

<p><b>Bharat Coking Coal Limited</b> (A Miniratna Company) A Subsidiary of Coal India Limited</p> <hr/> <p>Office of the General Manager, Bastacolla Area, Dhanbad-828111 Fax/Tel. No. 0326-2291238, Email: cgmbastacolla@bccl.gov.in</p>	 <p>पर्यावरण विभाग बस्ताकोला क्षेत्र</p>	<p><b>भारत कोकिंग कोल लिमिटेड</b> (एक मिनीरत्न कंपनी) कोल इंडिया लिमिटेड का एक अंग</p> <hr/> <p>महाप्रबंधक का कार्यालय बस्ताकोला क्षेत्र धनबाद-८२८१११</p>
<p>Ref. No./पत्रांक: BCCL:BA:IX:GM:EC Compliance:17: 117 Date/दिनांक: 28.11.2017</p>		

To,  
The Director,  
Ministry of Environment & Forest & Climate Change,  
Regional Office, ECZ  
Bunglow No. A-2, Shyamli Colony  
Ranchi – 834002.

**Subject:** Six Monthly report on compliance of Environmental Conditions for the period of April'2017 to September'2017 in respect of cluster VIII group of mines of BCCL.

**Ref.:** EC Order No. J-11015/298/2010-IA.(M) Dated 15.02.2013.

Dear Sir,

Please find enclosed herewith six monthly report on compliance of conditions laid down in Environmental Clearance for the period from April'2017 to September'2017 in respect of cluster VIII group of mines of BCCL.

Thanking you.

Encl: As above alongwith CD.

Yours' faithfully,

28/11/17  
General Manager  
Bastacolla Area

**Distribution:**

1. The Director,  
1 A, Monitoring Cell, Paryavaran Bhawan, CGO Complex, New Delhi-110003
2. The Member Secretary, Jharkhand State Pollution Control Board, H.E.C., Dhurwa,  
Ranchi-834004 (Jharkhand)
3. The Scientist 'E'/In-Charge, Zonal Office Kolkata, Central Pollution Control Board,  
Southern Conclave, Block 502, 5<sup>th</sup> and 6<sup>th</sup> Floors, 1582 Rajdanga Main Road,  
Kolkata-700 107 (W.B.)
4. The General Manager, Lodna Area, BCCL
5. The Dy. GM (Environment), BCCL, Koyla Bhawan
6. The Area Manager (Planning), Bastacolla Area, BCCL
7. The Nodal Officer (Environment), Bastacolla Area, BCCL

# Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines

EC No: J-11015/298/2010-IA.II(M) Dated 15.02.2013

Period: April 2017 to September 2017

A. Specific Conditions		
Sl. No.	Condition	Compliance/ Action Taken Report
i	The Maximum production shall not exceed beyond that for which environmental clearance has been granted.	<b>It is being complied.</b> The production from the cluster is within the limit for which environmental clearance has been granted. <b>Enclosed as Annexure I.</b>
ii	The road transportation of coal during phase-I should be by mechanically covered trucks. The road used for coal transportation should be developed with avenue plantation on both sides.	<b>It is being complied.</b> Presently coal transportation has been done by trucks with tarpaulin cover. Covering of truck has been made mandatory in the transportation contract. Avenue Plantation has been done along the roads and in upcoming years roadside plantation will be done extensively.
iii	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.	Company is organizing training and other professional awareness programs for local youths to motivate them to carry out the work in the future.
iv	Details of transportation, CSR, R&R and implementation of environmental action plan for each of the 17 clusters should be brought out in a booklet form.	<b>It is being complied.</b> Details of Transportation, CSR, R&R and Implementation of Environmental Action Plan is being sent on Annual Basis i.e. Compliance Report of 2 <sup>nd</sup> Half Year Ending in March.
v	A study should be initiated to analyse extent of reduction in pollution load every year by reducing road transport.	<b>It is being complied.</b> The study has been initiated and presently going on by the CMPDIL to analyse the extent of reduction in pollution load every year by reducing road transport. Final report is yet to be submitted by CMPDIL. <b>Enclosed as Annexure II.</b>
vi	The expertise available internationally should be utilized for control of fire in Jharia Coalfields and for their reclamation and to further minimize time for fire and subsidence control.	<b>It is under process.</b> Global Expression of Interest had been opened for the international experts/firms/consultants/agencies to deal with coal mine fire in Jharia Coalfield with vision of reclamation, further minimization of spread of fire & subsidence control for which no bidder has qualified to take up the work. <b>Enclosed as Annexure-III.</b>
vii	The abandoned pits and voids should be backfilled with OB and reclaimed with plantation and or may be used for pisciculture.	<b>It is being complied.</b> Backfilling process in abandoned pits and voids are continuously carried out along with the mining operation. Ecological restoration practices is being carried out at the stable OB dumps from where coal has been extracted upto combined seam and grass seed are also sown on the slopes of the dumps for slope stability.
viii	BCCL may consider setting up a separate management structure for implementing environment policy and socio-economic issues and the capacity building required in this regard.	A full-fledged Environment Department, headed by a Dy.GM (Environment) along with a suitable qualified multi-disciplinary team of executives and technicians has been established at Company Headquarters. One Executive in each area has also been nominated as Nodal Officer (Environment) and is also entrusted with the responsibility of compliance and observance of the environmental Acts/Laws including environment protection measures. The activities are monitored on regular basis at Area and at Headquarter levels.

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ix	The locations of monitoring stations in the Jharia Coalfields should be finalized in consultation with the Jharkhand State Pollution Control Board.	<b>It has been complied.</b> The optimum location of monitoring stations in Jharia Coal Field has been identified with the consultant advisory of CMPDIL and also finalized with the permission of Jharkhand State Pollution Control Board. <b>Enclosed as Annexure IV.</b>
x	The 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.	Tendering for conducting Source Apportionment Study has been done twice but none of the bidders qualified criteria of e-NIT/e-Tender document. NEERI, Nagpur has submitted the proposal regarding source apportionment study under the MoU Signed between NEERI, Nagpur and CIL. Proposal has been approved by competent authority and work order will issued soon. <b>Enclosed as Annexure V.</b>
xi	Mineralogical composition study should be undertaken on the composition of the suspended particulate matter (PM <sub>10</sub> and PM <sub>2.5</sub> ) 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.	As it is the part of source apportionment study, tendering for conducting Source Apportionment Study has been done twice but none of the bidders qualified criteria of e-NIT/e-Tender document. NEERI, Nagpur has submitted the proposal regarding source apportionment study under the MoU Signed between NEERI, Nagpur and CIL. Proposal has been approved by competent authority and work order will issued soon. <b>Enclosed as Annexure V.</b>
xii	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.	<b>It has been complied.</b> 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 March'2014 in which the area of fire has been reduced from 9.00 Km <sup>2</sup> to 2.18 Km <sup>2</sup> . A MoU has been signed between BCCL and NRSC and in this connection a work order has been given to NRSC to delineate surface fire and associated land subsidence in Jharia Coalfield using satellite based remote sensing techniques. The aforesaid work has been initiated by NRSC. <b>Enclosed as Annexure VI.</b>
xiii	Measures to prevent ingress of air (Ventilation) in such areas, to prevent restart fresh/spread fires in other areas including in mines of cluster VIII shall be undertaken.	Action is being taken as per Jharia Master Plan approved by GOI and State Govt. of Jharkhand. Excavation/ Open Cast mining is being done in the fire/subsidence affected mines to dig out the coal and combustible materials to save the coal from burning and to prevent further spread of the fire. Once the fiery coal is dug-out/excavated there will be no chance of further re-starting/spreading of fresh fire into other areas.
xiv	Underground mining should be taken up after completion of reclamation of Opencast mine area after 15 years.	<b>It shall be complied.</b> Underground Mining will be done after extraction of upper seams and beneath backfilled and reclaimed area.

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<b>xv</b>	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.	<b>It is being complied.</b> Action is being taken to control, mine fires including old OB dump & areas as specified in Jharia Master Plan and the open cast mining is being done in fire affected areas.
<b>xvi</b>	The rejects of washeries in Cluster –VII should be send to FBC based plant.	<b>Not applicable.</b> Coal washery does not exist in this cluster.
<b>xvii</b>	There shall be no external OB dumps. At the end of the mining there shall be no void and the entire mined out area shall be re-vegetated. Areas where opencast mining was carried out and completed shall be reclaimed immediately thereafter.	<b>It shall be complied.</b> At the end of the mining, there shall be no void and area will be re-vegetated and reclaimed with the proper reclamation techniques suggested by the experts available across the globe.
<b>xviii</b>	A detailed calendar plan of production with plan for OB dumping and backfilling (for OC mines) and reclamation and final mine closure plan for each mine of cluster-VIII shall be drawn up and implemented.	Mining operation is being done as per Calendar plan prepared by Project and Planning Department. Mine closure plan as per the guidelines of Ministry of Coal has been prepared by Central Mine Planning and Design Institute (CMPDI). Progressive mine closure activities is being implemented regularly as per approved Mine Closure Plan.
<b>xix</b>	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 biologically reclaimed with plantation and or may be used for pisciculture.	<b>It is being complied.</b> Abandoned pits are regularly filled with Over burden. At present extraction of coal by opencast method is being done in overlying seams. Old quarries where coal is already extracted is converted into water reservoir. Water from these old quarries/water reservoir is being used by local community.
<b>xx</b>	Mining shall be carried out as per statute from the streams/Nalas flowing within the lease and maintaining a safe distance from the Nalas flowing along the lease boundary. A safety barrier of a minimum 60m width shall be maintained along the Nalas/water bodies. The small water bodies in OC shall be protected to the extent feasible and the embankment proposed long water body shall be strengthened with stone pitching.	<b>It is being followed.</b> Mining is being done as per the guidelines and permissions of Directorate General of Mines Safety (DGMS) in accordance with Coal Mines Regulation, 1957. Action for construction of embankment will be done as specified in EMP.
<b>xxi</b>	Active OB dumps near water bodies and rivers should be rehandled for backfilling of abandoned mine voids. However, those which have been biologically reclaimed need not be disturbed.	<b>It is being complied.</b> The OB dumps created earlier are already stabilized. Fresh OB dumps will be taken for their eco-restoration work as per Road Map prepared by FRI, Dehradun.



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<b>xxii</b>	Thick green belt shall be developed along undisturbed areas, mine boundary and in mine reclamation. During post mining stage, a total of 704.48 Ha area would be reclaimed. The total additional area under plantation would be 345.06ha (67.79 Ha abandoned quarry area, 277.27 Ha active quarry area, 48.55 ha OB dump outside quarry area, 6.30 ha service building/mine infrastructure area/coal dump etc, 108.26 ha green belt around OCP, 196.31 ha barren area), by planting 1761200 plants in 704.48 ha at a total cost Rs. 7202.46 lakhs.	<b>It is being complied.</b> Plantation has been regularly done in undisturbed areas, OB dumps in scientific manner to minimize the effects of pollutants (Particulate Matters, SOx & NOx etc.). Presently Bastacolla area is carrying out the ecological restoration projects in an area of 19.65 Ha. Every year, Sites for Ecological Restoration is taken up for the improvement of environment and reclamation of degraded lands/OB Dumps. Three Tier plantation has been done in order to protect environment from pollutant and develop a self-sustained ecosystem.
<b>xxiii</b>	The road should be provided with avenue plantation on both side as trees act as sink of carbon and other pollutant.	<b>It shall be complied.</b> Avenue plantation has been partly done in non-coal bearing areas as well as in colonies. Carbon sequestration study may be conducted to assess the impact of plantation to reduce the pollutants.
<b>xxiv</b>	Specific mitigative measures identified for Jharia Coalfields in the Environmental Action plan prepared for Dhanbad as a Critically polluted area and relevant for Cluster VII shall be implemented.	<b>It is being complied</b> in the name of Dhanbad Action Plan. It has been prepared in consultation with Jharkhand Pollution Control Board for entire BCCL and not on cluster basis. It is being implemented comprehensively for all the mines of BCCL. Some of the salient actions of this cluster are as under: <ol style="list-style-type: none"> <li>1. Covered Truck Transport</li> <li>2. Construction of Pucca Road.</li> <li>3. Construction of water reservoir for mine water utilization</li> <li>4. Plantation. Etc.</li> </ol>
<b>xxv</b>	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 the entire Jharia Coalfields. Mineralogical composition study should be undertaken on the composition for 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.	<b>It is being complied.</b> Establishment of ambient environment quality monitoring stations has been finalized with the consultation of Jharkhand State Pollution Control Board. Tendering for conducting Source Apportionment Study has been done twice but none of the bidders qualified criteria of e-NIT/e-Tender document. NEERI, Nagpur has submitted the proposal regarding source apportionment study under the MoU Signed between NEERI, Nagpur and CIL. Proposal has been approved by competent authority and work order will issued soon. CMPDIL is presently carrying out the ambient environment monitoring work. <b>Enclosed as Annexure IV.</b>

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<b>xxvi</b>	<p>No groundwater shall be used for the mining activities. Additional water required, if any, shall be met from mine water or by recycling/reuse of the water from the existing activities and from rainwater harvesting measures.</p> <p>The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry to dewatering of mine.</p>	<p><b>It is being complied.</b> Mine water is being used for the industrial as well as domestic purpose. Mine water is also supplied to colonies and community after filtration through pressure filters, slow sand filters and rapid sand filters. Proposal for mine water supply to nearby village/community is taken up under CSR Policy of the company.</p>
<b>xxvii</b>	<p>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 &amp; 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.</p>	<p><b>It is being complied.</b> CMPDI RI-II is regularly conducting study of groundwater level and quality of areas within Cluster VIII. Groundwater monitoring data has been enclosed as <b>Annexure VII</b>.</p>
<b>xxviii</b>	<p>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.</p>	<p><b>It is being complied.</b> Mine discharge water is being allowed to settle down in the mine sumps before filtration through various types of filter viz. Pressure Filter, Slow Sand Filter &amp; Rapid Sand Filter. The monitoring of water quality parameters was being done through CMPDIL. Mine water quality data has been enclosed as <b>Annexure XIV</b>.</p>
<b>xxix</b>	<p>ETP shall also be provided for workshop, and CHP, if any. Effluents shall be treated to conform to prescribe standards in case discharge into the natural water course.</p>	<p><b>It shall be complied.</b> Presently workshops are on Coal bearing area. New workshop at Non Coal Bearing area will be equipped with ETP.</p>
<b>xxx</b>	<p>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.</p>	<p><b>It is being complied.</b> Regular subsidence monitoring has been done at underground mines. In cluster VIII, presently subsidence monitoring has been done at Bastacolla Colliery.</p>

