

No. J-11015/213/2010-IA.II (M)
Government of India
Ministry of Environment & Forests

Paryavaran Bhawan,
CGO Complex, Lodhi Road,
New Delhi-110003

To,

Dated: 6th February, 2013

The General Manager (E&F)
M/s Bharat Coking Coal Ltd.,
Koyala Bhawan,
Dhanbad-826005
Jharkhand

Sub. : Cluster III (7 mines of a peak production of 3.6 MTPA in a combined ML area of 1420.61 ha) of M/s Bharat Coking Coal Ltd., located in Jharia Coalfields, Dist. Dhanbad, Jharkhand (EC based on TOR granted on 04.11.2010) -Environment Clearance –reg.

This is with reference to letter no.43011/19/2010-CPAM dated 13.05.2010 along with the application for Terms of Reference (TOR) and this Ministry's letter dated 04.11.2010 granting TOR. Reference is also invited to the letter No. BCCL/GM (Env.)/EMP F-2012/410 dated 16.05.2012 for environmental clearance on the above-mentioned subject.

2. The Ministry of Environment & Forests has considered the application. It is noted that the proposal is for grant of Environmental Clearance for new Cluster III Group of 7 Mines (five operating mines namely Jogidih Colliery UG, Maheshpur Colliery UG, Govindpur Colliery UG, New Akashkinaree Mixed Mine and Block-IV/Kooridih Mixed mine, Two closed mines i.e South Govindpur Colliery, and Teturiya Colliery on account of Lease renewal. The proponent has informed that:

(i) The area has undulating topography 7 mines of which 3 are UG mines, 2 are mixed (OC and UG) and two UG mines are closed for production of a combined ML area of 1420.61 ha and production capacity of **2.769** MTPA (normative) and **3.600** MTPA (peak) as given below mines of which 3 are opencast mines and 2 are mixed (OC and UG) of a combined ML area of 2025.71 ha and production capacity of **15.55** MTPA (normative) and **20.215** MTPA (peak) as per the following:

S. No	Name of Mines	Cluster III Group of Mines Production Capacity (MTY)		Lease Hold Area (Ha)
		Normative	Peak	
1.	Jogidih Colliery	0.244	0.317	167.00
2.	Maheshpur Colliery	0.070	0.091	292.68
3.	South Govindpur Colliery (Closed for production)	Nil	Nil	182.00
4.	Teturiya Colliery (Closed for production)	Nil	Nil	123.00
5.	Govindpur Colliery	0.140	0.182	159.55

6.	New Akashkinaree Mine - Opencast Section - UG Section	1.000 0.135	1.300 0.176	347.38
7.	Block-IV/Kooridih Mixed Mine - Opencast Section - UG Section	1.100 0.080	1.430 0.104	149.00
Total		2.769	3.600	1420.61

MINES IN CLUSTER III

Sl.no	Name of Mine	Status	Prod. capacity (MTPA)		ML (ha)	Life of Mine (years)
			Normative	Peak		
1	Jogidih Colliery	Operating	0.244	0.251	167.00	30
2	Maheshpur Colliery	Operating	0.070	0.072	292.68	30
3	South Govindpur Colliery	Closed	Nil	Nil	182.00	--
4	Teturiya Colliery	Closed	Nil	Nil	123.00	--
5	Govindpur Colliery	Operating	0.140	0.144	159.55	30
6	New Akashkinaree Mixed Mine - Opencast Mine - UG Mine	Operating	1.000 0.135	1.300 0.139	347.38	11 30
7	Block-IV/Kooridih Mixed Mine - Opencast Mine - UG Mine	Operating	1.10 0.08	1.143 0.082	149.00	11 30
Total			2.769	3.600	1420.61	

(ii) Cluster-III group of mines of BCCL is a group of seven mines consisting of opencast and underground mines of the Bharat Coking Coal Limited in the Dhanbad District of Jharkhand State. It is bounded in the east by Cluster-IV mines of BCCL and in the north by habitation and barren measures, in the west by Cluster-II mines of BCCL and in south by Cluster-XV mines. Khudia Nallah and Bagdigi Nallah passes through the cluster.

