

HALF YEARLY
ENVIRONMENT CLEARANCE COMPLIANCE REPORT
OF
CLUSTER 10
J-11015/180/2011-IA.II(M)
FOR THE PERIOD OF
OCTOBER 2018 TO MARCH 2019



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

EASTERN COALFIELDS LIMITED
(A Subsidiary of Coal India Limited)
Office of the General Manager
Bankola Area



P.O. Ukhra
District : Paschim Burdwan
West Bengal-713363
Ph.: No. 0341-2665491/492/493/494
Fax No. 0341-2665366
Email: gmbankola@gmail.com

Ref. No.: 18/ME/ENV/19/

Dated: 13-4-19

UNDERTAKING

Information provided in Half yearly EC compliance report for the period of Oct'18- Mar'19 in respect of the Moira Colliery of Cluster No.10 is true to the best of my knowledge.


Agent
Moira Colliery


Manager
Moira Colliery



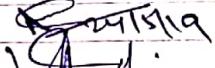

Eastern Coalfields Limited
(A Subsidiary of Coal India Limited)
Office of the General Manager
Kunustoria Area, P.O. Toposi, Dist. Burdwan (WB).

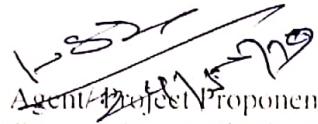
Ref. No: ECL/Parasea/Survey/2019-20/34

Date: 24.05.2019

UNDERTAKING

Information provided in Half yearly EC compliance report for the period of October 2018 to March 2019 in respect of the following mines of Cluster no. 10 is true to the best of my knowledge:

SL NO.	MINE	NAME OF THE MANAGER	SIGNATURE OF THE MANAGER
1.	Belbaid UG	SURJIT SAMAL	
2.	Parasea UG	G. Ahammed	
3.	Parasea OC Patch		


Agent/Project Proponent
(Parasea Group of Mines)






Eastern Coalfields Limited
(A Subsidiary of Coal India Limited)
Office of the General Manager
Kunustoria Area, P.O. Toposi, Dist. Burdwan (WB).


Ref. No: ECL/Be/19-20/S-021

Date: 18/5/19

UNDERTAKING

Information provided in Half yearly EC compliance report for the period of October 2018 to March 2019 in respect of the following mines of Cluster no. 10 is true to the best of my knowledge:

SL NO.	MINE	NAME OF THE MANAGER	SIGNATURE OF THE MANAGER
1.	North Searsole OCP	J. Ansari	
2.	Bansra UG	J.N. Halder	
3.	Bansra OC Patch	J.N. Halder.	


Agent/ Project Proponent
(Bansra Group of Mines)



Eastern Coalfields Limited
(A Subsidiary of Coal India Limited)
Office of the General Manager
Kunustoria Area, P.O. Toposi, Dist. Burdwan (WB).

Ref. No: 454

Date: 18.05.2019.

UNDERTAKING

Information provided in Half yearly EC compliance report for the period of October 2018 to March 2019 in respect of the following mines of Cluster no. 10 is true to the best of my knowledge:

SL NO.	MINE	NAME OF THE MANAGER	SIGNATURE OF THE MANAGER
1.	Kunustoria UG	Rajkumar Bandyopadhyay a.	
2.	Amrasota UG		

18/5/19 Agent
Kunustoria Project Proprietor
(Kunustoria Group of Mines)



EASTERN COALFIELDS LIMITED

(A subsidiary of Coal India Limited)

Office of the Chief Manager (Mining)/ Agent: Nabajambad Group of Mines

P.O. Kajoram – 713338, Dt. Burdwan

Ref. No.

KA/J.OCP/e-6/18/1911

Date:

15/5/19

Undertaking

Information provided in Half yearly EC compliance report for the period October'18 to March'19 in respect of the following mines of cluster 10 is true to the best of my knowledge:

Sl.No.	Mines	Name of Manager	Signature of The Manager
1	JAMBAD OCP	Sri Amal Karmakar	
2	MADHABPUR COLLIERY (UG & OC)	Sri Gadadhar Mondal	
3	JAMBAD COLLIERY	Sri A. K. Sinha	
4	NABA KAJORA COLLIERY	Sri Dinesh Babuti	

Chief Manager (Mining) Agent
Nabajambad Group of Mines

Agent
JAMBAD O. C. P.
KAJORA AREA



EASTERN COALFIELDS LIMITED

(A subsidiary of Coal India Limited)

Office of the Chief Manager (Mining)/ Agent: PORASCOLE COLLIERY

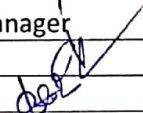

P.O. Kajoram – 713338, Dt. Burdwan


Ref. No. PSC/Agent(2019)313

Date: 15/05/19

Undertaking

Information provided in Half yearly EC compliance report for the period October'18 to March'19 in respect of the following mines of cluster 10 is true to the best of my knowledge:

Sl.No.	Mines	Name of Manager	Signature of The Manager
1	PORASCOLE EAST COLLIERY	Sri Dilip Kumar	
2	PPRASCOLE WEST COLLIERY	Sri Biswajit Karmakar	


Chief Manager (Mining)/Agent
Porascole Group of Mines
Ch. Mgr. (Mining) / Agent
Porascole Group of Mines
E.C.L.



EASTERN COALFIELDS LIMITED

(A subsidiary of Coal India Limited)

Office of the Chief Manager (Mining)/ Agent: KHAS KAJORA GROUP OF MINES

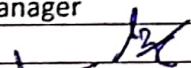

P.O. Kajoram - 713338, Dt. Burdwan

Ref. No. ECL/ckc/Agent/19/1275

Date: 09/5/19

Undertaking

Information provided in Half yearly EC compliance report for the period October'18 to March'19 in respect of the following mines of cluster 10 is true to the best of my knowledge:

Sl.No.	Mines	Name of Manager	Signature of The Manager
1	KHAS KAJORA COLLIERY	Sri Snehanshu Ray	
2	CENTRAL KAJORA COLLIERY	Sri Sanjay Kumar	
3	GHANASHYAM COLLIERY	Work Suspended	Work Suspended
4	LACHIPUR COLLIERY		


09/5/19
General Manager (Mining)/Agent अगिकर्ता
Khas Kajora Group of Mines (Mining) / Agent
सेन्द्रल काजोरा कोलियरी
Central Kajora Colliery



EASTERN COALFIELDS LIMITED

(A subsidiary of Coal India Limited)

Office of the Chief Manager (Mining)/ Agent: Madhusudanpur COLLIERY

P.O. Kajoram – 713338, Dt. Burdwan

Ref. No. MSP/Agent/Env./2019/132

Date: 08/05/2019

Undertaking

Information provided in Half yearly EC compliance report for the period October'18 to March'19 in respect of the following mines of cluster 10 is true to the best of my knowledge:

Sl.No.	Mines	Name of Manager	Signature of The Manager
1	Madhusudanpur 7 Pit / Incline Colliery	Sri P Bhowmik	
2	Madhusudanpur 3/4 Pit Colliery	Sri M. K. Singh	
3	Madhujore Colliery		

08/05/19

Chief Manager (Mining)/Agent
Madhusudanpur Group of Mines

Chief Manager (M)/Agent
Madhusudanpur Colliery
Kajora Area

Cluster 10, ECL (Combination of 19 mines under ECL)

J-11015/180/2011-IA-II (M) dated 20.01.2015

October'18 to March'19

SPECIFIC CONDITION

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		
	<u>Mine</u>	<u>Peak EC Capacity (MTPA)</u>	<u>Total Production in FY 2018-19</u>
	North Searsole UG	2.0	0.662985
	North Searsole (East) OC Patch		
	North Searsole (West) OC Patch		
	Kunustoria UG	0.24	0.121571
	Amrasota UG	0.15	
	Belbaid UG	0.48	0.070864
	Belbaid OC Patch		
	Bansra UG	0.735	0.464810
	Bansra OC Patch		
	Parasea UG	0.61	0.169318
	Parasea OC Patch		
	Parasea 6 & 7 UG	0.06	0.00
	Jambad OC	1.00	0.657996
	Jambad UG		0.175945
	Naba Kajora UG	2.23	0.039747
	Madhabpur UG		0.063555
	Madhabpur OC Patch		0.367423
	Lachipur UG	0.00	0.0
	Central Kajora UG	0.12	0.073302
	Khas Kajora UG	0.35	0.225354
	Moira UG	0.12	0.00
	Madhusudanpur UG	0.12	0.063867
	Madhujore UG	0.00	0.0
	Ghanashyam UG	0.00	0.0
	Parascole East & West	0.26	PSC(E) – 0.079200 PSC(W) – 0.047292

