

No. J-11015/183/2011-IA.II (M)
Government of India
Ministry of Environment & Forests

Paryavaran Bhawan,
CGO Complex, Lodhi Road,
New Delhi-110003
Dated: 26th August, 2013

To,

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

Sub. : Cluster VI mines (2 OC mines, 1 UG and 1 mixed mine of a combined production capacity of 5.87 MTPA with a peak capacity of 7.631 MTPA in a combined ML area of 876.55 ha) of M/s Bharat Coking Coal Ltd., located in Jharia Coalfields, Dist. Dhanbad, Jharkhand - Environment Clearance –reg.

Sir:

This is with reference to letter no.43011/29/2011-CPAM dated 21.07.2011 along with the application for Terms of Reference (TOR) and this Ministry's letter dated 30.09.2011 granting TOR. Reference is also invited to the letter No. CIL/DLI/EMP-TOR/2012-19 dated 10.01.2013 and subsequent letters no. dated 24.04.2013; 08.06.2013; 20.06.2013; 02.07.2013 for environmental clearance on the above-mentioned subject.

2. The Ministry of Environment & Forests has considered the application. The project was considered in the 73rd Expert Appraisal Committee (EAC) (Thermal & Coal Mining) meeting held on 6th -7th May, 2013. It is noted that the proposal is for grant of Environmental Clearance for **Cluster VI mines (2 OC mines, 1 UG and 1 mixed mine of a combined production capacity of 5.87 MTPA with a peak capacity of 7.631 MTPA in a combined ML area of 876.55 ha) of M/s Bharat Coking Coal Ltd., located in Jharia Coalfields, Dist. Dhanbad, Jharkhand.** The proponent has informed that:

- i. The proposal is for Cluster VI mines (2 OC mines, 1 UG and 1 mixed mine of a combined production capacity of 5.87 MTPA with a peak capacity of 7.631 MTPA in a combined ML area of 876.55 ha) of M/s Bharat Coking Coal Ltd., located in Jharia Coalfields, Dist. Dhanbad, Jharkhand.
- ii. The proposal is neither new nor expansion. This project is the cluster VI group of mines which consists of 4 mines 2 OC, 1 UG and 1 UG-cum-OC mine, of which one mine is closed. The combined production capacity of the cluster is 5.87 MTPA with a peak capacity of 7.631 MTPA in a combined ML area of 876.55 ha. This cluster consists of mines which are taken over by BCCL from private mine owners after nationalization through Coal Mines Nationalization Act, 1972-73.

- iii. The Ministry issued the TOR vide letter no J-11015/183/2011-IA.II (M) on 30th September, 2011.
- iv. Details of mine are as under:

MINES IN CLUSTER- VI						
S.No	Name of Mine	OC/UG	Production capacity (MTPA)		ML Area (ha)	Life of Mine (years)
			Normative	Peak		
1	East Bassuriya Colliery	OC	1.500	1.950	141.07	10
2	Bassuriya Colliery	UG	0.120	0.156	162.76	>30
3	Gondudih Khas Kusunda Colliery	OC	2.000	2.600	410	25
4.	Godhur Colliery	OC	2.000	2.6	162.72	18
		UG	0.250	0.325		>30
	Total		5.87	7.631	876.55	

- v. The land usage of the project for Pre-mining & Post- Mining are as follows:

COMBINED LAND USE OF CLUSTER -VI			
S.no	Type Land Use	Present Mining Land Use (ha)	Post- mining Land Use (ha)
1.	Running quarry		
	Backfilled	6.00	0.00
	Not Backfilled	46.16	0.00
2.	Abandoned quarry		
	Backfilled	92.36	0.00
	Not Backfilled	41.58	0.00
3.	External OB dump	32.84	0.00
4.	Service building/ mine infrastructure	25.29	0.00
5.	Coal dump	4.66	0.00
6.	Rail & Road	84.68	25.32
7.	Homestead land	120.12	39.52
8.	Agriculture land	0.00	0.00
9.	Forest land	0.00	0.00
10	Plantation	11.00	445.87
11.	Water body	25.25	92.01
12	Barren land	386.61	273.83
	Total	876.55 (851.26)	876.55

- vi. The total geological reserve is 209.341 MT. The mineable reserve is 151.16 M, The per cent of extraction would be 72 %.
- vii. The method of mining in these mines shall be by Bord & Pillar in underground and Shovel dumper combination in opencast as stated in the EIA and EMP document.
- viii. Mine areas is drained in the west by seasonal Ekra Nala flowing southerly and join Jarian nala and finally meet Katri River. In the east, mine area drained by Kari Jore (flowing southerly. Both Katri River and Kari Jore are tributaries of Damodar River flowing easterly at a distance of 8.50 km from cluster boundary towards south.