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<b>xxxi</b>	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.	<b>It is being complied.</b> Sufficient coal pillars have been left around air shafts as per the statutes and DGMS guidelines.
<b>xxxii</b>	High root density tree species shall be selected and planted over areas likely to be affected by subsidence.	<b>It is being complied.</b> Planation is regularly done in leasehold area of Cluster VIII. High root density plants are regularly planted as per the roadmap prepared by Forest Research Institute, Dehradun.
<b>xxxiii</b>	Depression due to subsidence resulting in water accumulating within the low lying areas shall be filled up or drained out by cutting drains.	<b>It is being complied.</b> Time to time depression created by the mining operations have been filled by the locally available material and over burden removed from active quarry.
<b>xxxiv</b>	Solid barriers shall be left below the roads falling within the blocks to avoid any damage to the roads.	<b>It is being followed.</b> Sufficient barriers are left for saving the surface installation and infra structures as per Coal Mines regulation 1957 and DGMS guidelines.
<b>xxxv</b>	No depillaring operation shall be carried out below the township/colony.	<b>It is being complied.</b> Prior permission is always obtained from DGMS for depillaring operations in any of the Cluster VIII group of mines.
<b>xxxvi</b>	The Transportation Plan for conveyor-cum-rail for Cluster-VIII should be dovetailed with Jharia Action Plan. Road transportation of coal during Phase-I should be by mechanically covered trucks, which should be introduced at the earliest. The Plan for conveyor-cum-rail for Cluster-VII should be dovetailed with Jharia Action Plan. The road transpiration of coal during phase-I should be by mechanically covered trucks.	Action has been taken for the transportation plan for conveyor cum rail system of dispatch. CMPDIL, RI-II has been requested to conduct study and prepare the plan in this regard. Transportation is being done by covering vehicle with tarpaulin cover and it is made mandatory in Transportation Contracts. <b>Annexure VIII.</b>
<b>xxxvii</b>	A study should be initiated to analyze extent of reduction in pollution load every year by reducing road transport.	<b>It is being complied.</b> The study has been initiated and presently going on by the CMPDIL to analyse the extent of reduction in pollution load every year by reducing road transport. <b>Enclosed as Annexure II.</b>
<b>xxxviii</b>	R&R of 4959 nos of PAF's involved. They should be rehabilitated at cost of shifting to safe areas at the cost of Rs 29948 Lakhs as per the approved Jharia Action Plan.	Implementation of master plan has already been started through Jharia Rehabilitation and Development Authority (JRDA), Dhanbad PAFs (Non-BCCL) have been rehabilitated at well-established Jharia Vihar Township located at Belgoria and other places. Till date 1170 Nos of PAFs have been rehabilitated. <b>Enclosed as Annexure IX.</b>

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xxxix	<p>A detailed CSR Action Plan shall be prepared for Cluster VIII group of mines. Specific activities shall be identified for CSR the budget of Rs. 215.5 Lakhs per year @ Rs. 5/T of coal as recurring expenditure. The 265.25 ha of area within Cluster VIII ML existing as waste land and not being acquired shall be put to productive use under CSR and developed with fruit bearing and other useful species for the local communities. In addition to afforesting 250.57 ha of area at the post-mining stage, the waste land/barren land within Cluster VIII ML shall be rehabilitated/reclaimed as forest/agricultural land under CSR Plan in consultation with local communities. Third party evaluation shall be got carried out regularly for the proper implementation of activities undertaken in the project area under CSR. Issue raised in the Public Hearing shall also be integrated with activities being taken up under CSR. The details of CSR undertaken along with budgetary provisions for the village-wise various activities and expenditure thereon shall be uploaded on the company website every year. The company must give priority to capacity building both within the company and to the local youth, who are motivated to carry out the work in future.</p>	<p><b>It is being complied.</b> BCCL is implementing CSR activities at various scale. A separate CSR committee has been formed at area level, which is looking after the works being executed under CSR. Bastacolla area is constructing 238 Nos. of toilets under CSR activity in different schools in Simdega district of Jharkhand under flagship program (Swachh Bharat Abhiyan) initiated by Hon'ble Prime Minister of India.</p>
xL	<p>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.</p>	<p><b>It is being complied.</b> Land Use Map of Cluster VIII has been prepared by CMPDIL using remote sensing data for monitoring of land use pattern and for post mining land use. <b>Enclosed as Annexure X.</b></p>
xLi	<p>A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment &amp; 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.</p>	<p>Details of Corpus Fund will be submitted to the Ministry of Environment &amp; Forests five year before mine closure for approval. CMPDI, Ranchi has prepared "Mine Closure Plan". Progressive mine closure activity is being carried out regularly. In order to restore the original ecological system, Bastacolla Area has initiated restoration project at various sites having area of 22.15 Ha. Native species of flora and fauna can be seen on these sites.</p>

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<b>xLii</b>	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 for implementing environment policy and socio-economic issues and the capacity building required in this regard.	A full-fledged Environment Department, headed by a Dy.GM (Environment) along with a suitable qualified multi-disciplinary team of executives and technicians has been established at Company Headquarters. One Executive in each area has also been nominated as Nodal Officer (Environment) and is also entrusted with the responsibility of compliance and observance of the environmental Acts/Laws including environment protection measures. The activities are monitored on regular basis at Area and at Headquarter levels.
<b>xLiii</b>	Implementation of final mine closure plan for Cluster VIII, subject to obtaining prior approval of the DGMS in regard to mine safety issues.	<b>It is being complied.</b> Mine Closure Plan, has been prepared for each Mine in this cluster. Progressive mine closure has been implemented regularly as per the approved Mine Closure Plan prepared by CMPDIL. Prior information/intimation to DGMS will be given before final mine closure with due regard to mine safety issues.
<b>xLiv</b>	<p>Corporate Environment Responsibility:-</p> <ol style="list-style-type: none"> <li>The Company shall have a well laid down Environment Policy approved by the Board of Directors.</li> <li>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.</li> <li>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.</li> <li>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.</li> </ol>	<p>A well-defined Corporate Environment Policy has already been laid down and approved by the Board of Directors. This is also uploaded on company's website. <b>Enclosed as Annexure XI.</b></p> <p><b>It is being complied.</b></p> <p>A hierarchical system of the company to deal with environmental issues from corporate level to mine level already exists.</p> <p><b>It is being complied.</b></p>
<b>B. General Conditions:</b>		
<b>i</b>	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.	It shall be complied as per EC of Cluster VIII.
<b>ii</b>	No change in the calendar plan of production for quantum of mineral coal shall be made.	Production is being done as per the approved calendar programme/ MoU target.

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iii	Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>x</sub> 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.	<b>It has been complied.</b> The optimum location of monitoring stations in Jharia Coal Field has been identified with the consultant advisory of CMPDIL and finalized with the approval of Jharkhand State Pollution Control Board. <b>Enclosed as Annexure IV.</b> Air quality Monitoring report has been enclosed as <b>Annexure XII.</b>
iv	Data on ambient air quality (PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>x</sub> ) 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 recognized under the EPA rules, 1986 shall be furnished as part of compliance report.	<b>It is being complied.</b> Data is regularly submitted to ministry along with 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.	<b>It is being complied.</b> Personnel operating HEMMs, drilling machine and other machines comply with safety regulation and are equipped with Personal Protective Equipment. Noise monitoring data has been enclosed as <b>Annexure XIII.</b>
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.	<b>It is being complied.</b> Effluents discharge standards are regularly monitored by CMPDIL for cluster VIII group of mines. Mine water is being treated using filter plants (Pressure, Sand filters etc.) for its further use in industrial purpose and supply to the community. Mine water monitoring report has been enclosed as <b>Annexure XIV.</b>
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.	<b>It is being complied.</b> Vehicles used for transportation of coal are always covered by tarpaulin and being monitored for the vehicular emission by the transporter.
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 recognized under EPA Rules, 1986.	<b>It is being complied.</b> Ambient environmental monitoring is being done by CMPDIL. Monitoring data have been enclosed as Annexures.



## Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines

EC No: J-11015/298/2010-IA.II(M) Dated 15.02.2013

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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.	<b>It is being complied.</b> A separate full-fledged Human Resource Development Department is conducting regular training programme on these issues. Apart from this Vocational Training Centers are existing in all the Areas of BCCL, which provides periodical training on the safety and occupational health issue to the workers working in the mines. <b>Annexure XV.</b>
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.	<b>It is being complied.</b> Periodical Medical Examination (PME) of all the mining and other personnel is being carried out regularly at Area Hospital, Tisra as per the Statutes and Director General of Mines Safety (DGMS) guideline. <b>Annexure XVI.</b>
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.	<b>It has been complied.</b> A full-fledged Environment Department, headed by a Dy.GM (Environment) along with a suitable qualified multi-disciplinary team of executives and technicians has been established at Company Headquarters. One Executive in each area has also been nominated as Nodal Officer (Environment) and is also entrusted with the responsibility of compliance and observance of the environmental Acts/Laws including environment protection measures. The activities are monitored on regular basis at Area and at Headquarter levels.
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.	<b>It is being complied.</b> Funds for environmental protection measures area kept in separate head which is only used in environmental management activities. These funds are not diverted into any other works.
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 <a href="http://envfor.nic.in">http://envfor.nic.in</a> .	<b>It has been complied.</b> Advertisement in local newspaper has also been done.

# Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines

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<b>xiv</b>	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.	<b>It has been complied.</b>
<b>xv</b>	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.	<b>It has been complied.</b>
<b>xvi</b>	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 PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>x</sub> (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.	Environmental clearance and six monthly compliance of the EC conditions of the cluster have been uploaded on the company's website ( <a href="http://www.bcclweb.in">www.bcclweb.in</a> )
<b>xvii</b>	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 Offices of CPCB and the SPCB.	<b>It is being complied.</b> Six monthly compliance report is regularly send to (twice in a year) the Regional Office of MoEFCC, Ranchi along with required data and information both in hard copy along with soft copy.
<b>xviii</b>	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.	Project will extend its all possible support and cooperation to the Regional Office in any kind of monitoring/visit/data collection etc.

# Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines

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xix	The Environment statement for each financial year ending 31 March in Form-V is mandated to be submitted by the project proponent for the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MoEF by E-mail.	It is being complied. It is being submitted for all the mines of cluster VIII to Head Office of Jharkhand State Pollution Control Board for every Financial Year ending on 31 <sup>st</sup> March. Copy of the same have been also submitted to Regional Office.
-----	--	--

## C. Other Conditions by MOEF

i	The Ministry or any other Competent Authority may stipulate any further condition(s) for environmental protection.	Agreed
ii	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.	Agreed
iii	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.	Agreed
iv	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.	Agreed

  
Project Officer  
Bastacolla  
Colliery

  
Project Officer  
Bera Colliery

  
Project Officer  
Dobari Colliery

  
Project Officer  
Kuya Colliery

  
Project Officer  
Ghanoodih  
Colliery

  
Project Officer  
Kujama Colliery

**Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines**

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**Period: April 2017 to September 2017**

**Annexure- I**

**Coal Production from Cluster VIII**

<b>Month</b>	<b>Production (In Tonnes)</b>
<b>April 2017</b>	<b>345420</b>
<b>May 2017</b>	<b>308780</b>
<b>June 2017</b>	<b>328050</b>
<b>July 2017</b>	<b>285340</b>
<b>August 2017</b>	<b>320930</b>
<b>September 2017</b>	<b>299690</b>
<b>Total</b>	<b>1888210</b>



# Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines


EC No: J-11015/298/2010-IA.II(M) Dated 15.02.2013

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**Annexure-II**

## Study to Analyze the Extent of Pollution Reduction

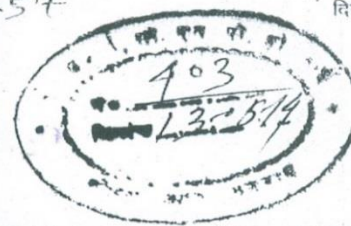
9



सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इन्स्टीच्यूट लिमिटेड  
(कोल इण्डिया लिमिटेड की अनुषंगी कम्पनी / भारत सरकार का एक लोक :  
गोन्दवाना प्लेस, काँके रोड, राँची - 834 031, झारखंड (भारत)  
Central Mine Planning & Design Institute Limited  
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)  
Gondwana Place, Kanke Road, Ranchi - 834 031, Jharkhand (IND)

पत्रांक: सी.एम.पी.डी. आई /2014/पर्यावरण /CMP-4/357 दिनांक: 28/04/14

सेवा में,  
Director (T) (P&P)  
Bharat Coking Coal Limited,  
Koyla Bhawan, Koyla Nagar  
Dhanbad - 826005



**विषय:** Studies required for compliance of environmental clearance conditions of BCCL mine under cluster concept.

**Ref:** (i) Letter no. - BCCL/GM(Env.)/File - EC/13 /622 dt. 24.5.13  
(ii) Letter no. CMPDI/BD/B(Env.)/439 dt. 12.9.13

Dear Sir,

The undersigned has been directed to convey that against the above referenced letter at Sl.No. (i), BCCL had enquired CMPDI about the presence of expertise and EDs required for carrying out the studies required for compliance of environmental clearance conditions of BCCL mine under cluster concept.

CMPDI vide letter referenced at Sl.No.(ii) informed BCCL regarding the willingness to undertake the studies and presence of expertise in the following areas -


1. Source Apportionment Study for the entire Jharia Coalfield
2. Continuous monitoring of long term impacts of dumping of fly ash
3. Time series of land use maps based on satellite imagery
4. Study to analyze the extent of pollution reduction
5. Monitoring performance of ecologically restored sites.

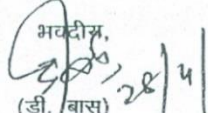
However it may be noted that the following studies are currently being carried out by CMPDI for BCCL -


1. Time series map of Jharia CF (isothermal imaging and monitoring of temperature)
2. Early warning system for detection of fire and subsidence
3. Continuous monitoring of behavior of mine fire, subsidence etc.

All above jobs except source apportionment studies are of continuous nature and since CMPDI has the expertise in carrying them out, it is requested that may be awarded to CMPDI.

सधन्यावाद,

  
cc: Regional Director, RI-2, CMPDI, Dhanbad :  
for kind information with a request to follow up with BCCL

  
(डी. बासु) 28/4/14  
महा.प्रबन्धक (पर्यावरण)



फोन नम्बर / Phone No : +91 651 2230055, फैक्स नम्बर / Fax No. : +91 651 2230055  
वेब साइट / Website Address : [www.cmpdi.co.in](http://www.cmpdi.co.in), e-mail - [gmenv.cmpdi@yahoo.co.in](mailto:gmenv.cmpdi@yahoo.co.in)

## Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines

EC No: J-11015/298/2010-IA.II(M) Dated 15.02.2013

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**Annexure-III**

### Global Expression of Interest (EoI)

For

Dealing with coal mine fires in lease hold of BCCL in Jharia Coalfield, Dhanbad, Jharkhand, India. Detailed scope of work as given in the document.

**LAST DATE OF SUBMISSION : 28.04.2014**

#### **1. BHARAT COKING COAL LIMITED: A PROFILE**

Bharat Coking Coal Limited incorporated in January, 1972 is a fully owned subsidiary of Coal India Limited a 'Maharatna' Public Sector Undertaking under the Ministry of Coal, Government of India. Being the sole repository of prime coking coal in the country, BCCL, at present operates 66 coal mines spread over in Jharia Coalfield and part of Raniganj Coalfield apart from 6 coking coal-washeries & 2 non-coking coal washeries. The mines are grouped under 12 areas for administrative convenience. BCCL has some unique inherent and perennial characteristics which adversely affect the normal operation of the Company. Difficult geo-mining conditions involving large number of overlaying coal seams, preponderance of old workings, high degree of gassiness, coal fires affecting working seams, water logged upper seams above current places of working, etc, restricts coal production and productivity. Besides, high density of population in the coal bearing areas limits the equipment size of opencast operations apart from being an impediment to acquisition of land for uninterrupted operations. In the year 2012-13, the company achieved a coal production of 31.21 million tone and offtake of 32.99 million tone thereby registering the highest ever the Turnover and Profitability (PAT) of Rs 10176.62 Cr. and Rs 1709.06 respectively. A brief description of the organizational structure and the detailed activities of Bharat Coking Coal Limited can be viewed in the website <http://www.bccl.gov.in>.