	Total	7.70	1.793681(KAJORA)
Condition (ii)	The validity of the EC is for the life of the mine or as specified in the EIA Notification, 2006, whichever is earlier.		
Compliance	Agreed		
Condition (iii)	There shall be no mine void and no external dumps at the end of mining.		
Compliance	Agreed		
Condition (iv)	Adequate measures shall be taken to mitigate subsidence as per DGMS stipulations.		
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 (v)	The flyash that has been dumped during past operations shall be covered with one meter top soil. No further flyash dumping shall be done in mines in the cluster.		
Compliance	Kajora- The Flyash which was done prior to EC has been covered with top soil. The details of the flyash dumping in given in Annexure – K .		
Condition (vi)	Adequate rain water harvesting and other facilities should be created for ground water recharge.		
Compliance	<p>Roof-top rainwater harvesting and ground water recharging initiatives have been taken up by the company at several places which face lowering of GWL during summer period. The mine discharge is being utilized to meet the domestic demands of the colonies thus reducing the strain on ground water resources.</p> <p>At present, two rainwater harvesting structure is installed at Bankola Area. The details are given below:</p> <p>Shyamsundarpur UG: Rainwater Harvesting system near SSPur Agent Office (Approximate quantity of the area covered: 1600 sqm)</p> <p>Tilaboni UG: Rainwater Harvesting system at Bankola Area Hospital (Approximate quantity of the area covered: 2500 sqm)</p>		
Condition (vii)	Surface run off must pass through the settling tank before discharging into the water body.		
Compliance	<p>Not applicable for UG mines in the Cluster.</p> <p>Surface run off in Open Cast mines is collected in settling ponds or sumps and are discharged after providing suitable retention time.</p>		
Condition (viii)	All safety measures shall be taken as per CMR, 1957 & related Circulars.		
Compliance	All safety measures are being taken as per CMR, 1957 and related Circulars.		
Condition (ix)	The production shall be within the same Mining Lease area.		
Compliance	The production is within the same Mining Lease area.		
Condition (x)	Coal shall be transported by rail only. Coal transportation from mine to siding should be by conveyor belt. The loading to siding by pay loaders into railway		

	wagons.
Compliance	<p>Kajora- There are currently active 3 railways sidings (Nabakajora- Madhabpur, Porascole (E) and Madhusudanpur sidings) serving to the mines in Kajora area. Coal is transported to railway sidings from the mines outlet by dedicated black-topped road especially constructed for the purpose. Coal transportation from mine to siding through belt conveyors is not feasible because, the capacity of the mines is less.</p> <p>Kunustoria - There are currently active 3 railways sidings (Parasea, Belbaid and Bansra sidings) serving to the mines in kunustoria area. Coal is transported to railway sidings from the mines by dedicated black-topped road especially constructed for the purpose. Coal transportation from mine to siding is being done by tarpaulin covered trucks.</p> <p>Bankola- Coal was transported to railway sidings (Bankola I & Bankola II) from the mines outlet by dedicated black-topped road especially constructed for the purpose. Coal transportation from mines to siding through belt conveyors is not feasible because, the capacity of the mines is less. At present, the production of the mine is suspended.</p>
Condition (xi)	Independent network of railway siding inside cluster be developed. Railway sidings should be constructed at the earliest and till then proponent may use mechanically covered trucks for transportation of coal.
Compliance	<p>Kajora- There are currently active 3 railways sidings (Nabakajora- Madhabpur, Porascole (E) and Madhusudanpur sidings) serving to the mines in Kajora area. Coal is transported to railway sidings from the mines outlet by dedicated black-topped road especially constructed for the purpose. Coal transportation from mine to siding through belt conveyors is not feasible because, the capacity of the mines are less.</p> <p>Kunustoria - There are currently active 3 railways sidings (Parasea, Belbaid and Bansra sidings) serving to the mines in Kunustoria area. Coal is transported to railway sidings from the mines by dedicated black-topped road especially constructed for the purpose. Coal transportation from mine to siding is being done by tarpaulin covered trucks.</p> <p>Bankola- Coal was transported to railway sidings (Bankola I & Bankola II) from the mines outlet by dedicated black-topped road especially constructed for the purpose. Coal transportation from mines to siding through belt conveyors is not feasible because, the capacity of the mines is less. At present, the production of the mine is suspended.</p>
Condition (xii)	Three tier green belts shall be raised around the railway sidings and along the road sides to prevent dust and noise pollution.
Compliance	At railway siding, plantation has been done to check dust and noise pollution. Both sides of connecting roadway are well vegetated naturally.
Condition (xiii)	Stowing and depillaring shall be as per the recommendations of the DGMS.

Compliance	Stowing and depillaring done as per the recommendations of the DGMS.
Condition (xiv)	The proponent must comply with the Raniganj Action Plan. The unstable areas within the cluster will be brought under plantation after the population residing over these areas is rehabilitated under the Master Plan for Raniganj Coalfield to be implemented by ADDA.
Compliance	Work in progress and is being implemented by ADDA, Govt. of West Bengal.
Condition (xv)	Trees with deep rooted system should be planted so as to prevent soil erosion.
Compliance	Trees with deep-rooted system are planted in consultation with state forest dept. to prevent soil erosion. Deep rooted tree species planted are as follows- Neem, Seemul, Karanch, Shisham, Arjun, Babool & Sirish.
Condition (xvi)	Proponent should plant additional 10 Ha/year over the next 10 years at various locations in the cluster.
Compliance	A Combined 34.5 Ha was Planted in Lachipur and Jambad OCP in 2018-19.
Condition (xvii)	River/Nallah shall be desilted and restored back to functional state.
Compliance	No mine water is discharged into River/Nallah but it is periodically desilted before the start of monsoon season to maintain flow of rain water.
Condition (xviii)	Wild life conservation plan be prepared and submitted to the MoEF & CC with the approval of the State Govt.
Compliance	Conservator of Forest (wildlife), Govt. of West Bengal has been requested to prepare Wildlife Conservation plan of entire Raniganj Coalfield.
Condition (xix)	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 (xx)	Separate drainage pattern be provided.
Compliance	Separate drainage pattern will be provided where required.
Condition (xxi)	Sand stowing must be used as recommended by CMPDIL.
Compliance	Sand stowing is being used as recommended by CMPDIL.
Condition (xxii)	Action plan for prevention and mitigation of subsidence be prepared and implemented.
Compliance	Action plan for prevention and mitigation of subsidence has been prepared and implemented as per DGMS guidelines.
Condition (xxiii)	The OC Patches to be operated will be completely filled-up after exhaustion of reserves and reclaimed with plantation.
Compliance	Noted and agreed.
Condition (xxiv)	The OB shall be completely re-handled at the end of the mining
Compliance	Noted and agreed.
Condition (xxv)	There shall be no OB dump after the mining
Compliance	Noted and agreed.

Condition (xxvi)	After completion of mining activities, the subsided areas shall be graded and planted upon.
Compliance	Noted and agreed, will be done as per approved Mine Closures Plan.
Condition (xxvii)	Coal Extraction shall also be optimized in areas where agricultural production is continuing. Some pillars shall be left below the agricultural land. No depillaring and coal extraction should be carried out below habitation, H.T. lines and beneath road, water bodies
Compliance	No underground mining is carried out below within 45m of the Major Roads, Railway line, HT lines and nallah flowing through the cluster. Coal pillars are left intact vertically below and within the angle of draw of villages and other surface features. Depillaring is done with sand stowing in all mines except Moira UG. Coal Extraction is being carried out as per DGMS permissions and guidelines.
Condition (xxviii)	The land excavated after mining must be brought back to original condition for agricultural / plantation purpose.
Compliance	Noted and agreed.
Condition (xxix)	Water discharged from the mine should be as good as surface drinking water.
Compliance	Mine discharge water is being treated in slow sand filter/ pressure filter along with chlorination and used for drinking water. Furthermore, Mine water is not acidic, as such there is no requirement of acid mine drainage treatment facility.
Condition (xxx)	Regular monitoring of subsidence movement on the surface over and around the working area and impact on natural drainage pattern, water bodies, vegetation, structure, roads, and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate effective corrective measures shall be taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable material.
Compliance	Regular inspection is being done by the pit safety committee headed by Safety Officer on the surface over and around the working area for any sign of subsidence.
Condition (xxxi)	If subsidence is found exceeding the permitted limits, then the landowners shall be adequately compensated with mutual agreement of the landowners.
Compliance	Surface land is already acquired under CBA Act and Compensation as per Company's R&R Policy is given to the land owners prior to land acquisition.
Condition (xxxii)	Water sprinkling system shall be provided to check fugitive emissions from loading operations, conveyor system, haulage roads, transfer points, etc. Major approach roads shall be black topped and properly maintained.
Compliance	The coal transportation road from Mines to Railway Siding is black topped and Water Sprinkling is being done on the approach road with Mobile Water tankers.
Condition (xxxiii)	The CSR cost should be Rs 5 per Tonne of Coal produced which should be adjusted as per the annual inflation.
Compliance	CSR cost at the rate of 2% of the net profit has kept for the purpose. Refer to Annexure B for expenditure incurred under CSR Activities.
Condition	The mining in the existing mines should be phased out after expiry of the