- ix. The total estimated water requirement is 3811 m³/d. The potable water would be 1205 m³/d from bore well & industrial water 2606 m³/d from mine sump and surface reservoir. The level of ground water ranges from 3.20 to 3.60 m.
- x. The Method of mining would be mixed, Opencast & Underground mine. Opencast by shovel dumper combination requiring drilling and blasting & underground by Bord & Pillar method.
- xi. There are 8 external OB Dumps covering an area of 32.84 Ha. The height for both the dumps would be 16 m and the total quantity would be of 5.247 Mm³. There is no internal dump. The final mine voids will have an area of 66.76 ha with depth of 25 m bgl.
- xii. **Subsidence Prediction:** Considering the geo-mining parameters as provided by Colliery Authority, subsidence prediction study has been done for the panels and it is proposed to be depillared in mine projection plans for different seams.. The site specific subsidence parameters, e.g. subsidence factor, angle of draw, non-effective width of the panels are not available for the mine. These values have been taken from subsidence data observed in nearby coalfields having similar geo-mining conditions. The anticipated maximum subsidence likely to occur over the mining area is 0.16m. The maximum possible slope and tensile strain likely to occur are 10.40 mm/m and 5.46 mm/m respectively. Surface cracks are likely to develop due to subsidence over the mining area which will be filled up properly and regularly by clay and stone chips (by dozing and compacting back filled dump areas) and thereafter with about 0.3m high clay heap over the cracks.
- xiii. **Fire mitigation measures:** The Jharia Master Plan, which consists of all the fire dousing projects/ plans, has been vetted by DGMS will be implemented. CMPDI, prepares fire dousing schemes submits to DGMS for approval. DGMS is also a 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
 - a) Master Plan for dealing with fire, subsidence & rehabilitation: Out of 595 unstable sites identified in the Master Plan, 18 sites affected area of 0.28 KM² consisting of 1387 no. of houses/families are affected. The affected families will be rehabilitated in adjacent non coal bearing area at a cost of Rs. 10768.17 lakhs.
 - b) R&R package, for the affected people who are to be shifted from endangered areas, has been proposed in the Master plan which has been approved both by Govt. of Jharkhand and Govt. of India. However, no employment will be offered for any rehabilitation under this Master Plan. R&R package is offered for safety of the people living in endangered areas and not for project implementation and mining of coal and thereby gaining any type of profit. The affected families will be rehabilitated & resettled in Nagrikalan and Tilatanr mouzas.
- xiv. The seasonal data for ambient air quality has been documented for summer season (February 2012 to April 2012) and results at all stations are within prescribed limits.
- xv. The life of mine is 10-30 years. Maximum depth of the mines ranges from 141 to 190m. At the end of mine life, an area of 32.84 ha of the present external O.B. dump would be backfilled.
- xvi. **Transportation:** The transportation of coal from mine is currently by road to the siding. The existing Road-Rail transport network system is proposed to continue in view of the implementation of the Jharia Action Plan (for 10 years) and another 5 years gestation period after the completion of Jharia Action Plan for consolidation of the backfilled dug out fire areas and unstable areas is required. Thus the period of 15

years make the Phase-I. All mitigation measures (like covered trucks, green belting on either sides of the roads, enhanced water sprinkling, strengthening and maintaining the roads etc.) shall be adopted up to 15 years with the existing road-rail transport system. In Phase-II (after 15 years), BCCL shall implement conveyor-cum-rail transport to avoid movement of trucks within the cluster for coal transportation in Phase-II which shall start after 15 years from now wherein it is proposed to carry all coal transport by Rail and Conveyor belt, minimising the existing road transport system in all the mines of the cluster and would continue after 15 years. Loading of coal by pay loaders shall be discontinued. Adequate number of suitably designed off-take points shall be provided.