The Major Project Parameters of the Mines of Cluster-III are as per the following:

Parameter	Jogidih UG	Maheshpur UG	Govindpur UG	New Akashkinaree		Block- IV Kooridih	
				OC	UG	OC	UG
Manpower	776	593	835	54	868	722	210
Ventilation	AF-65 Exhaust	AF-65 Exhaust	AF-65 Exhaust	-	PV160	-	PV160
Maximum Depth (m)	-	146.00	190.00	120.00	130.00	200.00	-
Stripping ratio	-	-	-	1:6.5	-	1:4.3	-
Seam Gradient Mineable reserve (MT)	1 in 6 10.50	1 in 8 18.82	1 in 5/ 1 in 6 5.95	1 in 6 8.00	1 in 5 9.00	1 in 10/ 1 in 5 12.50	1 in 10/ 1 in 5 4.896

Linkage	Steel / power plants W-IV	Steel / power plants W-III	Steel / power plants W-IV/D	Steel / power plants W-IV	Steel / power plants W-III/C/D	Steel / power plants W-III/W-IV/D/W-IV(C)	Steel / power plants W-III/W-IV/D/W-IV(C)
Grade of coal	I/III Seams	IX Top/IX bottom/V/VI/VII	I/II/IV	X/XI/VIII C/VIII WB/VIII A /VII T/B/VI/ V	I/II	W-III/W-IV/D/W-IV (C)	W-III/W-IV/D/W-IV (C)
Seam to be worked							
Production in MT (1993-94)	0.201	0.230	0.487	0.438		0.853	
Production in 2011-12 (MT)	0.059	0.056	0.082	0.524		0.424	
Proposed peak Production (MT)	0.317	0.091	0.182	1.476		1.534	
Cost of Production (Rs./Te)	1672.55	2299.71	2160.08	407.12	1828.99	718.00	2129.32

(iii) The drainage system in the area is controlled by Khudia River. The project area is mainly drained by Baghdidi nala which is flowing through the cluster. Damodar River is the master drainage of the area. The details of post-mining land use of Cluster-III are as per the following:

Land use of Cluster III			
Sl.No	Type of Land Use	Present Mining Land Use (in Ha)	Post-mining Land Use (in Ha)
1	Running Quarry		
	Backfilled	55.00	Nil
	Not Backfilled	65.90	Nil
2.	Abandoned quarry		
	- Backfilled	89.30	Nil
	- Not Backfilled	14.27	Nil
3	External OB dump	36.63	36.63
4	Service Building/ Mine Infrastructure	45.47	45.47
5	Coal dump	37.93	Nil
6	Homestead Land	147.77	147.77
7	Agricultural Land	190.24	190.24
8	Forest Land	Nil	Nil
9	Plantation / reclamation	24.85	854.72
10	Water Body	29.37	29.37
11	Barren Land	564.79	72.88
12	Fire area	72.88	nil
13	Others (rail/road etc.)	46.21	43.53
	Total	1420.61	1420.61

EC_Cluster III_BCCL

(iv) A total area of 854.72 ha would be reclaimed and afforested. Eco-restoration of BCCL mine areas is to be implemented in two phases over a period of 10 years, of which, Phase-I is from 2011-16 and Phase-II from 2016-2021. During Phase-I, development of a model restoration plantation is being carried out and thereafter 90 ha area of the area would be restored by BCCL in their 3 mining areas. During Phase-II (2016-2021), replication/expansion of proposed restoration models in the 126 ha area spread over 13 mines area of BCCL would be taken up. The open cast mining is proposed before start of underground mining.

(v) There would be no external OB dumps. OB from the 2 OC patches would be backfilled. At the end of the mining there would be no void and the entire mined out area will be re-vegetated. A minimum safety distance of 60m would be maintained between opencast and underground operations.

Details of Rehabilitation in Cluster- III		
S.N.	Parameter	Details
1.	Total Voids	8.7 Mm ³
2.	Total OB available	80 Mm ³
3.	Total Unstable Sites	58 no.
4.	Total Affected Areas	862574 m ²
5.	No. of Houses to be rehabilitated	3756 no. as per JAP
6.	Land for Resettlement	28.89 (BCCL land) 44.73 ha (Non-BCCL land)
7.	Total resettlement Cost	Rs 27012.66 lakhs
8.	Fire	72.88 Ha
9.	Total cost of fire dealing	Rs.3502 lakhs