(xxxiv)	current mining lease and after reclamation of the mined out area. The operating mines may be analyzed and monitored for compliance of conditions, bearing with movement of wildlife and until such time they are closed/ phased out.
Compliance	Noted and Agreed .
Condition (xxxv)	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 (xxxvi)	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 (xxxvii)	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 (xxxviii)	People working in the core area should be periodically tested for the lung diseases and the burden of cost on account of working in the coal mining area.
Compliance	20 % of the work force is covered under periodic medical examination each year including lung diseases the cost of which is borne by the company. The PME report is enclosed as Annexure C .
Condition (xxxix)	The mining area should be surrounded by green belt having thick closed thick canopy of the tree cover.
Compliance	Most of the mines in this cluster are UG mines and as such pollution load is concentrated in mine working faces. However, the region has Natural Vegetation. Additional Plantation is being done at the rate of 10Ha/year. A Combined 34.5 Ha with rate 2500 plants /Ha was Planted in Lachipur and Jambad OCP in 2018-19. Deep rooted tree species planted are as follows- Neem, Seemul, Karanch, Shisham, Arjun, Babool & Sirish.
Condition (xl)	Besides carrying out regular periodic health check-up of their workers, 10% of the workers indentified from workforce engaged in the active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, through an specialized agency/institution within the District/State and the results reported to this ministry and to DGMS.
Compliance	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. The details are given in Annexure C .
Condition (xli)	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 cluster.
Condition (xlii)	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	Agreed.
Condition (xliii)	Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flow from soil, OB and mineral dumps. The water so collected shall be regularly watering the mine area, roads, green belt development, etc. The drains shall be regularly desilted and maintained properly. Garland drains (size, gradient and length) and sump capacity shall be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper settling of silt material
Compliance	Permanent masonry drains of size range 200 to 600 m, 0.90 m to 2 m and 0.6 m to 2 m depth and 1 in 30 gradients, depending on the catchment have been constructed for evacuation of rain water. The size of the drain is large enough to take care of heavy downpours. The drain is cleared of debris before start of the monsoon season as part of our annual monsoon preparation program.
Condition (xliv)	Garland drains (size, gradient & length) around the safety areas such as mine shaft and low lying areas and sump capacity shall be resigned keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. Sump capacity shall also provide adequate retention period to allow proper settling of silt material.
Compliance	Permanent masonry drains of size range 200 to 600 m, 0.90 m to 2 m and 0.6 m to 2 m depth and 1 in 30 gradients, depending on the catchment have been constructed for evacuation of rain water. The size of the drain is large enough to take care of heavy downpours. The drain is cleared of debris before start of the monsoon season as part of our annual monsoon preparation program.
Condition (xlv)	Dimensions of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation shall be based on the rainfall data.
Compliance	Not applicable for UG mines under the cluster10. Agreed for OCP mines.
Condition (xlvi)	Crushers at the CHP of adequate capacity for the expansion project shall be operated with high efficiency bag filters, water sprinkling system shall be provided to check fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc.
Compliance	No crusher is installed at CHP.
Condition (xlvii)	Mine Discharge water outside the ML shall be monitored, particularly for TDS and treated to conform to prescribed levels before discharge into the natural environment.
Compliance	Mine water discharge quality complies with prescribed standards. Regular monitoring is done by CMPDI. Reports for Cluster is enclosed.
Condition (xlviii)	Drills shall be wet operated.
Compliance	Sprinkling arrangement is present at all the coal faces and water is sprinkled before and after blasting in underground mines. In open cast mines, drills are operated with dust suppression facility. Some models are REL-600 – 3 Nos and IDM 30 – 1 Nos.
Condition (xlix)	The project authorities shall undertake regular repairing and tarring of roads used for mineral transportation. A 3- tier green belt comprising of a mix of

	native species shall be developed all along the major approach roads.																		
Compliance	<p>As per requirement, Regular repairing and tarring of roads are being taken on priority basis. Both sides of approach roadway are well vegetated naturally.</p> <p>Kajora- A 2.5 km plantation has been done last year along coal transportation road from C Pit to Bansra siding. Some species are Kamini, Rangan, Krishnachura, Jaba, Karabi, Bougenvelia, Pathodia, Jamun, Radhachura etc.</p> <p>Bankola- Plantation done</p> <table border="1"> <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 (Roadside)</td> <td>-</td> <td>-</td> <td>35%</td> </tr> <tr> <td>2016-17</td> <td>Chatim, Krishnachura, Radhachura, Karanch, Amla etc.</td> <td>12 Ha</td> <td>22500</td> <td>2500/Ha</td> <td>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 (Roadside)	-	-	35%	2016-17	Chatim, Krishnachura, Radhachura, Karanch, Amla etc.	12 Ha	22500	2500/Ha	75%
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 (Roadside)	-	-	35%														
2016-17	Chatim, Krishnachura, Radhachura, Karanch, Amla etc.	12 Ha	22500	2500/Ha	75%														
Condition (i)	Controlled blasting shall be practiced with use of delay detonators and only during daytime. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented.																		
Compliance	<p>Complied.</p> <p>Controlled blasting is being done as per DGMS permission and conditions.</p>																		
Condition (ii)	A Progressive afforestation plan shall be implemented covering an area of 1289 ha at the end of mining, which includes reclaimed Top-soil dump (30 Ha), Excavation area (805 Ha), External Waste Dump area (170 ha), Mine Infrastructure area (24.8 ha); Subsided (43.2 Ha) and Others land (196 ha) and in township located outside the lease by planting native species in consultation with the local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. Massive plantation shall be carried out in open spaces in and around the mine and a 3-tier avenue plantation along the main approach roads to the mine.																		
Compliance	The mine is in cluster 10 and it is proposed to plant 10 Ha per year within cluster 1 at the density of 2500 plants/Ha.																		
Condition (iii)	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	Compensatory Ecological & Restoration of waste land, other degraded lands																		

(lii)	and OB dumps in lieu of breaking open the land be carried out.																																																
Compliance	Mine closure Plan has already been prepared for the purpose. Compensatory ecological and restoration of wasteland shall be done accordingly.																																																
Condition (liv)	No groundwater shall be used for mining operations																																																
Compliance	No ground water is being used for mining operations.																																																
Condition (lv)	An estimated total 19.74 Mm ³ of OB will be generated during entire life of the mine. Out of which 1.92 Mm ³ of OB will be dumped in one external dump covering area 7.60 Ha of land and 17.82 Mm ³ in internal OB dumps covering an area of 557 Ha of land. The OB dump height is upto 60 m. The maximum slope of the dump shall not exceed 28 degrees. Monitoring and management of reclaimed dump sites shall continue till the vegetation becomes self-sustaining and compliance status shall be submitted to MOEF&CC and its Regional Office on yearly basis.																																																
Compliance	Not applicable for UG mines under the Cluster. The Details OC dumps with their slope angle is given below: <u>Dumps of Madhabpur OC Patch</u> <table border="1"> <thead> <tr> <th>Dump No.</th> <th>Top R/L</th> <th>Bottom R/L</th> <th>Slope Angle</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Dump No 1</td> <td>95.34</td> <td>82.80</td> <td rowspan="2">26 °</td> </tr> <tr> <td>93.06</td> <td>84.20</td> </tr> <tr> <td rowspan="2">Dump No 2</td> <td>96.50</td> <td>81.65</td> <td rowspan="2">28 °</td> </tr> <tr> <td>97.05</td> <td>90.63</td> </tr> <tr> <td rowspan="3">Dump No 3</td> <td>96.02</td> <td>84.40</td> <td rowspan="3">27 °</td> </tr> <tr> <td>97.98</td> <td>78.05</td> </tr> <tr> <td>89.75</td> <td>79.88</td> </tr> </tbody> </table> <u>Dumps of Jambad OCP</u> <table border="1"> <thead> <tr> <th>Dump No.</th> <th>Top R/L</th> <th>Bottom R/L</th> <th>Slope Angle</th> </tr> </thead> <tbody> <tr> <td>Dump No 1</td> <td>114</td> <td>110</td> <td>25 °</td> </tr> <tr> <td>Dump No 2</td> <td>150</td> <td>114</td> <td>27 °</td> </tr> <tr> <td>Dump No 3</td> <td>138</td> <td>107</td> <td>26 °</td> </tr> <tr> <td>Dump No 4</td> <td>124</td> <td>108</td> <td>25 °</td> </tr> <tr> <td>Dump No 5</td> <td>120</td> <td>106</td> <td>27 °</td> </tr> </tbody> </table>	Dump No.	Top R/L	Bottom R/L	Slope Angle	Dump No 1	95.34	82.80	26 °	93.06	84.20	Dump No 2	96.50	81.65	28 °	97.05	90.63	Dump No 3	96.02	84.40	27 °	97.98	78.05	89.75	79.88	Dump No.	Top R/L	Bottom R/L	Slope Angle	Dump No 1	114	110	25 °	Dump No 2	150	114	27 °	Dump No 3	138	107	26 °	Dump No 4	124	108	25 °	Dump No 5	120	106	27 °
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Condition (lvi)	Of the total quarry area 805 Ha, the backfilled quarry area of (805 Ha) shall be reclaimed with plantation by planting native plant species in consultation with the local DFO/Agriculture Department. The density of trees shall be around 2500 plants per ha.																																																
Compliance	Not applicable for UG mines in the Cluster and Agreed for OCP.																																																

Condition (lvii)	Regular monitoring of ground water level quality shall be carried out by establishing a network of existing wells and construction of new piezometer. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the Ministry of Environment, Forests & Climate Change and to the Central Pollution Control Board quarterly within one month of monitoring.
Compliance	Ground water level monitoring is being done regularly by CMPDIL through a network of existing wells. Construction of new piezometers for ground water monitoring is under process. Work order already issued and work has been started.
Condition (lviii)	The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case monitoring indicates a decline in water table. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine
Compliance	Roof-top rainwater harvesting and ground water recharging initiatives have been taken up by the company at several places which face lowering of GWL during summer period. Since the mine is an underground mine, 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. The mine discharge is being utilized to meet the domestic demands of the colonies thus reducing the strain on ground water resources.
Condition (lix)	Sewage treatment plants shall be installed in the existing colony. ETP shall also be provided for workshop and CHP wastewater.
Compliance	No CHP is present in the mine. A small workshop which caters to small repairing jobs of day to day nature like welding, machining etc. discharges negligible amount of water, for which ETP is not feasible.
Condition (lx)	Land outsee 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 (lxi)	For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1:5000) of the core zone and the buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years(for any one particular season which is consistent in the time series), and the report submitted to MOEF& CC and its concerned Regional Office
Compliance	Land use pattern and plantation is being monitored by satellite surveillance based on satellite imagery.
Condition (lxii)	A Detailed Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment, Forest & Climate Change within 6 months of grant of Environment Clearance.
Compliance	Mine closure plan have been prepared for the mine as per the guidelines of MOC and the same has been placed before the board for approval.
Condition	The project authorities shall in consultation with the panchayats of the local