- xvii. No R&R is involved. No of PAFs is 1387
- xviii. **CSR Activity:** BCCL is formulating a detailed Corporate Social Responsibility (CSR) Action Plan through Tata Institute of Social Sciences (TISS), Mumbai which will consist of need-based base-line survey, CSR Action Plan, CSR Auditing and monitoring mechanism etc. Director (Per.), BCCL along with a team visited TISS/ National CSR Hub, Mumbai on 1st Jun, 2012 for finalising the MoU with TISS and National CSR Hub for conducting base-line survey, empanelment of NGOs and formulating the project specific CSR action plan for BCCL. The Action Plan for Corporate Social Responsibility will include 5% of the retained earnings of the previous year subject to minimum of Rs. 5 per tonne of coal production of the previous year will be provided for Corporate Social Responsibility (CSR), an amount of Rs. 381.55 lakhs/year has been year marked for the CSR activities.
- xix. **Cost:** Total capital cost of the project is Rs. 62.37 Crore. The CSR cost is as per the latest CIL's Policy, the company will spend 5% of the retained earnings of the previous year subject to a minimum of Rs. 5/- per tonne of coal production. R&R Cost Rs. 10768.17 Lakhs. Environmental Management recurring cost is Rs. 399.00 lakhs per year.
- xx. **Approvals:** Applied for CGWB on 27.11.2012 which is awaited. The Mine Closure Approval is under process. Since the collieries / mines of BCCL are taken over from the erstwhile private owners, the mine does not have structured mining plans.
- xxi. The Board's approval is not required as old mines taken over hence not required.
- xxii. **Wildlife issues:** There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.
- xxiii. **Forestry issues:** No forest area is involved for mining.
- xxiv. Total Afforestation plan shall be implemented covering an area of 441.24 ha at the end of mining where reclaimed external OB dump 32.84 ha and internal OB Dump 120.34 ha. Green Belt over an area of 66.12 ha. Density of tree plantation 2500 trees/ha of plants.
- xxv. **Legal issues:** State Govt./Jharkhand State Pollution Control Board had issued closure orders for all the mines of BCCL in Aug., 2011 and March 2012 stating that BCCL is operating all its mines without the Environmental Clearance. BCCL had filed Writ Petition in the Hon'ble High Court of Jharkhand, Ranchi for legal relief against the closure of mines by JSPCB stating that BCCL had already initiated the process of Environmental Clearance in 2008 onwards. The cluster concept was approved in 2009 and that BCCL is completing all its EMP process well within the validity periods of two years stipulated in the Terms of Reference (TOR). The court had taken cognizance of the facts and granted "Status Quo".
- xxvi. **Public Hearing:** The public hearing was held on 10.11.2012 at Dhanbad. The issues raised were regarding arrangement of drinking water, lighting arrangement, medical camp, employment, plantation, etc.

3. 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.

4. 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 vide its letter no. BCCL/(Env.)/F-EMP/13/710 dated 20.06.2013. 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".

Jharkhand State Pollution Control Board, vide its letter no. JSPCB/D-1894 dated 15.07.2013 has further informed that it has filed IA no. 505/13 in Hon'ble High Court, Ranchi to allow the Board to take legal action against collieries of BCCL for violation of terms of section 19 of the Environment (Protection) Act, 1986 in the light of Ministry of Environment and Forest, Govt. of India, New Delhi circular dated 16.11.2010 and also in view of the direction of the Ministry of Environment and Forests, Govt. of India, New Delhi as per the Environmental Clearance order. The Hon'ble High Court passed an order on 10.04.2013 and disposed of the IA mentioning "the petitioner is required to ensure all steps to obtain Environmental Clearance at the earliest and preferably within a period of three months. If the Environmental Clearance of the remaining clusters are not obtained within the next three months by the petitioner the respondent Board would be at liberty to bring it to the notice of this court for proper modification of the interim order". Being aggrieved by the said order the State Board has filed an LPA petition in the Hon'ble High Court.

5. The proposal was considered in the 73rd Expert Appraisal Committee (EAC) (Thermal & Coal Mining) meeting held on 6th-7th May, 2013 and recommended 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 VI mines (2 OC mines, 1 UG and 1 mixed mine of a combined production capacity of 5.87 MTPA with a peak capacity of 7.631 MTPA in a combined ML area of 876.55 ha) of M/s Bharat Coking Coal Ltd., located in Jharia Coalfields, Dist. Dhanbad, Jharkhand** 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 VI as per given below:

S.No	Name of Mine	OC/UG	Production capacity (MTPA)		ML Area (ha)
			Normative	Peak	
1	East Bassuriya Colliery	OC	1.500	1.950	141.07
2	Bassuriya Colliery	UG	0.120	0.156	162.76
3	Gondudih Khas Kusunda Colliery	OC	2.000	2.600	410
4.	Godhur Colliery	OC	2.000	2.6	162.72
		UG	0.250	0.325	
	Total		5.87	7.631	876.55