The mission is to produce planned quantity of coal efficiently and economically in an Eco-friendly manner with due regard to Safety, Conservation & Quality. The company strives to meet the growing demand of thermal as well as metallurgical coal in the country in an environmentally and socially sustainable manner.



**Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines**  
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SC-10

**2.2. Bidder's Credential Requirement:**

- i) The bidder(s) must have successfully dealt with mine fire in at least two coal mines, one open cast and one underground mine. The annual capacity of opencast and underground mines should be at least 2 Mt and 0.5 Mt respectively during last seven years of last financial year. The documentary proof of successful dealing with fire shall be submitted along with the bid.
- ii) The bidders in their name must have achieved a minimum average annual financial turnover of INR One Hundred Million or equivalent USD during last 3 years ending 31st March of previous financial year. The documentary evidence to this effect would be copies of audited Balance Sheet and Profit & Loss A/c duly countersigned by the authorized representative of bidding company and a declaration to the above effect duly signed by the authorized representative of bidding company & countersigned by a Chartered Accountant or equivalent.
- iii) The bidder must possess "key personnel" (minimum number) of the following categories with requisite qualification and experience :-

Sl. No	Skill of key personnel	Requisite Qualification	Minimum Experience	Minimum Nos. for eligibility
1.	Technical Expert (Mining/ Fire dealing/ Mine Rescue)	B.E /B.Tech (Mining) or equivalent	10 years.	10
2.	Technical Expert (Geology/Remote Sensing)	M. Sc (Geology) or equivalent	10 years	2
3.	Technical expert (Environment)	B. Tech/BE/M.Sc.(Envr) or equivalent	10 years	1
4.	Technical Expert (Infrastructure)	B. Tech /B.Tech (Mechanical / Electrical / Civil) or equivalent	10 years	3
5.	IT Expert	B.E /B.Tech/ M.Sc (Computer) or equivalent	10 years	1
6.	Financial Expert	MBA(Finance)/Chartered Accountant/ICWA or equivalent	10 years	1

Note :- The bidder shall designate one of the team members as the team leader.

The documentary evidence to this effect would be self-attested CVs including necessary competency certificate for work in Indian mines duly countersigned by the authorized representative of bidding company.

## Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines

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- iv) Copy of PAN (Permanent Account Number) with Income Tax Authority in India for bidder(s) from India.
- v) Copy of PAN Based Service Tax Registration Number in India for bidder (s) from India.

### 3.0 Availability of details for EOI :

Details for EOI including Terms and Conditions of EOI can be collected from the following place during the period as stated below:

Date: From 27.01.2014 to 26.02.2014.

Time: 10.00 AM to 1.00 PM (on all working days)

Office of the GM (CMC)  
Contract Management Cell, BCCL  
Level-V, Koyla Bhawan,  
Dhanbad - 826005

Details for EOI including Terms and Conditions of EOI can also be downloaded directly from the BCCL web-site <http://www.bccl.gov.in> and NIC Portal, website <http://www.tenders.gov.in> during the period as mentioned above.

### 4.0 Pre - EOI submission meeting :

Pre - EOI submission meeting will be held on 14.02.2014 at 11:00AM in the office of GM (CMC), BCCL, Level-V, Koyla Bhawan, Dhanbad for clarifications and discussion.

### 5.0 GENERAL INSTRUCTIONS FOR SUBMISSION OF EOI :

Expression of Interest (EOI) shall be submitted by the Consultants / agencies / firms / organizations in a sealed envelope superscribed with "EOI for Dealing with coal mine fires in lease hold of BCCL in Jharia Coalfield, Dhanbad, Jharkhand, India. Detailed scope of work as given in the document." giving EOI reference no. with date and full postal address & telephone nos. on the envelope.

### 6.0 RECEIPT OF EOI

EOI will be received in sealed envelopes up to 28.04.2014 at the following address only:

Office of the GM (CMC)  
Contract Management Cell, BCCL  
Level-V, Koyla Bhawan,  
Dhanbad - 826005

The offers may be submitted through post also. BCCL takes no responsibility for delay, loss or non receipt of the offers send by post. Fax offers or offers sent through e-mail shall not be accepted.

## Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines

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### 7.0 OPENING OF THE EOI :

EOI will be opened on 29.04.2014 at 04.00 PM in the office of the GM (CMC), BCCL, Level-V, Koyla Bhawan, Dhanbad-826005.

Bidders are requested to go through the details of EOI document & enclose all the required documents along with the proposal. Each page of the proposal shall be signed with seal.

9.0 Prospective parties may note that mere submission of EOI and / or submission of additional information do not automatically entitle them to claim for pre-qualification. BCCL reserves the right to seek for any other information during the process of evaluation, if required.

10.0 BCCL reserves the right to reject any / all the applications to EOI without assigning any reason(s) whatsoever thereof.

Sd/-  
General Manager  
(Contract Management Cell)

### Distribution :

1. PRO – With a request to publish the abridged EOI as enclosed in local as well as National dailies as per norms of the Company and also arrange to send the paper cutting of publication to the Contract Management Cell.
2. D(T)OP / D(T)P&P / D(F) / D(P) / CVO.
3. GM(Co-ordn) / GM(S&M) / GM(F)I/C / GM(M&M) / GM(E&M) / GM(Excv) / GM(P&P) / GM(IE) / GM(System) / Dy. GM (Env't.), BCCL
4. Sr.ES to CMD - for kind information of CMD.
5. HOD (Admn) with a request to display this EOI in Koyla Bhawan Notice Boards.
6. All CGMs/GMs of the Areas including Washery Zones for wide circulation through display in the Notice Boards.
7. Inspector, CISF- with a request to deploy security personnel at the office of GM (CMC), Level-V, Koyla Bhawan on 28.04.2014 from 9:30A.M to 4:00P.M and on 29.04.2014 from 3:30 PM till completion of the meeting.
8. Desk In-Charge, BCCL, M M Division, 4<sup>th</sup> floor, 6, Lyons Range, Kolkata.
9. CGM / GM (Contract Management Cell), WCL/SECL/NCL/MCL/ECL/CCL & CIL
10. Sri R.K. Choubey, Sr.DEO / Sri B N Banerjee, DEO, CMC Deptt. - to upload this EOI in BCCL Website and forward soft copy of NIC format to GM (System) for uploading the same at NIC portal website (soft copy of the same is enclosed for needful).

Sd/-  
General Manager  
(Contract Management Cell)

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**Annexure-IV**



झारखण्ड राज्य प्रदूषण नियंत्रण पर्वद्  
Jharkhand State Pollution Control Board  
HIG-1, Housing Colony, Dhanbad-826001

Ph: 0326-2204933

(7)

Letter No.....2650

Dated .....6/7/13.....

From,

Regional Officer,  
Dhanbad

To,

HOD (Env.),  
M/s. B.C.C.L.,  
Koyla Bhawan, Koyla Nagar,  
Dhanbad.

**Sub: Fixing up monitoring station/Sampling location of Air, Water & Noise.**

Sir,

With reference to you letter no. GM(Env.)/F-JSPCB/2013/783, dt. 06.07.2013 We have approved Air, Water & Noise monitoring Station/Sampling location after verification and return a copy of the map.

Encl-A/a.

Your's faithfully,

( Dinesh Prasad Singh )  
Regional Officer.

Memo.....

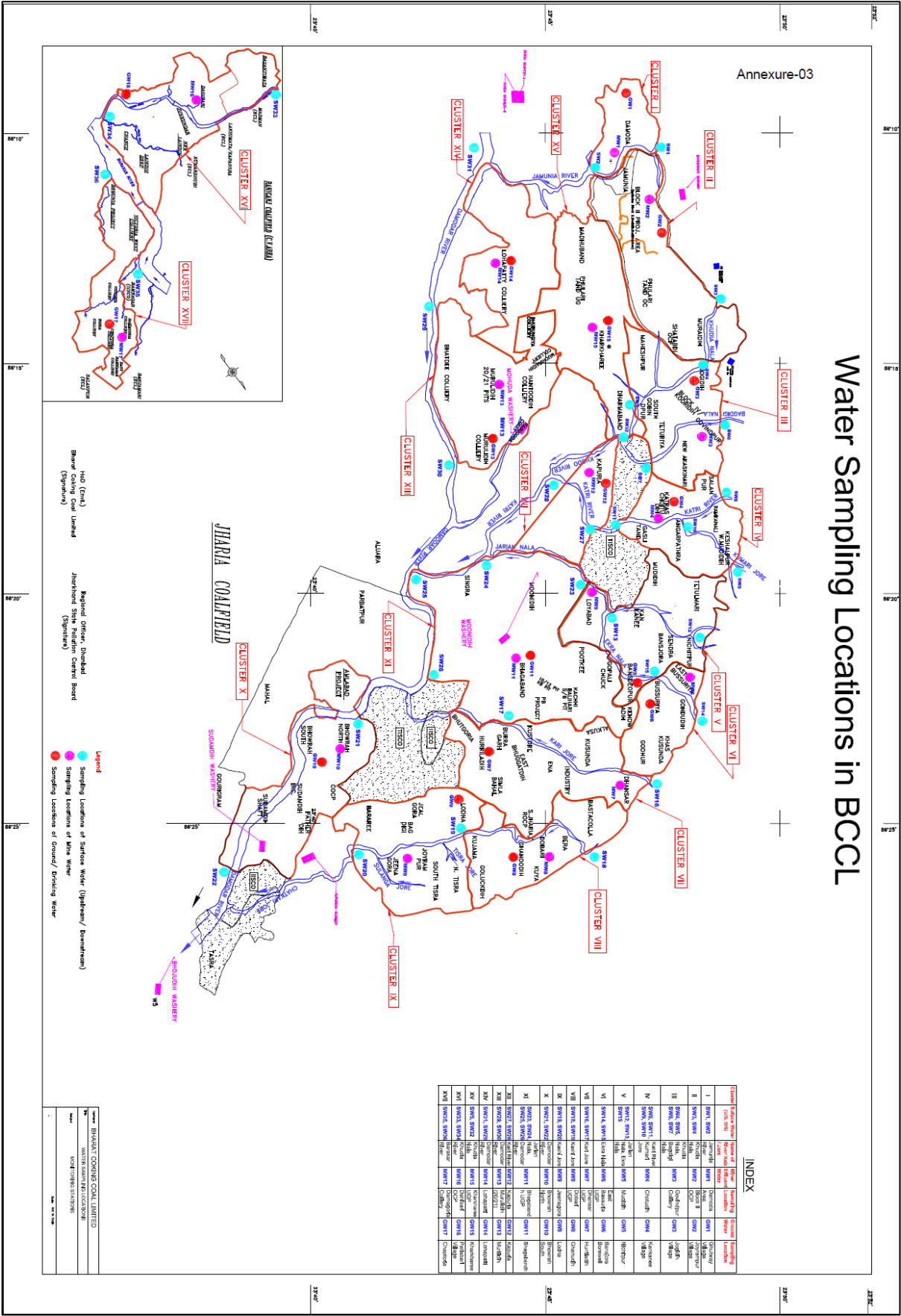
Dhanbad, dated.....

Copy to: The Member Secretary, Jharkhand State Pollution Control Board for information & enclose a copy of the map for necessary action.

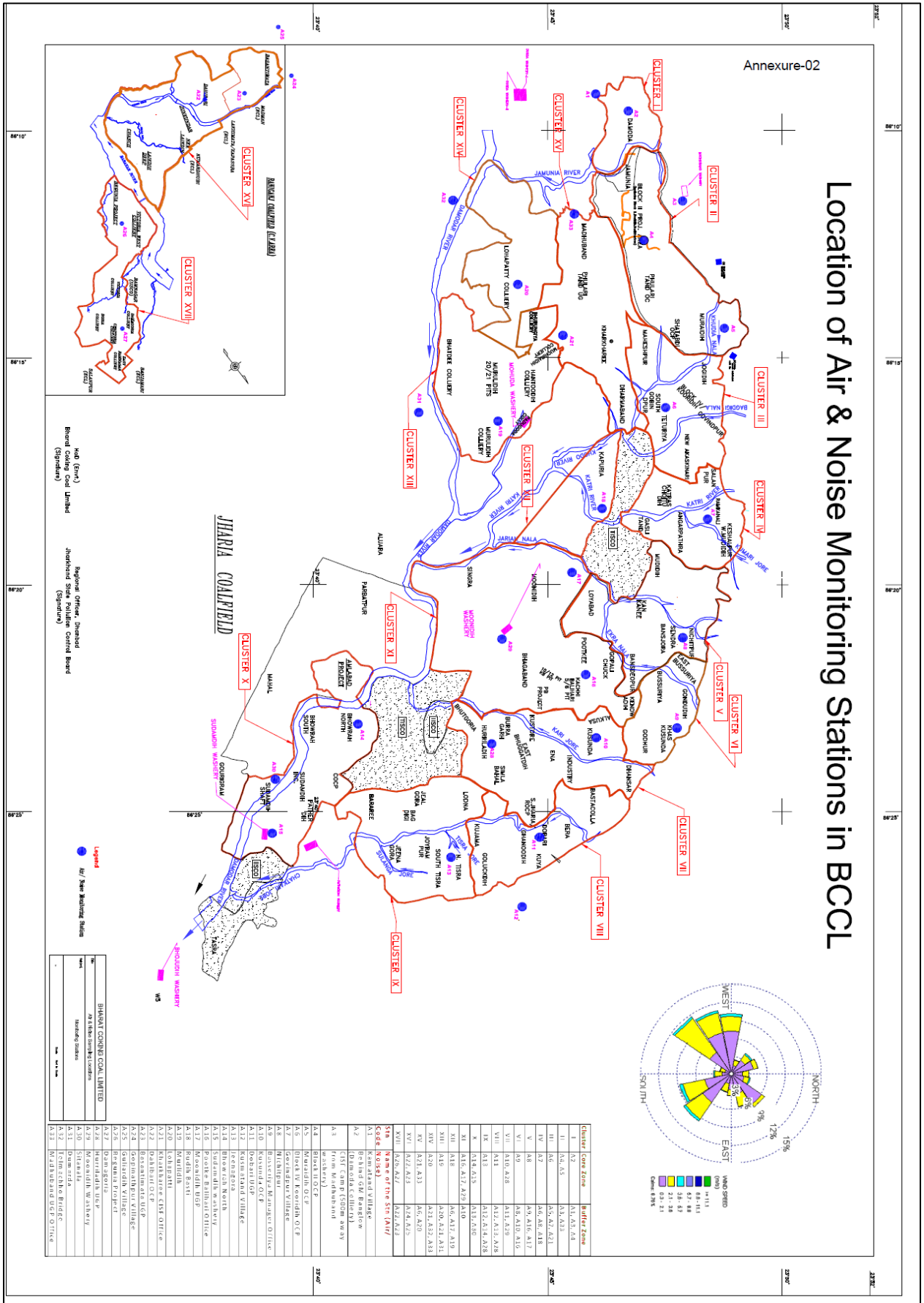
Encl-A/a.

