.01
2	TSS	14	20	18	20	100 (Max)	Spectrophotometric	5.0
3	TDS	506	552	394	456	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	12	24	16	32	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

Cluster 11

CMPDI

NOISE LEVEL DATA

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

Year : **2018.**

Name of the Project: **Kenda Area**

Month. : **April.**

Name of the Stations & Code :

1. 11N1- Haripur UG	2. 11N2- Lower Kenda
3. 11N3- Chora Block Incline	4. 11N4- Chora 7, 9 & 10 Pits
5. 11N5- Bahula UG	6. 11N6- C L Jambad UG
7. 11N7- Siduli UG	8. 11N8- Khandra UG
9. 11N9- Shankarpur UG	

First Fortnight data

Sl. No.	Station Code	Station Name	Measurement Details			*Permissible Limit of Noise level in dB(A)
			Date	Duration (In Hrs.)	Noise level dB(A)LEQ	
1	11N1	Haripur UG	09.04.18	10.30 to 11.30	61.5	75
2	11N2	Lower Kenda	05.04.18	13.00 to 14.00	61.2	75
3	11N3	Chora Block Incline	05.04.18	11.30 to 12.30	68.8	75
4	11N4	Chora 7, 9 & 10 Pits	03.04.18	08.30 to 09.30	60.2	75
5	11N5	Bahula UG	09.04.18	09.00 to 10.00	59.3	75
6	11N6	C L Jambad UG	03.04.18	10.00 to 11.00	61.4	75
7	11N7	Siduli UG	05.04.18	08.30 to 09.30	62.1	75
8	11N8	Khandra UG	05.04.18	10.00 to 11.00	69.0	75
9	11N9	Shankarpur UG	03.04.18	11.30 to 12.30	61.6	75

Second Fortnight data

Sl. No.	Station Code	Station Name	Measurement Details			*Permissible Limit of Noise level in dB(A)
			Date	Duration (In Hrs.)	Noise level dB(A)LEQ	
1	11N1	Haripur UG	19.04.18	08.30 to 09.30	61.2	75
2	11N2	Lower Kenda	18.04.18	10.00 to 11.00	64.8	75
3	11N3	Chora Block Incline	18.04.18	11.30 to 12.30	63.1	75
4	11N4	Chora 7, 9 & 10 Pits	18.04.18	13.00 to 14.00	64.2	75
5	11N5	Bahula UG	19.04.18	11.30 to 12.30	67.8	75
6	11N6	C L Jambad UG	19.04.18	10.00 to 11.00	61.2	75
7	11N7	Siduli UG	23.04.18	10.30 to 11.30	67.8	75
8	11N8	Khandra UG	28.04.18	10.00 to 11.00	64.2	75
9	11N9	Shankarpur UG	28.04.18	11.30 to 12.30	67.4	75

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

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

Cluster 11

CMPDI

NOISE LEVEL DATA

Name of the Company: **Eastern Coalfield Limited** Year : **2018.**

Name of the Project: **Kenda Area** Month. : **August**

Name of the Stations & Code :

1. 11N1- Haripur UG	2. 11N2- Lower Kenda
3. 11N3- Chora Block Incline	4. 11N4- Chora 7, 9 & 10 Pits
5. 11N5- Bahula UG	6. 11N6- C L Jambad UG
7. 11N7- Siduli UG	8. 11N8- Khandra UG
9. 11N9- Shankarpur UG	

Sl. No.	Station Code	Station Name	Measurement Details			Permissible Limit of Noise level in dB(A)
			Date	Duration (In Hrs.)	Noise level dB(A) Leq	
1	11N1	Haripur UG	2-Aug-18	10.30 to 11.30	63.2	75
2	11N2	Lower Kenda	2-Aug-18	9.00 to 10.00	62.5	75
3	11N3	Chora Block Incline	2-Aug-18	7.30 to 8.30	66.8	75
4	11N4	Chora 7, 9 & 10 Pits	2-Aug-18	12.00 to 13.00	61.4	75
5	11N5	Bahula UG	2-Aug-18	13.30 to 14.30	62.6	75
6	11N6	C L Jambad UG	9-Aug-18	10.30 to 11.30	63.7	75
7	11N7	Siduli UG	9-Aug-18	9.00 to 10.00	66.8	75
8	11N8	Khandra UG	9-Aug-18	7.30 to 8.30	67.3	75
9	11N9	Shankarpur UG	9-Aug-18	12.00 to 13.00	60.9	75

