

भारत कोकिंग कोल लिमिटेड

एक मिनी रत्न कम्पनी
(महाराष्ट्र कम्पनी कोल इंडिया का एक उपक्रम)
पंजीकृत कार्यालय : कोयला भवन, कोयला नगर,
धनबाद-826005
सीआइएन : U10101JH1972GOI000918

महाप्रबंधक का कार्यालय

पश्चिमी झरिया क्षेत्र

पो. मुनीडीह, जिला: धनबाद (झारखण्ड)-828129

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Bharat Coking Coal Limited

A Mini Ratna Company

(A Subsidiary of Coal India Limited: A Maharatna Company)

Regd. Off. : Koyla Bhawan, Koyla Nagar

Dhanbad - 826005

CIN : U10101JH1972GOI000918

**OFFICE OF THE GENERAL MANAGER
WESTERN JHARIA AREA**

PO: MOONIDIH, DISTT: DHANBAD (JHARKHAND) - 828129

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"For uploading online on "parivesh portal" of MoEF&CC and send by e-mail"

Ref: - BCCL/WJA/ENV/2023/ 141

Date:- 30/11/2023

To,

The Director,

Ministry of Environment & Forest and Climate Change

Regional Office (ECZ), Bunglow No. A-2,

Shyamali Colony, Ranchi - 834002.

Sub: - Submission of six-monthly reports on compliance of Environment Clearance for the period from April'2023 to Sept'2023 with respect to Cluster-XI group of mines of M/s Bharat Coking Coal Limited.

Ref: EC Order No. - J-11015/77/2011-IA.II (M) Dated: - 26.08.2013

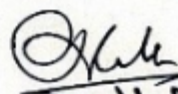
Respected Sir,

Please find enclosed herewith the six-monthly reports on compliance of Environment Clearances for the period from April'2023 to Sept'2023 in respect of Cluster XI group of mines of M/s Bharat Coking Coal Limited. We hope you will find in order.

Thanking you,

Encl: - As Above

Yours faithfully,


30-11-2023

General Manager
Western Jharia Area
Bharat Coking Coal Limited



ENVIRONMENTAL CLEARANCE COMPLIANCE OF
CLUSTER-XI (EC No. J-11015/77/2011-IA.II (M) Dated- 26.08.2013

(From April'23 – September'23)

SL No	A. Specific Conditions by MOEF:	Compliance
i.	No mining shall be undertaken in/under the forestland until prior forestry clearance has been obtained under the provisions of FC Act 1980.	Complied Application has been submitted online for Moonidih mine with reference number FP/JH/ MIN/9699/2015 in Feb'2019, it is presently under process. The online application is attached in <u>ANNEXURE – I</u>
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.	Complied Amendment in EC granted for 1982.90 Ha. Project area excluding forest land of Moonidih UG mine on 26th July 2019 for Cluster XI group of mines. The amendment is attached to <u>ANNEXURE – II</u>
iii.	The maximum production in the cluster shall not exceed beyond that for which environmental clearance has been granted for the Cluster XI.	Complied. The production from the cluster is within the limit for which environmental clearance has been granted. Enclosed as <u>ANNEXURE – III</u>
iv.	The open cast quarries of the abandoned mines should be backfilled to the ground level and restored with native species.	Complied.

v.	All coal from smaller UG mines should be transported by high capacity and mechanically covered trucks/ tippers.	Being Complied. Various mechanically covered trucks Manufacturers for the transportation of Coal and OB in India have been contacted. Copy of the same is enclosed as <u>ANNEXURE – IV</u> Coal transportation has been done by trucks with tarpaulin cover. Covering of truck has been made mandatory in the transportation contract.   (Coal transport in tarpaulin covered truck)
vi.	Green belts shall be developed on both sides of the roads.	Complied. Time to time plantation is done either departmental or with the help of Forest Department Dhanbad. Five-year plantation plan for PB area is attached in <u>ANNEXURE – V.</u>
vii.	Action plan for quenching of fires and rehabilitation along with the details of master plan be submitted to the MoEF for monitoring purpose.	Complied. Jharia Master Plan (JMP) is uploaded on BCCL website and under implementation. Copy of JMP attached in <u>ANNEXURE – VI.</u>

