

No. J-11015/77/2011-IA.II (M)
Government of India
Ministry of Environment & Forests

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

To,

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

Subject: EC to Cluster XI group of mines (5.08 MTPA with a peak capacity of 6.604 MTPA) in a combined ML area of 3447.14 ha (3527.58 ha - 80.44 ha of forest land = 3447.14 ha) and Moonidih Washery (1.6 MTPA peak capacity) of M/s Bharat Coking Coal Limited, located in Jharia Coalfields, dist. Dhanbad - Environment Clearance –reg.

Sir,

This is with reference to letter no.43011/6/2011-CPAM dated 08.03.2011 along with the application for Terms of Reference (TOR) and this Ministry's letter dated 15.06.2011 granting TOR and modification of TOR dated 23.05.2012. Reference is also invited to the letter no. CIL/DIL/EMP-TOR/2012/20 dated 10.01.2013 for environmental clearance on the above-mentioned subject and subsequent letters no. BCCL/HOD/(Env.)/F-EMP/13/506 dated 02.05.2013; 24.04.2013; 06.06.2013; 08.6.2013; 02.07.2013; 15.07.2013 and BCCL/D(T)OP/F-13 dated 07.08.2013.

2. The Ministry of Environment & Forests has considered the application. The proposal was considered in the Expert Appraisal Committee (EAC) (Thermal & Coal Mining) in its 67th meeting held on 4th - 5th February, 2013 and recommended in its 69th meeting held on 25th March, 2013 for granting Environmental Clearance. It is noted that the proposal is for grant of Environmental Clearance for **Cluster XI (5.08 MTPA with a peak capacity of 6.604 MTPA in a combined ML area of 3527.58 ha) and Moonidih Washery (1.6 MTPA peak capacity) of M/s Bharat Coking Coal Limited, located in Jharia Coalfields, dist. Dhanbad, Jharkhand.** Cluster-XI group of mines of BCCL is a group of eight mines consisting of five operating underground, three closed underground mines and one washery (Moonidih washery). The proponent has informed that:

- i. The total mine lease area is 3527.58 ha. The mining operations are being continued as amalgamated collieries in Cluster-XI.

Sl. No.	Name of Mine	Production (MTY)		Leasehold Area (ha)	Life of the mine (Years)
		Normative	Peak		
1	Gopalichak UG Mine	0.11	0.143	241.94	> 30
2	KachhiBalihari 10/12 Pit UG Mine	0.09	0.117	60.00	19

EC_BCCL_Cluster XI

3	PB UG Project	0.80	1.040	89.00	> 30
4	Bhagabandh UG Mine	0.08	0.104	581.17	10
5	Kendwadih UG Mine (Closed)	Nil	Nil	217.54	--
6	Pootkee UG Mine (Closed)	Nil	Nil	153.77	--
7	KachiBalihari 5/6 Pit UG Mine (Closed)	Nil	Nil	120.17	--
8	Moonidih UG Mine	4.00	5.20	2063.45	>30
	Total	5.08	6.604	3527.58	
9	Moonidih Washery	1.60	1.60	0.27	--

ii. TECHNICAL PARAMETERS OF CLUSTER XI

Particulars	Name of the Mines									
	Gopalichak Colliery	Kachi Balihari 10/12 Pit UG Mine	PB Project UG	Bhaga bandh UG Mine	Kendwa diih UG Mine	Pootkee UG Mine	Kachi Baliohar i5/6 Pit UG Mine	Moonidih UG Mine	Moonidih Washery	Total
Lease area	241.94	60.00	89.00	581.17	217.54	153.77	120.71	2063.45	0.27 (with in LH of Monndidih UG)	3527.58
Life of Mine/Plant	12 years	22 years	> 30 years	9 years	Closed for production			> 50 years	18	
Method of mining	B & P	B & P	B & P,	B & P	-----	-----	-----	Longwall		
Production 1993-94(in MT)	0.20	0.13	0.20	0.18	-----	0.08	0.06	0.07	-	0.92
Production 2011-12 in	0.1	0.038	0.114	0.049	Closed for production			0.131	0.653	0.432
Proposed Peak Production in MTPA	0.143	0.117	1.04	0.104	-----	-----	-----	5.2	1.60	6.604

TECHNICAL PARAMETERS OF CLUSTER XI Contd..

