CHAPTER - VIII

INFRASTRUCTURE FACILITIES PROPOSED AND THEIR LOCATION

8.0 General-

The Amalgamated Muradih Phularitand (Part) Colliery is located in the western part of Jharia Coalfields. It is situated at 40KM from Dhanbad Rly. Station. The mine is operating both opencast and underground mine. At present in existing Muraidih Colliery, opencast operation is being carried out departmentally in the VIIIC, VIIIB, VIIIA, V/VI/VII(combined) seam. The underground operation is proposed to be operated through outsourcing and work has been awarded to M/s Minop/BHEC Consortium which will be carried out in I, II,& III Seam by Longwall Method mining method. In Phularitand Colliery, opencast working is being carried out by outsourcing in XI/XII, IX/X, VIIIC, VIIIB, VIIIA, V/VI/VII(Combined) and the underground working is being carried out departmentally in III seam using board and pillar method. As per the mine record, the leasehold of the total project is 1118.71 hectares.

8.1 Present Linkage of Coal-

The present production (OC & UG) of the mine is linked to Power sectors through KKC Link Siding and transported partly Contractually and partly departmentally through rail and partly by road.

8.2 Water Supply arrangements-

8.2.1. Sump Capacities and pumping Capacities:

Presently, 300 Million gallon water exists on the floor of excavated V/VI/VII seam. of main sump of Amalgamated Muraidih Colliery. The Operational Capacity of the sump required in Amalgamated Muraidih OCP is 100 million gallon and the capacity of the sedimentation tank is 25 Million Gallon. Present Capacity of the Phularitand Colliery sump is 30 Million Gallon.

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8.2.2. Existing Water Consumption and usage

The demand of the present water supply arrangement is met only by Mine water. Present water consumption and usage in Amalgamated Muraidih Colliery is 434 KLD (kilo liter per day) for Industrial purpose and 100 KLD (kilo liter per day) for domestic purpose and in Phularitand Colliery it is 149 KLD (kilo liter per day) for Industrial purpose and 35 KLD (Kilo liter per day) for domestic purpose.

8.2.3. Proposed Water requirement in the mines & Colony-

(Water required in MLD)

Particulars	Opencast	Underground
Water Required for Dust Suppression in industrial Premises	0.17	-
Water required for road watering	0.5	-
Water required for Fire fighting	0.33	-
Water required for floor washing of workshop	0.05	-
Industrial water required in the U/G for dust suppression	-	0.7
Water Required in U/G machineries	-	0.34
Water Required for domestic use		0.20
Total	**1.0**	**1.24**

8.2.4. Effluent Treatment plant and Sewage Treatment Plant.

At present there is no ETP & STP facility available in the mines. As per the proposed water requirement of the mines an Effluent treatment plant of 0.2 MLD is to be constructed for the treatment and reuse of effluent water recovered after washing of workshop and HEMMs used in opencast.

As per the existing domestic and proposed domestic usage a Sewage Treatment Plant (STP) of 1.0MLD is also to be constructed.

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8.2.5. Existing Water Treatment plants:

Area	Unit/ Colony	No.of Qtrs. with Type	Water Supply Arrangement			Treatment System			Capacity	Present Status	Nearby villages being served		
			MADA	Treated Water	Mine Water	RGF	SSF	PF			Village	Population	Type of Water
Barora Area	Existing Muraidih	1200	Nil	Yes	No	Nil	Nil	02 Nos	10000 GPH/ each	Running	3 Nos	2500	Mine Water
		300	Nil	Yes	No	Nil	Nil	01 Nos	10000 GPH/ each	Running	4 Nos.	2000	Mine Water
	Existing Phularitand (Part)	310	Nil	Yes	Nil	Nil	Nil	01 Nos	10000 GPH/ each	Not Running	1 No.	200	Treated Water

An additional Water Treatment plant of 0.8 MLD is to be constructed for the use of water in the machineries in longwall and continuous miner of the proposed UG mines.

8.2.6. Present pumping arrangement in Phularitand UG and Muraidih UG

There is no pumping system in the proposed muaridih UG mine and there are two main pumps and one intermediate pump of capacities 200Gpm each in the Phularitand UG.

8.3. Workshops-

At present there are three workshops maintained in Mine level, two of which are in Amalgamated Muraidih Colliery and one is maintained at Incline Site of Phularitand Colliery. There is a central workshop in Senidih which is located at 6-8 Kms distance from the Project.

As per the information from the field the present workshops would be used and is sufficient for the proposed Project.

8.4. Stores-

One regional store is available at the area level.

8.5. Magazine-

One Magazine with licence no. E/HQ/JH/22/138(E12274) is available at the area level (At Block-II Area) in NUDKHURKEE at a distance of 10 Km from Amalgamated Muraidih Colliery and 08 Km from Phularitand Colliery.

Presently the stock of Magazine consists of 2500Kg Nitrate mixture, 9150m Fuse and 25000 nos. of Detonators.

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8.6. Coal Handling arrangement-

Existing Coal Crushing/ Feeder Breaker -

There are 5 nos. departmental feeder breaker of 400 TPH each and 1 no. outsourced feeder breaker of 400 TPH are in operation within the proposed amalgamated Muraidih-Phularitand Colliery. Out of 5 nos. of Feeder breakers, presently there are three nos. of Feeder breaker (-100mm) is in operation departmentally at existing Muraidih Colliery and two nos. of Feeder breaker is in operation departmentally at existing Phularitand Colliery.

The above feeder breaker will be utilized as on when required or may be transferred to other mines upto their life.

Proposed –

There are 6 nos. (4 working + 2 stand-by) feeder breaker of 400 TPH each have been proposed to crushing of 7.3 Mty ROM coal to (-) 100 mm. After crushing, coal will be transported to existing KKC link siding through contractual or departmental transport system as decided by BCCL Management .

8.7. Infrastructure facilities available (Road, Rail etc.)-

A) Road-

a) D.B.Road – Located within 0.8 Km from the mine and 0.57 Km from KKC Link Siding.

b) Hirak Road is about 1.44 Km from the open cast quarry and isconnecting Muraidih Village to Chandrapura.

c) Village Road – Network of colliery roads exist in the leasehold of the Mine.

B) Rail-

There exist a 34.98 Ha in the lease hold boundary of the Amalgamated Muaridih-Phularitand Project which includes KKC Siding and a part of Dhanbad Chandrapura Line.

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C) Coal Stock Yard and its Locations-

Presently coal dumps are maintained within the Opencast area and dumps area made over the floor of excavated V/VI/VII Seam. Location of existingCoal dumps are shown in Surface Plan (Refer Plate No.II)

D) Other Infrastructure Requirement –

Based on the guidelines of BCCL, the Global Bidder proposed a revised surface layout plan showing the mining complex in three isolated locations Marking as X", Y" & Z" accommodating all the infrastructural facilities at drawing no. MRD/RVSD/SUR/01, Dated 27.01.2015 (This drawing is not available with the Area Authority. Hence, not incorporated in this mining plan). As per the revised surface Plan of Bidder (enclosed with the Supplementary Note on Approved DPR) are as follows-

Location X-

Will contain inclines, CHP, office complex, store, workshop, cycle shed, weigh bridge, Lamp room, etc.

Location Y-

Will accommodate fan house, vertical shaft, substation and water reservoir.

Location Z-

It has been proposed to build a 30 bed experts Hostel.

(As per the area authority, the Surface Plan showing the above locations which is mentioned in the Supplementary note is not available with them)

E) Existing effluent treatment plant & sewage treatment plant (Mine & Colony) –

At present there is no ETP & STP available in the mine. Sewage water discharged through septic tank and soak pit.

8.8. Tree Plantation Areas-

Tree plantation was done in past in the colonies as well as at filter plants and near incline office. Plantation has also been done on different OB Dumps within proposed amalgamated area.