viii.	Presently coal to Moonidih washery from other mines of the cluster is taking place through NH. An alternate route for coal transportation may be explored.	Coal from P.B. Area is direct feed coal and hence washing is not required.    (Coal transport in tarpaulin covered truck) Presently coal (wet enough due to sprinkling at loading and unloading point) from the Moonidih mine transported to Moonidih washery through covered conveyor belt system. The coal dispatched from the washery is transported through rail transportation.
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		 (Coal being transported on conveyor belt system)
ix.	For understanding the composition of emissions from coal mine fires, BCCL may	Agreed.
x.	Initiate action as proposed in the visit report of the EAC to Dhanbad.	Agreed.
xi.	The approved mining plan be submitted to the MoEF.	Mining Plan of Gopalichuck OC and Kendwadih OC, Moonidih UG are submitted and Feasibility report of other mines is also submitted. Revised mining plan with mine closure plan was approved by 335th, 342nd v & 348th Board empowered sub-committee meeting meeting of BCCL. Letter of approved mining plan is attached in <u>ANNEXURE – VII.</u> Letter of approval of mining plan of Gopalichack OC and Kendwadih OC is attached in <u>ANNEXURE XVII</u> and <u>ANNEXURE XIX.</u>
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.	Environmental plan for Custer XI group of mines and the condition given on the environment clearance has been dovetailed. As per table 1 of Jharia Action plan attached in <u>ANNEXURE – VIII</u> Pootkee XV Seam & Moonidih XVII T seam fire status extinguished Kendwadih XII, XIV seam & kachh Balihari XV seam fire status – Dormant

xiii.	The proponent shall prepare time -series maps of the Jharia Coalfields through NRSC 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 utilized 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 NRSC. Measures would be taken to prevent ingress of air (ventilation) in such areas, which may re-start fresh fires.	It has been complied. NRSC was engaged for preparation of time series maps to monitor and prevent fire problems of Jharia Coalfield by Isothermal mapping/imaging and monitoring temperatures of the coal seams and NRSC has submitted their final report in August 2021 in which the area of fire has been reduced from 3.28 Km² to 1.8 km². NRSC report is enclosed as <u>ANNEXURE IX.</u>
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 stabilized with plantation so as to withstand the peak water flow and prevent mine inundation.	Not Applicable. This condition does not comply in P.B. Area as there is no river passing from P.B. Area. In Moonidih area the condition is not applicable and the submission for the non-applicability is attached in <u>ANNEXURE X.</u>
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.	It is being complied. It is being complied. Measures are being taken to control the fire. Firefighting by water sprinkling is being done. On OB Dump Grass-seeding is being done.  GPS Map Camera Loyabad, Jharkhand, India Unnamed Road, Chhatatari, Loyabad, Jharkhand 828915, India Lat 23.772637° Long 86.361632° 07/09/2023 11:23 GMT +05:30 Note : Captured by Env. Dept. PSA SOCL Google 11.92 km/h 68% 195 m 30.27° C 145° SE

		
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.	It has been complied as per statue.
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.	It is being Complied 32760 saplings (compensatory afforestation) have been planted in the FY 2021-2022 through forest department, Dhanbad in 20 Ha area. 18000 nos. of saplings will be planted near Berakar river against Compensatory Afforestation by DFO in FY 2023-24. Work Order Attached in <u>ANNEXURE XI</u>. 12 Ha. Of OB has been taken up for plantation in Gopalichuck and plantation has been done by forest department, Dhanbad in 2018-19. Ecological restoration has been done at 07 Ha. Of site. 