(Dinesh Pd. Singh)  
Regional Officer.

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**Period: April 2017 to September 2017**

**Annexure-V**



## भारत कोकिंग कोल लिमिटेड

(कोल इंडिया लिमिटेड का एक अंग)

### BHARAT COKING COAL LIMITED

(A Subsidiary of Coal India Limited)

Corporate Identity No. (CIN): U10101JH1972GOI000918

Civil Engineering Department, Koyla Nagar, Dhanbad – 826 005 (JH), India.

Phone: 0326-2230338, FAX: 0326-2230338, e-mail: gmcivil@bccl.gov.in

Ref. No.: BCCL/CED/GM (C)/E-NIT-46//2014-15/1637

Date: 31.03.2015

### **Cancellation of Tender**

Name of the Work : **To conduct Source Apportionment Study for varying sources of gasses/smoke/dust emission from source to source for the entire Jharia Coalfields (within and up to 10 K.M from the periphery / boundary of BCCL, Dhanbad, Jharkhand).**

NIT Ref. No. : BCCL/CED/TC/e-NIT-46/2014-15/1289 dtd. 20.01.2015

Estimated Cost : Rs. 56,00,000.00

The above referred tender stands cancelled. Out of 3 bidders, no bidders qualified in Part – I tender. This issues with competent approval.

Sd/-

General Manager (Civil)

**Copy to:-**

- 1) CVO/D (T) P&P/D(T) OP, BCCL
- 2) GM (Envl.), Koyla Bhawan
- 3) Chief Manager (Civil), TC
- 4) Prof (Dr.) L.C Singhi, IAS (Retd.), L-31, Third Floor, Kailash Colony, New Delhi-110048
- 5) Shri Naresh Chaturvedi, IAS, (Retd.), CL-14, Sector – II, Salt Lake, Kolkata – 700 091
- 6) M/s Automotive Research Association of India, S. No. 102, Vetel Hill, Off Paud Road, Kothrud, Pune – 411 038, MH
- 7) The Energy and Resources Institute (TERI), Darbari Set Block, IHC Complex, Lodhi Road, New Delhi – 110 003
- 8) M/s Bhagavathi Ana Labs Limited, #8-2-248/5/A/42, Venkateshwara Hills, RoadNo. 3, Banjara Hills, Hyderabad – 500 034
- 9) Notice Board.

..... for kind information

**Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines**

**EC No: J-11015/298/2010-IA.II(M) Dated 15.02.2013**

**Period: April 2017 to September 2017**



**COAL INDIA LIMITED**  
**कोल इण्डिया लिमिटेड**  
**ENVIRONMENT DIVISION**  
**पर्यावरण विभाग**

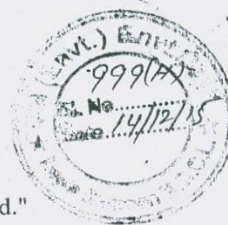
Corporate Identity Number: L23109WB1973GOI028844  
COAL BHAWAN, Premises No -04MAR Plot no - AF-III, Action Area- IA  
RAJARHAT , NEW TOWN KOLKATA - 700156,  
E-mail: [cgmenv.cil@gov.in](mailto:cgmenv.cil@gov.in), Web: [www.coalindia.in](http://www.coalindia.in)  
TEL: 033-23246638 / FAX: 033-23244232

CIL/ENV/2015-16/ 7000

09/12/2015

प्रति,

General Manager(Environment)/ HOD (Environment),  
ECL, BCCL, CCL, NCL, SECL, WCL, CMPDIL, NEC, MCL,



Sub: MoU between Coal India Ltd. & NEERI for "Sustainable Coal Mining in Coal India Ltd."

महोदय,

In view of the directive of 321 th CIL Board held on 15 th October 2015 pertaining to enter into a long term MoU between CIL and CSIR -NEERI for identification of environmental issues through assessment of monitoring data of CIL and preparing an action plan for implementing the same in coal mining, MoU has been signed between Coal India Ltd and National Environmental Engineering Research Institute Ranchi, on 3/12/2015.

Copy of the MoU is enclosed herewith for your information.

मुख्यप्रबंधक / पर्यावरण  
सी. आई. एल.,

संलग्न : उपर्युक्त


मुख्यप्रबंधक / पर्यावरण  
सी. आई. एल.,

**Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines**

**EC No: J-11015/298/2010-IA.II(M) Dated 15.02.2013**

**Period: April 2017 to September 2017**

**Annexure-VI**

<p>भारत कोकिंग कोल लिमिटेड एक मिनीरत्न कंपनी (कोल इंडिया लिमिटेड का एक अंग) पंजीकृत कार्यालय कोयला भवन, कोयला नगर, (धनबाद) झारखंड-826005 CIN:U10101JH1972GOI000918 Tele: 0326 2230174 FAX: 0326 2230176 ईमेल : <a href="mailto:cgmsafety@bccl.gov.in">cgmsafety@bccl.gov.in</a></p>		<p>Bharat Coking Coal Limited A Miniratna Company (A subsidiary of Coal India Ltd) Office of GM I/C(S&amp;R) Koyla Bhawan, Koyla Nagar, Dhanbad, Jharkhand-826005 CIN:U10101JH1972GOI000918 Tele: 0326 2230174 FAX: 0326 2230176 Email: <a href="mailto:cgmsafety@bccl.gov.in">cgmsafety@bccl.gov.in</a></p>
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पत्र संख्या भाकोकोलि/उप महाप्रबंधक(एस&आर)/I/C/संचिका-MP/17 323 दिनांक:-07.04.2017

To,  
Dr, Vinod Kumar,  
Group Head, Geosciences group  
National Remote Sensing Center  
India Space Research Organization  
Dept of Space, Govt of India,  
Balanagar, Hyderabad - 500037

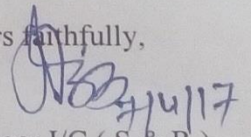
Sub:- Work –Order for “ Delineation of Surface Coal Fire and associated Land Subsidence  
in Jharia Coalfield, Jharkhand using satellite based remote – sensing techniques”

Dear Sir,

Consequent upon competent approval of proposal on aforesaid subject and subsequent signing o MOU between BCCL and NRSC, the aforesaid work is awarded to NRSC for Rs.18,10500/- ( Eighteen lac ten thousand five hundred ) only, against 100% payment in advance subject to terms and conditions listed in MOU. As per agreed payment terms and Demand Note No. 07/2016-17,

You are therefore requested to initiate all necessary activities for commencing the subject work as early as possible.

Thanking you,

Yours faithfully,  
  
General Manager I/C ( S & R )

Cc to :  
1. Director (T) P&P, BCCL- for kind information.  
2. TS to CMD, BCCL – for kind information.  
✓ 3. Sri Mithilesh Kumar, Sr.Mgr.(M),Safety.Deptt., KoylaBhawan

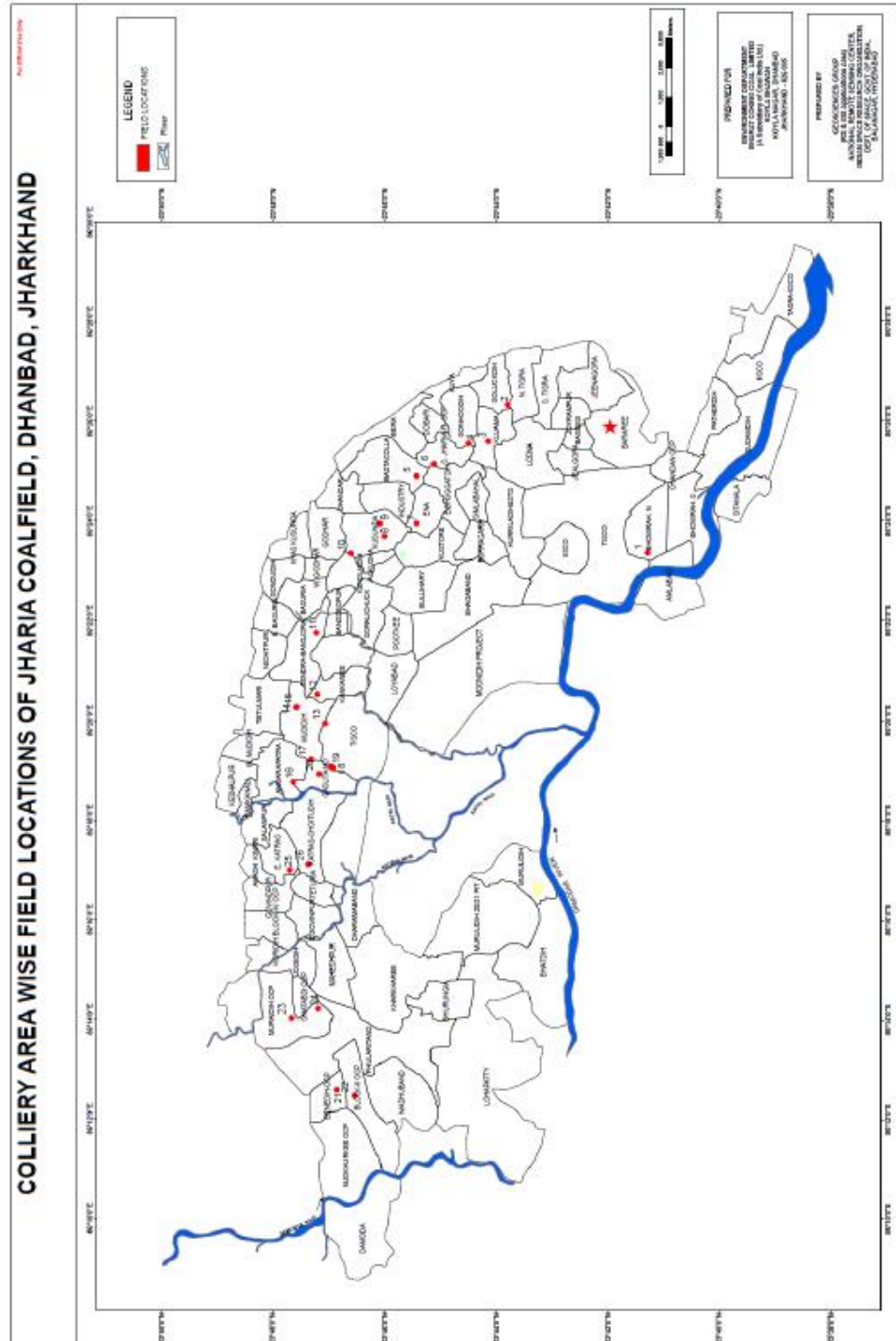


**DELINEATION OF SURFACE COAL FIRE IN  
THE JHARIA COALFIELD, DHANBAD,  
JHARKHAND USING REMOTE SENSING DATA**

**GEOSCIENCES GROUP  
RS & GIS APPLICATIONS AREA  
NATIONAL REMOTE SENSING CENTRE  
INDIAN SPACE RESEARCH ORGANISATION  
DEPT. OF SPACE, GOVT. OF INDIA  
HYDERABAD-500 037  
MARCH, 2014**



**Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines**  
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**Figure 7: Field locations of coal mine fire shown over colliery area boundary in Jharia coal field, Dhanbad, Jharkhand.**

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NRSC/RSA/GSD/BCCL/Project Report/April2014

5. There is a decrease in areal extent of the fire (Figure 10) from 2006 to 2012.

*Note: Estimations of fire extent (in terms of sq.km.) both in 2006 and in the present 2012 study are pixel based. They do not represent the actual ground area under fire. These estimations are made for comparative purpose only, to indicate the increase or decrease of areal disposition of fire. Hence, they should not be quoted as fire area on the ground.*

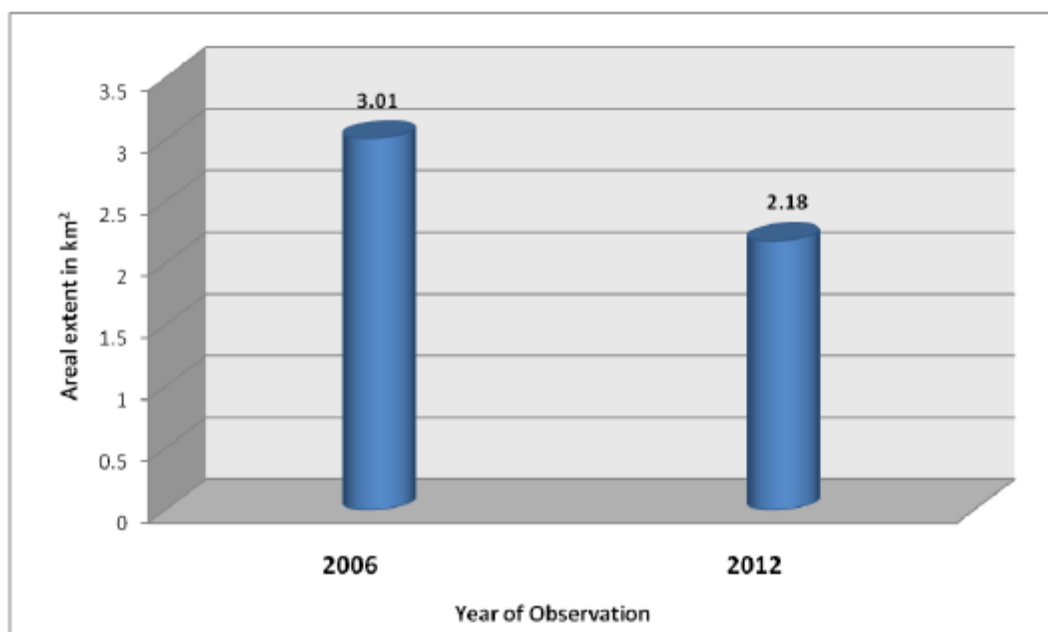


Figure 10: Total fire area statistics





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## **GROUNDWATER LEVEL & QUALITY**

### **REPORT**

### **FOR CLUSTER OF MINES, BCCL**

**(Assessment year - 2016)**

[CLUSTER – I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XIII, XIV, XV & XVI]

**JHARIA COALFIELD AND RANIGANJ COALFIELD (PART)**

**(BHARAT COKING COAL LIMITED)**

**MARCH – 2017**

Regional Institute – II

**Central Mine Planning & Design Institute Ltd.**

(An ISO 9001:2000 Company)

(A Subsidiary of Coal India Ltd.)

Koyla Bhawan Complex, Koyla Nagar

DHANBAD – 826005

**Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines**  
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**Period: April 2017 to September 2017**

CMPDI

### 3.3 H Monitoring of Ground Water Levels of Cluster-VIII

Cluster-VIII consists of ten mines namely: Bastacolla mixed mines (OC & UG), Bera mixed mines (OC & UG), Dobari UG, Kuya mixed (OC & UG), proposed Goluckdih (NC) OC, Ghanoodih OC and Kujama OC under the administrative control of Bastacolla Area of BCCL. This Cluster of mines is located in eastern part of Jharia Coalfield in Dhanbad district of Jharkhand.