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CHAPTER – IX

LAND REQUIREMENT

9.1 ACQUISITION OF MINING LEASE & ALL RIGHTS

According to the official record, the total lease hold area of Amalgamated Muraidih Phularitand (part) Colliery is 1118.71Ha. Within the leased hold area of Colliery, there are two Open cast workings and two Underground workings in Amalgamated Muradih Colliery (OC/UG) and Phularitand (part) Colliery (OC/UG) the details are as given below:

Sl. No.	Name of the mines	Type of Operation
1.	Amalgamated Muradih Colliery	
	i) Opencast	Departmental Operation
	ii) Underground	Global bid Project (at present no work is carried out)
2.	Phularitand Colliery	
	i) Opencast	Outsourced
	ii) Undergraound	Departmental Operation

9.2 Types of Land:

The types of land exist in different heads within the lease hold area is given below-

Within Project boundary		Outside Project Boundary		Total
Type of land	Area (in Ha)	Type of land	Area (in Ha)	Area (in Ha)
Private/Tenancy Land	132.91	Private/Tenancy Land	87.65	220.56
BCCL Land	625.11	BCCL Land	52.68	677.79
Govt. Land	120.19	Govt. land	78.15	198.34
Forest land	9.54	Forest land	0.47	10.01
Railway acquired land	0	Railway acquired land	12	12
TOTAL	887.75		230.96	1118.71

Note: Above data are submitted by Mine Authority

9.3 Land Use Pattern-

9.3.1. At present, the details of Land use pattern within Project area of 1118.71 Ha is available with the mine authority and detail is given next page -

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Table 9.3.1.1. Land use of leasehold land falling within the project boundary:

Muraidih land use within project boundary			Phularitand land use within project boundary		
LAND USE	Area (in Ha)	Remarks	LAND USE	Area (in Ha)	Remarks
RUNNING QUARRY			RUNNING QUARRY		
a) BACKFILLED	75.79	Including 0.86 Ha Service building and Including of Haul road area	BACKFILLED	7.61	
b) NOT BACKFILLED	107.58	Including 7.14 Ha sump, including Haul Road area	NOT BACKFILLED	34.07	
ABONDONED QUARRY			ABONDONED QUARRY		
a) BACKFILLED	124.78	92.65 Ha Plantation area and 9.06 Ha Plantation in progress, 2.61 Ha Service building and including Haul Road Area.	BACKFILLED	45.78	0.03 Ha Service Building Area Included
b) NOT BACKFILLED	15.18	Including of 2.93 Ha Old sump and 2.22 Ha III seam sump.	NOT BACKFILLED	0.93	0.23 Ha Coal Dump Area included
EXTERNAL OB	18.91	18.91 Ha (Also Plantation).	EXTERNAL OB	6.38	Excluding of 2.68 Ha External OB Dump Area in Plantation Area
SERVICE BUILDING	8.38		SERVICE BUILDING	1.1	Excluding of 0.05 Ha in Abandoned Quarry Backfilled Area
COAL DUMP	0.24	Including of 2.45 Ha in abondoned quarry backfilled area and 3.97 Ha in Running Quarry Backfilled area.	COAL DUMP	0	
HOMESTEAD LAND	62.03		HOMESTEAD LAND	72.9	
AGRICULTURAL LAND	54.19		AGRICULTURAL LAND	41.68	
PLANTATION	12		PLANTATION	15	9.62 Ha Fire Area included
WATER BODY	13.11	Excluding of 2.93 Ha water body in abondoned quarry area and 7.14 Ha in running quarry area.	WATER BODY	2.34	
BARREN LAND	63.34		BARREN LAND	78.82	
FIRE AREA	12.4	Including of 0.54 Ha DB Road area.	FIRE AREA	4.54	Excluding of 9.62 Ha in Plantation area & 0.41 Ha Homestead Land
RAIL AND ROAD			RAIL AND ROAD		
RAIL	0		RAIL	0	
HIRAK ROAD	0		HIRAK ROAD	0	
DB ROAD	0.65		DB ROAD	3.79	
VILLAGE ROAD	1.25		VILLAGE ROAD	1.16	
HAUL ROAD	1.82		HAUL ROAD	0	
	571.65			~~316.1~~	
TOTAL LAND USE WITHIN PROJECT AREA	887.75 Ha				

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Table 9.3.1.2. Land use of Leasehold Area falling outside the Project Boundary:

Muraidih land use outside project boundary			Phularitand land use outside project boundary		
LAND USE	Area (in Ha)	Remarks	LAND USE	Area (in Ha)	Remarks
RUNNING QUARRY			**RUNNING QUARRY**		
a) BACKFILLED	0		BACKFILLED	0	
b) NOT BACKFILLED	0		NOT BACKFILLED	0	
ABONDONED QUARRY			**ABONDONED QUARRY**		
a) BACKFILLED	0.79	Also Plantation area	BACKFILLED	4.92	Including of Plantation area of 0.95 Ha and 1.05 Ha backfilled area under Rly. Acq. Land not included and 2.00 Ha Coal Dump area included.
b) NOT BACKFILLED	0		NOT BACKFILLED	0	
EXTERNAL OB	0		**EXTERNAL OB**	2.04	
SERVICE BUILDING	4.94		**SERVICE BUILDING**	2.52	
COAL DUMP	0		**COAL DUMP**	0	2.00 Ha Coal Dump area included in back filled area and 0.59 Ha included in Rly. Acq. Land.
HOMESTEAD LAND	48.66		**HOMESTEAD LAND**	30.42	
AGRICULTURAL LAND	41.31		**AGRICULTURAL LAND**	11.09	No agricultural is being done at present in recent years.
PLANTATION	1		**PLANTATION**	0.13	0.66 Ha Plantation area included in Rly. Land
WATER BODY	4.93		**WATER BODY**	6.06	
BARREN LAND	36.28		**BARREN LAND**	10.92	
FIRE AREA	0		**FIRE AREA**	0.28	
RAIL AND ROAD			**RAIL AND ROAD**		
RAIL	0		RAIL	12.0	Including of 1.18 Ha. Plantation area and 1.05 Ha. Abandoned quarry Backfilled area and 0.59 Ha. Coal Dump area and 0.01 Ha. Service Building included.
HIRAK ROAD	3.26		HIRAK ROAD	2.97	
DB ROAD	3.26		DB ROAD	0.91	
VILLAGE ROAD	1.63		VILLAGE ROAD	0.64	
HAUL ROAD	0		HAUL ROAD	0	
	146.06			**84.90**	
TOTAL	**230.96 Ha**				

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9.3.2. Post mining Land Use Pattern

9.3.2.1. Post mining land use pattern in the leasehold land falling within the project boundary is given below:

Post Mining land use within project boundary		
LAND USE	**AREA(in Ha)**	**Remarks**
RUNNING QUARRY		
BACKFILLED	355.38	Plantation on backfilled is 303.43 Ha
NOT BACKFILLED	46.07	
ABONDONED QUARRY		
BACKFILLED	15.56	Plantation on backfilled is 9.36 Ha
NOT BACKFILLED	0	
EXTERNAL OB	0	
SERVICE BUILDING	10.53	
COAL DUMP	1.0	
HOMESTEAD LAND	1.0	
AGRICULTURAL LAND	0	
PLANTATION	274.01	
WATER BODY	179.1	
BARREN LAND	2.17	
FIRE AREA	0	
TOP SOIL	2.93	
RAIL AND ROAD		
RAIL	0	
HIRAK ROAD	0	
DB ROAD	0	
VILLAGE ROAD	0	
HAUL ROAD	0	
TOTAL	**887.75**	

9.3.2.2. Post mining land use pattern outside the Project Boundary-

Post mining land use pattern of the leasehold land falling outside the project boundary will remain unchanged as no mining activity will be carried out in that part of land.

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9.4. Details of the Project Affected Families (PAF's) residing within the project boundary:

9.4.1. Details of PAFs residing in the Phularitand leasehold to be rehabilitated.

SNo.	Name of Village	Nos. Of Families	No. Of Project Affected Persons including enchoachers	Remarks
1.	Mandra, Ganeshpur,Bawrabera/O5	180	720	Within JRDA
2.	Manjura (near Phularitand Stn.)/O6	203	812	
3.	Mohalpatti, Rly Qtrs/O7	118	472	
4.	Ashakhuti Qtrs./O9	63	252	
5.	Dumra and Mathabandh	241	964	Outside JRDA
6.	Mandra, Barora, New Qtrs	588	2352	
Total		1393	5572	

9.4.2. Details of PAFs residing in the Muraidih leasehold to be rehabilitated.

SNo.	Name of Village	Nos. Of Families	No. Of Project Affected Persons including enchoachers	Remarks
1.	Mandak Kenduadih Village	96	150	Within JRDA
2.	Central Kenduadih Village	3	10	
3.	Barora Village	190	750	
4.	Khodo Valley Colony/Village	104	375	OutSide JRDA
5.	Pure Barora Village	328	1312	
6.	Tundu/Baromessia Village	32	70	
Total		753	2667	

9.4.3 Proposal for Rehabilitation of PAFs residing within the Project Boundary-

A total of 2146 Project Affected Families (PAFs) within the Project Boundary is submitted by Mine Authority. Out of which, 853 PAFs are covered under Master Plan (2008) and additional 1293 PAFs is also exist within this area.