		
		
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.	Complied. Enclosed as <u>ANNEXURE XII</u>. CSR Expenditure of last 3 Years for Cluster XI attached in <u>ANNEXURE XXIV</u>.
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.	It is being complied in the name of Dhanbad Action Plan. It has been prepared in consultation with Jharkhand Pollution Control Board for entire BCCL. It is being implemented comprehensively for all the mines of BCCL. Online PM10 Analyzer has been installed at PBPC and Hindi Bhawan to Check the Ambient Air Quality continuously. Online PM10 Analyzer has been installed at the PO

Office in Moonidih project with display board located at the top of the GM office WJ area. The data is being uploaded to JSPCB website.



(PM10 Monitor in Moonidih Mine Campus)

Water sprinkling is being done with the help of Mobile Water Tanker water on haul road for dust suppression for mitigation of air pollution.

Truck Mounted Fog Canon and Trolley Mounted fog canon are also in use for dust suppression.

Some of the salient actions of this cluster are as under:

Enclosed as ANNEXURE XIII.

The COAAQMS has been procured and has been delivered to the Moonidih Project premises. Installation is under process. It is capable of measuring Particulate Matters, NO_x, SO₂, and CO and various meteorological parameters.

		 COAAQMS to be installed near of the General Manager office, W.J. Area within premises of Moonidih mine of W.J. Area under Cluster-XI.
xx.	The locations of monitoring stations in the Jharia Coalfields should be finalized in consultation with the Jharkhand State Pollution Control Board. The Committee stated that smoke/dust emission vary from source to source (fuel wood, coal, fly ash 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.	It is being complied. Establishment of ambient environment quality monitoring stations has been finalized with the consultation of Jharkhand State Pollution Control Board. Copy is enclosed as <u>ANNEXURE XIV</u>. Copy of Source Apportionment study is Enclosed as <u>ANNEXURE XV</u>.
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 side of the roads, enhanced water sprinkling, strengthening and maintaining the roads etc.) shall be adopted up to 15 years (Phase-I) with the existing	Action has been taken for conveyor-cum-rail transport system. Meanwhile transportation is being done by covering vehicle with tarpaulin cover. Enclosed as <u>Annexure XVI</u>.

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.



(Coal transport in tarpaulin covered truck)



(Wind Barrier along road side at coal stock yard and Water Sprinkling from Mobile Tanker)



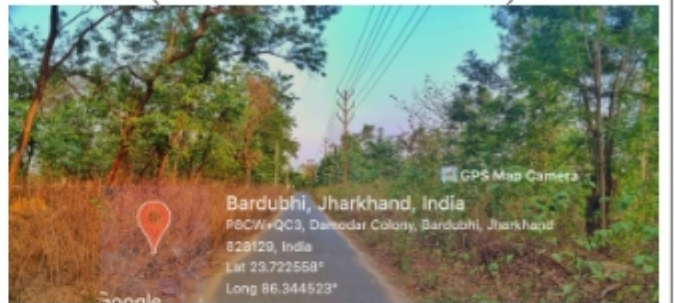
(Wind barrier on Moonidih washery road)

Presently coal (wet enough due to sprinkling at loading and unloading point) from the Moonidih mine transported to Moonidih washery through covered conveyor belt system. The coal dispatched from the washery is transported through rail transportation

		 (Coal being transported on conveyor belt system)
xxii.	16944 nos of PAFs should be rehabilitated at cost of Rs 53776.60 Lakhs as per the approved Jharia Action Plan.	Implementation of master plan has already been started through Jharia Rehabilitation and Development Authority (JRDA), Dhanbad.
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.	It is being complied. It will be implemented as the case may be but till now no any subsidence has been observed or recorded in P.B. Area and W.J Area. Regular subsidence monitoring is done at underground mines. Report of subsidence study conducted by CSIR is attached in <u>ANNEXURE XVIII</u>.
xxiv	Coal Extraction shall also be optimized 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.	It is being complied. Being implemented as per statue.
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.	It is being complied. Report of subsidence study conducted by CSIR is attached in <u>ANNEXURE XVIII</u>.
xxvi.	3-tier plantation should be developed 2 km stretch of road from the mine using native species.	It is being complied. Plantation is being done on roadside in non-coal bearing areas and colonies by departmentally as well as from DFO and DMC in lease hold area of PB Area (BCCL). 