(Ixi)	villages and administration identify socio-economic and welfare measures under CSR to be carried on over the balance life of the mine															
Compliance	<p><u>Kajora Area</u></p> <table border="1"> <thead> <tr> <th>Year</th> <th>Activity</th> <th>Expenditure</th> </tr> </thead> <tbody> <tr> <td>2014-15</td> <td>Medical Camps, Training camps etc.</td> <td>2.40 Lakh</td> </tr> <tr> <td>2015-16</td> <td>Medical Camps etc.</td> <td>0.7 Lakh</td> </tr> <tr> <td>2016-17</td> <td>Medical Camps etc.</td> <td>1.07 Lakh</td> </tr> <tr> <td>2017-18</td> <td>Training camps. etc.</td> <td>0.77903 Lakh</td> </tr> </tbody> </table> <p>The details of expenditure in 2018-19 is given in Annexure – B.</p> <p>Kunustoria- The project authorities shall in consultation with the panchayats of the local villages and administration identify socio-economic and welfare measures under CSR to be carried on over the balance life of the mine</p> <p>Bankola- List of CSR activities are to be found in Annexure-D.</p>	Year	Activity	Expenditure	2014-15	Medical Camps, Training camps etc.	2.40 Lakh	2015-16	Medical Camps etc.	0.7 Lakh	2016-17	Medical Camps etc.	1.07 Lakh	2017-18	Training camps. etc.	0.77903 Lakh
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Condition (Ixiv)																
Corporate Environmental Responsibility:																
(a) The Company shall have a well laid down Environmental Policy approved by the Board of Directors.																
Compliance	“Corporate Environmental Policy 2012” of Coal India Limited has already been formulated.															
(b)	The Environmental Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.															
Compliance	“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.															
(c)	The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental conditions shall be furnished.															
Compliance	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.															
(d)	To have proper checks and balances, the Company shall have a well laid down system of reporting of non-compliances/violations of environmental norms to the board of directors of the company and /or shareholders or stakeholders at large.															
Compliance	It is already in place.															

General Conditions

Condition (i)	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment, Forest & Climate Change
Compliance	Complied. Change in mining technology and scope of working, if any, shall be made with prior approval of the Ministry of Environment, Forests & Climate Change.
Condition (ii)	No change in the calendar plan of production of quantum of mineral cost shall be made.
Compliance	There shall be no change in the calendar plan of production for quantum of mineral coal.
Condition (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 and NO _x monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc carried out at least once in six months.
Compliance	Air quality monitoring is carried out by CMPDIL on fortnightly basis and all desired parameters are well within the prescribed limits. The Reports are enclosed.
Condition (iv)	Data on ambient air quality (PM ₁₀ , PM _{2.5} , SO ₂ and NO _x) and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly submitted to the Ministry including its concerned Regional Office and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification Of samples through analysis from independent laboratories recognized under the EPA rules, 1986 shall be furnished as part of compliance report.
Compliance	Air quality monitoring is carried out by CMPDI on fortnightly basis and data on ambient air quality shall be regularly submitted to the Ministry including its concerned Regional Officer and to the State Pollution Control Board and the Central Pollution Control Board once in six months.
Condition (v)	Adequate measures shall be taken for control of noise levels below 85dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.
Compliance	Noise level monitoring is carried out by CMPDIL on fortnightly basis. Noise level has always been below 85 dBA. Reports are enclosed.
Condition (vi)	Industrial Wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422(E) dated 19 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	Mine discharge water samples are tested in laboratory at CMPDI on fortnightly basis. Mine water quality conforms to the standards prescribed under GSR 422(E) dated 19 th May 1993 and 31 st December 1993. The mine water quality report is enclosed.
Condition (vii)	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the minerals shall be covered with tarpaulins and optimally loaded.

Compliance	Vehicular emissions are kept under control and regularly monitored. Coal transportation from 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 the State Pollution Control Board and data got analyzed through a laboratory recognized under EPA rules, 1986
Compliance	Monitoring of environmental parameters is carried out on regular basis by CMPDI. Laboratory at CMPDIL, Asansol is having all necessary facilities.
Condition (ix)	Personnel working under dusty area shall wear protective respiratory devices and they shall also be provided with adequate training and information and information safety and health aspects.
Compliance	All protective devices have been provided to workmen and are replaced periodically. Adequate training to all personnel has also been provided. New recruits are trained at the VTC before their deployment. PMEs are carried out on all employees once in 5 years.
Condition (x)	Occupational health surveillance program of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed and records maintained thereof. The quality of Environment due to outsourcing and the health and safety issues of the outsourced manpower should be addressed by the company while outsourcing.
Compliance	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.
Condition (xi)	A separate environmental management cell with suitable qualified personnel shall be set up under the control of a senior executive, who will report directly to the Head of the Company
Compliance	A separate environmental management cell with qualified personnel has been established for all the Areas under Cluster 10. The cell reports to the respective Area GM and GM, Environment and Forest; ECL.
Condition (xii)	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office.
Compliance	Funds for environmental protection as kept in budget each year is not diverted for other purposes.
Condition (xiii)	The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at the website of the Ministry of Environment, Forest and Climate Change at 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 suggestions/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on Company's website.
Compliance	A copy of the environmental clearance letter for cluster 10 has been marked to concerned Panchayat/ Zila Parishad, Municipal Corporation or Urban local body.
Condition (xv)	The EC letter is uploaded on the company's website.
Compliance	The EC letter is uploaded on the company's website.
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 the environmental quality parameters (air, water, noise & soil) and critical pollutant such as PM ₁₀ , PM _{2.5} , SO ₂ and NO _x (ambient) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mine office and in corporate office and on Company's website.
Compliance	The monitoring data of environmental quality parameter (air, water and noise) and critical pollutant such as PM ₁₀ , PM _{2.5} , SO ₂ and NO _x (ambient) and critical sectorial parameters are being displayed on Company's website.
Condition (xvii)	The Project Proponent shall submit six monthly compliance reports on statue of compliance of the stipulated environmental clearance conditions (both in hard copy and in e- mail) to the respective Regional Office of the Ministry, respective Zonal Offices of CPCB and the SPCB.
Compliance	Six monthly compliance reports of the stipulated environmental clearance conditions are submitted to Regional Office of the Ministry, Bhubneshwar, CPCB and SPCB in Hard copy as well as e-mail.
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 form-V is mandated to be submitted by the project proponent for the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the Company's website along the status of the EC conditions and shall be sent to the respective Regional Offices of the MOEFCC by e-mail.
Compliance	Agreed.

STRICTLY RESTRICTED
FOR COMPANY USE ONLY RESTRICTED

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

**ENVIRONMENTAL MONITORING REPORT
OF
CLUSTER NO. 10**

(FOR THE MONTH OF MARCH, 2019)

(BANKOLA, KAJORA & KUNUSTORIA AREA)

Eastern Coalfields Limited



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

ENVIRONMENT MONITORING REPORT FOR CLUSTER NO. 10

(For the Month of March, 2019)

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

Reports have been prepared for submission to MoEF&CC & SPCB and other statutory authorities.



CHAPTER-II

AMBIENT AIR QUALITY MONITORING

2.1 Location of sampling station and their rationale:

2.1.1 **Ambient Air Quality Sampling Locations****I. Industrial Area Monitoring Location****i) Kunustoria village (10A1): Industrial Area**

The sampler was placed at Kunustoria GM Office near Kunustoria Village. This station was selected to assess the ambient air quality of Industrial area in the core zone where mining activities are in progress.

ii) Near Jambad OCP (10A2) : Industrial Area

The sampler was placed at Workshop of outsourcing agency. This station was selected to assess the ambient air quality of Industrial area in the core zone where mining activities as well as coal transport activities are in progress.

iii) Khas Kajora village (10A3): Industrial Area

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

iv) Lachipur village (10A4): Industrial Area

The sampler was placed at Time Office of Lachipur Colliery This site was selected to assess the present ambient air quality status in Industrial area of core zone.

v) Nimcha village near Railway siding (10A5): Industrial Area

The Air sampler was placed at Nimcha Railway siding near Nimcha Village which is in the Core zone of Nimcha Colliery. This station was selected to assess the ambient air quality of Residential Area in the core zone.

vi) Madhujore village (10A11): Industrial Area

The sampler was placed at Agent Office of Madhujore Colliery. This site was selected to assess the present ambient air quality status in Industrial area of core zone

vii) Parascole village (10A12): Industrial Area

The sampler was placed at Agent office of Parascole Colliery. This site was selected to assess the present ambient air quality status in Industrial area of core zone

viii) Bansra village (10A13): Industrial Area

The sampler was placed at Bansra Railway Siding. This site was selected to assess the present ambient air quality status in Industrial area of core zone where coal transport are in progress

ix) Parsia village (10A14): Industrial Area

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

II. Residential Area Monitoring Location

x) Pure Jhatidanga village, (10A6): Residential Area.