The PAFs which comes under JRDA rehabilitation plan (Master Plan) and will be shifted to the site 4A (BCCL land) (under Mouza Pokerbera, Kolipur, Pochari, Darida) and 4B(Non BCCL land) (under Mouza Bamakunda, Jursabad, Kharya, Mahanpur, Damodarpur) situated adjacent to the E. Rly. Grand Chord Line as mentioned in the Master Plan.

Considering the above table, remaining 1293 PAFs which are not covered within the JRDA rehabilitation plan (Master Plan) may be shifted to the location at the North-East corner of the leasehold of the project boundary surrounding the Muraidih Village and approximate land requirement is 54.59 Ha which marked on the Plate no.XXXVII.

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Muraidih Colliery

CHAPTER - X

ENVIRONMENT MANAGEMENT

10.0 ENVIRONMENTAL IMPACT ASSESSMENT

10.1 INTRODUCTION

The impacts (both beneficial and adverse) of mining and its allied activities of the project have been assessed and presented in respect of biophysical & socio-economic environment.

Environmental Impact assessment has been carried out by studying the likely impacts on existing ambient air, water and noise conditions etc. of the area due to mining activities at the site under consideration. For this, the latest data generated from the mine / adjacent existing mine has been taken into consideration as this will give a practical status of the impact of existing mining activities in the area.

10.2 AIR POLLUTION IMPACT ASSESSMENT

The impact assessment has been carried out dealing with the following points:

(a) Phase-wise inventory of air pollution emission sources
(b) Impact assessment

a. Phase-wise inventory of air pollution emission sources

The pollution sources are obvious and to assess the impact, the project life is divided into following time frames:

I) **Operation phase**

II) **Post-operational stage**

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The activities associated with these time frames and having impact on the ambient air quality along with the pollutants are enumerated in the following sections:

Operational phase-

During this phase, activities necessary for mining of coal, its handling and transport are taken up. Such activities having impact on ambient air quality are detailed below:

(i)	Drilling & Blasting	: Noise, Dust and SOx NOx
(ii)	Handling of coal	: Noise, Dust and SOx NOx
(iii)	Movement of vehicles	: Noise, Dust and SOx NOx

Post-operational stage-

During this stage of the project, the activities related to the closure of mine are to be carried out. Preparation of final mine closure plan shall be carried out during the period four to five years before the closure of the mine. Some of the activities for the closure are:

- Modifications in physical and biological reclamation of subsided area, if any
- Salvaging and shifting operation of Machineries and other equipment
- Clearing of coal and other materials, restoration of infrastructure area & colony area to the extent possible and necessary if not useful for other projects
- Management of hydrology and hydrogeology.
- Redeployment of workforce, etc.
- Arrangement & implementation of post-operation monitoring mainly keeping watch, vigil, etc.

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The activities having impact on the ambient air quality are enumerated below:

(i) Movement of dozers for physical reclamation : Noise, Dust and SOx NOx

(ii) Movement of vehicles for shifting and salvaging operation of Machineries and other equipment : Noise, Dust and SOx NOx

(iii) Movement of vehicles for clearing of coal and other materials : Noise, Dust and SOx NOx

b. Impact assessment

The mining and its related activities create ambient air pollution. The impact of mining on ambient air quality is highlighted in the following paragraphs:

The ambient air quality is influenced due to the presence of PM_{10}, $PM_{2.5}$, SO_2, NOx, etc., which are generated due to various activities like drilling, blasting and coal & material handling related to the project. Further, the ambient air quality is affected to a varying degree due to the mining activities of other nearby opencast and underground coalmines of the same coalfield. The concentration of pollutants may vary depending upon the various micro-meteorological parameters and the seasons of a year along with on the existing control measures.

In order to assess the ambient air quality in the area surrounding the site where mining activities are continuing since beginning of the 20th century vis a vis the present scenario monitoring has been carried out at different locations based on the wind pattern and topography. The results of the regular environmental monitoring by CMPDIL (Refer Chapter XI) shows that, in spite of continuous mining activity in the area environment has not been affected to any significant extent as the recorded data are all below the permissible limits.

The present assessment as validated through monitoring data as explained above, also proves that, mining activities in the area have not affected the ambient air quality to any significant extent which has become possible because

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of various Pollution Control Measures are continuously being taken and augmented whenever necessary.

Moreover, fortnightly monitoring of ambient air quality at all the operating mines helps in identifying mining source generating the pollution for which appropriate control measures are then planned for implementation, which can be validated in the subsequent monitoring.

The Air Pollution control measures will be further strengthened to keep the air pollutants well within the permissible limit in the mine under consideration.

10.3 IMPACT ASSESSMENT ON WATER

I. Identification of the sources of water pollution

Likely sources of water pollution from this project along with the type of pollutants are as follows:

(i) Sanitary (domestic) wastewater : Suspended solids and BOD.

(ii) Water pumped out from mine : Suspended solids of coal and clay

(iii) Surface run-off passing through coal stockpiles : Suspended solids.

(iv) Storm water from leasehold area and built-up area : Suspended solids.

(v) Waste Water from workshop : Suspended solids, Oil and grease

II. Impact Assessment

Mining and its related activities may create water quality problems. The impact of mining at the project on both surface and ground water sources are given subsequently.

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(a) Surface water sources

If the mine effluent is discharged without proper treatment it will lead to deterioration of water quality and pollution of water bodies. Change in relief pattern due to mining may cause flooding, siltation, choking and pollution. Mitigation measures would involve provision of the following depending on the site condition and actual requirement statutory or otherwise.

(i) Garland drains for surface runoff.
(ii) Sedimentation ponds/settling tank for reducing the pollution of surface water bodies.
(iii) Workshop effluent treatment plant

However, due care will be taken to treat the mine water discharge by sedimentation if need arise for the mine under consideration.

III. Groundwater resource

In coal mines, the different aquifers overlying the working coal seam would be contributing groundwater to the mine by gravity drainage which need to be pumped out for safe operation of the mines.

Generally steep draw down cone would be formed in poor potential aquifers thereby influence the area to a small distance and reverse is established in respect of aquifers with high hydraulic conductivity. The Impact of mining activities is likely to be pronounced in the dipside which are estimated by utilising aquifer and mine parameters at final mine depth. It may be appropriate to mention here that the presence of prominent boundaries/water bodies, faults and also interfringing of sandstone and shale beds may restrict the propagation of draw down cone.

Further, the ground water level decline is more in the close vicinity of the pit. The effect will be pronounced in the down – dip side and milder in the up – dip side.

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But this effect will be temporary in nature and once the project is over, after 2-3 rains, the regime will regain its almost original status.

Any shortage of water in the affected villages during the temporary period will be supplemented through supply of treated water pumped out from the mine.

IV. Impact on noise level

In order to assess the existing ambient noise level in the surrounding of the mine site corresponding to existing scenario, ambient noise level data has been generated at different locations and it is seen that existing quality of ambient noise is quite satisfactory.

The noise level monitoring data are given in chapter - XI

The likely source of noise are given below

- Drilling and Blasting operations
- Operations of HEMM
- Operation of Equipment CHP, Workshop etc.

ACCEPTABLE INDUSTRIAL NOISE LEVEL

As per Env. (Protection) Amendment Rules, 2000 the ambient air quality standards in respect of noise in industrial, commercial, residential and silence zones area as follows:

Sl. No.	Category of area	Limits [dB (A)]	
		Day time (6.00 AM to 10.00 PM)	Night time (10.00 PM to 6.00 AM)
1.	Industrial	75	70
2.	Commercial	65	55
3.	Residential	55	45
4.	Silence zone	50	40

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Assessment of the degree of noise, to which a workplace noise is harmful, is done by comparing the values measured at workplace to the permissible TLV adopted by statutory bodies like DGMS.