(Road Side Plantation PB Area)



		  (Road Side Plantation WJ Area)  (Road side Plantation on Moonidih Washery)  (Plantation on Railway siding)
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	It is being complied. Mobile water tankers are used for spraying water. 1 Number of trolley mounted fog cannon and 1 number truck mounted fog cannon are available and continuously used for spraying water at requires place

maintained.

like coal stock yard, weigh bridge, haul road etc.



(Wind Barrier along road side at coal stock yard and Water Sprinkling from Mobile Tanker)



(Water Sprinkling from Truck Mounted Fog Canon)



(Water Sprinkling from Trolly Mounted Fog Canon in PB area)

Mobile water tanker of capacity of 5 KL is used for the sprinkling water in Moonidih mines and Moonidih washery area. The sprinkling water is sourced from the filter house which treats mine water discharged from the Moonidih underground mine.



(Water Sprinkling from mobile water tanker in W.J. Area)

Truck mounted fog canon has been procured by Moonidih Mines and delivery is awaited.

Roadside sprinkling systems are installed in the Moonidih washery near loading point and washery gate to VIP office is provided for dust suppression.

		 (Sprinkler arrangement at washery) Similarly for water sprinklers are provided at Moonidih UG mines at the transfer and coal cutting points for dust suppression. Details of Water Sprinkling is given in the <u>ANNEXURE XX</u>
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.	It is being complied. 1. 400 saplings planted around mine boundary. 2. 600 around weigh bridge and area office boundary. 3. 30000 saplings planted (FY 2019-20) at OB Dump (compensatory afforestation by Forest Department, Dhanbad) 4. 20 Ha site is given to forest department for plantation work in FY 2020-21. 5. 200 Saplings are planted at XV seam mine boundary, shaft shrinking and 500 at Dhobni Plantation Site of Moonidih mines in FY 2020-21. Enclosed in <u>ANNEXURE XXI</u> 6. 18000 nos. of plants will be planted against Compensatory Afforestation in FY 2023-24 near Berakar River outside the leasehold of BCCL by DFO in collaboration with P.B Area, BCCL.
xxix.	Acid Water Treatment Plant, volume of water to be treated and disposal of brine should be provided.	There is no acid water in Cluster XI.
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.	It is being complied. Pilot scale Mine Water Treatment Plant is installed at P.B. Area to convert mine water into drinking water. 02 Nos. of Pressure Filter is installed at Gopalichuck and near P.B. Area office to supply clean water. At present, mine water is sent to the Moonidih Basti pond through pipes from the treatment plant. Currently, the treatment of mine water is being done by one settling tank and two nos. of pressure filters, having capacity of 2000 kiloliters per day.

xxxii.	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.	It is being complied. Mine water is being used for the industrial as well as domestic non drinking purpose. Mine water is also supply to ponds for community use. Ponds have been constructed at PB Area. They are regularly cleaned and maintained. Artificial Rain Water harvesting structure present at the GM office of WJ area.  (Artificial Rain water harvesting structure) A Rain Water Harvesting system has been constructed in PB Area office. Photographs are attached herewith. 
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xxxii.	Besides carrying out regular periodic health checkup of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health checkup 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.	It is being complied. NIOH report is Enclosed as <u>ANNEXURE XXII</u>. Regularly PME & IME is carried out for the workers. Details of PME & IME is enclosed herewith as <u>ANNEXURE XXXIX</u>.
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 analyzed and monitored for compliance of conditions, having bearing with movement of wild life until such time they are closed/phased out.	It will be complied. After phased out of mining, it will be reclaimed, eco-restored and will be made sustainable ecology with flora and fauna. At present progressive plantation and Grass-seeding are being done on OB dumps and other sites.
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.	Being Complied in respect of all mines of cluster XI.