The present leasehold area of Cluster-VIII is 1200.41 Ha. The area has a general undulating topography with general slope towards south and south-west. The ground elevation in the area ranges from 175 m to 221 m AMSL. Chatkari Jore, Tisra Jore and its tributaries controlling the drainage pattern of the area. The area comes under the watershed of Chatkari Jore.

4 hydrograph stations (D-8, D-43, D-49 and D-51) are located in the core zone of the mine area. Water level monitoring in these monitoring stations has been done in the months of February, April, August & November'2016 and the Ground water level data is enclosed in the table below:

Sl No.	Well No.	Location	Water level (bgl in meters)			
			Feb'16	Apr'16	Aug'16	Nov'16
1	D-8	Alokdiha	4.65	8.00	2.70	3.43
2	D-43	Alagdih	4.17	8.20	1.90	3.35
3	D-49	Galucdih	2.00	2.45	0.28	1.72
4	D-51	Chankuiya	8.80	11.15	3.58	6.45
<b>Average WL (bgl)</b>			<b>4.91</b>	<b>7.45</b>	<b>2.12</b>	<b>3.74</b>

Ground Water Level (in bgl) varies from 2.0 to 8.80 m during February, 2.45 to 11.15 m during April, 0.28 to 3.58 m during August and 1.72 to 6.45 m during November'2016 within the Core Zone of Cluster-VIII area.

#### 4.0 GROUNDWATER LEVEL SCENARIO

During the month of February'2016 the depth to water level (in bgl) within 15 nos Cluster of mines varies from 0.46 m to 12.80 m with an average varies from of 2.04 m to 7.49 m. During the month of April'2016 the depth to water level varies from 0.78 m to 16.73 m with an average varies from 2.94 m to 10.09 m. During the month of August'2016 the depth to water level varies from 0.20 m to 3.58 m with an average varies from 0.68 m to 2.12 m. During the month of November'2016 the depth to water level varies from 0.30 m to 12.43 m with an average varies from 1.76 m to 6.46 m. The summarized water level data of all clusters are given in **Table No – 4**.

Depth to water level (in bgl) values described that water level goes down to maximum 16.73 m during pre-monsoon'2016 and maximum upto 12.43 m during post-monsoon'2016. Un-confined aquifer is affected around 20 m to 30 m maximum close to active opencast mining areas, showing steep gradient towards mine void. Other than that, there is no mining effect in the water level within JCF area and RCF area (part). Historical water level data and hydrograph of permanent observation stations from CGWB shown in **Annexure-III**.

Monitoring groundwater (quantity & quality) to assess the present condition and resource has been done regularly in the coalfield areas. Well hydrographs (**Annexure-III**) are prepared and studied to identify potentially adverse trends so that appropriate action can be taken to protect groundwater resource. According to the hydrograph trend analysis of CGWB monitoring wells, no significant decline trend of water level is noticed in any particular area for the last 10 years within the coalfield area. Regarding quality monitoring, the water sample location map (**Figure No-2**) with collection points details (dug wells) are given in **Annexure-IV**.

**Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines**  
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**Period: April 2017 to September 2017**

CMPDI

**Table No-4: Groundwater level data Cluster-wise**

Sl. No.	Cluster of DGOL	No. of Monitoring Wells	Water level fluctuation Below ground level (Feb, Apr, Aug & Nov '16)	Formation
1	I	4 nos.	0.40 to 6.45 m	Barakar
2	II	5 nos.	0.50 to 9.36 m	Barakar
3	III	5 nos.	0.35 to 10.33 m	Barakar
4	IV	5 nos.	0.35 to 8.93 m	Barakar
5	V	1 nos.	0.20 to 5.70 m	Barakar
6	VI	2 nos.	0.25 to 4.45 m	Barakar
7	VII	6 nos.	0.20 to 6.55 m	Barakar
8	VIII	4 nos.	0.28 to 11.15 m	Barakar
9	IX	6 nos.	0.45 to 9.40 m	Barakar
10	X	4 nos.	0.25 to 9.52 m	Barakar
11	XI	5 nos.	0.65 to 7.49 m	Barakar & Barren Measure
12	XIII	5 nos.	0.40 to 11.87 m	Raniganj
13	XIV	3 nos.	1.09 to 10.63 m	Raniganj
14	XV	4 nos.	1.09 to 16.73 m	Barakar & Barren Measure
15	XVI	4 nos.	0.53 to 10.65 m	Barakar



# Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines

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Period: April 2017 to September 2017

CMPDI

**Table No-6: Cluster-wise Groundwater development scenario**

Cluster/ Area	Administrative Blocks/Stage Of GW Development	Total Water demand (cum/day)				Avg. GW level (bgl in m) 2016		GW level declining trend 2005-2016		Remarks
		Mine Discharge	Surface Water Source	Total Use (Domestic +Industrial +Others)	Excess Or other use	Pre- monsoon	Post- monsoon	Pre- monsoon	Post- monsoon	
Cluster-I	Bermo 44%	2950	NIL	2123	827	4.23	2.40	NO	NO	-
Cluster-II	Baghmara 60%	8350	Jamunia river	7265	1085	6.64	3.26	NO	NO	-
Cluster-III	Baghmara 60%	10,960	NIL	7290	3670	5.72	3.65	NO	NO	-
Cluster-IV	Baghmara 60%	5900	MADA (Damodar river)	5900	NIL	4.84	2.30	NO	NO	
Cluster-V	Baghmara 60%	11,025	MADA	5214	1811	5.32	1.76	YES	NO	Excess water stored into abandoned UG
Cluster-VI	Dhanbad 142%	4150	MADA (Damodar river)	4150	NIL	3.43	2.55	YES	YES	Artificial recharge structure needed
Cluster-VII	Dhanbad 143%	14,920	MADA	14,639	281	2.94	2.32	NO	NO	
Cluster-VIII	Jharia 112%	9320	MADA	5474	3846	7.45	3.74	NO	NO	Excess water stored into abandoned UG & FF
Cluster-IX	Jharia 112%	12,980	MADA	9714	3266	4.92	3.41	NO	NO	Excess water stored into abandoned UG & FF
Cluster-X	Jharia 112%	11,825	Damodar river	6525	5300	5.75	3.68	YES	NO	Excess water stored into abandoned UG & OC
Cluster-XI	Dhanbad 143%	31,530	MADA & DVC	18,825	12,705	4.11	2.73	NO	YES	Excess water used F.P
Cluster-XIII	Baghmara 60%	4774	Damodar river	4116	658	7.82	3.93	NO	NO	-
Cluster-XIV	Baghmara 60%	2600	DVC	1875	725	8.99	3.66	NO	NO	
Cluster-XV	Baghmara 60%	6200	Jamunia river	4147 +1800 (ponds)	253	19.00	6.48	NO	YES	Excess water store into surface barrage
Cluster-XVI	Nirsa 30%	3380	DVC (Barakar river)	2450	930	6.24	3.18	NO	NO	

**Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines**  
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**Period: April 2017 to September 2017**

CMPDI

Annexure – VA

# GROUNDWATER QUALITY DATA (DUG WELLS)

Month: February 2016

Stations: 7. Cluster-VII (GW-7), Dhansar,  
8. Cluster-VIII (GW-8), Ghanudih,  
9. Cluster-IX (GW-9), Jealgora,

Date: 29/02/2016  
Date: 29/02/2016  
Date: 29/02/2016

Sl. No	Parameter	Sampling Stations			Detection Limit	IS:1656 Drinking Water Standards	Standard / Test Method
		7	8	9			
1	Boron (as B), mg/l, Max	<0.20	<0.20	<0.20	0.20	0.5	APHA, 22 <sup>nd</sup> Edition, Carmin
2	Colour, in Hazen Units	<1	3	<1	1	5	APHA, 22 <sup>nd</sup> Edition, Pt - Co. Method
3	Calcium (as Ca), mg/l, Max	42	78	59	1.60	75	IS-3025/46:1991, EDTA
4	Chloride (as Cl), mg/l, Max	90	100	36	2.00	250	IS-3025/52:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03	<0.03	0.03	0.05	IS-3025/42:1992 R-2009, AAS-Flame
6	Fluoride (as F) mg/l, Max	0.26	0.66	0.77	0.02	1.0	APHA, 22 <sup>nd</sup> Edition, SPADNS
7	Free Residual Chlorine, mg/l, Min	0.03	0.04	0.02	0.02	0.2	APHA, 22 <sup>nd</sup> Edition, DPD
8	Iron (as Fe), mg/l, Max	<0.06	<0.06	<0.06	0.06	0.3	IS-3025/53:2003, R-2009, AAS-Flame
9	Lead (as Pb), mg/l, Max	<0.005	<0.005	<0.005	0.005	0.01	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
10	Manganese (as Mn), mg/l, Max	<0.02	<0.02	<0.02	0.02	0.1	IS-3025/59:2006, AAS-Flame
11	Nitrate (as NO <sub>3</sub> ), mg/l, Max	16	9	5	0.5	45	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
12	Odour	Agreeable	Agreeable	Agreeable	Qualitative	Agreeable	IS-3025/66:1983, R-2012, Qualitative
13	pH value	7.93	8.06	8.26	0.2	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l, Max	<0.001	<0.001	<0.001	0.001	0.001	APHA, 22 <sup>nd</sup> Edition, 4-Amino Antipyrine
15	Selenium (as Se), mg/l, Max	<0.002	<0.002	<0.002	0.002	0.01	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
16	Sulphate (as SO <sub>4</sub> ) mg/l, Max	76	88	78	2.00	200	APHA, 22 <sup>nd</sup> Edition, Turbidity
17	Taste	Acceptable	Acceptable	Acceptable	Qualitative	Acceptable	APHA, 22 <sup>nd</sup> Edition, Taste
18	Total Alkalinity (CaCO <sub>3</sub> ), mg/l, Max	152	244	228	4.00	200	IS-3025/23:1986, Titration
19	Total Arsenic (as As), mg/l, Max	<0.002	<0.002	<0.002	0.002	0.01	IS-3025/37:1988 R-2003, AAS-VGA
20	Total Chromium (as Cr), mg/l, Max	<0.04	<0.04	<0.04	0.04	0.05	IS-3025/52:2003, AAS-Flame
21	Total Dissolved Solids, mg/l, Max	388	650	420	25.00	500	IS-3025/16:1984 R-2006, Gravimetric
22	Total Hardness (CaCO <sub>3</sub> ), mg/l, Max	156	408	256	4.00	200	IS-3025/21:1983, R-2002, EDTA
23	Turbidity, NTU, Max	<1	5	<1	1.0	1	IS-3025/10:1984 R-1996, Nephelometric
24	Zinc (as Zn), mg/l, Max	0.045	0.024	0.018	0.01	5.0	IS-3025/49:1994, R-2009, AAS-Flame

\*Sampling location details and sampling date has been given in Annexure-IV.

\*Sampling location details and sampling date has been given in Annexure-IV.

# Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines

EC No: J-11015/298/2010-IA.II(M) Dated 15.02.2013

Period: April 2017 to September 2017

## Annexure-VIII

### Transportation Plan for Conveyor



**cmpdi**  
A Mini Ratna Company

सेंट्रल माईन प्लानिंग एण्ड डिजाइन इंस्टीट्यूट लिमिटेड  
( कोल इंडिया लिमिटेड की अनुषंगी कम्पनी / भारत सरकार की एक लोक उपक्रम )  
पंजीकृत कार्यालय : गोंदवाना प्लेस , कान्के रोड , राँची - 834031 ( झारखण्ड ) भारत  
क्षेत्रीय संस्थान-2, पत्रा. बीसीसीएल टाउनशिप, कोयला नगर, धनबाद 826005 (झारखण्ड) भारत  
Central Mine Planning & Design Institute Limited  
( A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking )  
Registered Office : Gondwana Place, Kanke Road, Ranchi -834031(Jharkhand)  
Regional Institute-II, P.O. BCCL Township, Koylanagar, Dhanbad 826005(Jharkhand) India  
Corporate Identity No. U14292JH1975GOI001223

पत्रांक: आर.आई.-2/पर्यावरण/एम-30/1150

दिनांक: 20.06.2015

✓ सेवा में,  
उप महाप्रबंधक (पर्यावरण)  
बी. सी. सी. एल.  
कोयला भवन  
धनबाद ।



**विषय: Study of installation of Rail-cum-Conveyor System in BCCL for transportation of coal.**

महोदय,

This has reference to your letter no. BCCL/GM(Env.)/F-EC/13/622, dated 25.05.2013 for conducting the study and preparation of plan for installation of Rail-cum-Conveyor System for coal transportation in BCCL as a part of compliance of environmental clearance (EC) conditions stipulated by MoEF & CC in EC orders of different clusters. In this regard, we would like to inform you the following:

- As per EC clearance order transportation plan for Rail-cum-Conveyor system should dovetailed with Jharia Action Plan (Master Plan). The system of transportation is required to be installed in 2<sup>nd</sup> phase of EC implementation i.e. after completion of Master Plan (10 years) and 5 years of gestation period.
- JRDA has issued direction to RITES for traffic survey and data collection to initiate feasibility study regarding Diversion of Railway lines from fire affected and subsidence prone areas
- Coal transportation route / conveyor installation layout will be finalized after liquidation of coal mine fire, rehabilitation of 595 unstable sites, road and rail route alignment and location of Rly. Sidings of BCCL.

CMPDI will be able to submit the plan / study for installation of Rail-cum-Conveyor System in BCCL for transportation of coal only after diversions and re-alignments of roads and railway lines and relocation of railway sidings

This is for your kind information.

Sd/- Anantashu 26  
for compliance purpose.