Major Environment Issues of Cluster-III		
S. N.	Major Env. Issues	Mitigation measures and Benefit
1.	Voids(80.17 ha) (14.27 operating quarry+ 65.90 abandoned quarry)	50.80 ha backfilling and 29.37 ha water body
2.	Ext.OB Dumps (36.63 ha)	Physically and biologically Reclaimed.
3.	Fire /Unstable area 58 site with 862574 Sq m consisting of 3756 PAF	Dig out fire at the cost of Rs.35.02 crores and rehabilitate affected families at the cost of Rs 27012 lakhs.
4.	Reclamation /Mine closure	Additional plantation in 830.00 ha land at the cost of Rs 8400.00 lakhs. (Funds allocated for mine closure as per MOC guidelines and adopted by BCCL @Rs 1 lakhs /ha in case of U/G mine and Rs 6 lakhs/ha in case of OCP mines)
5.	CSR	Rs 139.00 Lakhs per year@ Rs 5/T of coal

(vi) The water level in the cluster is in the range of 1.35-14.41 (pre-monsoon) and 0.77m bgl – 6.48 m bgl (post-monsoon) in core area .The total peak water requirement of cluster-III would be 5745 m³/day, 1120 m³/day is for mining operations and 4625 m³/day is for domestic purposes .The depth of the final mine void would be 15-20m in an area of 139.23 ha at the end of mining. The existing natural water body is in 29.37 ha area with 15-20 mt depth and remains the same in the post- mining stage and would be used for community /Pisciculture. Total discharge from the mines in the cluster is 10960 cum/day.

(vii) There will be no void at the end of mining at the end mining in cluster- III. The proposed coal transportation of 0.87 MTPA peak production of coal from the mines at that time of operation would be 0.317MTPA of Jogidih Colliery, 0.091 MTPA Maheshpur Colliery, 0.182 MTPA of Govindpur Colliery, 0.176 MTPA New Akashkinaree UG mine, 0.104MTPA of Block-IV/Kooridih UG Mine of Cluster-III. After 15 years, in Phase-II, would be mainly transported by conveyor to railway siding at Maheshpur and loading by Rapid loading system. Presently the transportation of coal is upto railway siding by road.

(viii) Total 80 Mm³ of OB will be generated from two opencast mines (New Akashkinaree OCP and Block-IV OCP) during their whole life. Out of the above, 24 Mm³ volume of OB will be as external OB dump initially spread over 50 ha area and the rest 56 Mm³ OB material generated will be dumped internally in decoaled area up to ground level. The 24 Mm³ OB material in the external dump shall also be liquidated and backfilled into the decoaled area of New Akashkinaree OCP and Block-IV OCP in the post-mining stage. The existing external OB dump in an area of 36.63 ha area has already been biologically reclaimed. 89.30 ha of abandoned quarry backfilled, levelled and plantation will be developed over them. 29.37 ha of the existing water body will continue as water body in the post mining stage. The process of dumping will continue till the life of the mine. Akashkinaree OCP has very small and low height dump (12-20m). Maximum height of this dump is expected to be 40m to 50m over 50 ha. So these dumps do not pose any danger. Dump of Block IV, Kooridih OCP is being backfilled with external. Top soil will be spread over the dumps in uniform thickness in post mining stage. In underground mining, Maximum subsidence, slope and tensile strain over the mining area due to coal extraction in Govindpur Colliery would be 2.462mm/m and tensile strain of 35.90 mm/m, Jogidih UG the subsidence 1.363 mm/m and tensile strain 29.40 mm/m, Maheshpur Colliery the subsidence 1.565 mm/m and Tensile strain 22.68 mm/m, Akashkinaree colliery UG the subsidence 1.539mm/m and Tensile strain 27.17 mm/m. It is planned to take up an additional 854.72 ha under plantation with 2136800 nos. of plants.

(ix) The Action Plan has also been prepared for Ecological Restoration OB dumps and voids. It was informed that the BCCL has formulated its Corporate Environment Policy. R&R is involved. Out of 595 unstable sites identified in the Master Plan, 58 sites consisting of 3756 no. PAF's are affected in this cluster the affected families will be rehabilitated in adjacent non-coal bearing area at a cost of Rs.27012.66 lakhs. The proposed rehabilitation sites for cluster-III are Bamakunda Mounza, Jursabad Mounza, Kharya Mounza, Mahanpur Mounza, Damodarpur Mounza. JCF- F/Katras/East Katras (New Akashkinaree)/1/35 Scheme has been prepared for dealing with fire at East Katras (New Akashkinaree) colliery. It is planned to take up an additional 854.72 ha under plantation with 2136800 nos of plants. There is surface fire which would be controlled by trench cutting.