xxxv.	High root density tree species shall be selected and planted over areas likely to be affected by subsidence.	Complied. Plantation in BCCL is being done on 3-tier basis, in which both, Monocotyledon (Monocots) such as grasses, bamboo etc. and Decotyledon (Dicots) such as sheesham, Mango, Pipal, Nim, Arjun etc. are being planted for developing an extensive root system. The Monocots having fibrous root system helps in developing roots density at the topsoil level while, Diocots having the tap root system have a distributed root density topsoil, subsoil and regolith layer of soil. These two root system together forms the high root density system. High root density plants are regularly planted as per the roadmap prepared by Forest Research Institute, Dehradun. Copy of such is enclosed in <u>ANNEXURE XXVI.</u> Plantation work carried out in the region is enclosed as <u>ANNEXURE XXIII.</u>
xxxvi	Depression due to subsidence resulting in water accumulating within the low lying areas shall be filled up or drained out by cutting drains.	Being Complied.
xxxvi i.	Solid barriers shall be left below the roads falling within the blocks to avoid any damage to the roads.	Complied.
xxxvi ii.	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 earnings of the previous year subject to a minimum of Rs. 5/- per ton 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.	Being Complied. CSR work is handled at company level and every area is assigned work. The details of CSR is enclosed as <u>ANNEXURE XI.</u> CSR Expenditure of last 3 Years for Cluster XI attached in <u>ANNEXURE XXIV.</u> The link of CSR at BCCL level is as follows: CSR – Bharat Coking Coal Limited (bcclweb.in)
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	Complied. TISS has conducted the survey for effective and need based CSR activities implementation. Also Mid- term Evaluation of Project Swablamban - Reeling and Spinning Training Project under CSR has been conducted by TISS, Mumbai.(Copy of Report is attached as <u>Annexure-XLVIII.</u>) Plantation is being done on roadside in coal/non-coal bearing areas and colonies by departmentally as well as from DFO and DMC in lease hold area of Cluster XI group of mines (BCCL). Photographs are attached herewith.

	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.	 
xli.	Central recreation park with herbal garden should be developed for use of all inhabitants.	Sneh-Smriti Upvan is constructed at P.B. Area Office consisting of flowering, medicinal and ornamental saplings like Tulsi, Neem, Amaltaash, Patharchhur, Paan, Jamun, Bamboo, Ashoka etc.  Sneh Smriti Upvan, P.B Area Proposal for the construction of the Recreational Park with Herbal Garden in Moonidih mine is in process.
xlii.	The mine water should be treated properly before supply to the villager.	It is being complied. An action plan for the utilization and treatment of surplus Mine Water has been prepared by Environment, Civil and CSR department conjointly. In this regard, 26 Mines have been identified for the implementation of scheme in the Phase-I. A pilot scale mine water treatment plant in collaboration with CSIR, CIMFR is installed at P.B. Area office to convert mine water into drinking water. 2 number of pressure filter (1500 GPM each capacity) are installed for treating mine water. Filter House which has a capacity of 2000 KL/day is