*[Signature]*  
23/6/15

भवदीय  
*[Signature]*  
( वि. कु. सिन्हा )  
क्षेत्रीय निदेशक



☎ : (+91) 0326-2230850

फैक्स / Fax : (+91) 0326-2230500

वेब साइट / Website : [www.cmpdi.co.in](http://www.cmpdi.co.in)

ईमेल / Email : [ri2@cmpdi.co.in](mailto:ri2@cmpdi.co.in)

**Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines**

**EC No: J-11015/298/2010-IA.II(M) Dated 15.02.2013**

**Period: April 2017 to September 2017**

**Annexure-IX**

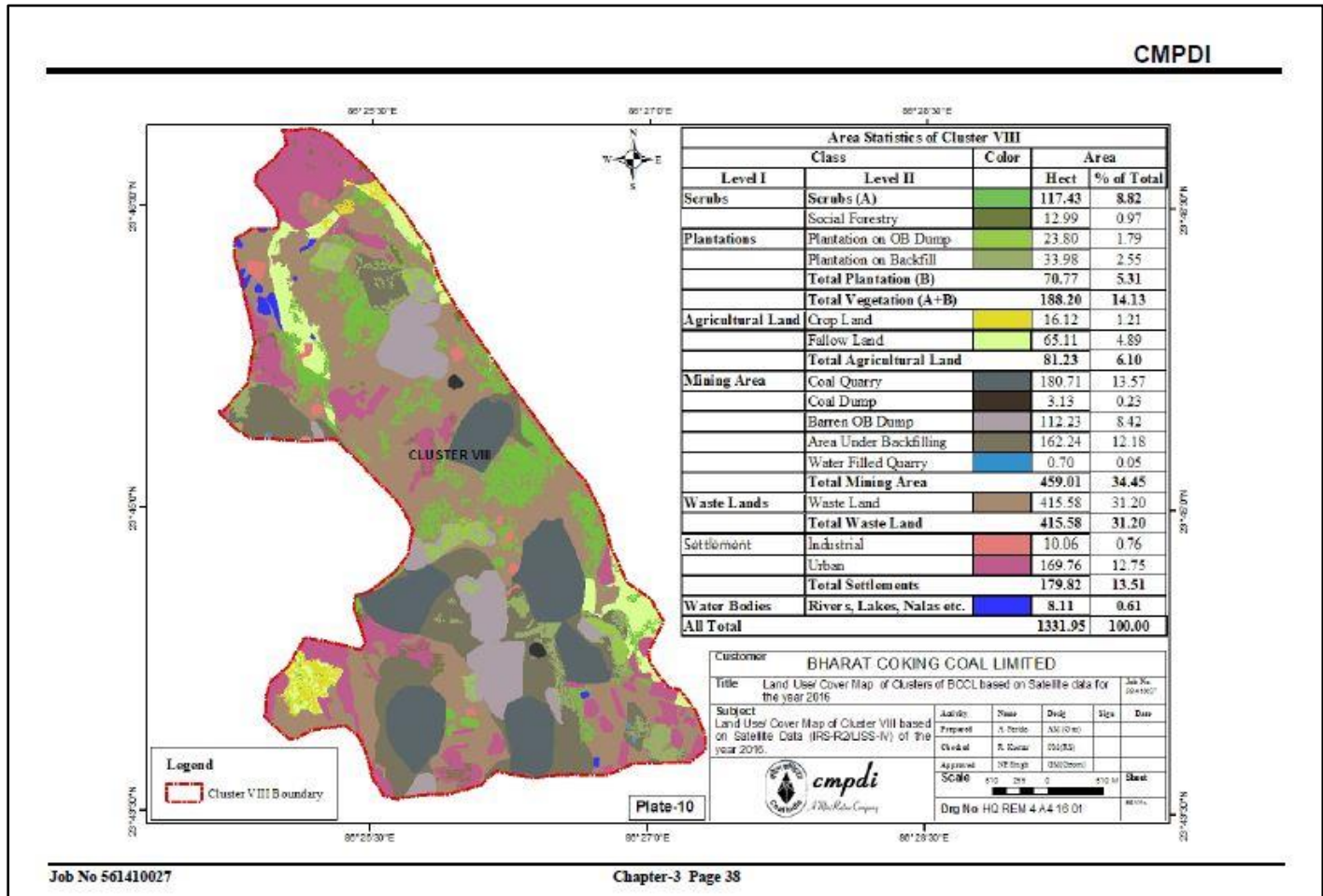
**R&R of PAFs**

<b>Sl. No.</b>	<b>Name of Colliery</b>	<b>No of PAFs Rehabilitated/Shifted till date</b>
1	Bastacolla Colliery	Nil
2	Bera Colliery	Nil
3	Dobari Colliery	119
4	Ghanoodih Colliery	568
5	Kuya Colliery	282
6	Kujama Colliery	201
<b>Total</b>		<b>1170</b>



**Period: April 2017 to September 2017**

### Landuse Map generated from Remote Sensing Data



## Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines

EC No: J-11015/298/2010-IA.II(M) Dated 15.02.2013

Period: April 2017 to September 2017

**Annexure-XI**



**BHARAT COKING COAL LIMITED**  
(A Subsidiary of Coal India Limited – A Maharatna Company)

### **CORPORATE ENVIRONMENTAL POLICY**

Bharat Coking Coal Limited (BCCL), a subsidiary of Coal India Limited, is a Public Sector Undertaking engaged in mining of coal and allied activities. It is the only producer of Prime Coking Coal in India. BCCL was incorporated in 1972 to operate coking coal mines operating in the Jharia and Raniganj Coalfields. Currently, the Company operates 66 coal mines and 8 Coal Washeries.

Our mission is to produce the planned quantity of coal efficiently and economically with due regard to safety, conservation and quality. BCCL affirms its commitment for environment friendly mining with right mitigation of pollution, reclamation of the degraded land, preservation of biodiversity and proper disposal of waste following the best environmental practices including judicious use of the non-renewable energy on the path of continual improvement. Towards this commitment, BCCL shall endeavor to:

- ❖ Conduct mining and associated operations in an environmentally responsible manner to comply with applicable laws and other requirements related to environmental aspects.
- ❖ Design projects with due consideration of Sustainable Development by integrating sound environmental management practices in all our activities.
- ❖ Prevent pollution of surrounding habitation by continuous monitoring and adopting suitable measures for environment protection.
- ❖ Ensure compliance of all applicable Environmental and Forest Clearance conditions and other statutory conditions issued by regulatory agencies.
- ❖ Implement the Environmental Management Plans in all our mines effectively to mitigate pollutions on air, water and noise; proper disposal of wastes and reclamation and ecological restoration of degraded land; and by also dovetailing the Jharia action/ Master Plan for dealing with Fires, Subsidence and Rehabilitation of affected people with the Environmental Management Plans under the Cluster Concept.
- ❖ Strive to conserve Bio-Diversity through Ecological restoration methods.
- ❖ Conserve natural resources through recycling of wastes on the principle of Reduce, Recycle and Reuse. Put special thrusts on efficient energy utilization as a measure to reduce carbon foot-print.
- ❖ Strive for continual improvement in our environmental performances by setting targets, measuring progress and taking corrective action.
- ❖ Create environmental awareness among the employees and the local communities through pro-active communication and training and encourage our business associates to adopt similar approach for environmental protection.

Place: Dhanbad  
Date: 25.5.12

  
Chairman-cum-Managing Director

**Chairman-cum-Mg. Director**  
**BHARAT COKING COAL LIMITED**  
Koyla Bhawan, Dhanbad-826 005

## Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines

EC No: J-11015/298/2010-IA.II(M) Dated 15.02.2013

Period: April 2017 to September 2017

**Annexure-XII**

**Air Quality Data**

5

### CHAPTER-II

#### AMBIENT AIR QUALITY MONITORING

##### 2.1 Location of sampling station and their rationale:

(as per G.S.R. 742 (E) dt. 25th December, 2000)

##### 2.1.1 Ambient Air Quality Sampling Locations

##### I. CORE ZONE Monitoring Location

##### i) Dobari UGP (A11) : Industrial Area

The location of the sampling station is 23°45'422" N & 86°24' 241" E. The sampler was placed at Ground level of Safety Office. The station was selected to represent the impact of mining activities of Kusunda area, poor roads condition, heavy public traffic, burning of coal by the surrounding habitants

##### II. BUFFER ZONE Monitoring Location

##### i) Jeenagora (A13) : Industrial Area

The location of the sampling station is 23° 42. 536' N & 86° 24. 664' E. The sampler was placed at a height of 1.5 m from the ground level at the Safety Office.

##### ii) Hurriladih UGP (A28) : Industrial Area

The location of the sampling station is 23°44' 65" N & 86° 24. 101' E. The sampler was placed at a height of 1.5 m from the ground level of the mine office.

##### iii) Kusmatand Village (A12): Industrial Area

The selection of this location was on the basis of studying the impacts of the Mining on the nearby villages which are situated in the buffer zones of the Cluster.

##### 2.2 Methodology of sampling and analysis

Parameters chosen for assessment of ambient air quality were Particulate Matter (PM<sub>10</sub>), Particulate Matter (PM<sub>2.5</sub>), Sulphur di-oxide (SO<sub>2</sub>) and Nitrogen oxides (NO<sub>x</sub>). Respirable Dust Samplers (RDS) & fine particulates for PM<sub>2.5</sub> sampler were used for sampling PM<sub>10</sub> & PM<sub>2.5</sub> respectively at 24 hours interval once in a fortnight and the same for the gaseous pollutants. The samples were analysed in Environmental Laboratory of CMPDI, RI-II, Dhanbad.



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**2.3 Results & Interpretations**

The results of Ambient Air Quality are presented in tabular form along with Bar chart for each monitoring station. The interpretations of different parameters are given below:

**2.3.1 Ambient air quality**

**Particulate Matter PM<sub>10</sub>**

In **core zone** under **Industrial area** varies from 64 to 161  $\mu\text{g}/\text{m}^3$   
In **buffer zone** in **Industrial area** varies from 49 to 173  $\mu\text{g}/\text{m}^3$

**Particulate Matter PM<sub>2.5</sub>**

In **core zone** under **Industrial area** varies from 33 to 68  $\mu\text{g}/\text{m}^3$   
In **buffer zone** in **Industrial area** varies from 36 to 87  $\mu\text{g}/\text{m}^3$

**Sulphur Dioxide:**

In **core zone** under **Industrial area** varies from <10 to 11  $\mu\text{g}/\text{m}^3$   
In **buffer zone** in **Industrial area** varies from 10 to 13  $\mu\text{g}/\text{m}^3$

**Oxides of Nitrogen:**

In **core zone** under **Industrial area** varies from 24 to 34  $\mu\text{g}/\text{m}^3$   
In **buffer zone** in **Industrial area** varies from 18 to 32  $\mu\text{g}/\text{m}^3$

Job No-200316028

CLUSTER VIII, BCCL ENVIRONMENTAL MONITORING REPORT

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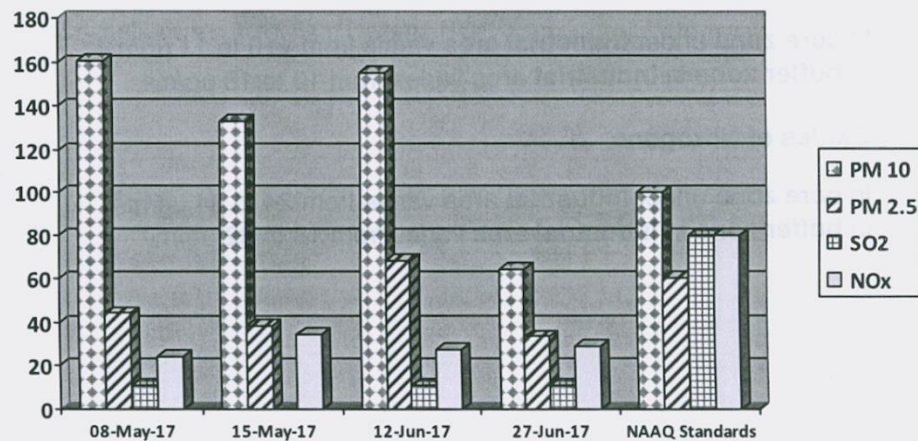
7

### AMBIENT AIR QUALITY DATA

Name of the Company: **Bharat Coking Coal limited** Year : **2017-18**  
 Name of the Cluster : **Cluster – VIII** Q.E.: **Jun, 2017**  
 Station Code/Name: **(a) A11 Dobari UGP** Category: **Industrial.**  
 ZONE: **Core**

**(a). Station Code/Name: A11 – Dobari UGP, Category: Industrial.**

Sl. No.	Dates of sampling	PM 10	PM 2.5	SO <sub>2</sub>	NO <sub>x</sub>
1	08-MAY-17	161	44	11	24
2	15-MAY-17	133	38	<10	34
3	12-JUNE-17	155	68	11	27
4	27-JUNE-17	64	33	11	29
	NAAQ Standards	100	60	80	80



### Trace Metal analysis report of Ambient Air Quality

Parameters	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Mercury (Hg)	Nickel (Ni)	Led (Pb)
Concentration(µg/m <sup>3</sup> )	<0.005	<0.001	<0.01	<0.001	<0.1	<0.005

**Note:**

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

*सुमन सेठी, रुद्र*  
 Analysed By  
 JSA/SA/SSA

*U*  
 Checked By  
 Lab In Charge  
 RI-2, CMPDI, Dhanbad

*21/6/19*  
 Approved By  
 HOD(Mining/Environment)  
 RI-2, CMPDI, Dhanbad

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### AMBIENT AIR QUALITY DATA

Name of the Company: **Bharat Coking Coal limited**

Year : **2017-18**

Name of the Cluster : **Cluster – VIII**

Q.E.: **Jun, 2017**

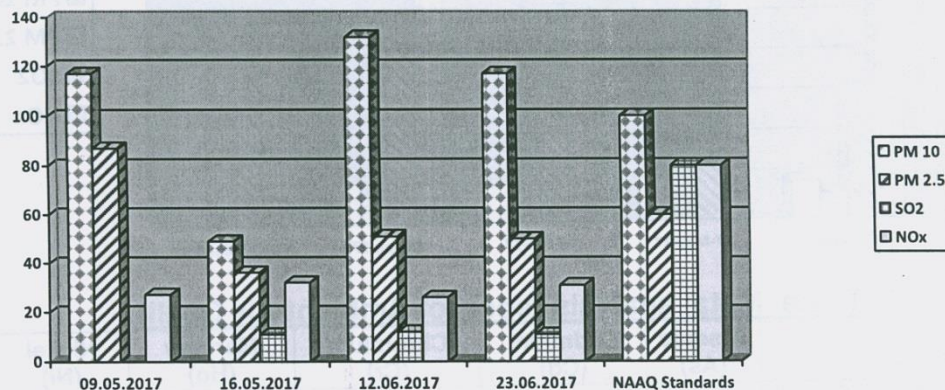
**Station Code/Name:** (a) A13 Jeenagora  
 (b) A28 Hurriladih UGP  
 (c) A12 Kusmatand Village

**Category:**  
**Industrial.**

**ZONE: BUFFER**

**(a). Station Code/Name: A13 – Jeenagora, Category: Industrial**

Sl. No.	Dates of sampling	PM 10	PM 2.5	SO <sub>2</sub>	NO <sub>x</sub>
1	09.05.2017	117	87	<10	27
2	16.05.2017	49	36	11	32
3	12.06.2017	132	51	12	26
4	23.06.2017	117	50	11	31
	NAAQ Standards	100	60	80	80



### Trace Metal analysis report of Ambient Air Quality

Parameters	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Mercury (Hg)	Nickel (Ni)	Led (Pb)
Concentration(µg/m <sup>3</sup> )	<0.005	<0.001	<0.01	<0.001	<0.1	<0.005

**Note:**

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

*Analysed By*  
**JS/SA/SSA**

*Checked By*  
**Lab In Charge**  
**RI-2, CMPDI, Dhanbad**

*Approved By*  
**HOD(Mining/Environment)**  
**RI-2, CMPDI, Dhanbad**

CLUSTER VIII, BCCL ENVIRONMENTAL MONITORING REPORT

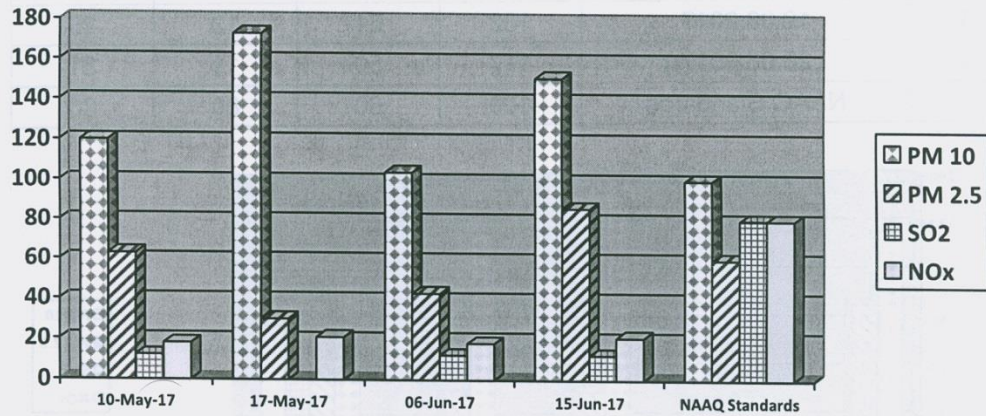


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(b).Station Code/Name: A28 Huririladih UGP      Category: Industrial.