(x) The mining would be undertaken in fire affected areas and measures adopted for dealing with fire as per approved Jharia Action Plan.

(xi) The CSR would be of Rs 5/ton of coal production. EMP Capital cost Rs 27627.66 Lakhs and recurring cost Rs 344.45 Lakh. Mine closure cost would be Rs. 3922.72 Lakh. The Capital Cost of the project Rs. 156.209 Crores.

(xii) All the mines of the clusters are pre-nationalization mines and therefore, there is no existence of mining plan. The Company has adopted "Corporate Environmental Policy" which has been approved by its Board of Directors on 21.04.2012. It was further stated that the Jharia Action Plan, which consists of all fire dousing projects/plans had been surveyed by DGMS and DGMS is also the monitoring and scrutinizing agency constituted by the Hon'ble Supreme Court

of India under the WP(PIL) 387/1997 i.e. Haradhan Roy Vs UOI. It was clarified that any new scheme of fire dousing would need the approval of DGMS.

(xiii) The Public Hearing was held on 22.01.2012.

(xiv) No Forest land is involved in the cluster III mines.

(xv) This proposal does not involve increase in lease hold area, change in technology or change in product mix in the mines.

3. This is a violation case. As per the Office Memorandum dated 12.12.2012, issued by the Ministry of Environment and Forests, with regard to the consideration of proposals for ToR/Environment clearance/CRZ clearance involving violation of the Environment (Protection) Act, 1986/EIA notification, 2006/CRZ notification, 2011, the Environmental Clearance will be granted after the written commitment in the form of a formal resolution by the Board of Directors submitted to the MoEF to ensure that violations will not be repeated and the State Government concerned initiates credible action on the violation by invoking powers under Section 19 of the Environment (Protection) Act, 1986 for taking legal action under section 15 of the Act for the period for which the violation has taken place and evidence provided to the MoEF of the action taken. In this case, the Board's resolution has been received. As regards credible action, Jharkhand State Pollution Control Board, has issued directions of closure of collieries of M/S Bharat Coking Coal Limited under section 31A & 33A of Air (Prevention and Control of Pollution) Act, 1981 & Water (Prevention and Control of Pollution) Act, 1974 respectively for operating without obtaining environmental clearance. M/S BCCL has filed a Writ Petition (No. 4944/11) challenging the Board's directions of closure. The Jharkhand High Court has passed interim order on 25.08.2011 that "Till then, status quo, as on today, shall be maintained by the parties" and passed order on 18.01.2012 that "Until further orders, the interim order dated 25.08.2011 shall continue". In the light of interim orders of the Jharkhand High Court, the State Pollution Control Board is seeking legal opinion for initiating legal action against the collieries of BCCL in the Court of Law in terms of the OM of the MoEF. The State Government has been asked to expedite taking legal opinion and taking action under intimation to the MoEF.

4. The proposal was considered in the Expert Appraisal Committee (EAC) (Thermal & Coal Mining) and recommended in its 55th meeting held on 27-28 August, 2012 for granting Environmental Clearance. The Ministry of Environment & Forests has examined the application in accordance with the EIA Notification 2006 and under the provisions thereof, hereby accords environmental clearance for the above-mentioned Cluster III of M/s Bharat Coking Coal Ltd. consisting of 7 mines of a peak prodn. of 3.6 MTPA in a combined ML area of 1420.61 ha located in Jharia Coalfields under the provisions of the Environmental Impact Assessment Notification, 2006 and amendments thereto and Circulars issued thereon and subject to the compliance of the following specific conditions, in addition to the general conditions:

A. Specific Conditions

- i. The maximum production from the two opencast sections in the cluster shall not exceed beyond that for which environmental clearance has been granted for the cluster III as per given below:

S.No	Mines in Cluster III	Normative Prod. Capacity (MTPA)	Peak Prod. Capacity (MTPA)
1	New Akashkinaree Mine - Opencast Section	1.000	1.300