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

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

WATER QUALITY DATA (GROUND WATER)

Name of the Company: **Eastern Coalfield Limited**Year : **2018**Name of the Project : **Mines of Cluster No. 11**Month: **May.**

Stations Code & Name: **1. 11GW1- Moira 2. 11GW2 – Bahadurpur 3. 11GW3- Singaran**

Sl. No.	Parameters	Sample code & Date			Indian Standard Drinking Water (IS-10500 :2012)		Method of detection	Detection Limit
		11GW1	11GW2	11GW3	Desirable Limit	Permissible Limit		
		24.05.18	11.05.18	22.05.18				
1	Colour, Hazen unit Max	5	2	3	5.0	15.0	Platinum Cobalt	1.0 Hazen
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable		Physical	-
3	Taste	Agreeable	Agreeable	Agreeable	Agreeable		Physical	-
4	Turbidity, NTU Max	2	1	1	1.0	5.0	Nephelometric	1.0 NTU
5	pH	8.16	8.21	8.02	6.5-8.5	No relaxation	Electrometric	0.01
6	Total Hardness	504	264	180	300.0	600.0	EDTA	4.0
7	Iron	<0.06	<0.06	<0.06	0.30	No relaxation	AAS Flame	0.06
8	Chlorides	136	59	25	250.0	1000.0	Argentometric	2.0
9	Res Free chlorine	0.05	0.08	0.04	0.20	1.0	Spectrophotometric	0.02
10	Dissolved Solids	954	388	308	500.0	2000.0	Gravimetric	10.0
11	Calcium	204	116	92	75.0	200.0	EDTA	1.60
12	Copper	<0.03	<0.03	<0.03	0.05	1.5	AAS Flame	0.03
13	Manganese	<0.02	<0.02	<0.02	0.1	0.3	AAS Flame	0.02
14	Sulphate	53	28	39	200.0	400.0	Turbidity	2.0
15	Nitrate	12.90	16.10	6.16	45.0	No relaxation	Spectrophotometric	0.5
16	Fluoride	0.46	0.16	0.32	1.0	1.5	SPANDS	0.02
17	Selenium	<0.002	<0.002	<0.002	0.01	No relaxation	AAS - GTA	0.002
18	Arsenic	<0.002	<0.002	<0.002	0.01	0.05	AAS - VGA	0.002
19	Lead	<0.005	<0.005	<0.005	0.01	No relaxation	AAS - GTA	0.005
20	Zinc	0.02	0.03	0.02	5.0	15.0	AAS Flame	0.01
21	Hex Chromium	<0.01	<0.01	<0.01	0.05	0.05	Colorimetric	0.01
22	Boron	<0.20	<0.20	<0.20	0.5	1.0	Colorimetric Carmine	0.20
23	Phenolics	<0.001	<0.001	<0.001	0.001	0.002	Chloroform Extraction	0.001
24	Alkalinity	248	220	200	200.0	600.0	Titrimetric Indicator	4.0
25	MPN	NIL	NIL	NIL	Not Specified		Multiple tube Fermentation	1.0
26	Cadmium	<0.0005	<0.0005	<0.0005	0.003	No relaxation	AAS - GTA	0.0005

All values are expressed in mg/lit unless specified.

WATER QUALITY DATA (GROUND WATER)

Name of the Company: **Eastern Coalfield Limited**Year : **2018**Name of the Project : **Mines of Cluster No. 11**Month: **May.**Stations Code & Name: **4. 11GW4- Chichuria 5. 11GW5 – Shankarpur 6. 11GW6- Khandra**