- ii. The two nallahs passing through the mines should be preserved and made functional to drain the water.
- iii. The coal transport to the siding will continue by road to the siding within 2 km with pay loader loading into Rly. Wagons for a period of 5 years by which time the proposed silo, in Rly. Siding not being affected in the Jharia Action Plan will be constructed for RLS loading into railway wagons.
- iv. As subsidence is on higher side in Godhur colliery, special attention should be given for control and monitoring of subsidence.
- v. All old dumps will be filled back in mine voids. At the end of mining there should not be any OBD and should be only one void which shall not exceed 30 mt deep.
- vi. An increase in in the CSR
- vii. Dhanbad Action Plan, as CEPI, be implanted where ever is applicable
- viii. Since the cluster is situated close to Dhanbad, thick green belt and residential areas should be done along the periphery of ML area. Avenue plantation should be done along the roads which are used for coal transport and measures to arrest coal dust while transporting by covering the trucks and water sprinkling measures etc.
- ix. Whereas laudable efforts have been made in drawing skill development programmes alongwith Planning Commission of GoI, all out efforts should be made to ensure that they are suitably employed either with the PP or elsewhere.
- x. The measure to identify in the Environmental Plan for Cluster- VI groups of mine and the conditions given in this environmental clearance letter shall be dovetailed to the implementation of the Jharia Action Plan.
- xi. 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 VI 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.
- xii. Underground mining should be taken up after completion of reclamation of Opencast mine area.
- xiii. The OB material should be crushed like sand and be used for stowing in underground mines.

- xiv. 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-VI shall be drawn up and implemented. The schedule of backfilling should be clearly brought out and submit the same to MoEF.
- xv. 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.
- xvi. 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.
- xvii. There shall be no internal OB dumps. There will be 8 external OB Dumps covering an area of 32.84 Ha. The height of the dumps shall be 16 m and the total quantity shall be of 5.247 Mm³. The final mine voids will have an area of 66.76 ha(Filled up with water). with depth of 25 m bgl. 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 reclaimed total area 441.24 ha at the end of mining where reclaimed external OB dump 32.84 ha and internal OB Dump 120.34 ha. Green Belt over an area of 66.12 ha. Density of tree plantation 2500 trees/ ha of plants which of and abandoned. The proponent should dump all the OB material i n abandoned mines.
- xviii. 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.
- xix. 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.
- xx. Thick green belt shall be developed along undisturbed areas, mine boundary and in mine reclamation.
- xxi. Specific mitigative measures identified for the Jharia Coalfields in the Environmental Action Plan prepared for Dhanbad as a critically polluted are and relevant for Cluster VI shall be implemented.
- xxii. The locations of monitoring stations in the Jharia Coalfields should be finalised in consultation with the Jharkhand State Pollution Control Board.
- xxiii. 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.
- xxiv. The Plan for conveyor-cum-rail for Cluster-VI 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
- xxv. 1387 nos of PAF's should be rehabilitated at cost of Rs 10768.17 Lakhs as per the approved Jharia Action Plan.
- xxvi. 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.
- xxvii. 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.
 - xxviii. High root density tree species shall be selected and planted over areas likely to be affected by subsidence.
 - xxix. Depression due to subsidence resulting in water accumulating within the low lying areas shall be filled up or drained out by cutting drains.
 - xxx. Solid barriers shall be left below the roads falling within the blocks to avoid any damage to the roads.
 - xxxi. No depillaring operation shall be carried out below the township/colony.
 - xxxii. A detailed CSR Action Plan shall be prepared for Cluster VI group of mines. As stated by the Proponent, it is formulating a detailed Corporate Social Responsibility (CSR) Action Plan through Tata Institute of Social Sciences (TISS), Mumbai which will consist of need-based base-line survey, CSR Action Plan, CSR Auditing and monitoring mechanism etc. Director (Per.), BCCL along with a team visited TISS/ National CSR Hub, Mumbai on 1st Jun, 2012 for finalising the MoU with TISS and National CSR Hub for conducting base-line survey, empanelment of NGOs and formulating the project specific CSR action plan for BCCL. The Action Plan for Corporate Social Responsibility will include 5% of the retained earnings of the previous year subject to minimum of Rs. 5 per tonne of coal production of the previous year will be provided for Corporate Social Responsibility (CSR), an amount of Rs. 381.55 lakhs/year has been year marked for the CSR activities.
 - xxxiii. The area within Cluster VI 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. A 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.
 - xxxiv. The mine water should be treated properly before supply to the villager.
 - xxxv. Details of transportation, CSR, R&R and implementation of environmental action plan for each of the clusters-VI should be brought out in a booklet form within a year and regularly updated.
 - xxxvi. Central recreation park with herbal garden should be developed for use of all inhabitants
 - xxxvii. 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.
 - xxxviii. 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.
 - xxxix. 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.
 - xl. 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.

- xli. ETP shall also be provided for workshop, and CHP, if any. Effluents shall be treated to conform to prescribed standards in case discharge into the natural water course.
- xlii. 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.
- 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.
- xliv. 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 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, PM_{2.5}, 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 company'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
6. The proponent shall abide by all the commitments and recommendations made in the EIA/EMP report so also during their presentation to the EAC.
7. The proponent is required to obtain all necessary clearances/approvals that may be required before the start of the project.
8. The Ministry or any other competent authority may stipulate any further condition for environmental protection.
9. 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.
10. 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.
11. 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 11. Notice Board

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