		functional at the present in Moonidih Project.
xlii	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.	Complied. Mine discharge water is being allowed to settle down in the mine sumps before passing through sedimentation tank and pressure filter. The monitoring of water quality parameters is being carried out by CMPDIL. Reports enclosed in <u>ANNEXURE XXXI.</u>
xliii	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 stabilized 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.	As working in P.B. Area does not approach combined seam therefore water reservoir cannot be formed. In due course we will be able to comply this point in future.
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 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.	Complied. CMPDI RI-II has prepared a report for Location and design of Piezometers. Annual Groundwater monitoring data has been enclosed as <u>ANNEXURE XXV.</u> Ground water quality monitoring data has been sent to State Pollution Control Board/Central Pollution Control Board. Details are attached as <u>ANNEXURE XXVII.</u>
xlv	ETP shall also be provided for workshop, and CHP, if any. Effluents shall be treated to confirm to prescribe standards in case discharge into the natural water course.	There is no CHP in Cluster XI. Effluents from mine is treated before discharge. ETP is provided at compressor house. One no. of O&G Trap with recirculation system is in operation at Kustore Workshop, P.B Area. 

		(O&G Trap with Recirculation System) A oil and grease trap is provided at the Compressor House in Moonidih Project.  (O&G Trap at Compressor House in Moonidih Project) Copy of Oil and Grease register enclosed in <u>ANNEXURE XXVIII.</u> The effluent from washery is not discharged into natural water but sent to Washery for further usage.
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 Ranchi.	Complied. Presently a time series map of vegetation cover in the Jharia Coal Field is being carried out through CMPDI, Ranchi using satellite imagery. Further CMPDI has been requested to prepare "Time series of land use maps based on satellite imagery of the core zone and buffer zone. Land use land cover report is enclosed in <u>ANNEXURE XXIX.</u>
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;	It shall be complied. It will be complied when mine life will reach its final phase.
xlvi.	A separate management structure for implementing environment policy and socio-economic issues and the capacity building required in this regard.	Agreed. Separate multidisciplinary environmental Management cell at Area Level has already been established. Office Order of the same has been enclosed as <u>ANNEXURE XXX.</u>

		A full-fledged Environment Department, headed by a HOD (Environment) along with a suitable, qualified multidisciplinary team of executives has been established. The activities are monitored on regular basis at Area and at Headquarters levels. GM (Environment) at Headquarters level, Coordinates with all the Areas and reports to the Director (Technical) and in turn, he reports to the CMD of the company. The team is multidisciplinary and very much motivated under the guidance of the company's Director (Technical) and CMD. Further capacity building at both corporate and operating levels is being done.
xlix.	The raw coal, washed coal and coal wastes (rejects) shall be stacked properly at earmarked	It is being complied . The raw coal, washed coal and rejects are stacked properly at earmarked Coal Stockyards and bunkers.
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.	Complied. Wind barriers fitted at various locations  (Wind Barrier along road side at coal stock yard and Water Sprinkling from Mobile Tanker)  (Wind barrier on Moonidih washery road)
ii.	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.	Complied. For water spraying at crushing points, loading points and transfer points; fixed water sprinklers have been installed at the hopper and chute of belt- conveyor. Also, regular water sprinkling is done through fixed water sprinklers and mobile water sprinkler on railway siding, internal roads and 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.	Being complied. Procurement of Mechanical Sweeper is under process. Manual cleaning of roads are done on regular basis.
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.	Under Compliance. Plantation work has been done along mine boundaries, overburden dump, weighbridge and along roads. 1. 400 saplings planted around mine boundary. 2. 600 around weigh bridge and area office boundary. 3. 30000 saplings planted (FY 2019-20) at OB Dump (compensatory afforestation by Forest Department, Dhanbad) 4. 20 Ha site is given to forest department for plantation work in FY 2020-21. 5. 200 Saplings are planted at XV seam mine boundary, shaft shrinking and 500 at Dhobni Plantation Site of Moonidih mines in FY 2020-21. Enclosed in <u>ANNEXURE XXI</u>. 6. 18000 nos. of plants will be planted against Compensatory Afforestation in FY 2023-24 near Berakar River outside the leasehold of BCCL by DFO in collaboration with P.B Area, BCCL.
liv.	Trucks engaged for mineral transportation outside the washery up to 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.	Complied. Certificate of Pollution under control certificate (Form 59) under Rule 115(2) of the Central Motor Vehicles Act, 1989 has been attached in <u>ANNEXURE XXXII</u> .
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.	Being Complied. Records of quantum of coal and ash content of raw coal, clean coal and coal rejects are maintained at the washery and regularly updated on the BCCL website. Reports enclosed in <u>ANNEXURE XLVII</u> .
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.	Being Complied. Moonidih Washery operates on Zero-Liquid Discharge and no wastewater is being discharged outside. Recycled water is recirculated into washing operations and plantation activities.
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.	Being Complied. Coal fines are recovered from slurry and records are regularly maintained at the washery. Details enclosed in <u>ANNEXURE XLVI</u> .
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.	Complied. Mine water is being used for washing operations in Moonidih Washery. Any additional water requirements are met from discharge of nearby BCCL mines.