Sl. No.	Parameters	Sample code & Date			Indian Standard Drinking Water (IS-10500 :2012)		Method of detection	Detection Limit
		11GW4	11GW5	11GW6	Desirable Limit	Permissible Limit		
		22.05.18	24.05.18	24.05.18				
1	Colour, Hazen unit Max	3	2	2	5.0	15.0	Platinum Cobalt	1.0 Hazen
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable		Physical	-
3	Taste	Agreeable	Agreeable	Agreeable	Agreeable		Physical	-
4	Turbidity, NTU Max	2	1	1	1.0	5.0	Nephelometric	1.0 NTU
5	pH	8.19	8.29	8.26	6.5-8.5	No relaxation	Electrometric	0.01
6	Total Hardness	264	188	124	300.0	600.0	EDTA	4.0
7	Iron	0.06	<0.06	<0.06	0.30	No relaxation	AAS Flame	0.06
8	Chlorides	68	51	47	250.0	1000.0	Argentometric	2.0
9	Res Free chlorine	0.07	0.05	0.07	0.20	1.0	Spectrophotometric	0.02
10	Dissolved Solids	466	326	276	500.0	2000.0	Gravimetric	10.0
11	Calcium	108	96	64	75.0	200.0	EDTA	1.60
12	Copper	<0.03	<0.03	<0.03	0.05	1.5	AAS Flame	0.03
13	Manganese	<0.02	<0.02	<0.02	0.1	0.3	AAS Flame	0.02
14	Sulphate	31	42	36	200.0	400.0	Turbidity	2.0
15	Nitrate	11.60	12.26	8.62	45.0	No relaxation	Spectrophotometric	0.5
16	Fluoride	<0.02	<0.02	0.53	1.0	1.5	SPANDS	0.02
17	Selenium	<0.002	<0.002	<0.002	0.01	No relaxation	AAS - GTA	0.002
18	Arsenic	<0.002	<0.002	<0.002	0.01	0.05	AAS - VGA	0.002
19	Lead	<0.005	<0.005	<0.005	0.01	No relaxation	AAS - GTA	0.005
20	Zinc	0.02	0.02	0.02	5.0	15.0	AAS Flame	0.01
21	Hex Chromium	<0.01	<0.01	<0.01	0.05	0.05	Colorimetric	0.01
22	Boron	<0.20	<0.20	<0.20	0.5	1.0	Colorimetric Carmine	0.20
23	Phenolics	<0.001	<0.001	<0.001	0.001	0.002	Chloroform Extraction	0.001
24	Alkalinity	128	140	188	200.0	600.0	Titrimetric Indicator	4.0
25	MPN	NIL	NIL	NIL	Not Specified		Multiple tube Fermentation	1.0
26	Cadmium	<0.0005	<0.0005	<0.0005	0.003	No relaxation	AAS - GTA	0.0005

All values are expressed in mg/lit unless specified.

GROUND WATER LEVEL FOR THE MONTH OF MAY, 2018

SI.No.	CODE	Name of Dug well	Date of measurement	Water level (in Meters) Below Ground Level
1	11GW1	Dugwell at Moira Kalimandir & backside of Manager's office	24.05.2018	1.70
2	11GW2	Dugwell at Bahadurpur Panchayet office	11.05.2018	8.40
3	11GW3	Dugwell at Singaran village of Belbad OCP	22.05.2018	6.50
4	11GW4	Dugwell at Chichuria Dangal Colony of S.B.Project	22.05.2018	3.45
5	11GW5	Dugwell at Shankarpur village	24.05.2018	6.50
6	11GW6	Dugwell at Ananda Ashram at Khandra village	24.05.2018	7.60

Well water level for the month of August, 2018

Sl. No.	Station code	Location of Dug well	Date of measurement	Water level (in Meters) Below Ground Level
1	11GW1	Dugwell at Moira Kalimandir & backside of Manager's office	9-Aug-18	1.45
2	11GW2	Dugwell at Bahadurpur Panchayet office	1-Aug-18	5.70
3	11GW3	Dugwell at Singaran village of Belbad OCP	1-Aug-18	4.25
4	11GW4	Dugwell at Chichuria Dungal Colony of S.B.Project	1-Aug-18	1.70
5	11GW5	Dugwell at Shankarpur village	21-Aug-18	4.10
6	11GW6	Dugwell at Ananda Ashram at Khandra village	9-Aug-18	1.95

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**ENVIRONMENT MONITORING REPORT
OF
CLUSTER NO. 11**

(FOR THE MONTH OF AUGUST, 2018)

(KENDA & BANKOLA AREA)

Eastern Coalfields Limited



cmpdi
A Mini Ratna Company

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

ENVIRONMENT MONITORING REPORT FOR CLUSTERNO. 11

(For the Month of August, 2018)

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CHAPTER - I
INTRODUCTION

1.0 The environmental monitoring has been carried out as per conditions laid down by MOEF&CC while granting environmental clearance to different projects. CMPDI has trained manpower and well equipped laboratory to carry out monitoring, analysis and R&D work in the field of environment.