Sl. No.	Dates of sampling	PM 10	PM 2.5	SO <sub>2</sub>	NO <sub>x</sub>
1	10- May - 17	120	63	12	18
2	17- May - 17	173	30	<10	21
3	06- June - 17	104	43	12	18
4	15- June - 17	151	86	12	21
	NAAQ Standards	100	60	80	80



**Trace Metal analysis report of Ambient Air Quality**

Parameters	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Mercury (Hg)	Nickel (Ni)	Lead (Pb)
Concentration( $\mu\text{g}/\text{m}^3$ )	<0.005	<0.001	<0.01	<0.001	<0.1	<0.005

**Note:**

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

*Sumit Saini, JSA*

Analysed By  
JSA/SA/SSA

*[Signature]*

Checked By  
Lab In Charge  
RI-2, CMPDI, Dhanbad

*21/6/17*

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HOD(Mining/Environment)  
RI-2, CMPDI, Dhanbad



# Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines

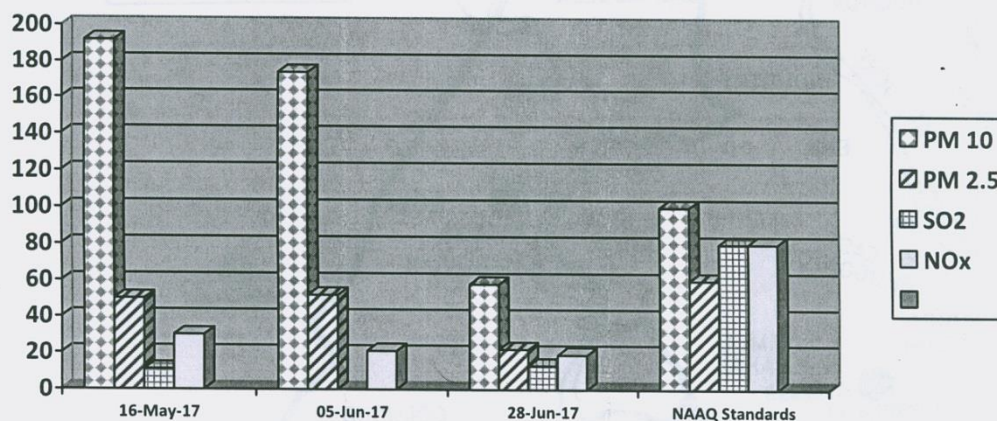
EC No: J-11015/298/2010-IA.II(M) Dated 15.02.2013

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(b).Station Code/Name: A12 Kusmatand Village Category: Buffer.

Sl. No.	Dates of sampling	PM 10	PM 2.5	SO <sub>2</sub>	NO <sub>x</sub>
1	16- May - 17	192	50	11	30
2	05- June - 17	174	52	<10	21
3	28- June - 17	58	22	13	19
	NAAQ Standards	100	60	80	80



## Trace Metal analysis report of Ambient Air Qualit

Parameters	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Mercury (Hg)	Nickel (Ni)	Led (Pb)
Concentration( $\mu\text{g}/\text{m}^3$ )	<0.005	<0.001	<0.01	<0.001	<0.1	<0.005

### Note:

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

सुमन सेठी, रुद्र

Analysed By  
JSA/SA/SSA

U

Checked By  
Lab In Charge  
RI-2, CMPDI, Dhanbad

21/6/17

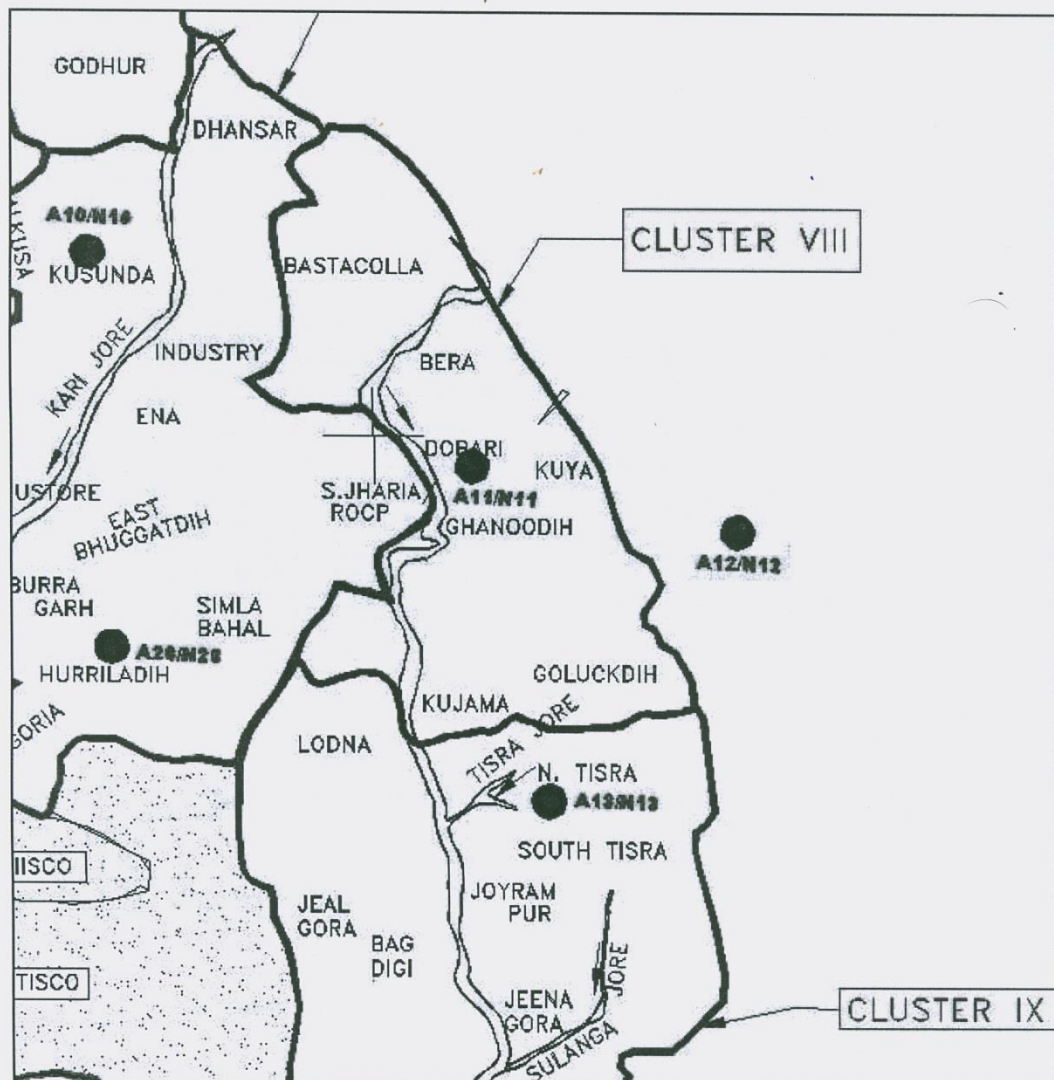
Approved By  
HOD(Mining/Environment)  
RI-2, CMPDI, Dhanbad

CLUSTER VIII, BCCL ENVIRONMENTAL MONITORING REPORT

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**Ambient Air Monitoring Stations in Cluster- VIII in Core & Buffer Zones**



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**Ambient Air Quality Standards for Jharia Coal Field**  
**As per the Environment (Protection) Amendment Rules, 2000 notified vide**  
**notification, G.S.R. 742(E), dated 25.9.2000.**

Category	Pollutant	Time weighted average	Concentration in Ambient Air	Method of Measurement
1	2	3	4	5
<b>III</b> Coal mines located in the coal fields of <ul style="list-style-type: none"> <li>• Jharia</li> <li>• Raniganj</li> <li>• Bokaro</li> </ul>	Suspended Particulate Matter (SPM)	Annual Average *  24 hours **	500 µg/m <sup>3</sup>  700 µg/m <sup>3</sup>	- High Volume Sampling (Average flow rate not less than 1.1 m <sup>3</sup> /minute)
	Respirable Particulate Matter (size less than 10 µm) (RPM)	Annual Average *  24 hours **	250 µg/m <sup>3</sup>  300 µg/m <sup>3</sup>	Respirable Particulate Matter sampling and analysis
	Sulphur Dioxide (SO <sub>2</sub> )	Annual Average *  24 hours **	80 µg/m <sup>3</sup>  120 µg/m <sup>3</sup>	1.Improved wet and Gaeke method 2.Ultraviolet fluorescene
	Oxide of Nitrogen as NO <sub>2</sub>	Annual Average *  24 hours **	80 µg/m <sup>3</sup>  120 µg/m <sup>3</sup>	1. Jacob & Hochheiser Modified (Na-Arsenic) Method 2. Gas phase Chemilumine-scence

**Note:**

\* Annual Arithmetic mean for the measurements taken in a year, following the guidelines for frequency of sampling laid down in clause 2.

\*\* 24 hourly / 8 hourly values shall be met 92% of the time in a year. However, 8% of the time it may exceed but not on two consecutive days.



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## CHAPTER - IV

### NOISE LEVEL QUALITY MONITORING

#### 4.1 Location of sampling sites and their rationale

i) **Dobari UGP (N11)**

To assess the noise level in mine site, the noise levels were recorded in the mine area where all mining activities are in progress.

ii) **Jeenagora (N13)**

To assess the noise level in mine site, the noise levels were recorded in the mine area where all mining activities are in progress.

iii) **Hurriladih UGP (N28)**

To assess the noise level in the industrial area, noise levels were recorded during day as well as night time in the colony.

iv) **Kusmatand Village (N12)**

To assess the noise level in the village area, noise levels were recorded during day as well as night time in the colony.

#### 4.2 Methodology of sampling and analysis

Noise level measurements in form of 'LEQ' were taken using Integrated Data Logging Sound Level Meter (NL-52 OF RION CO. Ltd. Make) during day time. Noise levels were measured for about one hour time in day time. Noise levels were measured in Decibels, 'A' weighted average, i.e. dB (A).

#### 4.3 Results & Interpretations

Ambient noise levels were recorded during day time and the observed values were compared with standards prescribed by MoEF&CC.

The results of Noise levels recorded during day time on fortnightly basis are presented in tabular form along with the applicable standard permissible limits. The observed values in terms of LEQ are presented.

The observed values at all the monitoring locations are found to be within permissible limits.

# Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines

EC No: J-11015/298/2010-IA.II(M) Dated 15.02.2013

Period: April 2017 to September 2017

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## NOISE LEVEL DATA

Name of the Company: **Bharat Coking Coal Limited** Year : **2017-18.**

Name of the Cluster: **Cluster -VIII** Month: **May, 2017.**

Name of the Stations & Code :  
 1. Dobari UGP (N11)  
 2. Jeenagora (N13)  
 3. Hurriladih UGP (N28)  
 4. Kusmatand Village (N12)

### (a) First Fortnight

Sl. No.	Station Name/Code	Category of area	Date	Noise level dB(A)LEQ	*Permissible Limit of Noise level in dB(A)
1	Dobari UGP (N11)	Industrial area	08.05.17	58.6	75
2	Jeenagora (N13)	Industrial area	09.05.17	59.1	75
3	Hurriladih UGP (N28)	Industrial area	10.05.17	63.1	75

### (b) Second Fortnight

Sl. No.	Station Name/Code	Category of area	Date	Noise level dB(A)LEQ	*Permissible Limit of Noise level in dB(A)
1	Dobari UGP (N11)	Industrial area	15.05.17	59.1	75
2	Jeenagora (N13)	Industrial area	16.05.17	60.8	75
3	Hurriladih UGP (N28)	Industrial area	17.05.17	61.2	75
4	Kusmatand Village (N12)	Residential Area	16.05.17	53.8	55

\*Permissible limits of Noise Level as per MOEF Gazette Notification No. GSR 742(E) dt. 25.09.2000 Standards for Coal Mines and Noise Pollution (Regulation and Control) Rules, 2000.

\* Day Time: 6.00 AM to 10.00 PM.

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### NOISE LEVEL DATA

Name of the Company: **Bharat Coking Coal Limited** Year : **2017-18.**

Name of the Cluster: **Cluster -VIII**

Month: **June, 2017.**

Name of the Stations & Code :

1. Dobari UGP (N11)
2. Jeenagora (N13)
3. Hurriladih UGP (N28)
4. Kusmatand Village (N12)

**(c) First Fortnight**

Sl. No.	Station Name/Code	Category of area	Date	Noise level dB(A)LEQ	*Permissible Limit of Noise level in dB(A)
1	Dobari UGP (N11)	Industrial area	12.06.17	57.9	75
2	Jeenagora (N13)	Industrial area	12.06.17	60.1	75
3	Hurriladih UGP (N28)	Industrial area	06.06.17	62.2	75
4	Kusmatand Village (N12)	Residential Area	05.06.17	50.7	55

**(d) Second Fortnight**

Sl. No.	Station Name/Code	Category of area	Date	Noise level dB(A)LEQ	*Permissible Limit of Noise level in dB(A)
1	Dobari UGP (N11)	Industrial area	27.06.17	58.1	75
2	Jeenagora (N13)	Industrial area	23.06.17	62.3	75
3	Hurriladih UGP (N28)	Industrial area	15.06.17	60.7	75
4	Kusmatand Village (N12)	Residential Area	28.06.17	51.6	55

*\*Permissible limits of Noise Level as per MOEF Gazette Notification No. GSR 742(E) dt. 25.09.2000 Standards for Coal Mines and Noise Pollution (Regulation and Control) Rules, 2000.*

*\* Day Time: 6.00 AM to 10.00 PM.*



### CHAPTER – III

## WATER QUALITY MONITORING

#### 3.1 Location of sampling sites (Refer Plate No. - II)

- i) **Mine Discharge of Dobari UGP (MW8)**  
A sampling point is fixed to assess the effluent quality of Mine discharge. This location is selected to monitor effluent discharge in to Kashi jore.
- ii) Ground Water quality at **Ghanudih (GW8)**
- iii) Surface Water quality at **U/S of Kashi Jore (SW18)**
- iv) Surface Water quality at **D/S of Kashi Jore (SW19)**

#### 3.2 Methodology of sampling and analysis

Water samples were collected as per standard practice. The effluent samples were collected and analysed for four parameters on fortnightly basis & was analysed for 27 parameters on half yearly basis. The drinking and Surface water samples were collected and analyzed for 25 and 17 parameters respectively, on quarterly basis. Thereafter the samples were preserved and analysed at the Environmental Laboratory at CMPDI (HQ), Ranchi.

#### 3.3 Results & Interpretations

The results are given in tabular form along with the applicable standards. Results are compared with Schedule - VI, effluent prescribed by MoEF&CC. Results show that most of the parameters are within the permissible limits.