		Undertaking for no additional ground water is being used is attached in Attached in <u>ANNEXURE XXXIII</u> .
lix.	Heavy metal content in raw coal, and washed coal shall be analyzed once in a year and records maintained thereof.	Being Complied. The work order for analysis of heavy metal in raw coal and washed coal has been awarded to CIMFR, Dhanbad. Copy of work order is enclosed in <u>ANNEXURE XLV</u> . Samples have been given to CIMFR and report is awaited.
lx	Corporate Environment Responsibility:	A well-defined Corporate Environment Policy has been constituted at BCCL (https://www.bcclweb.in/environment/CEP_280220.pdf) and at CIL (https://www.coalindia.in/media/documents/CIL_Corporate_Environmental_Policy_2018.pdf) level to promote sustainable development by protecting the environment through integrated project planning & design, prevention/mitigation of pollution, conservation of natural resources, restoration of ecology & biodiversity, recycling/ proper disposal of wastes, addressing climate change and inclusive growth. A well-defined Corporate Environment Policy has already been laid down and approved by the Board of Directors. This is also posted on BCCL website. http://www.bcclweb.in/environment/CEP_280220.pdf .
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.	Complied
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.	A hierarchical system of the company to deal with environmental issue from corporate level to mine level already exists. Flow chart is attached as <u>ANNEXURE XXXV</u> .
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.	Agreed
SL.No	B. General Conditions by MOEF:	Compliance
i.	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.	No change in mining technology and scope of working has been undertaken. The production from the cluster is within the limit for which environment clearance has been granted.
ii.	No change in the calendar plan of production for quantum of mineral coal shall be made.	Complied and Being Followed.

iii.	Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM ₁₀ , PM _{2.5} , SO ₂ and NO _x monitoring.	Locations of monitoring stations in the Jharia Coalfields has been fixed by the co-ordination with Jharkhand State Pollution Control Board. Enclosed as <u>ANNEXURE XIV.</u>
iv.	Data on ambient air quality (PM ₁₀ , PM _{2.5} , SO ₂ and NO _x) and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly submitted to the Ministry including its Regional Office at Ranchi and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognized under the EPA rules, 1986 shall be furnished as part of compliance report.	It is being complied. Data is regularly submitted to ministry along with compliance report. Air quality Monitoring report, Water quality monitoring report and report of Monitoring of Heavy metals are being submitted with six monthly compliance report. The work of monitoring of ambient environment (Air quality monitoring and water quality monitoring including monitoring of Heavy metals is carrying out by CMPDIL) Copy of Heavy Metal Report is enclosed as <u>ANNEXURE XXXIV.</u> Monitoring data is Enclosed as <u>ANNEXURE XXXVI.</u>
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.	Being complied. Personnel operating HEMMs, drilling machine and other machines comply with safety regulation and are equipped with Personal Protective Equipment. The noise and vibration during blasting operations are controlled by using Electronic Detonators. Copy of Safety Material Distribution is enclosed as <u>ANNEXURE XXXVII.</u> All equipment and machines are regularly maintained and the noise level is within prescribed limits. Noise monitoring data has been enclosed as <u>ANNEXURE XXXVI.</u>
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.	Complied. CMPDI Dhanbad is carrying out monitoring of environment quality work. There is arrangement for treatment of effluent discharge to prescribed standards.
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.	Complied. Vehicles used for transportation are covered with tarpaulin covers. Certificate of Pollution under control certificate (Form 59) under Rule 115(2) of the Central Motor Vehicles Act, 1989 has been attached in <u>ANNEXURE XXXII.</u>
viii.	Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analyzed through a laboratory recognized under EPA Rules, Monitoring of environmental quality parameters shall be carried out through establishment of	Presently, CMPDI Dhanbad is carrying out regular monitoring of environmental quality work. Regular Environmental Monitoring reports are enclosed in <u>ANNEXURE XXXVI.</u> Copy of Heavy Metal Report is enclosed as <u>ANNEXURE XXXIV.</u>

	adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analyzed through a laboratory recognized under EPA Rules, 1986.	
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.	Complied. Copy of Safety Material Distribution is enclosed as <u>ANNEXURE XXXVII.</u> Vocational training Centers under Separate Human Resource Development Dept. is Conducting regular training program on these issues. Enclosed as <u>ANNEXURE XXXVIII.</u>
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.	Initial Medical Examination (IME) and Periodical Medical Examination (PME) of all the personnel are carried out as per the Statutes and Director General of Mines Safety (DGMS) guidelines. Enclosed as <u>ANNEXURE XXXIX.</u>
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.	Separate multidisciplinary environmental management cell at Area Level has already been established. Office Order of the same has been enclosed as <u>ANNEXURE XXX.</u> Environmental Engineer provided at mine and Area level. The activities are monitored on regular basis at Area and at Head Quarters levels. GM (Environment) at Head Quarter Level Co-ordinates with all the Areas and reports to the Director (Technical) and in turn he reports to the CMD of the company. The team is multidisciplinary and very much motivated under the guidance of company's Director (Technical) and CMD. Further capacity building at both corporate and operating level is being done.
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 Ranchi.	It is being complied. Agreed to report the same. Copy enclosed in <u>ANNEXURE XL.</u>

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 .	Complied. Copy enclosed as <u>ANNEXURE XLI</u> .
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.	Complied. Copy enclosed as <u>annexure XLII</u> .
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.	Complied.
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.	Complied. The EC, its compliance along with monitoring data is being uploaded regularly on BCCL official website. http://www.bcclweb.in/?page_id=20425. Photo of Display Board is enclosed herewith as <u>ANNEXURE XLIII</u>.
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.	Complied. Six monthly reports of cluster -XI is regularly submitted to (twice in a year) the Regional Office of MoEFCC, Ranchi along with required data and information in soft copy. The same has been uploaded on Parivesh Portal.

xviii.	The Regional Office of this Ministry located at Ranchi 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.	Project will extend its all possible support and cooperation to the Regional Office in any kind of monitoring/visit/data collection etc.
xix.	The Environmental statement for each financial year ending 31 March in Form –V is mandated to be submitted by the project proponent to 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&CC by e-mail.	Complied. Copy is attached as <u>ANNEXURE XLIV</u>.
xx	The proponent shall abide by all the commitments and recommendations made in the EIA/EMP report so also during their presentation to the EAC.	Complied.
xxi	The proponent is required to obtain all necessary clearances/approvals that may be required before the start of the project.	Agree
xxii	The Ministry or any other competent authority may stipulate any further condition for environmental protection.	Complied.
xxiii	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.	Agree

xxiv	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.	Complied.
xxv	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.	Agree

[Signature]
30/11/23

Addl. GM

P.B. Area

Addl. General Manager
P.B. Area
BCCL Dhanbad

[Signature]
30/11/23

Project Officer

Moonidih Washery

PROJECT OFFICER
MOONIDIH COAL WASHERY

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30.11.23

Project Officer

Moonidih Washery

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