The sampler was placed at Pure Jambad Workshop. This site was selected to assess the present ambient air quality status in residential area of core zone of Pure Jambad Colliery.

xi) Andal (10A7): Residential Area.

The sampler was placed in Andal Hindi High School. This site was selected to assess the present ambient air quality status in residential area of Buffer zone of Moira Colliery.

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 85.1 to 95.4 µg/m³ & in Residential area from 85.3 to 94.7 µg/m³.

Fine Particulate Matter (PM_{2.5})

In Industrial area from 50.7 to 56.7 µg/m³ & in Residential area from 41.4 to 42.8 µg/m³

Sulphur Dioxide (SO₂):

In Industrial area below 10 µg/m³ & in Residential area below 10 µg/m³.

Oxides of Nitrogen (NO_x):

In Industrial area varies from 21.5 to 24.8 µg/m³ & in Residential area from 17.7 to 20.6 µg/m³.

AMBIENT AIR QUALITY DATA

Name of the Company: **Eastern Coalfield Limited**Year : **2019**Name of the Project : **Mines of Cluster No. 10**Month : **March.**

Industrial Area

1st fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)
10A1	Kunustoria Colliery	5-Mar-19	89.3	54.3	<10.0	24.3
10A2	Jambad OCP	5-Mar-19	87.5	53.9	<10.0	23.8
10A3	Khas Kajora Colliery	5-Mar-19	89.2	53.7	<10.0	22.6
10A4	Lachipur Colliery	5-Mar-19	88.3	53.6	<10.0	24.8
10A5	Nimcha Rly Siding	15-Mar-19	85.1	53.8	<10.0	23.9
10A11	Madhujore Colliery	6-Mar-19	94.1	50.7	<10.0	24.8
10A12	Parascole Colliery	6-Mar-19	95.2	53.4	<10.0	24.7
10A13	Bansra Rly Siding	6-Mar-19	87.3	55.9	<10.0	23.6
10A14	Parasia Colliery	6-Mar-19	89.4	53.2	<10.0	21.5

2nd fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)
10A1	Kunustoria Colliery	20-Mar-19	89.9	56.5	<10.0	22.5
10A2	Jambad OCP	20-Mar-19	87.8	52.4	<10.0	21.8
10A3	Khas Kajora Colliery	20-Mar-19	89.7	52.1	<10.0	24.6
10A4	Lachipur Colliery	20-Mar-19	88.6	55.7	<10.0	21.8
10A5	Nimcha Rly Siding	21-Mar-19	85.8	56.7	<10.0	22.5
10A11	Madhujore Colliery	27-Mar-19	94.7	53.5	<10.0	24.3
10A12	Parascole Colliery	27-Mar-19	95.4	52.8	<10.0	23.7
10A13	Bansra Rly Siding	30-Mar-19	87.8	54.7	<10.0	21.8
10A14	Parasia Colliery	30-Mar-19	89.9	53.7	<10.0	22.6

AMBIENT AIR QUALITY DATA

Name of the Company: **Eastern Coalfield Limited**Year : **2019**Name of the Project : **Mines of Cluster No. 10**Month : **March.**

Residential Area

1st fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)
10A6	Pure Jambad Workshop	14-Mar-19	85.3	41.6	<10.0	20.6
10A7	Andal	14-Mar-19	87.0	42.3	<10.0	19.6

2nd fortnight

Station Code	Station Name	Date of Sampling	Parameters			
			PM ₁₀ (µg/m ³)	PM _{2.5} (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)
10A6	Pure Jambad Workshop	27-Mar-19	87.5	42.8	<10.0	17.7
10A7	Andal	27-Mar-19	94.7	41.4	<10.0	19.5

Environmental Standards for Ambient Air Quality (AAQ) :

Station Category	<i>Environmental standard for Raniganj Coalfield vide MOEF, Govt. of India, Gazette Notification No. GSR 742 (E) dated 25.09.2000 for 24 hourly samples at 500 meters from dust generating point</i>			<i>National Ambient Air Quality Standards (NAAQS), 2009 for industrial, residential and rural areas for 24 hours samples</i>
	Pollutant Concentration (µg/m³)			
	PM ₁₀	SO ₂	NO _x	PM _{2.5}
Industrial	300.0	120.0	120.0	60.0
Residential	100.00	80.0	80.0	

:

Cluster No. 10

CMPDIL

AMBIENT AIR METAL ANALYSIS REPORT

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

Year : **2019**

Name of the Project : **Mines of Cluster No. 10**

Month : **March**

Station No.	Station Name	Date of Sampling	Arsenic (ng/m ³)	Cadmium (µg/m ³)	Chromium (µg/m ³)	Mercury (µg/m ³)	Nickel (ng/m ³)	Lead (µg/m ³)
Method of Detection			Atomic Absorption Spectrophotometric (AAS)					
Detection Limit			1.0	0.001	0.01	0.001	0.10	0.005
10A1	Kunustoria Colliery	5-Mar-19	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
10A2	Jambad OCP	5-Mar-19	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
10A3	Khas Kajora Colliery	5-Mar-19	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
10A4	Lachipur Colliery	5-Mar-19	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
10A5	Nimcha Rly Siding	15-Mar-19	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
10A6	Pure Jambad Workshop	14-Mar-19	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
10A7	Andal	14-Mar-19	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
10A11	Madhujore Colliery	6-Mar-19	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
10A12	Parascole Colliery	6-Mar-19	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
10A13	Bansra Rly Siding	6-Mar-19	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005
10A14	Parasia Colliery	4-Mar-19	<1.0	<0.001	<0.01	<0.001	<0.10	<0.005

Environmental standards:

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

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

CHAPTER – III

WATER QUALITY MONITORING

3.1 Location of sampling sites and their rationale

- i) **Amrasota UG (10MW1)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams
- ii) **Belbaid UG (10MW2)**
This location has been selected to monitor the discharge quality of Mine effluent used for sand packing of UG. And remaining discharge to natural surface streams
- iii) **Belbaid OC Patch (10MW3)**
This location has been selected to monitor the discharge quality of Mine effluent used for boiler after sedimentation tank.
- iv) **Bansra UG (10MW4)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams
- v) **Parasea UG (10MW5)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after sedimentation pond.
- vi) **Jambad OC (10MW6)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams
- vii) **Jambad UG (10MW7)**
This location has been selected to monitor the discharge quality of Mine effluent used for sand packing of UG. And remaining discharge to natural surface streams
- viii) **Nabakajora UG (10MW8)**
This location has been selected to monitor the discharge quality of Mine effluent store in a filtration plant then supply to colony quarters.
- ix) **Madhabpur UG (10MW9)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after siltation pond.
- x) **Madhabpur OC Patch (10MW10)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams
- xi) **Lachipur UG (10MW11)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after sedimentation tank.

- xii) **Central Kajora UG (10MW12)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams
- xiii) **Khas Kajora UG (10MW13)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after siltation pond.
- xiv) **Madhusudanpur UG (10MW14)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams
- xv) **Parascole East (10MW15)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after sedimentation tank.
- xvi) **Parascole West (10MW16)**
This location has been selected to monitor the discharge quality of Mine effluent stored in filtration plant then supply to colony quarters.
- xvii) **North Searsole UG (10MW17)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams
- xviii) **Moira UG (10MW18)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams after sedimentation tank.
- xix) **Madhujore UG (10MW19)**
This location has been selected to monitor the discharge quality of Mine effluent to natural surface streams.

3.2 Methodology of sampling and analysis

Water samples were collected as per standard practice. The effluent samples were collected and analysed for five parameters on fortnightly basis and all parameters on Half-yearly basis. The Ground water samples were collected and analysed for all parameters on annual 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. 10

CMPDIL

WATER QUALITY DATA (Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code :
 1. **10MW1- Amrasota UG** 2. **10MW2- Belbaid UG** 3. **10MW3- Belbaid OC Patch**
 4. **10MW4- Bansra UG** 5. **10MW5- Parasea UG**

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date					General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit					
	Station Code	10MW1	10MW2	10MW3	10MW4	10MW5								
	Date of sampling	All parameters result is given separately for the month of March'19												
1	pH											5.5 - 9.0	Electrometric	0.01
2	TSS											100 (Max)	Gravimetric Method	10.0
3	TDS											Not specified	Gravimetric Method	25.0
4	Oil & Grease											10 (Max)	Partition Gravimetric	2.0
5	COD											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
	Station Code	10MW1	10MW2	10MW3	10MW4	10MW5			
	Date of sampling	25-Mar-19	25-Mar-19	25-Mar-19	25-Mar-19	25-Mar-19			
1	pH	8.28	8.24	7.38	8.54	8.59	5.5 - 9.0	Electrometric	0.01
2	TSS	24	34	22	38	32	100 (Max)	Gravimetric Method	10.0
3	TDS	534	664	622	992	570	Not specified	Gravimetric Method	25.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	20	28	16	32	28	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA (Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations
& Code : **6. 10MW6- Jambad OC**
9. 10MW9- Madhabpur UG