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



CHAPTER-II

AMBIENT AIR QUALITY MONITORING

2.1 Location of sampling station and their rationale:

2.1.1 Ambient Air Quality Sampling Locations

I. Industrial Area Monitoring Location**i) Haripur village (11A1): Industrial Area**

The sampler was placed at 10No. Pit office of Haripur Colliery. This station was selected to assess the ambient air quality of Industrial area in the core zone where mining activities are in progress.

i) Basabdanga village, (11A8): Industrial Area.

The sampler was placed at site office of outsourcing agency. This site was selected to assess the present ambient air quality status in Industrial area of core zone of Sonapur Project.

II. Residential Area Monitoring Location**ii) Shankarpur village near Railway siding (11A2) : Residential Area**

The sampler was placed at GM Office of Kenda Area. This site was selected to assess the present ambient air quality status in Residential area of core.

ii) Bahadurpur village (1A6): Residential Area

The Air sampler was placed Bhadurpur Health centre near Bhadurpur Block office. This site was selected to assess the present ambient air quality status in Residential area of Buffer zone of New Kenda colliery.

iii) Chichuria village (11A7): Residential Area

The sampler was placed at Rabindranagar Colony of Sonapur Bazari Project. This station was selected to assess the ambient air quality of Residential Area in the core zone.

2.2 Methodology of sampling and analysis

Parameters chosen for assessment of ambient air quality were Particulate Matter (PM₁₀), Fine Particulate Matter (PM_{2.5}), Sulphur Di-oxide (SO₂) and Nitrogen Oxides (NO_x). Respirable Dust Sampler (RDS) & Fine Dust Sampler (FDS) were used for sampling of PM₁₀ & gaseous pollutants and PM_{2.5} respectively. The samples were analysed in Environmental Laboratory of CMPDI, RI-I, Asansol.

2.3 Results & Interpretations

The results of Ambient Air Quality are presented in tabular form along with for each monitoring station. Sampling stations 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. The interpretations of different parameters are given below:

2.3.1 Ambient air quality

Particulate Matter (PM₁₀)

In Industrial area varies from 90.5 to 93.9 $\mu\text{g}/\text{m}^3$ & in Residential area from 91.3 to 95.6 $\mu\text{g}/\text{m}^3$.

Fine Particulate Matter (PM_{2.5})

In Industrial area from 37.3 to 38.4 $\mu\text{g}/\text{m}^3$ & in Residential area from 36.8 to 39.7 $\mu\text{g}/\text{m}^3$

Sulphur Dioxide (SO₂):

In Industrial area below 10 $\mu\text{g}/\text{m}^3$ & in Residential area below 10 $\mu\text{g}/\text{m}^3$.

Oxides of Nitrogen (NO_x):

In Industrial area varies from 16.2 to 17.7 $\mu\text{g}/\text{m}^3$ & in Residential area from 16.5 to 17.6 $\mu\text{g}/\text{m}^3$.

AMBIENT AIR QUALITY DATAName of the Company: **Eastern Coalfield Limited**Year : **2018**Name of the Project : **Mines of Cluster No. 11**Month. : **August.****Industrial Area****1st fortnight**

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A1	Haripur village	2-Aug-18	90.2	37.3	<10.0	17.3
11A8	Basabdanga village	9-Aug-18	93.9	37.7	<10.0	15.6

2nd fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A1	Haripur village	29-Aug-18	90.5	38.4	<10.0	17.7
11A8	Basabdanga village	29-Aug-18	92.8	36.8	<10.0	16.2

Residential Area**1st fortnight**

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A2	Shankarpur village	9-Aug-18	92.6	38.2	<10.0	17.2
11A6	Bahadurpur village	1-Aug-18	95.6	39.7	<10.0	17.6
11A7	Chichuria village	1-Aug-18	91.3	36.8	<10.0	16.5