2	Block-IV/Kooridih Mine - Opencast Section	1.100	1.430
	Total	2.10	2.73

- ii. The measure to identify in the Environmental Plan for Cluster- III groups of mine and the conditions given in this environmental clearance letter shall be dovetailed to the implementation of the Jharia Action Plan.
- iii. The proponent shall prepare time -series maps of the Jharia Coalfields through NRSA to monitor and prevent fire problems in the Jharia Coalfields by Isothermal mapping /imaging and monitoring temperatures of the coal seams (whether they are close to spontaneous ignition temperatures) and based on which, areas with potential fire problems shall be identified. Measures to prevent ingress of air (Ventilation) in such areas, to prevent restart fresh/spread fires in other areas including in mines of cluster II shall be undertaken. Expertise available internationally could also be utilised for control of fire in Jharia Coalfields and for their reclamation and to further minimize time for fire and subsidence control. Isothermal mapping using thermal imaging has been got done by NRSA. Measures would be taken to prevent ingress of air (ventilation) in such areas, which may re-start fresh fires.
- iv. Underground mining should be taken up after completion of reclamation of Opencast mine area.
- v. The OB material should be crushed like sand and be used for stowing in underground mines.
- vi. A detailed calendar plan of production with plan for OB dumping and backfilling (for OC mines) and reclamation and final mine closure plan for each mine of cluster-III shall be drawn up and implemented. The schedule of backfilling should be clearly brought out and submit the same to MoEF.
- vii. 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 stabilised with plantation so as to withstand the peak water flow and prevent mine inundation.
- viii. The rejects of washeries in Cluster –II should be send to FBC based plant.
- ix. No mining shall be undertaken where underground fires continue. Measure shall be taken to prevent/check such fire including in old OB dump areas where the fire could start due to presence of coal/shale with sufficient carbon content.
- x. There shall be no external OB dumps. OB produce from the whole cluster will be 80Mm³. OB from 2 OCP in mixed mines shall be backfilled. At the end of the mining there shall be no void and the entire mined out area shall be re-vegetated. Areas where opencast mining was carried out and completed shall be reclaimed immediately thereafter. It was observed that most of the OBs are not reclaimed and abandoned. The proponent should dump all the OB material in abandoned mines.
- xi. Number of voids present in cluster – III at the end of mining should be backfilled upto ground level and no void should be left at the end of mining.
- xii. A detailed calendar plan of production with plan for OB dumping and backfilling (for OC mines) and reclamation and final mine closure plan for each mine of cluster-III shall be

drawn up and implemented. The schedule of backfilling should be clearly brought out and submit the same to MoEF.

- xiii. Mining shall be carried out as per statuette from the streams/nalas flowing within the lease and maintaining a safe distance from the Nalas flowing along the lease boundary. A safety barrier of a minimum 60m width shall be maintained along the nalas/water bodies. The small water bodies in OC shall be protected to the extent feasible and the embankment proposed along water body shall be strengthened with stone pitching. Active OB dumps near water bodies and rivers should be rehandled for backfilling abandoned mine voids. However, those which have been biologically reclaimed need not be disturbed.
- xiv. Active OB dumps near water bodies and rivers should be rehandled for backfilling abandoned mine voids. However, those which have been biologically reclaimed need not be disturbed.
- xv. Thick green belt shall be developed along undisturbed areas, mine boundary and in mine reclamation. A total area of 854.72 ha shall be reclaimed and afforested.
- xvi. Details of transportation, CSR, R&R and implementation of environmental action plan for the clusters-II should be brought out in a booklet form within a year and regularly updated.
- xvii. Specific mitigative measures identified for the Jharia Coalfields in the Environmental Action Plan prepared for Dhanbad as a critically polluted area and relevant for Cluster III shall be implemented.
- xviii. The locations of monitoring stations in the Jharia Coalfields should be finalised in consultation with the Jharkhand State Pollution Control Board. The Committee stated that smoke/dust emission vary from source to source (fuel wood, coal, flyash from TPPs, silica from natural dust, etc) and a Source Apportionment Study should be got carried out for the entire Jharia Coalfields. Mineralogical composition study should be undertaken on the composition of the suspended particulate matter (PM₁₀ and PM_{2.5}) in Jharia Coalfields and also quantified. These studies would help ascertain source and extent of the air pollution, based on which appropriate mitigative measures could be taken.
- xix. The Plan for conveyor-cum-rail for Cluster-III should be dovetailed with Jharia Action Plan. The Committee desired that road transportation of coal during Phase-I should be by mechanically covered trucks, which should be introduced at the earliest. Coal dispatch shall be diverted from the present rail sidings to Rapid Loading System (RLS) soon after the construction and commissioning of the RLS at Maheshpur is completed. The railway siding order issued and same would come in 3 years. The details of same should be provided to ministry. The mode of transportation of coal by truck till Railway Siding should be by mechanically covered trucks
- xx. 3756 nos of PAF's should be rehabilitated at cost of **Rs 27012.66 Lakhs** as per the approved Jharia Action Plan.
- xxi. Regular monitoring of groundwater level and quality of the study area shall be carried out by establishing a network of existing wells and construction of new piezometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality including Arsenic and Fluoride during the month of May. Data thus collected shall be submitted to the Ministry of Environment & Forest and to the Central Pollution Control Board/SPCB