7. 10MW7 Jambad UG
10. 10MW10- Madhabpur OC

8. 10MW8- Nabakajora UG

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date					General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit				
	Station Code	10MW6	10MW7	10MW8	10MW9	10MW10							
	Date of sampling	All parameters result is given separately for the month of March'19											
1	pH										5.5 - 9.0	Electrometric	0.01
2	TSS										100 (Max)	Gravimetric Method	10.0
3	TDS										Not specified	Gravimetric Method	25.0
4	Oil & Grease										10 (Max)	Partition Gravimetric	2.0
5	COD										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
	Station Code	10MW6	10MW7	10MW8	10MW9	10MW10			
	Date of sampling	25-Mar-19	25-Mar-19	25-Mar-19	26-Mar-19	26-Mar-19			
1	pH	8.24	8.38	7.36	8.34	8.11	5.5 - 9.0	Electrometric	0.01
2	TSS	26	38	24	40	28	100 (Max)	Gravimetric Method	10.0
3	TDS	600	728	650	360	640	Not specified	Gravimetric Method	25.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	36	32	16	24	32	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA (Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **11. 10MW11- Lachipur UG**

12. 10MW12- Central Kajora UG

13. 10MW13- Khas Kajora UG

14. 10MW14- Madhusudanpur UG

15. 10MW15- Parascole East

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date					General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit				
	Station Code	10MW11	10MW12	10MW13	10MW14	10MW15							
	Date of sampling	All parameters result is given separately for the month of March'19											
1	pH										5.5 - 9.0	Electrometric	0.01
2	TSS										100 (Max)	Gravimetric Method	10.0
3	TDS										Not specified	Gravimetric Method	25.0
4	Oil & Grease										10 (Max)	Partition Gravimetric	2.0
5	COD										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
	Station Code	10MW11	10MW12	10MW13	10MW14	10MW15			
	Date of sampling	26-Mar-19	26-Mar-19	26-Mar-19	26-Mar-19	25-Mar-19			
1	pH	7.19	8.64	8.37	8.23	7.51	5.5 - 9.0	Electrometric	0.01
2	TSS	38	32	26	28	30	100 (Max)	Gravimetric Method	10.0
3	TDS	894	968	648	598	532	Not specified	Gravimetric Method	25.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	40	12	16	24	16	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA (Effluent Water)

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

Year : **2019.**

Name of the Project: **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **16. 10MW16- Parascole West 17. 10MW17- North Searsole UG 18. 10MW18- Moira UG**

19. 10MW19- Madhujore UG

First Fortnight data

Sl. No.	Parameters	Sampling station & sampling date				General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit			
	Station Code	10MW16	10MW17	10MW18	10MW19						
	Date of sampling	All parameters result is given separately for the month of March'19									
1	pH								5.5 - 9.0	Electrometric	0.01
2	TSS								100 (Max)	Gravimetric Method	10.0
3	TDS								Not specified	Gravimetric Method	25.0
4	Oil & Grease								10 (Max)	Partition Gravimetric	2.0
5	COD								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
	Station Code	10MW16	10MW17	10MW18	10MW19			
	Date of sampling	25-Mar-19	25-Mar-19	25-Mar-19	25-Mar-19			
1	pH	8.29	8.34	8.36	8.42	5.5 - 9.0	Electrometric	0.01
2	TSS	34	24	22	34	100 (Max)	Gravimetric Method	10.0
3	TDS	654	800	770	720	Not specified	Gravimetric Method	25.0
4	Oil & Grease	<2.0	<2.0	<2.0	<2.0	10 (Max)	Partition Gravimetric	2.0
5	COD	20	12	28	40	250 (Max)	Closed Reflux	4.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **1. 10MW1- Amrasota UG**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	6-Mar-19			
1	Colour	4	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	32	100	Gravimetric	10
4	pH	8.22	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	29.2	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.72	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.64	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	4	30	Bioassy	2.0
12	COD	16	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.04	0.1	Colorimetric	0.01
16	Total Chromium	0.08	2.0	AAS-Flame	0.04
17	Copper	0.04	3.0	AAS-Flame	0.03
18	Zinc	0.04	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.56	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.56	5.0	Molybdovanadate	0.30
23	Sulphide	0.011	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.28	2.0	AAS-Flame	0.02
26	Iron	0.14	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	4.3	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	570	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **2. 10MW2- Belbaid UG**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	6-Mar-19			
1	Colour	4	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	30	100	Gravimetric	10
4	pH	8.18	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	30.6	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.58	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.54	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	4	30	Bioassy	2.0
12	COD	32	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.03	0.1	Colorimetric	0.01
16	Total Chromium	0.07	2.0	AAS-Flame	0.04
17	Copper	0.04	3.0	AAS-Flame	0.03
18	Zinc	0.04	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.28	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.48	5.0	Molybdovanadate	0.30
23	Sulphide	0.009	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.32	2.0	AAS-Flame	0.02
26	Iron	0.14	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	3.0	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	636	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **3. 10MW3- Belbaid OC Patch**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	6-Mar-19			
1	Colour	4	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	34	100	Gravimetric	10
4	pH	7.66	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	30.2	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.56	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.58	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	4	30	Bioassy	2.0
12	COD	24	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.04	0.1	Colorimetric	0.01
16	Total Chromium	0.07	2.0	AAS-Flame	0.04
17	Copper	0.03	3.0	AAS-Flame	0.03
18	Zinc	0.04	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.40	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.48	5.0	Molybdovanadate	0.30
23	Sulphide	0.004	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.34	2.0	AAS-Flame	0.02
26	Iron	0.16	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	3.4	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	580	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **4. 10MW4- Bansra UG**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	7-Mar-19			
1	Colour	5	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	30	100	Gravimetric	10
4	pH	8.23	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	29.9	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.62	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.62	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	5	30	Bioassy	2.0
12	COD	28	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.03	0.1	Colorimetric	0.01
16	Total Chromium	0.08	2.0	AAS-Flame	0.04
17	Copper	0.04	3.0	AAS-Flame	0.03
18	Zinc	0.03	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.30	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.26	5.0	Molybdovanadate	0.30
23	Sulphide	0.007	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.32	2.0	AAS-Flame	0.02
26	Iron	0.12	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	3.8	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	980	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **5. 10MW5- Parasea UG**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	5-Mar-19			
1	Colour	3	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	32	100	Gravimetric	10
4	pH	7.58	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	30.8	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.68	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.72	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	8	30	Bioassy	2.0
12	COD	20	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.04	0.1	Colorimetric	0.01
16	Total Chromium	0.07	2.0	AAS-Flame	0.04
17	Copper	0.04	3.0	AAS-Flame	0.03
18	Zinc	0.04	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.32	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.18	5.0	Molybdovanadate	0.30
23	Sulphide	0.010	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.36	2.0	AAS-Flame	0.02
26	Iron	0.14	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	2.9	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	532	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **6. 10MW6- Jambad OC**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	4-Mar-19			
1	Colour	4	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	30	100	Gravimetric	10
4	pH	8.13	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	31.6	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.72	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.78	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	6	30	Bioassy	2.0
12	COD	32	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.03	0.1	Colorimetric	0.01
16	Total Chromium	0.07	2.0	AAS-Flame	0.04
17	Copper	0.04	3.0	AAS-Flame	0.03
18	Zinc	0.03	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.56	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.70	5.0	Molybdovanadate	0.30
23	Sulphide	0.008	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.24	2.0	AAS-Flame	0.02
26	Iron	0.16	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	3.0	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	610	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **7. 10MW7 Jambad UG**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	5-Mar-19			
1	Colour	5	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	26	100	Gravimetric	10
4	pH	7.70	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	29.4	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.78	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.84	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	5	30	Bioassy	2.0
12	COD	40	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.03	0.1	Colorimetric	0.01
16	Total Chromium	0.08	2.0	AAS-Flame	0.04
17	Copper	0.03	3.0	AAS-Flame	0.03
18	Zinc	0.04	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.52	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.62	5.0	Molybdovanadate	0.30
23	Sulphide	0.009	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.32	2.0	AAS-Flame	0.02
26	Iron	0.14	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	3.6	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	708	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **8. 10MW8- Nabakajora UG**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	4-Mar-19			
1	Colour	5	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	26	100	Gravimetric	10
4	pH	7.83	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	29.3	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.58	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.54	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	4	30	Bioassy	2.0
12	COD	16	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.04	0.1	Colorimetric	0.01
16	Total Chromium	0.08	2.0	AAS-Flame	0.04
17	Copper	0.03	3.0	AAS-Flame	0.03
18	Zinc	0.03	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.38	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.36	5.0	Molybdovanadate	0.30
23	Sulphide	0.006	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.30	2.0	AAS-Flame	0.02
26	Iron	0.12	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	4.0	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	628	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **9. 10MW9- Madhabpur UG**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	4-Mar-19			
1	Colour	4	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	24	100	Gravimetric	10
4	pH	8.26	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	28.7	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.52	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.68	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	6	30	Bioassy	2.0
12	COD	32	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.04	0.1	Colorimetric	0.01
16	Total Chromium	0.07	2.0	AAS-Flame	0.04
17	Copper	0.03	3.0	AAS-Flame	0.03
18	Zinc	0.04	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.64	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.60	5.0	Molybdovanadate	0.30
23	Sulphide	0.009	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.32	2.0	AAS-Flame	0.02
26	Iron	0.16	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	4.6	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	354	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **10. 10MW10- Madhabpur OC**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	5-Mar-19			
1	Colour	5	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	22	100	Gravimetric	10
4	pH	8.11	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	30.4	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.48	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.58	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	4	30	Bioassy	2.0
12	COD	24	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.03	0.1	Colorimetric	0.01
16	Total Chromium	0.07	2.0	AAS-Flame	0.04
17	Copper	0.03	3.0	AAS-Flame	0.03
18	Zinc	0.03	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.58	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.38	5.0	Molybdovanadate	0.30
23	Sulphide	0.007	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.30	2.0	AAS-Flame	0.02
26	Iron	0.14	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	4.2	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	620	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **11. 10MW11- Lachipur UG**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	4-Mar-19			
1	Colour	4	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	20	100	Gravimetric	10
4	pH	7.44	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	30.7	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.62	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.64	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	2	30	Bioassy	2.0
12	COD	48	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.03	0.1	Colorimetric	0.01
16	Total Chromium	0.07	2.0	AAS-Flame	0.04
17	Copper	0.04	3.0	AAS-Flame	0.03
18	Zinc	0.04	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.30	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.68	5.0	Molybdovanadate	0.30
23	Sulphide	0.006	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.34	2.0	AAS-Flame	0.02
26	Iron	0.12	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	3.2	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	872	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **12. 10MW12- Central Kajora UG**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	4-Mar-19			
1	Colour	5	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	24	100	Gravimetric	10
4	pH	8.28	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	29.6	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.74	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.78	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	2	30	Bioassy	2.0
12	COD	20	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.04	0.1	Colorimetric	0.01
16	Total Chromium	0.08	2.0	AAS-Flame	0.04
17	Copper	0.04	3.0	AAS-Flame	0.03
18	Zinc	0.03	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.22	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.26	5.0	Molybdovanadate	0.30
23	Sulphide	0.010	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.32	2.0	AAS-Flame	0.02
26	Iron	0.16	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	3.0	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	486	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **13. 10MW13- Khas Kajora UG**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	4-Mar-19			
1	Colour	5	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	26	100	Gravimetric	10
4	pH	8.20	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	31.0	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.72	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.72	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	8	30	Bioassy	2.0
12	COD	12	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.04	0.1	Colorimetric	0.01
16	Total Chromium	0.08	2.0	AAS-Flame	0.04
17	Copper	0.03	3.0	AAS-Flame	0.03
18	Zinc	0.04	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.36	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.50	5.0	Molybdovanadate	0.30
23	Sulphide	0.010	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.30	2.0	AAS-Flame	0.02
26	Iron	0.14	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	2.4	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	596	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **14. 10MW14- Madhusudanpur UG**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	4-Mar-19			
1	Colour	3	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	26	100	Gravimetric	10
4	pH	7.53	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	31.5	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.48	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.54	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	6	30	Bioassy	2.0
12	COD	24	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.04	0.1	Colorimetric	0.01
16	Total Chromium	0.07	2.0	AAS-Flame	0.04
17	Copper	0.03	3.0	AAS-Flame	0.03
18	Zinc	0.03	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.38	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.46	5.0	Molybdovanadate	0.30
23	Sulphide	0.008	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.32	2.0	AAS-Flame	0.02
26	Iron	0.14	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	2.2	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	572	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **15. 10MW15- Parascole East**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	4-Mar-19			
1	Colour	5	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	30	100	Gravimetric	10
4	pH	8.67	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	30.6	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.64	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.62	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	5	30	Bioassy	2.0
12	COD	16	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.03	0.1	Colorimetric	0.01
16	Total Chromium	0.07	2.0	AAS-Flame	0.04
17	Copper	0.04	3.0	AAS-Flame	0.03
18	Zinc	0.04	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.30	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.32	5.0	Molybdovanadate	0.30
23	Sulphide	0.011	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.34	2.0	AAS-Flame	0.02
26	Iron	0.14	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	3.4	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	500	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **16. 10MW16- Parascole West**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	4-Mar-19			
1	Colour	4	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	32	100	Gravimetric	10
4	pH	8.50	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	29.5	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.58	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.78	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	5	30	Bioassy	2.0
12	COD	28	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.04	0.1	Colorimetric	0.01
16	Total Chromium	0.08	2.0	AAS-Flame	0.04
17	Copper	0.04	3.0	AAS-Flame	0.03
18	Zinc	0.03	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.32	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.58	5.0	Molybdovanadate	0.30
23	Sulphide	0.010	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.26	2.0	AAS-Flame	0.02
26	Iron	0.15	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	3.3	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	632	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **17. 10MW17- North Searsole UG**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	5-Mar-19			
1	Colour	3	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	24	100	Gravimetric	10
4	pH	7.83	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	29.2	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.52	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.64	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	4	30	Bioassy	2.0
12	COD	16	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.03	0.1	Colorimetric	0.01
16	Total Chromium	0.07	2.0	AAS-Flame	0.04
17	Copper	0.04	3.0	AAS-Flame	0.03
18	Zinc	0.04	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.36	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.70	5.0	Molybdovanadate	0.30
23	Sulphide	0.010	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.30	2.0	AAS-Flame	0.02
26	Iron	0.16	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	4.0	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	780	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **18. 10MW18- Moira UG**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	4-Mar-19			
1	Colour	3	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	16	100	Gravimetric	10
4	pH	8.47	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	28.9	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.56	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.78	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	4	30	Bioassy	2.0
12	COD	24	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.03	0.1	Colorimetric	0.01
16	Total Chromium	0.08	2.0	AAS-Flame	0.04
17	Copper	0.03	3.0	AAS-Flame	0.03
18	Zinc	0.04	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.56	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.68	5.0	Molybdovanadate	0.30
23	Sulphide	0.009	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.32	2.0	AAS-Flame	0.02
26	Iron	0.12	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	3.6	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	740	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