The Director General of Mines Safety vide their circular no. DG (Tech.)/18 of 1975 has prescribed the TLV for noise level as 90 dB (A), for the workers engaged in mining occupation likely to be exposed to in an 8 hour shift period with unprotected ear. Whereas, the following table shows the maximum permissible noise exposure levels, as per American Standards, for the industrial workers.

Exposure time (Hrs./day)	Noise level [dB (A)]
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	108
0.25 or less	115
EXPOSURE TO PULSE OR IMPACT NOISE SHOULD NOT EXCEED 140 dB (A)	

It is observed that noise level recorded in mine activity area (details given in Chapter XI) is well within the permissible limit for the mine under consideration.

The present assessment as validated through monitoring data as explained above, also proves that, mining activities in the area have not affected the ambient noise to any significant extent which has become possible because of various Pollution Control Measures are continuously being taken and augmented whenever necessary.

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Moreover, fortnightly monitoring of ambient noise quality at all the operating mines helps in identifying mining source generating the pollution for which appropriate control measures are then planned for implementation which can be validated in the subsequent monitoring.

The above paragraphs clearly bring out the fact that, impact of mining activities on ambient noise is insignificant and the mine under consideration will be no exception.

V. Socio- economic Impact

There would be some obvious changes in various socio economic parameter due to mining activities eg. Increased economic activities & creation of new employment opportunities, infrastructural development, better educational and health care facilities etc.

The socio –economic impacts of the project is given below.

A) Population Growth and Migration

Mining activities in this coalfield is continuing since beginning of 20th century. The development of the area is totally indebted to coal mining as well as the entire economy of the area is sustaining due to coal mines. In addition to creating adequate direct employment in the coalmine large opportunities of indirect employment have also been created. Numbers of people from outside the state have migrated in this region, which has resulted in through mixing of different culture and customs as per the tradition of our country "Unity in diversity".

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B) Resettlement & Rehabilitation.

Details of the Project Affected Families (PAF's) residing within the Project boundary:

(B.1) PAFs residing within the area of Phularitand(Part) Colliery falling in Cluster-II

SNo.	Name of Village	Nos. Of Families	No. Of Project Affected Persons including encroachers	Remarks
1.	Mandra, Ganeshpur,Bawrabera/O5	180	720	Within JRDA
2.	Manjura (near Phularitand Stn.)/O6	203	812	
3.	Mohalpatti, Rly Qtrs/O7	118	472	
4.	Ashakhuti Qtrs./O9	63	252	
A.	**Sub-total (item 1 to 4)**	**564**	**2256**	
5.	Dumra and Mathabandh	241	964	Outside JRDA
6.	Mandra, Barora, New Qtrs	588	2352	
B.	Sub-total (item 5 to 6)	**829**	**3316**	
Total (A & B)		**1393**	**5572**	

(B.2) PAFs residing within the area of Muraidih Colliery falling in Cluster-II

SNo.	Name of Village	Nos. Of Families	No. Of Project Affected Persons including encroachers	Remarks
1.	Mandak Kenduadih Village	96	150	Within JRDA
2.	Central Kenduadih Village	3	10	
3.	Barora Village	190	750	
C.	**Sub-total (item 1 to 3)**	**289**	**910**	
4.	Khodo Valley Colony/Village	104	375	Out Side JRDA
5.	Pure Barora Village	328	1312	
6.	Tundu/Baromessia Village	32	70	
D.	**Sub-total (item 4 to 6)**	**464**	**1757**	
Total (C & D)		**753**	**2667**	

Summary:

SNo.	Particulars	Nos. Of Families	No. Of Project Affected Persons including encroachers	Remarks
i)	**Within JRDA (Item A & C)**	853	3166	Details are falling within Amalgamated Project Boundary
II)	**Out Side JRDA (Item B & D)**	1293	5073	
	Grand total	**2146**	**8239**	

Above data/information are submitted by Mine Authority

As per recent survey, 853 PAFs are residing within the Project Boundary (887.75 Ha) which are to be rehabilitated and resettled at JRDA identified sites as per Master Plan (2008) for this project and rest 1293 PAFs of outside JRDA is proposed to be rehabilitated and resettled at the sites identified by Mine authority (Refer Plate no.XXXVII)

ASHOK KUMAR
Project Officer
Muraidih Colliery

C) **Transport and Communication**

The present network of metalled approach road to the place of work and other places of public interests like shopping, education, medical services etc. is going to improve with continuation of mining operation.

D) **Health**

The facilities created in the area are extended for neighbouring population also.

E) **Literacy**

With continuation of mining activities in the area, educational facilities developed in the area will continue to improve the literacy of the rural areas also.

F) **Economic Impacts**

With the continuation of mining activities the occupational structure of the area is going to improve further and many people are likely to be involved in the job of mining and allied activities. Hence, income level of these people is likely to improve to significant level.

Employment opportunities both direct & indirect in this project are likely to cause migration from outside. Amenities like medical educational, recreational etc. are available to local people and their quality of life has definitely improved.

VI. Land Use Pattern during Mining

Land in case of coal mining activity, gets degraded by way of actual excavation for coal winning operation and dumping of waste material on the surface especially in the open cast mining. Present land use is given in Chapter- IX.

VII. Impact on flora & fauna:

There is no endangered and endemic species in core and buffer zone.

By developing plantation of native species efforts are being made to improve the green cover in and around the immediate vicinity of the mine area.

BCCL in association with local people will make all efforts to conserve the flora & fauna in the immediate surroundings of the mine area.

ASHOK KUMAR
Project Officer
Muraidih Colliery

10.2.1 ENVIRONMENTAL MANAGEMENT PLAN

I. Environmental Pollution Control Measures:

i) Air, Noise Pollution Control Measures:

a) To reduce air pollution due to dust produced during various mining and allied activities, adequate water spraying is being done at strategic points so that dust do not get air-borne. 4 Movable water tanker are used for sprinkling at haul roads and coal transportation, coal face, OB dump in mines for dust suppression. 3 Drills mounted with wet drilling arrangement and other 3 is under process for wet drilling arrangement in Muraidih colliery. To control the concentration of dust in ambient air fixed type water sprinklers will be installed along coal transportation road, coal stock yard and other dust prone areas. Additional Mobile Sprinklers may be required as per extent of mining.

b) Proper blasting techniques by designing a suitable blasting pattern after actual field observation would be followed to minimize adverse effects of ground vibration and noise if required.

c) Black topping of roads.

d) Biological reclamation of subsided areas, development of green belt around infrastructure, colony, along roads and in vacant land around villages are being undertaken for arresting dust and noise propagation.

e) Proper maintenance of all Machines etc. are being undertaken so as to reduce harmful exhaust and noise.

f) Regular cleaning of transportation roads are being carried out.

g) Coal are being transported using covered trucks. No overloading of trucks are being allowed.

h) Personal protective gears are given to workmen exposed to dusty and noisy work environment.

ASHOK KUMAR
Project Officer
Muraidih Colliery

PLANTATION / GREEN BELT AS A MITIGATIVE MEASURES AGAINST ENVIRONMENTAL POLLUTION:

Plantation is an important tool to combat air pollution, noise pollution and soil erosion. In addition to these it gives an aesthetic look to the area.

For plantation purpose following areas can be considered:

Area where ornamental trees viz. Semal, Arjun, Palas and fruit trees like Mango, Guava, Jamun and medicinal plant like Neem etc. can be provided like colony area, schools, dispensary, community buildings, play-ground etc.

Areas where different rows of trees including tall and fast growing varieties along with ornamental shady trees shall be planted e.g. around colony, along roads, haul roads, and around industrial buildings, etc.

Plantation of these trees will also take off some pressure on the nearby forests as far as firewood is concerned. Grass carpeting will be done on slope of OB to prevent soil erosion.

PLANTATION PROGRAMME / GREEN BELT:

The plantation would be taken up with the help of suitable agency. Thereafter, this process would continue concurrently with the mining activities.

WIDTH OF GREEN BELT:

a) Along the roads 1000 saplings per road km; two rows on both sides of the road; width – 3 m.

b) Around colony & infrastructure – 2500 saplings per ha; width – 5 m; 3 rows of plantation all around.

c) Vacant land – 2500 saplings per ha.