Particulars	Gopalichak Colliery	Kachi Balihari 10/12 Pit UG Mine	PB Project UG	Bhagabandh UG Mine	Moonidih UG Mine	Moonidih Washery
Manpower	678	678	1859	871	1518	389
Ventilation	P-v200 Exhaust	PV 200 & AF 80	VF-3000 & AF-80	PV 200	MV2-3 Double stage	

Seam gradient	1 in 8/1 in 9.8	1 in 5.5	1 in 6	1 in 7	1 in 6	
Mineable Reserve (MT)	1.14	1.99	32.23	3.94	28.385+152.75	
Linkage	Moonidih Washery	Moonidih Washery	Moonidih Washery	Moonidih Washery	Moonidih Washery	Steel & Power Plants
Grade of Coal	W- II/IV	ST-II	W-I	ST-I	W-II	
Seams to be worked	IX (geo-viii) /X Seams	XV Seam	XII/XI	XV	XVI(T)/ XVI(B)/ XV(T) , XV(B), XV(Com)	
Max. depth	236	300	480	260	680(existing) 820(proposed)	
Cost of Production (Rs/te)	25808.60	5509.57	5509.57	5509.57	12385.76	8553.90
Selling Price- (Rs./ Te) (2011-12)	2542.82	3890	3890	3890	2609.00	Clean : 8410.79 Power : 1189.96

iii. **PRODUCTION OF COAL OF CLUSTER XI MINES DURING 1993-94 and LAST 5 YEARS**

Coal Production in MT									
Year	Gopalik ak Colliery	Kachi Balihari 10/12 Pit UG Mine	PB Project UG	Bhagaba ndh UG Mine	Kendwadi h UG Mine	Pootke e UG Mine	Kachi Baliolari 5/6 Pit UG Mine	Moonidih UG Mine	Total
1993-94	0.20	0.13	0.20	0.18	---	0.08	0.06	0.07	0.92
2007-08	0.11	0.04	0.20	0.05	-----			0.20	0.59
2008-09	0.01	0.04	0.19	0.04	-----			0.17	0.45
2009-10	0.03	0.03	0.17	0.04	-----			0.20	0.48
2010-11	0.04	0.04	0.12	0.05	-----			0.17	0.42
2011-12	0.10	0.04	0.11	0.05	-----			0.13	0.43

iv. **LIST OF 4 FIRE AFFECTED HABITATED SITES WITH FIRE DOUSING PROJECTS/ PLAN IN CLUSTER XI**

Sl. No	Colliery	Site name & no.	No. of Houses Total	Rehab Cost (Rs Lacs)
1	Kenduadih	East of Hindi Bhawan / 16	41	102.64
2	Kenduadih	LabourDhowra/17	12	45.00
3	Kenduadih	4 Pit Ghansadih Colliery Qtrs./20	58	153.64
4	Kenduadih	Ghansadih/14	249	596.78

Sl.no	Total habitated Unstable Sites	82 no.
1.	Total habitated area affected	5685851m ²
2.	Habitated area affected by fire	89150 m ²
3.	Habitated sites affected by fire	4 nos
4.	No. of Houses to be rehabilitated	16944 no. as per JAP
5.	Land for Resettlement	BCCL 83.56 Ha
		Non BCCL 201.87 Ha
6.	Total Cost of resettlement	Rs. 53776.60 lakhs
7.	Cost of fire dealing	Rs 91.57 Crs

v. Master Plan for Dealing with Fire, Subsidence & Rehabilitation

The mines in the cluster have been severely affected by fire and subsidence mainly due to unscientific mining prior to nationalization. Out of 595 unstable sites identified in the Master Plan, 82 sites of affected area of 5.69 Km² consisting of 16944 no. of houses/families are affected. The affected families will be rehabilitated in adjacent non coal bearing area at a cost of Rs. 53776.60 lakhs. R&R package will be given to affected families as per approved Master Plan. R&R package is offered for safety of the people living in endangered areas.