Cluster No. 10

CMPDIL

WATER QUALITY DATA

(Effluent Water)

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

Year : **2019.**

Name of the Project : **Mines of Cluster No. 10**

Month: **March.**

Name of the Stations & Code : **19. 10MW19- Madhujore UG**

Sl. No.	Parameters	Analytical Results	General Standards for Discharge of Effluent (Schedule VI)	Method of Detection	Detection Limit
	Date of Sampling	4-Mar-19			
1	Colour	4	Unobjectionable	Platinum Cobalt	1.0
2	Odour	Unobjectionable	Unobjectionable	Physical	-
3	TSS	28	100	Gravimetric	10
4	pH	8.32	5.5-9.0	Electrometric	0.01
5	Temperature (°C)	29.1	Shall not exceed 5 °C above the receiving water temperature	Thermometric	0.1
6	Oil & Grease	<2.0	10	Partition Gravimetric	2.0
7	Total Residual Chlorine	<0.02	1.0	Colorimetric	0.02
8	Ammonical Nitrogen	0.58	50	Nesslerization	0.01
9	Total Kjeldahi Nitrogen	1.42	100	Macro Kjeldahl	1.0
10	Free Ammonia	<0.02	5.0	Spectrophotometric	0.02
11	BOD	2	30	Bioassy	2.0
12	COD	32	250	Closed Reflux	4.0
13	Arsenic	<0.002	0.2	AAS-VGA	0.002
14	Lead	<0.005	0.1	AAS-GTA	0.005
15	Hexavalent Chromium	0.04	0.1	Colorimetric	0.01
16	Total Chromium	0.07	2.0	AAS-Flame	0.04
17	Copper	0.04	3.0	AAS-Flame	0.03
18	Zinc	0.03	5.0	AAS-Flame	0.01
19	Selenium	<0.002	0.05	AAS-GTA	0.002
20	Nickel	<0.01	3.0	AAS-Flame	0.01
21	Fluoride	0.52	2.0	SPADNS	0.02
22	Dissolved Phosphate	1.50	5.0	Molybdovanadate	0.30
23	Sulphide	0.009	2.0	Methylene Blue	0.005
24	Phenolics	<0.001	1.0	Chloroform Extraction	0.001
25	Manganese	0.34	2.0	AAS-Flame	0.02
26	Iron	0.14	3.0	AAS-Flame	0.06
27	Nitrate Nitrogen	3.0	10	Spectrophotometric	0.5
28	Cadmium	<0.0005	2.0	AAS-GTA	0.0005
29	Total Dissolved Solids	698	Not Specified	Gravimetric	25.0

All values are expressed in mg/L unless specified.

CSR expenditure Kajora Area

S.NO	Total Expenditure
1	Sri Sri Ravi Shankar (Art of Living)
2	Mining Sirdar Training
3	Special Diet
4	Health Camp
	Total Expenditure

Annexure-B	
<u>Amount</u>	
	3492359.94
	19398
	62900
	20000
	3594657.94

ANNEXURE – D:

CSR Activities (2018-19)

Liability and Expenditure Report for the Year 2018-19					
Sl No	Name of the Work	BC amount for the year 2017-18	BC amount for the year 2018-19	Revalidation amount for the year 2018-19	Expenditure in the year 2018-19
1	Unnati- A Microenterprise of Handicrafts run by women	Rs 2490677	0	1267200	1244355
2	Diet for Football Academy students	0	Rs 128700	0	128700

M. Mondal



EASTERN COALFIELDS LIMITED
(A subsidiary of Coal India Limited)

KAJORA AREA

Ref.No.GM/KAJ/AMO/18/0981

Date – 31.12.2018

To
The CMO (I/C),
ECL (HQ), Sanctoria,
Eastern Coalfields Limited

[Sub :- PME Reports of Kajora Area for the Month of December- 18.]

