



BHARAT COKING COAL LIMITED  
(A SUBSIDIARY OF COAL INDIA LIMITED)  
OFFICE OF THE GENERAL MANAGER  
LODNA AREA

Ref. No: - BCCL/LA/GM/19/57

Dated:- 21/05/19

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

**Sub:- Six monthly compliance report on implementation of Environmental Measures for the period from 1<sup>st</sup> Oct. 2018 to 31<sup>th</sup> March 2019 in respect of Cluster – IX Group of Mines, Lodna Area of BCCL.**

Ref. No. 1: EC Order No.-J-11015/307/2010-IA.II(M), dated – 21<sup>st</sup> May, 2013.

Ref. No. 2: EC Order No.- J-11015/307/2010-IA.II(M), dated – 1<sup>st</sup> March, 2018.

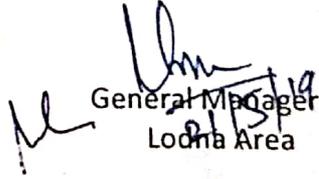
Dear Sir,

Please find enclosed herewith the Six Monthly Compliance report on implementation of Environmental Measures for the period from 1<sup>st</sup> Oct. 2018 to 31<sup>th</sup> March 2019 in respect of Cluster – IX Group of Mines, Lodna Area of BCCL.

Hope you will find the same in order.

Enclosure: as above.

Yours faithfully,

  
General Manager  
Lodna Area

Cc to (Through Email):-

1. Director 1A monitoring cell, Paryavaran Bhawan CGO Complex, New Delhi-110003.
2. General Manager (Env) BCCL, Koyla Bhawan, Dhanbad.
3. Office Copy.

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**ENVIRONMENTAL CLEARANCE COMPLIANCE OF CLUSTER – IX.**  
**(GRANTED VIDE – J-11015/307/2010-IA.II (M), DATED – 1<sup>ST</sup> March, 2018.**  
**(Period - From 1<sup>st</sup> Oct. 2018 to 31<sup>th</sup> March 2019)**

Sl. No.	A.) Specific conditions by MOEF	Compliance
i	The Maximum production shall not exceed beyond that for which environmental clearance has been granted.	The production from the cluster is within the limit for which environment clearance has been granted.
ii	Action should be taken to segregate and isolate the fire areas eg. Trench cutting for isolation of fire. Area-wise Action Taken report for extinguishing the fire should be provided.	It is being complied. Thereafter the coal is excavated and fire is doused by water. The doused coal is then loaded into trucks for transportation
iii	“Mission Mode Programme’ for extinguishing fire is required wherein scientists and other experts be involved. Any international agency may also be contacted for their expertise in extinguishing the fire in such big area.	Amalgamated Joyrampur colliery comprising of all five UG collieries has been selected for Mission Mode Programme. This project has been approved by EAC in Jan’2018. The recommendations are underway for implementation.
iv	The recommendations of Indira Gandhi Centre of Atomic Research, Kalpakam should followed dealing with fire in coal mine in Jharia coalfield.	The said agency has been contacted for dealing with fire in coal mine in jharia coalfield. The agency has shown its inability to deal with such fire incidences. Henceforth the present practice of isolating the coal fire area by cutting trenches, excavating the coal and dousing with water is being done
v	Transportation Plan should be submitted to the MOEF.	Coal from various quarries are transported to dump yard and from dump yard dumpers transport the coal to feeder breakers at railway siding. Crushed coal is loaded into wagons by pay loaders.  Transportation plan is enclosed as <b>Annexure-1</b> .
vi	The finalized Mine Closure Plan of Cluster – IX should be submitted to MOEF. The void should be in 30 ha. Area with 30 mt. depth.	Mine closure plan as per the guideline of Ministry of coal and on the basis of cluster concept has been prepared and submitted by CMPDIL and progressive mine closure plan is being followed.
vii	The road transportation of coal during phase – 1 should be by mechanically covered trucks. The road used for coal transportation should be developed with avenue plantation on both sides.	It shall be complied. However transportation of coal is being done by tarpaulin covered trucks at present.  Avenue plantation is being done along the transportation route from South Tisra W/S to Thakur More (Jharia –Baliapur road).