vi. Rehabilitation requirements in Cluster XI under the Master Plan

Phase: 1

No. of sites	Affected Area (Sq.m.)	No. of Houses					Land for Resettlement		Total Amount (Rs. in Lakhs)
		BCCL	Pvt.	Enchr.	Oth.	Total	BCCL (ha)	Non BCCL (ha)	
39	1853690	1509	1204	5355	79	8147	24.22	102.14	22078.64

Phase: 2

No. of sites	Affected Area (Sq.m.)	No. of Houses					Land for Resettlement		Total Amount (Rs. in Lakhs)
		BCCL	Pvt.	Enchr.	Oth.	Total	BCCL (ha)	Non BCCL (ha)	
39	1853690	1509	1204	5355	79	8147	24.22	102.14	22078.64
Total (Ph-1 + Ph-2)									
82	5685851	5218	3656	7933	137	16944	83.56	201.87	53776.6

vii. ENVIRONMENTAL ISSUES-MITIGATION & BENEFITS: CLUSTER XI

Major Env. issues	Mitigation measures & Benefits
Voids (14.43 Ha.)	14.43 Ha. Water body
Fire/Unstable area (82 sites with 5.69 sq km consisting of 16944 families)	Dig out fire at cost of Rs. 91.57 Crs and rehabilitate affected families at cost of Rs. 53776.60 lakhs

Loss of coal (10% locked in barriers)	Recover 22.043 MT of coal from barriers
Reclamation/Mine closure	Plantation in 254.67 Ha. At a cost of Rs. 140.33lakhs (Fund allocation for mine closure as per MoC guideline and adopted by BCCL @ Rs.1 lakh/Ha. in case of U/G mines and Rs.6 laks/Ha. in case of OCP mines)
CSR	(Fund allocation for CSR as per CIL guideline and adopted by BCCL @ Rs. 5/Tonne of Coal produced

viii. COMBINED LAND USE OF CLUSTER-XI

Sl.No.	Type of land use	Present mining land use (in Ha)	Post-mining land use (in Ha)
1	Running Quarry		
	Backfilled	0	0
	Not Backfilled	0	0
2	Abandoned Quarry		
	- Backfilled	19.24	0
	- Not Backfilled	14.43	0
3	External OB dump	0	0
4	Service building/ Mine Infrastructure	148.41	0
5	Coal dump	7.47	0
6	Homestead Land	621.68	53.1
7	Agricultural Land	794.57	794.57
8	Forest Land	80.44	80.44
9	Plantation / reclamation	185.6	440.27+ 568.58
10	Water Body	92.11	106.54
11	Barren Land	1375.47	1313
12	Fire area	17.08	0
13	Others (rail/road etc.)	171.08	171.08
	Total	3527.58	3527.58

ix. Stage-wise (cumulative) Land use for Reclamation Area (ha)

Land use Category	Present (1 st Year)	5 th Year	10 TH Year	30 th Year	Post Mining
Backfilled Area (Reclaimed with plantation)	3	15	19.24	19.24	19.24
Excavated Area /void (backfilled and Reclaimed with plantation)	-	-	-	-	-
External OB dump (Reclaimed with plantation)	-	-	-	-	-

Reclaimed Top soil dump	Included in OB dump				
Green Belt Area	2	10	20	20	20
Undisturbed area (brought under plantation)	2	11	27	59.55	59.55
Roads (avenue plantation)	Included in green belt area				
Area around buildings and Infrastructure	4	22	49.6	84.9	155.88
TOTAL	11	58	115.84	183.69	254.67

x. Conceptual Land Use of Cluster XI

Land Use Classification	Post Mining Land use (Ha)				TOTAL
	Plantation	Water Body	Public Use	Undisturbed	
Top Soil Dump					0
External Waste Dump					0
Excavation (backfilling)	19.24	14.43			33.67
Road & Rail				171.08	171.08
Built up area (Infrastructure, Coal Dump)	155.88			621.69	777.57
Afforestation				185.6	185.6
Water Body				92.11	92.11
Undisturbed Area	79.55			2188.01	2267.56
TOTAL	254.67	14.43	0	3258.49	3527.59