Density of plantation will be as mentioned earlier. Plantation activity will be carried out throughout the life of the mine in and around the quarry and in safety zone.

Phase wise Plantation activities to be carried out are shown in plates no. XXXV for existing Plantation sites and Plate no.XXXVI for proposed Plantation sites. At present, total plantation area is 153.10 Ha. After OC operation in Project area, about 121.23 Ha will remain from the above plantation and additional plantations will be done in the area as per table given in next page-

ASHOK KUMAR
Project Officer
Muraidih Colliery

Plantation Details	Year	PLANTATION		Total Plantation
		Area (ha)	Trees/ saplings	
Remaining Existing Plantation after OC operation	0	121.23	303075	303075
SITE 1A	1	2	5000	5000
	2	3	7500	7500
	3	4	10000	10000
SITE 1B	4	4.4	11000	11000
SITE 1C	5	3.9	9750	9750
SITE 1D	6	9.3	23250	23250
SITE 2	7	23.3	58250	58250
SITE 3	8	43	107500	107500
SITE 4	9	43.9	109750	109750
SITE 5	10	26.8	67000	67000
SITE 6	11	22.6	56500	56500
	12	22.6	56500	56500
SITE 7	13	15.4	38500	38500
SITE 8A (20.5ha) and 8B(2.5ha)	14	23	57500	57500
SITE 9A (34.6 ha) and SITE 9B (32 ha)	15	3.91	9775	9775
	16	3.91	9775	9775
	17	3.91	9775	9775
	18	3.91	9775	9775
	19	3.91	9775	9775
	20	3.91	9775	9775
	21	3.91	9775	9775
	22	3.91	9775	9775
	23	3.91	9775	9775
	24	3.91	9775	9775
	25	3.91	9775	9775
	26	3.91	9775	9775
	27	3.91	9775	9775
	28	3.91	9775	9775
	29	3.91	9775	9775
	30	3.91	9775	9775
	31	3.91	9775	9775
Post Mining	PC1	27.2	68000	68000
	PC2	81.2	203000	203000
	PC3	43.2	108000	108000
	TOTAL	**586.5**	**1466250**	**1466250**

ASHOK KUMAR
Project Officer
Muraidih Colliery

i) **Water Pollution Control Measures**:

a) Domestic Effluent:
Residential quarters are provided with conventional soak pit system.

b) Mine Discharge:

Water collected in the workings are first allowed to settle in sumps. Sufficiently large sumpage has been provided to eliminate the discharge of un-dissolved suspended solids to the surface along with mine water. The quality of mine pumped out water as being monitored in all the operating mines also establishes the fact that, the untreated mine pumped out water does not contain any significant pollution load.

However, it is proposed to carry out the monitoring of quality of mine discharge and if any undesirable element is found in the sample it will be treated properly before it is re-used.

c) The final treated discharge then be utilized for various purposes e.g. water spraying, watering of plants, etc. Balance quantity if any, will be supplied for irrigation, if required otherwise discharged in natural watercourses.

d) Surface run-off & Storm Water: A Network of catch drains will be constructed around the OB dump. The runoff through these catch drains will be directed to mine sump. Water so collected can be used for dust suppression in the mine area, roads, green belt development, etc. Garland drain will be made all along the periphery of the mine.

e) Retaining/Toe Wall: Retaining wall at the toe of the dumps and OB benches within the mine will be provided to check run-off and siltation.

ASHOK KUMAR
Project Officer
Muraidih Colliery

iii) Remedial measures to control ground water depletion

The following methodology and remedial measures will be taken to minimize the mine-induced impact on ground water levels and also adverse effects in the area.

(a) The decoaled voids will be used for water harvesting structures.

(b) The back filling will arrest the mine seepage resulting in restoration of ground water level in the immediate vicinity of the area.

(c) The unlined garland drain and sedimentation pond will enhance the runoff recharge.

(d) The water shortage in the villages, if any, in the influence area can be supplemented by supply of water from outside source or from the mine water after treatment.

(e) To improve the environment and greenery in the area, BCCL has taken up plantation on a larger scale in the coal mining area. The improvement in vegetation cover has a direct bearing on augmentation of ground water recharge.

(f) Artificial recharge shall be done for more use of ground water for irrigation augmentation in the project area when the source of water is easily available for recharging.

(g) water recharge, under community development, tanks/ponds/dugwells will be constructed in the nearby villages

(h) On analyzing the field data if any area receiving the maximum impact, suitable controls measures will be adopted by the project authorities.

(i) The mine discharge after passing through sedimentation pond / tank will be discharged onto land/natural drains with earthen check dam at suitable locations so that the groundwater gets additional recharge by the return flow.

(j) The water shortage in the villages, if any, in the influence area can be supplemented by supply of water from outside source or from the mine water after treatment.
Regular well water monitoring in nearby villages is being carried out quarterly as per MOEF's guidelines.

ASHOK KUMAR
Project Officer
Muraidih Colliery

II. Disaster Management Plan

Details of Disaster Management Plan Given in Chapter VI

III. MONITORING & MANAGEMENT ORGANISATION

Close monitoring of the environment and implementation of various protective measures discussed in the report forms an important part of Environment Management Plan (EMP). In the earlier paragraphs the causes of various pollutions along with the preventive and mitigative measures have been discussed. In the subsequent paragraph, monitoring organization is being discussed.

MONITORING ORGANISATION

To have a close watch on the environmental condition and implementation of the various measures suggested, a multi-disciplinary approach is essential.

a) BCCL (HQ) acts as an apex body, which monitors the activities relating to environment at project level through the General Manager.

b) General Manager of the area co-ordinates the activities of various disciplines in the area to render all necessary assistance at the implementing level i.e. the Project. Nodal Officer (Environment) of the area monitors all aspects of environment on behalf of the General Manager.
He also takes suitable steps for generation of environmental data for its analysis and interpretations. Plantation is being done on a large area. A Supervisor shall monitor and guide the agency for selection of site, treatment of soil and selection of species.

c) Project Officer is primarily responsible for reclamation of the mined out area. He shall also be responsible for biological reclamation with the assistance of GM's office.

ASHOK KUMAR
Project Officer
Muraidih Colliery

ORGANISATION CHART

Sl. No.	Measures/Actions		Agency
1.	Environmental Pollution Control	1	General Manager, Barora Area
		2	Nodal Officer, (Environment), Barora Area
		3	Project Officer, Amalgamated Muraidih-Phularitand Colliery
		4	Area Manager (Civil), Barora Area
		5	Environment Cell (BCCL H.Q.)
2.	Environmental Monitoring	1	General Manager, Barora Area
		2	Area Manager (Civil), Barora Area
		3	Nodal Officer, (Environment), Barora Area
		4	Project Officer, Amalgamated Muraidih Phularitand Colliery
		5	Environment Cell of BCCL Headquarters
		6	Environmental Laboratory of CMPDI, RI-II, Dhanbad
3.	Reclamation	1	Project Officer, Amalgamated Muraidih Phularitand Colliery
		2	Nodal Officer (Environment), Barora Area

ASHOK KUMAR
Project Officer
Muraidih Colliery

CHAPTER - XI

ENVIRONMENTAL MONITORING REPORT

11.1 ROUTINE ENVIRONMENTAL MONITORING OF CLUSTER II

The Amalgamated Muraidih Phularitand Colliery in Barora Area falls in Cluster II group of mines of BCCL for the purpose of EMP. The Environmental Clearance to the various mines of the Cluster –II vide letter No. J-11015/35/2011-IA.II (M) dated 06.02.2013 requires the monitoring of Environmental Components on a regular basis. The Routine Environmental Monitoring work for all the mines of BCCL has also been undertaken by Environmental Division RI-II, Dhanbad CMPDIL. The following stations have been enlisted under Cluster II for monitoring various Environmental components & parameters, the frequency along with the location of the station have been given below in Table 11.1

The location of the monitoring stations has been decided in consultation with JSPCB & BCCL officials.