2nd fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀	PM _{2.5}	SO ₂	NO _x
11A2	Shankarpur village	29-Aug-18	91.9	37.7	<10.0	16.6
11A6	Bahadurpur village	16-Aug-18	94.4	38.5	<10.0	17.2
11A7	Chichuria village	16-Aug-18	90.8	35.7	<10.0	16.2

National Ambient Air Quality Standards (NAAQS)

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

Pollutant	PM ₁₀	PM _{2.5}	SO ₂	NO _x
Concentration	100.0	60.0	80.0	80.0

➤ All values are expressed in microgram per cubic meter.

CHAPTER – III

WATER QUALITY MONITORING

3.1 Location of sampling sites and their rationale

- ii) **Lower Kenda (11MW4)**
This location has been selected to monitor the discharge quality of Mine effluent supply to colony quarters after sedimentation tank.
- iii) **Chora Block Incline (11MW5)**
This location has been selected to monitor the discharge quality of Mine effluent used for sparkling at mine area and road.
- iv) **Chora 7, 9 & 10 Pits (11MW6)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams
- v) **Bahula UG (11MW7)**
This location has been selected to monitor the discharge quality of Mine effluent sparkling to Bhula Railway siding and remaining water discharge to natural surface streams after sedimentation tank.
- vi) **C L Jambad UG (11MW8)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after sedimentation tank.
- vii) **Siduli UG (11MW9)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after sedimentation tank.
- viii) **Khandra UG (11MW10)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after sedimentation tank.
- ix) **Shankarpur UG (11MW11)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after sedimentation tank.

3.2 Methodology of sampling and analysis

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

3.3 Results & Interpretations

The results are given in tabular form along with the applicable standards. Results are compared with General Standards for Discharge of Effluent (Schedule VI) in case of effluent/mine water sample and compared with IS.10500: 2012 in case of drinking water sample. Results show that most of the parameters are within the permissible limits

Cluster No. 11

CMPDI

WATER QUALITY DATA

(Effluent Water)

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

Year : **2018.**

Name of the Project: **Mines of Cluster No. 11**

Month: **August**

Name of the Stations & Code : **1. 11MW4- Lower Kenda 2. 11MW5- Chora Block Incline 3. 11MW6- Chora 7, 9 & 10 Pits**

4. 11MW7- Bahula UG

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW4	11MW5	11MW6	11MW7			
		1-Aug-18	9-Aug-18	9-Aug-18	1-Aug-18			
1	pH	7.77	8.24	8.44	7.86	5.5 - 9.0	Electrometric	0.01
2	TSS	14	30	16	22	100 (Max)	Gravimetric Method	5.0
3	TDS	564	310	598	602	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	16	36	20	28	250 (Max)	Closed Reflux	4.0

Second Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW4	11MW5	11MW6	11MW7			
		25-Aug-18	25-Aug-18	25-Aug-18	25-Aug-18			
1	pH	7.58	8.47	8.28	7.67	5.5 - 9.0	Electrometric	0.01
2	TSS	18	20	18	16	100 (Max)	Gravimetric Method	5.0
3	TDS	590	360	624	588	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	20	28	16	16	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

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CMPDI

WATER QUALITY DATA

(Effluent Water)

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

Year : **2018.**

Name of the Project: **Mines of Cluster No. 11**

Month: **August.**

Name of the **5. 11MW8- C L Jambad UG**

6. 11MW9- Siduli UG

7. 11MW10- Khandra UG

Stations & Code : **8. 11MW11- Shankarpur UG**

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW8	11MW9	11MW10	11MW11			
		1-Aug-18	1-Aug-18	1-Aug-18	1-Aug-18			
1	pH	8.27	8.53	7.76	8.43	5.5 - 9.0	pH meter	0.01
2	TSS	20	14	18	14	100 (Max)	Spectrophotometric	5.0
3	TDS	564	702	538	360	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	24	8	16	12	250 (Max)	Closed Reflux	4.0