- xi. Coal Transportation Scheme:** It is proposed to continue the existing Road-Rail transport network system in view of the implementation of the Master Plan (for 10 years) and another 5 years gestation period after the completion of Master 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, 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. It is proposed to carry all coal transport by Rail and Conveyor belt, minimizing 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. As suggested by the Committee adequate number of suitably designed off-take points shall be provided.
- xii.** The treated mine discharge water will be gainfully utilised for industrial (dust suppression, green belt development etc.) and Domestic purposes. Excess mine water, after treatment will be discharged into local nala with check dam for artificial recharge to the groundwater system. BCCL will monitor the impact of mining on ground water levels and quality throughout the life of the project. The project will provide necessary water supply arrangement to the affected habitations and improve the ground water recharge.
- xiii. The impact on Ground water level** will be minimized by artificial recharge by spreading of pumped out treated mine water; creation and filling of ponds; construction of rain water harvesting structures.
- xiv.** Subsidence prediction study has been done for the panels as proposed to be depillared in mine projection plans for different seams and considering the geo-mining parameters as provided by Colliery Authority.

- xv. The anticipated maximum subsidence likely to occur over the mining area due to extraction of XV, XII, XI, X and IX seams are 0.33m, 0.21m, 0.23m, 0.21m and 0.32m respectively, which would occur over the panel KB-XV-C of Katchi Balihari mine, SB-XII-9/PB-XII-8 of PB Project, SB-XI-2/PB-XI-4 of PB Project, G-X-IV of Gopali chak mine and G-IX-H of Gopali chak mine of respective seams. The maximum possible slope and tensile strain likely to occur over the mining area are 3.33 mm/m and 1.75 mm/m respectively which would occur over the panel G-IX-L of Gopali chak UG Mine. Such values of slope and strain are well within the permissible limit for damaging impact on most of the surface features.
- xvi. River Damodar flows at the southern periphery, Jarain/Katri nallah at the western boundary and ari jore at the eastern boundary.
- xvii. Total geological reserve is 1425 Mt. of which mineable reserve is 950 Mt. The percent of extraction will be 67%.
- xviii. Mining would be by longwall mining.
- xix. Final mine Voids covers an area of 14.43 ha (Filled up with water) with a depth up to 30 m.
- xx. The life of mine is 18 years at the present rate of production.
- xxi. The Cost of the project is Rs. 1747.715 Cr. The R&R cost is Rs 537.7660 Cr. The environment management cost is Rs. 2.63145 Cr. For CSR Cost: company will spend 5 % of the retained earnings of the previous year subject to a minimum of Rs. 5/- per tonne of coal production.
- xxii. The project was approved by WCL Board on 03.07.2011 & 02.07.2012 for Moonidih XV seam/ XVI Seam.
- xxiii. Mine closure approval is under process.
- xxiv. Baseline data has been generated from February 2012 to April 2012 in pre-monsoon season. The results are within limit.
- xxv. **Reclamation :** Total afforestation plan shall be implemented covering an area of 254.67 Ha at the end of mining which includes ; Internal dump after physical reclamation 19.24 ha, Green belt is : 20 ha, Density of tree plantation will be 2500/ha, Void at a depth of which is proposed to be converted into water body is 14.43 ha
- xxvi. **Corporate Social Responsibility:** 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.
- xxvii. Once the base-line survey and the CSR Action Plan are completed by TISS, BCCL shall identify suitable NGO's and other agencies shall be involved in the implementation of the CSR activities.
- xxviii. **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 M/s BCCL is operating all its mines without the Environmental Clearance. BCCL had approached and filed Writ Petition in the Hon'ble High Court of Jharkhand, Ranchi for legal relief against the closure of mines by JSPCB with the following facts that BCCL had already initiated the process of Environmental Clearance in 2008 onwards and was approved the cluster concept in 2009. M/s BCCL is completing all its EMP process well within the validity periods of two years stipulated in the Terms of Reference (TOR). Further all the mines of BCCL are infected by coal fires and a PIL case is being dealt in this regard in the Hon'ble Supreme Court of India. By closing the mines, the fires will not stop and shall aggravate and cause more devastation and pollution. The court had taken cognizance of the facts and appreciating the sincere efforts of M/s BCCL in obtaining the Environmental Clearance had granted "Status Quo" to be observed and admitted the case i.e. No. WP(C) 4944/2011.
- xxix. No excess production beyond the EC sanctioned committed.
- xxx. **Wildlife issues:** There are no National parks, wildlife Sanctuary, Biosphere Reserves located within the core zone and in the 10 km buffer zone.
- xxxi. **Forestry issues:** No forest land is involved for mining purposes. However, the ML area has forest land within the project (including safety zone and all types of forest land) to the tune of 80.44 ha.