Table 11.1 Locations for Regular Environmental Monitoring for Cluster II

S. No	Components	Locations (Station Code)	Frequency	Number of Parameters Covered
1	Air Quality	**(Core Zone)** **1. Block II OCP (A4): Industrial Area** **2. Muraidih OCP (A5): Industrial Area**	Each Fortnight	Four (PM10, PM2.5, SO_x, NO_x)
		(Buffer Zone) **1. Madhuband Washery (A3) : Industrial area** **2. Madhuband UGP (A33) : Industrial area**	Each Fortnight	Four (PM10, PM2.5, SO_x, NO_x)
2	Noise Levels	**1. Block II OCP (N4)** **2. Muraidih OCP (N5)** **3. Madhuband Washery (N3)** **4. Madhuband UGP (N33**	Each Fortnight	-NA-
3	Mine Water:	**Mine Discharge of Block II (MW2)**	Each Fortnight	Four(pH, TDS, TSS, O&G)

ASHOK KUMAR
Project Officer
Muraidih Colliery

11.2.1 Ambient Air & Noise Quality Report for Core & Buffer Zones:

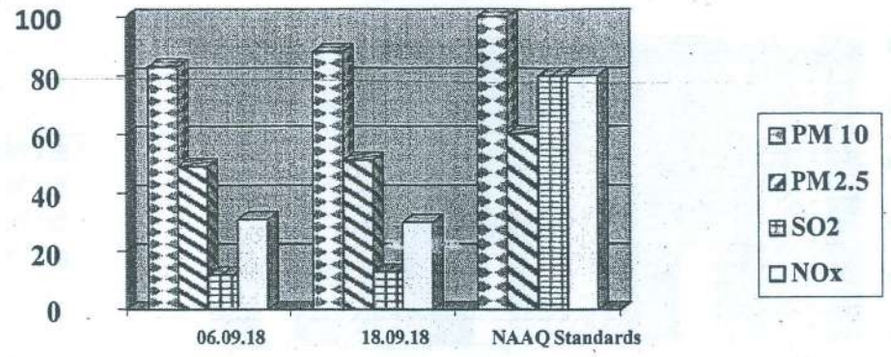
In order to assess the Ambient Air Quality Status, monitoring stations were identified on the basis of the objectives, the particular method or instrument used for sampling, resources available, physical access and security against loss and tampering. Based on above mentioned considerations, the activities of the project site and by consultation between BCCL & JSPCB officials, air quality monitoring stations were selected to ensure the collection of representative samples as per condition prevailing in the environment at the time of monitoring. As per guidelines, norms and practices, 4 four numbers of locations were selected for monitoring ambient air quality in and around the Cluster. The following stations have been enlisted under Cluster II for monitoring various Environmental components & parameters, the frequency along with the location of the station have been given below in Table 11.1

ASHOK KUMAR
Project Officer
Muraidih Colliery

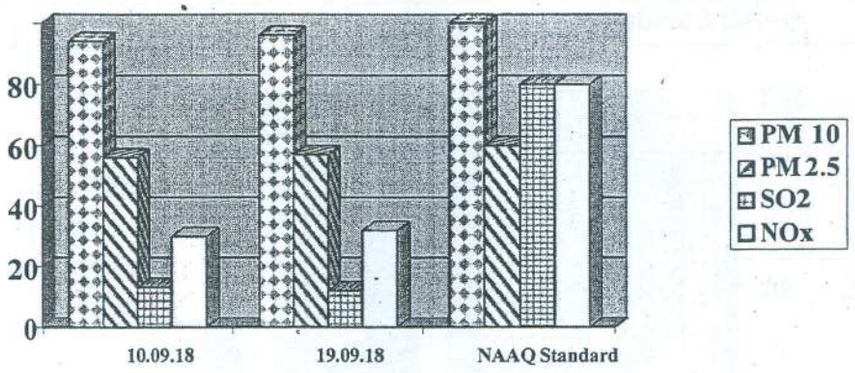
AMBIENT AIR QUALITY DATA

Cluster – II, Bharat Coking Coal limited **Month: SEP. 2018** Year : **2018-19.**

Station Name: A4 – Block II OCP		Zone: Core		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO2	NOx
1	06.09.18	83	49	12	31
2	18.09.18	88	51	13	30
	NAAQ Standards	100	60	80	80



Station Name: A5, Muraidih OCP		Zone: Core		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO_2	NO_x
1	10.09.18	94	56	13	30
2	19.09.18	96	57	12	32
	NAAQ Standard	100	60	80	80

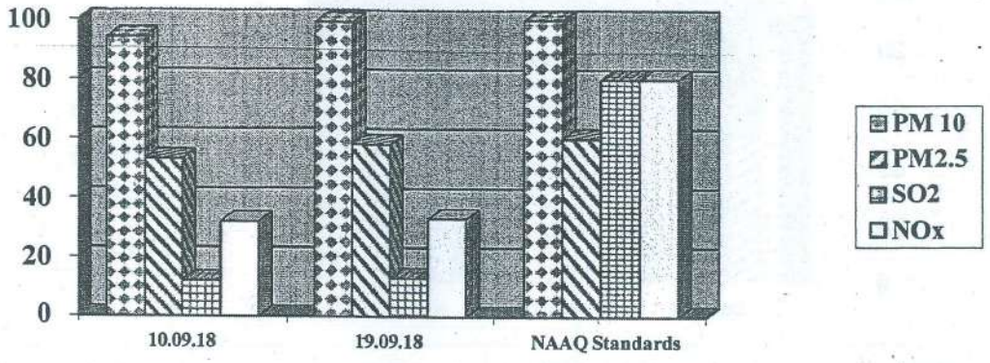


Note:

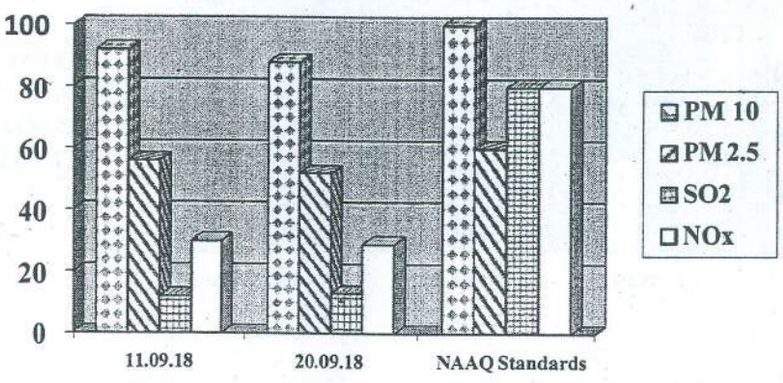
- *All values are expressed in microgram per cubic meter.*
- *24 hours duration*

ASHOK KUMAR
Project Officer
Muraidih Colliery

Station Name: A3 Madhuband Washery		Zone: Buffer		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO2	NOx
1	10.09.18	94	53	12	32
2	19.09.18	99	58	13	33
	NAAQ Standards	100	60	80	80



Station Name: A33 Madhuband UGP		Zone: Buffer		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO2	NOx
1	11.09.18	92	56	12	30
2	20.09.18	88	52	13	29
	NAAQ Standards	100	60	80	80



Note:

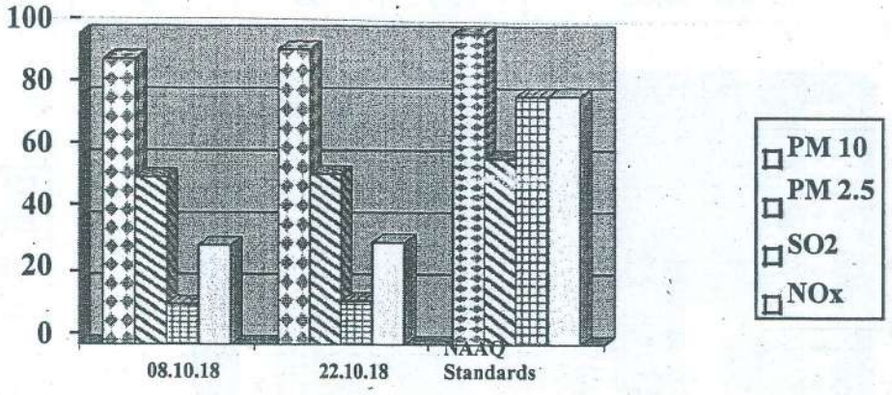
- *All values are expressed in microgram per cubic meter.*
- *24 hours duration*