Second Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
		11MW8	11MW9	11MW10	11MW11			
		20-Aug-18	25-Aug-18	25-Aug-18	25-Aug-18			
1	pH	8.01	8.44	7.82	8.17	5.5 - 9.0	pH meter	0.01
2	TSS	14	20	18	20	100 (Max)	Spectrophotometric	5.0
3	TDS	506	552	394	456	Not specified	Gravimetric Method	1.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	12	24	16	32	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

Well water level for the month of August, 2018

Sl. No.	Station code	Location of Dug well	Date of measurement	Water level (in Meters) Below Ground Level
1	11GW1	Dugwell at Moira Kalimandir & backside of Manager's office	9-Aug-18	1.45
2	11GW2	Dugwell at Bahadurpur Panchayet office	1-Aug-18	5.70
3	11GW3	Dugwell at Singaran village of Belbad OCP	1-Aug-18	4.25
4	11GW4	Dugwell at Chichuria Dungal Colony of S.B.Project	1-Aug-18	1.70
5	11GW5	Dugwell at Shankarpur village	21-Aug-18	4.10
6	11GW6	Dugwell at Ananda Ashram at Khandra village	9-Aug-18	1.95

CHAPTER - IV

NOISE LEVEL QUALITY MONITORING

4.1 Location of sampling sites and their rationale

- i) **Haripur UG (11N1)**
Noise level meter placed in Haripur UG pit office to assess the noise level in mine site.
- ii) **Lower Kenda (11N2)**
Noise level meter placed in Lower Kenda pit office to assess the noise level in mine site.
- iii) **Chora Block Incline (11N3)**
Noise level meter placed in Chora Block Incline UG pit office to assess the noise level in mine site. The noise levels were recorded in the mine area where all mining activities are in progress.
- iv) **Chora 7, 9 & 10 Pits (11N4)**
Noise level meter placed in Chora 7, 9 & 10 pit office to assess the noise level in mine site.
- v) **Bahula UG (11N5)**
Noise level meter placed in Chora 7, 9 & 10 pit office to assess the noise level in mine site
- vi) **C L Jambad UG (11N6)**
Noise level meter placed in C L Jambad UG pit office to assess the noise level in mine site.
- vii) **Siduli UG (11N7)**
Noise level meter placed in Siduli UG pit office to assess the noise level in mine site.
- viii) **Khandra UG (11N8)**
Noise level meter placed in Khandra UG pit office to assess the noise level in mine site.
- ix) **Shankarpur UG (11N9)**
Noise level meter placed in Shankarpur UG pit office to assess the noise level in mine site.

4.2 Methodology of sampling and analysis

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

4.3 Results & Interpretations

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

Cluster 11

CMPDI

NOISE LEVEL DATA

Name of the Company: **Eastern Coalfield Limited** Year : **2018.**

Name of the Project: **Kenda Area** Month. : **August**

Name of the Stations & Code :

1. 11N1- Haripur UG	2. 11N2- Lower Kenda
3. 11N3- Chora Block Incline	4. 11N4- Chora 7, 9 & 10 Pits
5. 11N5- Bahula UG	6. 11N6- C L Jambad UG
7. 11N7- Siduli UG	8. 11N8- Khandra UG
9. 11N9- Shankarpur UG	

Sl. No.	Station Code	Station Name	Measurement Details			Permissible Limit of Noise level in dB(A)
			Date	Duration (In Hrs.)	Noise level dB(A) Leq	
1	11N1	Haripur UG	2-Aug-18	10.30 to 11.30	63.2	75
2	11N2	Lower Kenda	2-Aug-18	9.00 to 10.00	62.5	75
3	11N3	Chora Block Incline	2-Aug-18	7.30 to 8.30	66.8	75
4	11N4	Chora 7, 9 & 10 Pits	2-Aug-18	12.00 to 13.00	61.4	75
5	11N5	Bahula UG	2-Aug-18	13.30 to 14.30	62.6	75
6	11N6	C L Jambad UG	9-Aug-18	10.30 to 11.30	63.7	75
7	11N7	Siduli UG	9-Aug-18	9.00 to 10.00	66.8	75
8	11N8	Khandra UG	9-Aug-18	7.30 to 8.30	67.3	75
9	11N9	Shankarpur UG	9-Aug-18	12.00 to 13.00	60.9	75

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

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