xxxii. Public hearing: Public Hearing was held on 26.11.2012 at Aralgaria Ground, Dhanbad. The issues raised during the public hearing were facility for drinking water, afforestation, maintenance of road, BPL holders to be given free education in DAV schools, CSR activity 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. Since the BCCL letter no. BCCL/D(T)OP/F-13 dated 07.08.2013 stating that total mining lease area of cluster XI is 3527.58 ha which includes 80.44 ha of forest land. However, the mining activity shall not require diversion of this forest land for any type of mining purpose and shall remain intact in the post mining land use also and BCCL will revise the mine plan as per the MoEF guideline, if required. The proponent, therefore in this regard, is required to follow the guidelines issued by the FC Division of the Ministry of Environment & Forests vide no. 11-362/2012-FC dated 01-02-2013 "Guidelines for diversion of forest land for non-forest purposes under the Forest (Conservation) Act 1980. Submission of proposals to obtain forest land located within the mining lease and grant of environment clearance to mining projects" addressed to the Principal Secretary (Forests), Principal Secretary (Environment) of all the States/UT Govts. and copy to concerned Government Departments/Organisations which prescribes, inter-alia, the following:

"(iii) As regards Environment Clearance (EC) cases of existing mining operations, where approval under the FC Act for the full forest area in the mining lease area is not available, granting of EC may be considered and the following process will be adopted for processing such cases:

- a) Grant of EC may be considered only for the non-forest area plus the forest area within the mining lease for which FC is available. No mining activities will be allowed in forest area for which the FC is not available; and
- b) The project proponent will seek and obtain approval under the FC Act for diversion of the entire forest land located within the mining lease within a period of two years from the date of issue of these guidelines, failing which the mining lease area will be reduced to the non-forest area plus the forest area for which the project proponent has been able to obtain the FC at the end of this time period. In the case of reduction in mine lease area, the project proponent will need to get a revised mining plan approved from the competent authority for reduced area and enter into a new mining lease as per reduced lease area. The EC will be construed to be available for the mining lease area as per the revised mining lease deed."

5. 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/HOD/(Env.)/F-EMP/13/506 dated 02.05.2013. 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.

6. The proposal was considered in the Expert Appraisal Committee (EAC) (Thermal & Coal Mining) in its 67th meeting held on 4th - 5th February, 2013 and recommended in its 69th meeting held on 25th March, 2013 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 XI group of mines (5.08 MTPA with a peak capacity of 6.604 MTPA in a combined ML area of 3447.14 ha (3527.58 ha - 80.44 ha of forest land = 3447.14 ha) and Moonidih Washery (1.6 MTPA peak capacity) of M/s Bharat Coking Coal Limited, 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 specific and general condition.

A: Specific Conditions:

- i. No mining shall be undertaken in/under the forestland until prior forestry clearance has been obtained under the provisions of FC Act 1980.
- ii. You will need to seek and obtain approval under the FC Act for diversion of the entire forest land located within the mining lease within a period of two years from 1.2.2013 i.e. date of issue of FC Division's guidelines vide. no. 11-362/2012-FC, failing which the mining lease area will be reduced to the non-forest area plus the forest area for which you have been able to obtain the FC at the end of this time period. In the case of reduction in mine lease area, you will need to get a revised mining plan approved from the Competent Authority for reduced area and enter into a new mining lease as per reduced lease area. The EC will be construed to be available for the mining lease area as per the revised mining lease deed.
- iii. The maximum production in the cluster shall not exceed beyond that for which environmental clearance has been granted for the cluster XI as per given below:

EC_BCCL_Cluster XI

Sl. No.	Name of Mine	Production (MTY)		Leasehold Area (ha)	Life of the mine (Years)
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	Total	5.08	6.604	3527.58	
9	Moonidih Washery	1.60	1.60	0.27	--

- iv. The open cast quarries of the abandoned mines should be backfilled to the ground level and restored with native species.
- v. All coal from smaller UG mines should be transported by high capacity and mechanically covered trucks/ tippers.
- vi. Green belts shall be developed on both sides of the roads.
- vii. Action plan for quenching of fires and rehabilitation alongwith the details of master plan be submitted to the MoEF for monitoring purpose.
- viii. Presently coal to Munidih washery from other mines of the cluster is taking place through NH. An alternate route for coal transportation may be explored.
- ix. For understanding the composition of emissions from coal mine fires, BCCL may
 - x. initiate action as proposed in the visit report of the EAC to Dhanbad.
 - xi. The approved mining plan be submitted to the MoEF.
- xii. The measure to identify in the Environmental Plan for Cluster- XI groups of mine and the conditions given in this environmental clearance letter shall be dovetailed to the implementation of the Jharia Action Plan.
- xiii. 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.
- xiv. 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.
- xv. 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.
- xvi. 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.

- xvii. Thick green belt shall be developed along undisturbed areas, mine boundary and in mine reclamation. A total area of 254.67 ha shall be reclaimed and afforested.
- xviii. Details of transportation, CSR, R&R and implementation of environmental action plan for the clusters-XI should be brought out in a booklet form within a year and regularly updated.
- xix. 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 XI shall be implemented.
- xx. 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 PM2.5) 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.
- xxi. The proponent will continue the existing Road-Rail transport network system in view of the implementation of the Master Plan (for 10 years) and another 5 years gestation period after the completion of Master Plan for consolidation of the backfilled dug out fire areas and unstable areas is required. 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 (phase-I) with the existing road-rail transport system. In phase-II, 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. Transportation of coal shall be by Rail and Conveyor belt, minimizing the existing road transport system in all the mines of the cluster and shall continue after 15 years. Loading of coal by pay loaders shall be discontinued. Adequate number of suitably designed off-take points shall be provided.
- xxii. 16944 nos of PAFs should be rehabilitated at cost of Rs 53776.60 Lakhs as per the approved Jharia Action Plan.
- xxiii. 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.
- xxiv. Coal Extraction shall also be optimised in areas where agricultural production is continuing. Some pillars shall be left below the agricultural land. No depillaring & coal extraction should be carried out below habitation, H.T. Lines & beneath road, water bodies
- xxv. Subsidence shall be monitored closely and if subsidence is found exceeding the permitted limits, then the landowners shall be adequately compensated with mutual agreement with the landowners.
- xxvi. 3-tier plantation should be developed 2 km stretch of road from the mine using native species.
- xxvii. Water sprinkling system shall be provided to check fugitive emissions from loading operations, conveyor system, haulage roads, transfer points, etc. Major approach roads shall be black topped and properly maintained.
- xxviii. A progressive afforestation plan shall be prepared and implemented over the mine lease area acquired and shall include areas under green belt development, areas along roads, infrastructure, along ML boundary and township etc, by planting native species in consultation with the local DFO/Agriculture Department.
- xxix. Acid Water Treatment Plant, volume of water to be treated and disposal of brine should be provided.
- xxx. Mine discharge water outside the ML shall be monitored, particularly for TDS and treated to conform

to prescribed levels before discharge into the natural environment.