quarterly within one month of monitoring. Rainwater harvesting measures shall be undertaken in case monitoring of water table indicates a declining trend.

- xxii. 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.
- xxiii. Sufficient coal pillars shall be left unextracted around the air shaft (within the subsidence influence area) to protect from any damage from subsidence, if any.
- xxiv. High root density tree species shall be selected and planted over areas likely to be affected by subsidence.
- xxv. Depression due to subsidence resulting in water accumulating within the low lying areas shall be filled up or drained out by cutting drains.
- xxvi. Solid barriers shall be left below the roads falling within the blocks to avoid any damage to the roads.
- xxvii. No depillaring operation shall be carried out below the township/colony.
- xxviii. A detailed CSR Action Plan shall be prepared for Cluster III group of mines. Specific activities shall be identified for CSR for the budget of Rs 139 Lakhs per year @ Rs 5/T of coal provided for CSR for 2012-2013 and Rs. 5/T of coal as recurring expenditure. The 491.91ha of area within Cluster III ML existing as waste land and not being acquired shall be put to productive use under CSR and developed with fruit bearing and other useful species for the local communities. Third party evaluation shall be got carried out regularly for the proper implementation of activities undertaken in the project area under CSR. Issue raised in the Public Hearing shall also be integrated with activities being taken up under CSR. The details of CSR undertaken along with budgetary provisions for the village-wise various activities and expenditure thereon shall be uploaded on the company website every year. The company must give priority to capacity building both within the company and to the local youth, who are motivated to carry out the work in future. The gap/space available between the entire mine area should be suitably planted with native species. Plantation should also be made in vacant area and along the road side so as to reduce dust pollution.
- xxix. Central recreation park with herbal garden should be developed for use of all inhabitants.
- xxx. The mine water should be treated properly before supply to the villager.
- xxxi. Details of transportation, CSR, R&R and implementation of environmental action plan for each of the clusters-III should be brought out in a booklet form within a year and regularly updated.
- xxxii. Central recreation park with herbal garden should be developed for use of all inhabitants
- xxxiii. The mine water should be treated properly before supply to the villager
- xxxiv. Details of transportation, CSR, R&R and implementation of environmental action plan for each of the clusters-III should be brought out in a booklet form within a year and regularly updated.