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**WATER QUALITY DATA**  
**(EFFLUENT WATER- FOUR PARAMETERS)**

Name of the Company: **Bharat Coking Coal Limited** Year : **2017-18**

Name of the Cluster: **Cluster - VIII**

Month: **May, 2017.**

Name of the Stations & Code :

**1. MW8- Mine Discharge of Dobari UGP**

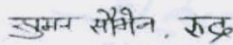
**First Fortnight**


Sl. No.	Parameters	MW8 (Mine Discharge )	As per MOEF General Standards for schedule VI
		08.05.2017	
1	Total Suspended Solids	28	100 (Max)
2	pH	8.48	5.5 - 9.0
3	Oil & Grease	<2.0	10 (Max)
4	COD	20	250 (Max)

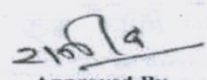
**Second Fortnight**

Sl. No.	Parameters	MW8 (Mine Discharge )	As per MOEF General Standards for schedule VI
		16.05.2017	
1	Total Suspended Solids	36	100 (Max)
2	pH	8.41	5.5 - 9.0
3	Oil & Grease	<2.0	10 (Max)
4	COD	28	250 (Max)

\*All values are expressed in mg/lit unless specified.

  
 Analysed By  
 JSA/SA/SSA

  
 Checked By  
 Lab In Charge  
 RI-2, CMPDI, Dhanbad

  
 Approved By  
 HOD(Mining/Environment)  
 RI-2, CMPDI, Dhanbad

**Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines**  
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**Period: April 2017 to September 2017**

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**WATER QUALITY DATA**  
**(EFFLUENT WATER- FOUR PARAMETERS)**

Name of the Company: **Bharat Coking Coal Limited** Year : **2017-18**

Name of the Cluster: **Cluster - VIII**

Month: **June, 2017.**

Name of the Stations & Code :

**1. MW8- Mine Discharge of Dobari UGP**

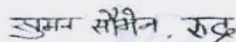
**First Fortnight**

Sl. No.	Parameters	MW8 (Mine Discharge ) 12.06.2017	As per MOEF General Standards for schedule VI
1	Total Suspended Solids	28	100 (Max)
2	pH	7.51	5.5 - 9.0
3	Oil & Grease	<2.0	10 (Max)
4	COD	44	250 (Max)

**Second Fortnight**

Sl. No.	Parameters	MW8 (Mine Discharge ) 27.06.2017	As per MOEF General Standards for schedule VI
1	Total Suspended Solids	56	100 (Max)
2	pH	7.17	5.5 - 9.0
3	Oil & Grease	<2.0	10 (Max)
4	COD	32	250 (Max)

\*All values are expressed in mg/lit unless specified



Analysed By  
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Checked By  
Lab In Charge  
RI-2, CMPDI, Dhanbad



Approved By  
HOD(Mining/Environment)  
RI-2, CMPDI, Dhanbad

**Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines**  
**EC No: J-11015/298/2010-IA.II(M) Dated 15.02.2013**  
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**WATER QUALITY**  
**(SURFACE WATER- ALL PARAMETERS)**

Name of the Company: **Bharat Coking Coal Limited** Year : **2017-18.**

Name of the Cluster: **Cluster - VIII** Period: **Q. E. June, 2017.**

Area : **Dobari UGP**

Project: **Dobari UGP**

Cluster **VIII**

Stations:

1. Upstream in Kashi Jore SW-18
2. Downstream in Kashi Jore SW-19

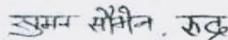
Date of Sampling:

30/05/2017

30/05/2017

Sl. No	Parameter	Sampling Stations				Detection Limit	BIS Standard & Method
		SW-18	SW-19				
1	Arsenic (as As), mg/l, Max	0.002	<0.002			0.002	IS 3025/37:1988 R : 2003, AAS-VGA
2	BOD (3 days 27°C), mg/l, Max	3.1	3.5			2.00	IS 3025 /44: 1993, R : 2003 3 day incubation at 27°C
3	Colour ( Hazen Unit)	Colourless	Colourless			Qualitative	APHA, 22 <sup>nd</sup> Edition ?Pt.-Co Method
4	Chlorides (as Cl), mg/l, Max	26	29			2.00	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03			0.03	IS 3025 /42 : 1992 R : 2009, AAS-Flame
6	Disolved Oxygen, min.	5.1	4.7			0.10	IS 3025/381989, R : 2003, Winkler Azide
7	Fluoride (as F) mg/l, Max	0.65	0.66			0.02	APHA, 22 <sup>nd</sup> Edition SPADNS
8	Hexavalent Chromium, mg/l, Max	<0.01	<0.01			0.01	APHA, 22 <sup>nd</sup> Edition, 1,5 - Diphenylcarbohydrazide
9	Iron (as Fe), mg/l, Max	0.151	0.173			0.06	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
10	Lead (as Pb), mg/l, Max	0.026	0.124			0.005	APHA, 22 <sup>nd</sup> Edition AAS-GTA
11	Nitrate (as NO <sub>3</sub> ), mg/l, Max	1.20	5.18			0.50	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
12	pH value	7.54	7.51			≥2.5	IS-3025/11:1983, R-1996, Electrometric
13	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l, Max	<0.002	<0.002			0.002	APHA, 22 <sup>nd</sup> Edition 4-Amino Antipyrine
14	Selenium (as Se), mg/l, Max	<0.002	<0.003			0.002	APHA, 22 <sup>nd</sup> Edition AAS-GTA
15	Sulphate (as SO <sub>4</sub> ) mg/l, Max	56	62			2.00	APHA, 22 <sup>nd</sup> Edition Turbidity
16	Total Dissolved Solids, mg/l, Max	506	622			25.00	IS 3025 /16:1984 R : 2006, Gravimetric
17	Zinc (as Zn), mg/l, Max	0.099	0.322			0.01	IS 3025 /49 : 1994, R : 2009, AAS-Flame


All values are expressed in mg/lit unless specified.



Analysed By  
JSA/SA/SSA



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Lab In Charge  
RI-2, CMPDI, Dhanbad



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RI-2, CMPDI, Dhanbad

Cluster – VIII, BCCL Environmental Monitoring Report



**Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines**  
**EC No: J-11015/298/2010-IA.II(M) Dated 15.02.2013**  
**Period: April 2017 to September 2017**

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**WATER QUALITY**  
**(GROUND WATER- ALL PARAMETERS)**

Name of the Company: **Bharat Coking Coal Limited** Year : **2017-18**  
Name of the Cluster: **Cluster - VIII** Period: **Q. E. June, 2017.**  
Area : **Dobari UGP** Project: **Dobari UGP** Cluster **VIII**

Stations:

1. Ground Water from Ghanudih GW-8

Date of Sampling:  
27/05/2017

Sl. No	Parameter	Sampling Stations			Detection Limit	IS:10500 Drinking Water Standards	Standard / Test Method
		GW-8	2	3			
1	Boron (as B), mg/l, Max	<0.20			0.20	0.5	APHA, 22 <sup>nd</sup> Edition ,Carmine
2	Colour,in Hazen Units	1			1	5	APHA, 22 <sup>nd</sup> Edition ,Pt.-Co. Method
3	Calcium (as Ca), mg/l, Max	10			1.60	75	IS-3025/40:1991, EDTA
4	Chloride (as Cl), mg/l, Max	76			2.00	250	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03			0.03	0.05	IS 3025/42 : 1992 R : 2009, AAS-Flame
6	Fluoride (as F) mg/l, Max	1.00			0.02	1.0	APHA, 22 <sup>nd</sup> Edition , SPADNS
7	Free Residual Chlorine, mg/l, Min	<0.02			0.02	0.2	APHA, 22 <sup>nd</sup> Edition, DPD
8	Iron (as Fe), mg/l, Max	0.107			0.06	0.3	IS 3025 /53 : 2003, R : 2009, AAS-Flame
9	Lead (as Pb), mg/l, Max	0.974			0.005	0.01	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
10	Manganese (as Mn), mg/l, Max	0.117			0.02	0.1	IS-3025/59:2006, AAS-Flame
11	Nitrate (as NO <sub>3</sub> ), mg/l, Max	15.81			0.5	45	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
12	Odour	Agreeable			Qualitative	Agreeable	IS 3025 /05:1983, R-2012, Qualitative
13	pH value	7.60			≥2.5	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l, Max	<0.001			0.001	0.001	APHA, 22 <sup>nd</sup> Edition, 4-Amino Autipyrine
15	Selenium (as Se), mg/l, Max	<0.002			0.002	0.01	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
16	Sulphate (as SO <sub>4</sub> ) mg/l, Max	30			2.00	200	APHA, 22 <sup>nd</sup> Edition. Turbidity
17	Taste	Acceptable			Qualitative	Acceptable	APHA, 22 <sup>nd</sup> Edition. Taste
18	Total Alkalinity (CaCO <sub>3</sub> ), mg/l, Max	180			4.00	200	IS-3025/23:1986, Titration
19	Total Arsenic (as As), mg/l, Max	<0.002			0.002	0.01	IS 3025/ 37:1988 R : 2003, AAS-VGA
20	Total Chromium (as Cr), mg/l, Max	<0.04			0.04	0.05	IS-3025/52:2003, AAS-Flame
21	Total Dissolved Solids, mg/l, Max	529			25.00	500	IS 3025 /16:1984 R : 2006, Gravimetric
22	Total Hardness (CaCO <sub>3</sub> ), mg/l, Max	56			4.00	200	IS-3025/21:1983, R-2002, EDTA
23	Turbidity, NTU, Max	1			1.0	1	IS-3025/10:1984 R-1996, Nephelometric
24	Zinc (as Zn), mg/l, Max	0.084			0.01	5.0	IS 3025/ 49 : 1994, R : 2009, AAS-Flame
25	Nickel (as Zn), mg/l, Max	0.052			0.01	5.0	IS 3025/ 49 : 1994, R : 2009, AAS-Flame

अनुमन सेमिन, रुद्र  
Analysed By  
JSA/SA/SSA

  
Checked By  
Lab In Charge  
RI-2, CMPDI, Dhanbad

  
Approved By  
HOD(Mining/Environment)  
RI-2, CMPDI, Dhanbad

\*All values are expressed in mg/lit unless specified.

**Six Monthly Environmental Clearance Compliance Report of Cluster VIII Group of Mines**  
**EC No: J-11015/298/2010-IA.II(M) Dated 15.02.2013**  
**Period: April 2017 to September 2017**

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**WATER QUALITY**  
**(MINE EFFLUENT- 27 PARAMETERS)**

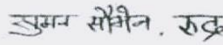
Name of the Company: **Bharat Coking Coal Limited** Year : **2017-18.**


Name of the Cluster : **Cluster -XI** PERIOD: **Q. E. June- 2017.**

Area : **Bastacolla** Project: **Dobari** Cluster **VIII**

Stations: 1. Mine Water Discharge Dobari UGP MW-8 Date of Sampling: 27/06/2017  
 2.

Sl.No.	Parameter	Sampling Stations			Detection Limit	MOEF -SCH-VI STANDARDS Class 'A'	BIS Standard & Method
		MW-8	2	3			
1	Ammonical Nitrogen, mg/l, Max	0.7			0.02	50.0	IS 3025/34:1988, R : 2009, Nessler's
2	Arsenic (as As), mg/l, Max	<0.002			0.002	0.2	IS 3025/37:1988 R : 2003, AAS-VGA
3	B.O.D (3 days 27°C), mg/l, Max	<2.00			2.00	30.0	IS 3025 /44:1993,R:2003 3 day incubation at 27°C
4	COD, mg/l, Max	32			4.00	250.0	APHA, 22 <sup>nd</sup> Edition, Closed Reflux, Titrimetric
5	Colour	Colorless			Qualitative	Qualitative	Physical/Qualitative
6	Copper (as Cu), mg/l, Max	<0.03			0.03	3.0	IS 3025/42: 1992 R : 2009, AAS-Flame
7	Dissolved Phosphate, mg/l, Max	0.30			0.30	5.0	APHA, 22 <sup>nd</sup> Edition Molybdovanadate
8	Fluoride (as F) mg/l, Max	0.071			0.02	2.0	APHA, 22 <sup>nd</sup> Edition, SPADNS
9	Free Ammonia, mg/l, Max	<0.01			0.01	5.0	IS:3025/34:1988, Nessler's
10	Hexavalent Chromium, mg/l, Max	<0.01			0.01	0.1	APHA, 22 <sup>nd</sup> Edition, Diphenylcarbohydrazide
11	Iron (as Fe), mg/l, Max	0.6			0.06	3.0	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
12	Lead (as Pb), mg/l, Max	<0.0005			0.005	0.1	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
13	Manganese(as Mn), mg/l, Max	0.4			0.02	2.0	IS-3025/59:2006, AAS-Flame
14	Nickel (as Ni), mg/l, Max	<0.10			0.10	3.0	IS-3025/54:2003, AAS-Flame
15	Nitrate Nitrogen, mg/l, Max	1.3			0.50	10.0	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
16	Oil & Grease, mg/l, Max	<2.00			2.00	10.0	IS 3025/39:1991, R : 2003, Partition Gravimetric
17	Odour	Agreeable			Agreeable	Qualitative	Is-3015/5:1983/R:2012/Qualitative
18	pH value	7.17			2.5	5.5 to 9.0	IS-3025/11:1983, R-1996, Electrometric
19	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH),mg/l, Max	<0.002			0.002	1.0	APHA, 22 <sup>nd</sup> Edition 4-Amino Antipyrine
20	Selenium (as Se), mg/l, Max	<0.002			0.002	0.05	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
21	Sulphide (as SO <sub>3</sub> ), mg/l, Max	<0.005			0.005	2.0	APHA, 22 <sup>nd</sup> Edition Methylene Blue
22	Temperature (°C)	32.6			Shall not exceed 5° C above the receiving temp.		IS-3025/09:1984, Thermometric
23	Total Chromium (as Cr), mg/l, Max	<0.06			0.04	2.0	IS-3025/52:2003, AAS-Flame
24	Total Kjeldahl Nitrogen, mg/l, Max	1.4			1.00	100.0	IS:3025/34:1988, Nessler's
25	Total Residual Chlorine, mg/l, Max	<0.02			0.02	1.0	APHA, 22 <sup>nd</sup> Edition, DPD
26	Total Suspended Solids, mg/l, Max	56			10.00	100.0	IS 3025/17:1984, R :1996, Gravimetric
27	Zinc (as Zn), mg/l, Max	<0.01			0.01	5.0	IS 3025 /49 : 1994, R : 2009, AAS-Flame

  
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Cluster – VIII, BCCL Environmental Monitoring Report

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**Period: April 2017 to September 2017**

**Annexure-XV**

**Training (VTC)**

<b>No of Employees Received Training in Cluster VIII (April'2017 to Sept'2017)</b>	
<b>Name of Colliery</b>	<b>Numbers</b>
Bastacolla	182
Bera	117
Dobari	74
Kuya	185
Ghanoodih	109
Kujama	6



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**Annexure-XVI**

**PME**

<b>No of employees undergone PME in Cluster VIII (April'2017 to Sept'2017)</b>	
<b>Name of Colliery</b>	<b>Numbers</b>
Bastacolla	188
Bera	103
Dobari	41
Kuya	166
Ghanoodih	61
Kujama	8