Respected Madam,

This is to inform you that Total No. of PME done for the month of December - 2018 is 47 Nos.

DEPARTMENTAL EMPLOYEES

Above (+) 45 Years – 37 Nos.

Below (-) 45 Years – 09 Nos.

Total : 46 Nos.

PROGRESSIVE TOTAL upto Jan'18 to Dec' 18

Departmental Employees - 1040

Cont. Workers – 241

CONTRACTUAL WORKER'S IME

Above (+) 45 Years – 00Nos.

Below (-) 45 Years – 01 Nos.

Total : 01Nos.

PME of JK ROPEWAYS:

Above (+) 45 Years – 00 Nos.

Below (-) 45 Years – 00 Nos.

Total : 00 Nos.

Yours faithfully;

for *tm* 01/01/19

Area Medical Officer,
Kajora Area

Encl: PME/ IME statement.

Copy to:

1. General Manager, Kajora Area
2. Area Safety Officer, Kajora Area



EASTERN COALFIELDS LIMITED
(A subsidiary of Coal India Limited)

Office of the General Manager, Kajora Area
PME achieved for (+ 45 yrs) from January to December – 2018

Colliery	Total Man Power (2018)	Man Power +45 yrs (on Roll)	Target Yearly (2017)	Target Monthly (2017)	Jan-18 Achieved	Feb-18 Achieved	March-18 Achieved	April-18 Achieved	May-18 Achieved	June-18 Achieved	July-18 Achieved	Aug-18 Achieved	Sep-18 Achieved	Oct-18 Achieved	Nov-18 Achieved	Dec-18 Achieved	Total Jan-Dec (2018)
Madhujore	51	47	16	02	00	00	00	00	00	00	00	00	00	00	00	00	00
Madhusudpur	521	413	137	11	02	06	02	09	12	13	10	07	12	10	06	05	94
Naba Kajora	573	433	144	12	04	04	03	08	03	00	05	04	01	01	00	00	33
Madhubpur	489	414	138	12	00	00	00	13	10	05	06	06	04	04	00	09	57
Porascole	1452	981	327	27	24	11	02	19	13	23	23	09	17	04	08	11	164
Jambad (UG)	857	501	167	14	12	00	00	02	04	08	09	13	10	00	07	04	69
Khas Kajora	1394	841	280	23	32	13	15	12	19	23	11	17	19	14	17	08	200
Cent. Kajora	523	370	123	10	18	09	10	11	18	11	09	12	04	09	11	00	122
Jambad (OCP)	430	318	106	09	08	00	11	15	14	09	07	12	07	08	02	00	93
Area Office	285	202	83	07	00	00	00	00	00	00	00	00	00	00	00	00	00
Total Area	6575	4520	1521	127	100	43	43	89	93	92	80	80	74	50	51	37	832

IME achieved for Dec'18: 07 Nos.

Total Cont. Workers achieved

Total IME achieved January to Dec'18: 73 Nos.

Month	+ 45 yrs	-45 yrs	Total
Jan'18	00	02	02
Feb'18	04	17	21
Mar'18	02	00	02
Apr'18	07	11	18
May'18	07	13	20
June'18	32	11	43
July'18	15	29	44
Aug'18	16	30	46
Sep'18	04	13	17
Oct'18	04	14	18
Nov'18	01	08	09
Dec'18	00	01	01
Total	92	149	241

M.S. / PME (I/C), Kajora Area



EASTERN COALFIELDS LIMITED
(A subsidiary of Coal India Limited)

Office of the General Manager, Kajora Area

PME achieved for (- 45 yrs) from January to December – 2018

Colliery	Total Man Power (2018)	-45 yrs (on Roll)	Target Yearly	Target Monthly	Jan - 18 Achieved	Feb - 18 Achieved	Mar - 18 Achieved	April - 18 Achieved	May - 18 Achieved	June - 18 Achieved	July - 18 achieved	Aug - 18 achieved	Sep - 18 achieved	Oct - 18 achieved	Nov - 18 achieved	Dec - 18 achieved	Total Jan - Dec (2018)
Madhujore	51	04	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
Madhusudanpur	521	108	22	02	00	00	00	00	01	01	02	00	02	02	01	01	10
Naba Kajora	573	140	28	02	01	00	02	01	01	01	02	00	00	01	01	00	10
Madhabpur	489	75	15	01	00	00	00	01	04	00	02	00	00	00	00	00	07
Porascole	1452	471	94	08	02	02	00	08	12	07	03	04	10	14	04	03	69
Jambad (UG)	857	356	71	06	01	00	00	00	00	04	02	00	03	00	02	02	14
Khas Kajora	1394	553	110	09	07	06	04	03	05	07	08	10	08	04	14	03	79
Cent. Kajora	523	153	31	03	01	04	00	02	00	01	00	04	01	00	00	00	13
Jambad (OCP)	430	112	22	02	00	00	03	00	00	00	00	00	03	00	00	00	06
Area Office	285	83	17	02	00	00	00	00	00	00	00	00	00	00	00	00	00
Total Area	6575	2055	410	35	12	12	09	15	23	21	19	18	27	21	22	09	208

P
Ln
31/12/18

M.S. / PME (I/C), Kajora Area



EASTERN COALFIELDS LIMITED
(A subsidiary of Coal India Limited)

Office of the General Manager, Kajora Area

Total PME done on Month of Jan to Mar - 2019

Colliery	Total ManPower	Yearly Target	Monthly Target	Jan-19 Acheived	Feb -19 Acheived	Mar - 19 Acheived	Total Acheived
Madhusudanpur	496	99	08	08	14	08	30
Naba Kajora	485	97	08	00	00	16	16
Madhabpur	444	89	07	10	09	21	40
Porascole (E)	712	142	12	03	09	03	15
Porascole (W)	611	122	10	09	07	14	30
Jambad (UG)	851	170	14	21	09	04	34
Khas Kajora	1461	292	24	21	21	31	73
Jambad OCP	402	80	07	06	07	00	13
Central Kajora	514	103	09	07	16	09	32
KajoraArea Office	280	56	05	00	00	00	00
Total	6256	1250	104	85	92	106	283

Contractual Workers PME done on Jan to Mar - 19

Month	-45	+45	Total
Jan	12	02	14
Feb	04	01	05
Mar	03	02	05
Total	19	05	24

Departmental IME on March'19 : 09 Nos.

En
11/4/19

P.M.E.(I/C),
Kajora Area

[Signature]
01/11/19
Area Medical Officer,
Kajora Area

C.C. to :-

- CMO (I/C), ECL, HQ
- General Manager, Kajora Area
- Area Safety Officer, Kajora Area

ANNEXURE – B:

Periodic Medical Examination Report (2018-2019)

		PME IN 2018-2019														
SI No	Name of Colliery	Man Power	Target /Month	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Total
1	Bankola Colliery	1343		28	33	10	28	45	21	29	23	30	25	24	22	318
2	S.S.Pur Colliery	1199		29	11	42	36	31	33	9	0	12	28	66	69	366
3	Khandra Colliery	811		15	11	12	14	16	14	6	25	17	11	3	4	148
4	Kumardih A Colliery	726		5	12	9	8	19	3	14	7	17	9	3	40	146
5	Kumardih B Colliery	525		6	3	9	1	14	15	1	9	19	8	5	10	100
6	Moir Colliery	335		0	0	0	0	0	0	0	0	0	0	0	0	0
7	Tilaboni Colliery	906		19	14	10	6	17	25	16	9	5	31	17	8	177
8	Sankarpur Colliery	873		8	16	15	21	35	11	3	12	21	14	9	10	175
9	Nakrakonda Colliery	330		0	8	4	6	14	4	8	2	0	0	0	0	46
10	GM Office & Hospital Ukhra RW	264		0	0	0	0	0	0	0	0	57	3	0	0	60
	Total	7312	1462	126	119	115	120	191	126	86	88	182	129	127	167	1576
1	Pathology			126	119	115	120	191	126	81	62	182	129	125	167	1543
2	Xray			126	119	115	120	191	126	74	88	169	101	118	145	1492
3	ECG			10	13	15	15	19	22	16	15	15	15	15	13	183
4	Spirometry			5	6	5	5	6	7	7	6	8	5	5	4	69
5	Audiometry			5	6	5	5	6	7	7	3	7	5	5	3	64
A.	Contractual Worker			31	18	0	0	0	0	0	1	0	0	1	0	51
B.	Female Worker			3	0	1	1	8	6	3	5	24	7	4	6	68
C.	Above 45yrs			93	75	79	100	157	99	62	58	143	87	89	125	1167
D.	Below 45yrs			33	44	36	20	34	27	24	30	39	42	38	42	409

11/11/19

SL No.	Name of the Projects	Name of The Power Producer Agency	EC No. and date		
				2009-10	2010
1	Parascole Old OCP	MTPS, DVC	Not Available		13933
2	Dhandadih OCP	DTPS, DVC	Not Available	836695.27	74620

Fly Ash Utilization in

FORMAT (THERMAL)

Fly Ash production & Utilization (In Cum)				
0-11	2011-12	2012-13	2013-14	2014-15 (Till 30-6-14)
147.25	1478239.64	2739088.12	1667882.57	1467126.539
03.86	468317.74	665759.48	390658.72	

n Kajora Area