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viii	<p>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>It is being done. Training and skill development programs are being conducted by VTCs and HRD of BCCL on regular basis. There are 02 Handloom Training Centres in Lodna area at Alakdiha and Mukunda, Dhanbad. Presently, 40 numbers of women are engaged with these training centres belonging to nearby villages like Alakdiha, Mukunda, Surunga and Rakshakali Dham, belonging to underprivileged class of the society.</p> <p>Another scheme known as BCCL ke Lal-Ladli has been launched. A centre at New MT Hostel, Denobili More, Jharia, Dhanbad in Lodna Area has been established under BCCL scheme for engineering aspirant under CSR initiative of BCCL. The target of this scheme is to provide free quality education support to meritorious students of PAPs (Project affected Persons) and students residing in the command area of BCCL.</p> <p>The centre of Lodna Area has started from 15<sup>th</sup> September, 2017 where presently 11 students (02 girls and 09 boys) are studying at the centre who have been selected through scrutiny test. The coaching classes is being provided by the faculties of Ranchi Centre (IIT'ans and NIT'ans ) and class timings is from 4.00 PM to 7.30 PM from Monday to Friday. The doubt clearing classes/sessions is being conducted on every Saturday and Sunday from 3 PM onwards by Sri Manish Kumar Meena, Asst Manager (Excv), B Tech from IIT(ISM), Dhanbad at the centre. The coaching centre is fully air conditioned and enabled with digital equipments.</p> <p>Facilities like snacks, tea and drinking water to students and faculty is being provided by the Lodna Area Management. A separate toilet facility for boys and girls is available at the Centre.</p>
ix	<p>Details of transportation, CSR, R&amp;R and implementation of environmental action plan for each of the 17 clusters should be brought out in a booklet form.</p>	<p>It is being complied.</p>
x	<p>A study should be initiated to analyze extent of reduction in pollution load every year by reducing road transport.</p>	<p>It is being complied. The study has been completed by the CMPDIL to analyse the extent of reduction in pollution load every year by reducing road transport. <b>Enclosed as Annexure II.</b></p>
xi	<p>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.</p>	<p>It shall be complied. Presently Master Plan Approved by Govt. of India is under implementation for this purpose.</p>

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xii	The abandoned pits and voids should be backfilled with OB and reclaimed with plantation and or may be used for pisciculture.	Back filling is being done. Reclamation of old dump has been taken up. Plantation at reclaimed old dump has been started. About 32,600 Nos. of plants have been planted at Gokul Park in NT-ST till Sept, 2018.
xiii	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 HOD (Environment) along with a suitable, qualified multidisciplinary team of executives (30 Nos.) which includes Environment, Mining, Excavation, Civil, Survey, Electrical & Mechanical, Forestry disciplines executives and technicians (4 Nos.) has been established. They are also trained in ecological restoration, methods sustainable development, rainwater harvesting methods etc. At the project level, one Executive in each area has also been nominated as Nodal Officer (Environment) and 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 Headquarters levels. GM (Environment) at Head quarter level, Co-ordinates with all the Areas and reports to the Director (Technical) and in turn he reports to the CMD of the company. The team is multidisciplinary and very much motivated under the guidance of company's Director (Technical) and CMD. Further capacity building at both corporate and operating level is being done.
xiv	The locations of monitoring stations in the Jharia Coalfields should be finalized in consultation with the Jharkhand State Pollution Control Board.	Complied. The 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 III.</b>
xv	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 get carried out for the entire Jharia Coalfields.	Work order had already been issued to NEERI Nagpur on 12.05.2018 and work has been started in September 2018. Field data collection is scheduled in summer 2019. <b>Enclosed as Annexure IV.</b>
xvi	Mineralogical composition study should be undertaken on the composition of the suspended particulate matter (PM10 and PM2.5) in Jharia Coalfields and also quantified. These studies would help ascertain source and extent of air pollution, based on which appropriate mitigative measures could be taken.	The work has been awarded to NEERI, Nagpur on 12.05.2018. NEERI has started the initial reconnaissance survey in September 2018. Field data collection is scheduled in summer 2019. <b>Enclosed as Annexure IV.</b>



xvii	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.	Work order has been issued to NRSA for the work of "Delineation of Surface Coal Fire and associated land Subsidence in Jharia Coal field, Jharkhand using satellite based remote -sensing techniques".  <b>Enclosed as annexure-V.</b>
xviii	Measures to prevent ingress of air (Ventilation) in such areas, to prevent restart fresh / spread fires in other areas including in mines of cluster IX shall be undertaken.	It is being complied.
xix	Underground mining should be taken up after completion of reclamation of Opencast mine area after 15 Years.	It is complied.
xx	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.	Measures are being taken to prevent/check fires.
xxi	The rejects of washeries in Cluster - IX should be sent to FBC based plant.	Coal washery does not exist in this cluster at present.
xxii	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.	Action is being taken as specified in EMP. Backfilling of OB is going on with mining. At the end of Mining there shall be no void and area will be re-vegetated and reclaimed.
xxiii	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 - IX shall be drawn up and implemented.	Calendar Plan has been prepared. 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 plan is being implemented.
xxiv	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.	It shall be complied. A part of the void will be converted into the water body as specified in EMP.