ASHOK KUMAR
Project Officer
Muraidih Colliery

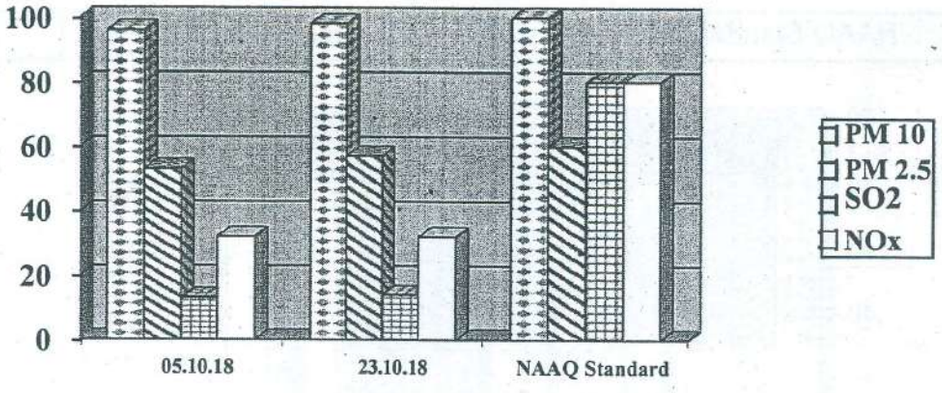
AMBIENT AIR QUALITY DATA

Cluster – II, Bharat Coking Coal limited **Month: OCT, 2018** Year : **2018-19.**

Station Name: A4 – Block II OCP		Zone: Core		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO2	NOx
1	08.10.18	92	54	13	32
2	22.10.18	95	55	14	33
	NAAQ Standards	100	60	80	80



Station Name: A5, Muraidih OCP		Zone: Core		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO_2	NO_x
1	05.10.18	96	53	13	32
2	23.10.18	98	57	14	32
	NAAQ Standard	100	60	80	80

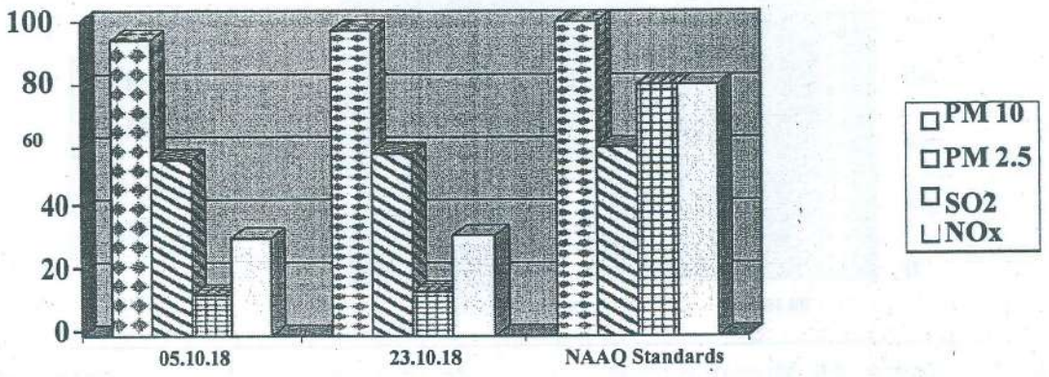


Note:

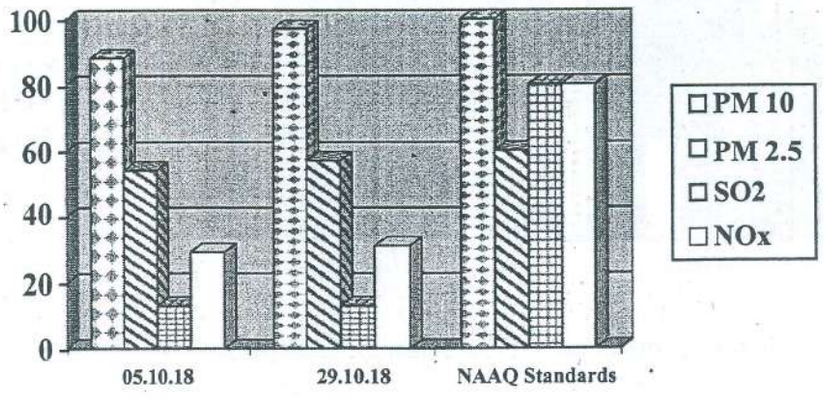
- *All values are expressed in microgram per cubic meter.*
- *24 hours duration*

ASHOK KUMAR
Project Officer
Muraidih Colliery

Station Name: A3 Madhuband Washery		Zone: Buffer		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO2	NOx
1	05.10.18	94	56	13	31
2	23.10.18	97	58	14	32
	NAAQ Standards	100	60	80	80



Station Name: A33 Madhuband UGP		Zone: Buffer		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO2	NOx
1	05.10.18	88	54	13	29
2	29.10.18	97	57	13	31
	NAAQ Standards	100	60	80	80



Note:

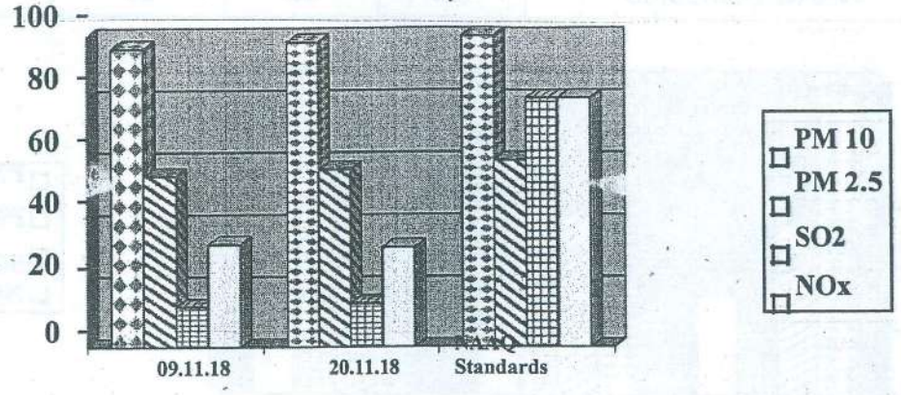
- *All values are expressed in microgram per cubic meter.*
- *24 hours duration*

ASHOK KUMAR
Project Officer
Muraidih Colliery

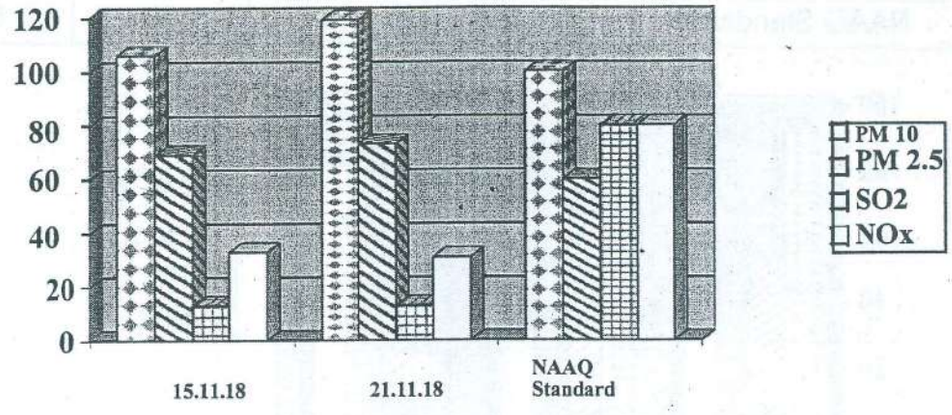
AMBIENT AIR QUALITY DATA

Cluster – II, Bharat Coking Coal limited **Month: NOV, 2018** Year : **2018-19.**

Station Name: A4 – Block II OCP		Zone: Core		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO2	NOx
1	09.11.18	96	55	13	33
2	20.11.18	98	57	14	32
	NAAQ Standards	100	60	80	80