- xxxv. Mine discharge water shall be treated to meet standards prescribed standards before discharge into natural water courses/agriculture. The quality of the water discharged shall be monitored at the outlet points and proper records maintained thereof and uploaded regularly on the company website.
- xxxvi. No groundwater shall be used for the mining activities. Additional water required, if any, shall be met from mine water or by recycling/reuse of the water from the existing activities and from rainwater harvesting measures. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry to dewatering of mine.
- xxxvii. The void shall be converted into a water reservoir of a maximum depth of 15-20 m and shall be gently sloped and the upper benches of the reservoir shall be stabilised with plantation and the periphery of the reservoir fenced. The abandoned pits and voids should be backfilled with OB and reclaimed with plantation and or may be used for pisciculture.
- xxxviii. Regular monitoring of groundwater level and quality of the study area shall be carried out by establishing a network of existing wells and construction of new peizometers. 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 including Arsenic and Fluoride during the month of May. Data thus collected shall be submitted to the Ministry of Environment & Forest and to the Central Pollution Control Board/SPCB quarterly within one month of monitoring. Rainwater harvesting measures shall be undertaken in case monitoring of water table indicates a declining trend.
- xxxix. ETP shall also be provided for workshop, and CHP, if any. Effluents shall be treated to confirm to prescribed standards in case discharge into the natural water course.
- xl. The location of monitoring stations in the Jharia coalfield should be finalized in consultation with Jharkhand State Pollution Control Board.
- xli. For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhubaneswar.
- xlii. A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests five year before mine closure for approval. Habitat Restoration Plan of the mine area shall be carried out using a mix of native species found in the original ecosystem, which were conserved in-situ and ex-situ in an identified area within the lease for reintroduction in the mine during mine reclamation and at the post mining stage for habitat restoration.
- xliii. A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests five year before mine closure for approval. Habitat Restoration Plan of the mine area shall be carried out using a mix of native species found in the original ecosystem, which were conserved in-situ and ex-situ in an identified area within the lease for reintroduction in the mine during mine reclamation and at the post mining stage for habitat restoration. the mining plan and post-mining plan, closure plan should be prepared and submitted to the Ministry;
- xliv. A separate management structure for implementing environment policy and socio-economic issues and the capacity building required in this regard.

xlv. Corporate Environment Responsibility:

- a) The Company shall have a well laid down Environment Policy approved by the Board of Directors.
- b) The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
- c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.
- 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.

B. General Conditions

- i. No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.
- ii. No change in the calendar plan of production for quantum of mineral coal shall be made.
- iii. Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM₁₀, PM_{2.5}, SO₂ 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.
- iv. Data on ambient air quality (PM₁₀, PM_{2.5}, SO₂ 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 Regional Office at Bhubaneswar 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 recognised under the EPA rules, 1986 shall be furnished as part of compliance report.
- v. Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.
- 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 19th May 1993 and 31st December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.
- vii. Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.

- 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 analysed through a laboratory recognised under EPA Rules, 1986.
- ix. Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.
- x. Occupational health surveillance programme 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.
- 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.
- 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 at Bhubaneswar.
- xiii. The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution control Board and may also be seen at the website of the ministry of Environment & Forests at <http://envfor.nic.in>.
- xiv. A copy of the environmental clearance letter shall be marked to concern Panchayat/Zila Parishad, Municipal Corporation or Urban local body and local NGO, if any, from whom any suggestion/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on company's website.
- xv. A copy of the environmental clearance letter shall be shall also be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Sector and Collector's Office/Tehsildar's Office for 30 days.
- xvi. The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated environmental clearance conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in public domain. The monitoring data of environmental quality parameter (air, water, noise and soil) and critical pollutant such as PM10, PM2.5, SO₂ 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.

- xvii. The project proponent shall submit six monthly compliance reports on status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the Ministry, respective Zonal Office s of CPCB and the SPCB.
- xviii. The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance 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.
- xix. The Environmental statement for each financial year ending 31 March in For –V is mandated to be submitted by the project proponent for the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the compan’s website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MoEF by E-mail
5. The Ministry or any other competent authority may stipulate any further condition for environmental protection.
6. Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract the provisions of the Environment (Protection) Act, 1986.
7. The above conditions will be enforced *inter-alia*, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and Rules. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations.
8. The Environmental Clearance is subject to the outcome of the Writ Petition filed by M/S Bharat Coking Coal Limited (BCCL) in response to the closure orders issued by the Jharkhand State Pollution Control Board which is pending in the Jharkhand High Court.

(Dr. Manoranjan Hota)
Director
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Copy to:

1. Secretary, Ministry of Coal, Shastri Bhawan, New Delhi.
2. Secretary, Department of Environment & Forests, Government of Jharkhand, Secretariat, Ranchi.
3. Chief Conservator of Forests, Regional office (EZ), Ministry of Environment & Forests, A-31, Chandrashekarpur, Bhubaneswar – 751023.
4. Chairman, Jharkhand State Pollution Control Board, T.A. Division Building (Ground Floor), H.E.C., Dhurwa, Ranchi – 834004.

5. Chairman, Central Pollution Control Board, CBD-cum-Office Complex, East Arjun Nagar, New Delhi -110032.
6. Member-Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, New Delhi.
7. District Collector, dist. Dhanbad Government of Jharkhand.
8. Monitoring File 9. Guard File 10. Record File

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