- xxxi. The Company shall put up artificial groundwater recharge measures for augmentation of groundwater resource, in case water table shows a declining trend. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
- xxxii. Besides carrying out regular periodic health check up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check up for occupational diseases and hearing impairment, if any, through an agency such as NIOH, Ahmadabad within a period of one year and the results reported to this Ministry and to DGMS.
- xxxiii. The mining in the existing mines would be phased out after expiry of the current mining lease and after reclamation of mined over area. The operating mines may be analysed and monitored for compliance of conditions, having bearing with movement of wild life until such time they are closed/phased out
- xxxiv. 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.
- xxxv. High root density tree species shall be selected and planted over areas likely to be affected by subsidence.
- xxxvi. Depression due to subsidence resulting in water accumulating within the low lying areas shall be filled up or drained out by cutting drains.
- xxxvii. Solid barriers shall be left below the roads falling within the blocks to avoid any damage to the roads.
- xxxviii. The CSR Action Plan shall consist of need-based CSR Action Plan, CSR Auditing and monitoring mechanism etc. The proponent will spend 5 % of the retained earning of the previous year subject to a minimum of Rs. 5/- per tonne of coal production which should be adjusted as per the annual inflation. The progress made thereon shall be uploaded on the company annually on the company website. Monitoring of the impacts of activities under CSR shall be carried out periodically.
- xxxix. 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.
- xl. Central recreation park with herbal garden should be developed for use of all inhabitants
- xli. The mine water should be treated properly before supply to the villager
- xl.ii. 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.
- xl.iii. 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.
- xliv. 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.

- xliv. 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.
- xlvi. 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.
- xlvii. 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;
- xlvi. A separate management structure for implementing environment policy and socio-economic issues and the capacity building required in this regard.
- xliv. The raw coal, washed coal and coal wastes (rejects) shall be stacked properly at earmarked
 - 1. site(s) within stockyards fitted with wind breakers/shields. Adequate measures shall be taken to ensure that the stored minerals do not catch fire.
 - li. Hoppers of the coal crushing unit and washery unit shall be fitted with high efficiency bag filters and mist spray water sprinkling system shall be installed and operated effectively at all times of operation to check fugitive emissions from crushing operations, transfer points of closed belt conveyor systems and from transportation roads.
 - lii. All approach roads shall be black topped and internal roads shall be concreted. The roads shall be regularly cleaned with mechanical sweepers.
 - liii. Green belt of 3 ha shall be developed all along the periphery of the site, along the areas such as the washery unit, crushing unit, and stockyard. A 3-tier avenue plantation would be developed along vacant areas, near washery, storage yards, loading points and transfer points and along internal roads and main approach roads and on the road upto the railway siding and at the siding. The road between the coal washery and the main -road shall be black topped and thick 3-tier vegetation between the washery and villages/habitations shall be developed. In addition, a 10m thick green avenue plantation in the transportation route from washery to Majhri Railway Siding (of WCL) shall be provided in consultation with and approval of WCL under CSR.
 - liv. Trucks engaged for mineral transportation outside the washery upto the railway siding shall be optimally loaded. The trucks shall be properly maintained and emissions shall be below notified limits. Facilities for parking of trucks carrying raw coal from the linked coalmines shall be created within the Unit.
 - lv. Records of quantum of coal (in TPD) and ash content of raw coal being washed, clean coal and coal rejects produced from every batch of washing shall be maintained and details thereof uploaded on the company website.
 - lvi. The washery unit shall be a zero-discharge facility and no wastewater shall be discharged from the washery into the drains/natural watercourses. Recycled water shall be used for development and maintenance of green belt and in the Plant Operations.
 - lvii. Coal fines shall be recovered from the coal slurry, washery discharge and used in power generation and records of quantum of coal fines collected and used shall be properly maintained.
 - lviii. No additional groundwater shall be used for the Plant Operations. Any additional water requirement envisaged shall be obtained by recycle/reuse to the maximum extent and from rainwater harvesting measures.
 - lix. Heavy metal content in raw coal, and washed coal shall be analysed once in a year and records

maintained thereof.

ix. 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.
7. The proponent shall abide by all the commitments and recommendations made in the EIA/EMP report so also during their presentation to the EAC.
 8. The proponent is required to obtain all necessary clearances/approvals that may be required before the start of the project.
 9. The Ministry or any other competent authority may stipulate any further condition for environmental protection.
 10. 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.
 11. 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.

12. 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, Chandrashekarapur, 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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