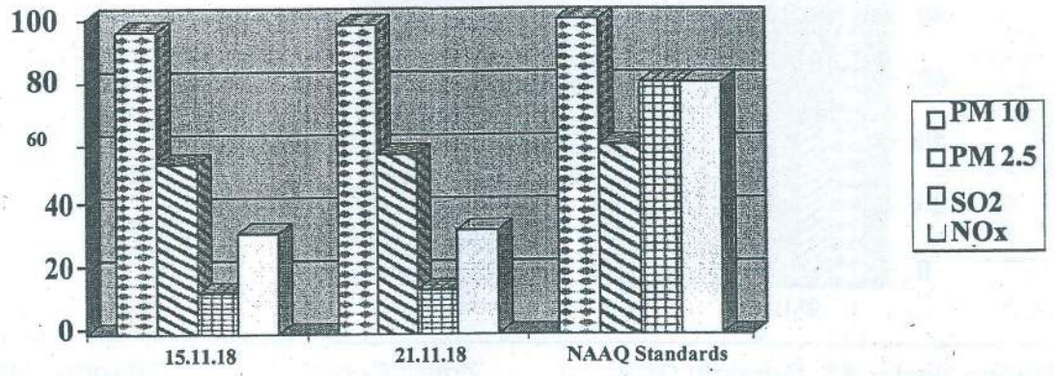
Station Name: A5, Muraidih OCP		Zone: Core		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO2	NOx
1	15.11.18	106	69	13	33
2	21.11.18	119	73	13	31
	NAAQ Standard	100	60	80	80



➢ **Note:** *All values are expressed in microgram per cubic meter. 24 hours duration*

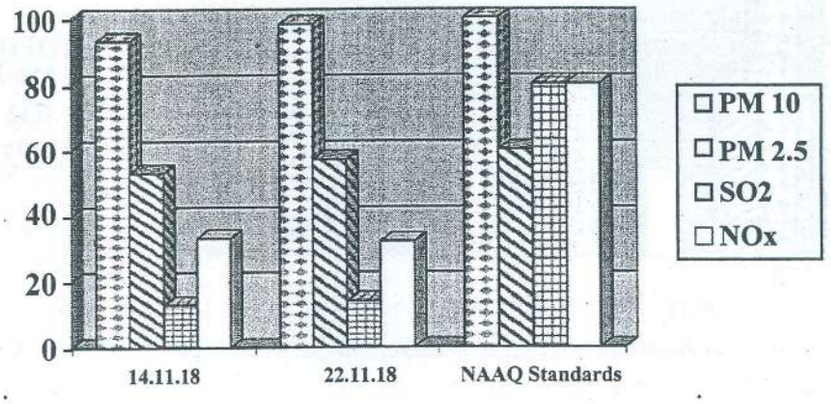
ASHOK KUMAR
Project Officer
Muraidih Colliery

Station Name: A3 Madhuband Washery		Zone: Buffer		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO2	NOx
1	15.11.18	96	54	13	32
2	21.11.18	98	57	14	33
	NAAQ Standards	100	60	80	80



Station Name: A33 Madhuband UGP Zone: Buffer Category: Industrial

Sl. No.	Dates of sampling	PM 10	PM 2.5	SO2	NOx
1	14.11.18	93	53	13	33
2	22.11.18	98	57	14	32
	NAAQ Standards	100	60	80	80



Note:

All values are expressed in microgram per cubic meter.
24 hours duration

ASHOK KUMAR
Project Officer
Muraidih Colliery

NOISE LEVEL DATA

Name of the Project: Cluster -II			Month: SEP. 2018		
Sl. No.	Station Name/Code	Category of area	Date	Noise level dB(A)LEQ	*Permissible Limit of Noise level in dB(A)
1	Madhuband Washery	Industrial area	10.09.18	54.5	75
2	Madhuband Washery	Industrial area	19.09.18	62.4	75
3	Block-II	Industrial area	06.09.18	60.1	75
4	Block-II	Industrial area	18.09.18	64.3	75
5	Muraidih	Industrial area	10.09.18	62.3	75
6	Muraidih	Industrial area	19.09.18	71.2	75
7	Madhuband UGP	Industrial area	11.09.18	62.8	75
8	Madhuband UGP	Industrial area	20.09.18	57.9	75

Name of the Project: Cluster -II			Month: OCT, 2018		
Sl. No.	Station Name/Code	Category of area	Date	Noise level dB(A)LEQ	*Permissible Limit of Noise level in dB(A)
1	Madhuband Washery (N3)	Industrial area	05.10.18	57.2	75
2	Madhuband Washery	Industrial area	23.10.18	58.4	75
3	Block-II(N4)	Industrial area	08.10.18	61.8	75
4	Block-II	Industrial area	22.10.18	59.3	75
5	Muraidih(N5)	Industrial area	05.10.18	65.2	75
6	Muraidih	Industrial area	23.10.18	67.7	75
7	Madhuband UGP (N33)	Industrial area	05.10.18	57.2	75
8	Madhuband UGP	Industrial area	29.10.18	58.1	75

ASHOK KUMAR
Project Officer
Muraidih Colliery

Name of the Project : **Cluster -II**			Month: **NOV, 2018**		
Sl. No.	**Station Name/Code**	**Category of area**	**Date**	**Noise level dB(A)LEQ**	***Permissible Limit of Noise level in dB(A)***
1	**Madhuband Washery (N3)**	**Industrial area**	15.11.18	58.2	*75*
2	**Madhuband Washery**	**Industrial area**	21.11.18	60.1	*75*
3	**Block-II(N4)**	**Industrial area**	09.11.18	56.2	*75*
4	**Block-II**	**Industrial area**	20.11.18	60.9	*75*
5	**Muraidih(N5)**	**Industrial area**	15.11.18	56.2	*75*
6	**Muraidih**	**Industrial area**	21.11.18	62.2	*75*
7	**Madhuband UGP (N33)**	**Industrial area**	14.11.18	52.8	*75*
8	**Madhuband UGP**	**Industrial area**	22.11.18	60.3	*75*

Permissible limits of Noise Level as per MOEF Gazette Notification No. GSR 742(E) dt. 25.09.2000 Standards for Coal Mines and Noise Pollution (Regulation and Control) Rules, 2000.
*** Day Time: 6.00 AM to 10.00 PM,**

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11.3.1 Water Quality Report:

Any adverse impact or pollution consequence of water will have serious effect on the environment. Hence, it becomes important to assess the water quality periodically in the mining area. Thus, to assess the water quality, samples were collected from Two (02) different locations (mine water) and analyzed for physio-chemical characteristics and heavy metals.

The water sampling points were selected by consultation between BCCL & JSPCB officials. The different sources of water were identified for water quality characterization depending on their use for potable/industrial purposes and considering likely impact on these sources due to project activities. Based on these considerations, it was thought necessary to assess the existing quality of different water sources in the study area including both up & down stream of surface water body, ground water and mine water.

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Project Officer
Muraidih Colliery

11.3.2. MINE EFFLUENT REPORT

WATER QUALITY DATA

(EFFLUENT WATER- FOUR PARAMETERS)

Name of the Cluster: **Cluster -II**		Month: **SEP. 2018**	Name of the Station: **Mine Discharge of Block II OCP**	
Sl. No.	**Parameters**	**MW2** First Fortnight	**MW2** Second Fortnight	**As per MOEF General Standards for schedule VI**
		06/09/2018	19/09/2018	
1	Total Suspended Solids	32	28	*100 (Max)*
2	pH	8.12	7.97	*5.5 - 9.0*
3	Oil & Grease	<2.0	<2.0	*10 (Max)*
4	COD	24	24	*250 (Max)*

Name of the Cluster: **Cluster -II**		Month: **OCT, 2018**	Name of the Station: **Mine Discharge of Block II OCP**	
Sl. No.	**Parameters**	**MW2** First Fortnight	**MW2** Second Fortnight	**As per MOEF General Standards for schedule VI**
		09-10-218	20-10-2018	
1	Total Suspended Solids	18	24	*100 (Max)*
2	pH	8.37	7.9	*5.5 - 9.0*
3	Oil & Grease	<2.0	<2.0	*10 (Max)*
4	COD	28	20	*250 (Max)*

Name of the Cluster: **Cluster -II**		Month: **NOV, 2018**	Name of the Station: **Mine Discharge of Block II OCP**	
Sl. No.	**Parameters**	**MW2** First Fortnight	**MW2** Second Fortnight	**As per MOEF General Standards for schedule VI**
		10-11-2018	20-11-2018	
1	Total Suspended Solids	26	24	*100 (Max)*
2	pH	8.66	8.07	*5.5 - 9.0*
3	Oil & Grease	<2.0	<2.0	*10 (Max)*
4	COD	24	28	*250 (Max)*

All values are expressed in mg/lit unless specified.

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