XXV	Mining shall be carried out as per statuette from the streams / Nalas flowing within the lease and maintaining a safe distance from the Nalas flowing along the lease boundary. A safety barrier of a minimum 60 m width shall be maintained along Nalas / water bodies. The small water bodies in OC shall be protected to the extent feasible and the embankment proposed along water body shall be strengthened with stone pitching.	It is being followed as per statutes.
XXVI	Active OB dumps near water bodies and rivers should be rehandled for backfilling abandoned mines voids. However, those which have been biologically reclaimed need not be disturbed.	No active dumps near water bodies exist. The Chhat Ghat Talab is located on the coal bearing area towards north of Patch-B quarry. Embankment has been made all around the Talab and it is fully covered with aquatic weeds.
XXVII	Thick green belt shall be developed along undisturbed areas, mine boundary and in mine reclamation. During post mining stage, a total of 937.84 ha. area would be reclaimed. The total additional area under plantation would be 367.95 ha. (189.95) ha.abandoned quarry area, 178 ha. active quarry area, 104.34 OB dump outside quarry area, 36.49 ha.service building / Mine infrastructure area / coal dump etc., 165.88 ha. green belt around OCP, 263.22 ha. barren area), by panting 2344700 plants at a total cost Rs. 10830.45 lakhs.	It is being complied. Yearly plantation is being done for development of green belts as per EMP.
XXVIII	The road should be provided with avenue plantation on both side as trees act as sink of carbon and other pollutant.	It shall be complied.
XXIX	Specific mitigative measures identified for the Jharia Coalfields in the Environmental Action plan prepared for Dhanbad as a critically polluted area and relevant for Cluster IX shall be implemented.	It shall be compiled. Dhanbad Action Plan is being implemented. The salient actions of this cluster. <ol style="list-style-type: none"> <li>1. Covered transportation of coal.</li> <li>2. Water sprinkling.</li> <li>3. Plantation.</li> </ol>
XXX	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 suspended particulate matter (PM 10 and PM 2.5) in Jharia coalfields and also qualified. These studies would help ascertain source and extent of the air pollution, based on which appropriate mitigative measures could be taken.	The locations of monitoring stations have been finalized with the Jharkhand State Pollution Control Board.  Work order had already been issued to NEERI Nagpur on 12.05.2018 and work has been started in September 2018. Field data collection is scheduled in summer 2019.  CMPDIL is now on work since 2015.



xxxix	No ground water 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>It is being complied and Mine water is being used for the industrial purpose. Pressure filters are installed for converting the mine water to portable water. Few lagoons are developed as ground water recharge structure.</p> <p>Further Mine Water is also utilized for the community and irrigation purpose.</p> <p>1. Three pressure filters have been installed at South Tisra , North Tisra underground and Joyrampur colliery for utilization of Mine Water.</p> <p>2. Rain water Harvesting.</p>
xxxix	Regular monitoring of groundwater level and quality of the study area shall be carried out by establishing a network of existing wells and construction of new peizometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality including Arsenic and Fluoride during the month of May. Data thus collected shall be submitted to the Ministry of Environment & Forest and to the Central Pollution Control Board / SPCB quarterly within one month of monitoring. Rainwater harvesting measures shall be undertaken in case monitoring of water table indicates a declining trend.	It is being complied. CMPDI RI-II is regularly Conducting study of groundwater level and quality of areas within Cluster IX. Groundwater monitoring data has been enclosed as <b>Annexure VI</b> .
xxxix	Mine discharge water shall be treated to meet standards prescribed standards before discharge into natural water coursed / 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.	It is being complied.
xxxix	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.	01 no of ETP/Oil grease Trap is in operation.
xxxix	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.	Complied.

xxxvi	Sufficient coal pillars shall be left un-extracted around the air shaft (within the subsidence influence area) to protect from any damage from subsidence, if any.	Sufficient coal pillars have been left around air shafts as per the statutes and DGMS guidelines.
xxxvii	High root density tree species shall be selected and planted over areas likely to be affected by subsidence.	Identification of high root density plants and their plantation in subsidence prone area will be taken-up.
xxxviii	Depression due to subsidence resulting in water accumulating within the low lying areas shall be filled up or drained out by cutting drains.	It shall be complied. However No such subsidence has been recorded in the area.
xxxix	Solid barriers shall be left below the roads falling within the blocks to avoid any damage to the roads.	Sufficient barriers are left for saving the surface installation and infra structures as per the statute and DGMS guidelines.
xL	No depillaring operation shall be carried out below the township / colony.	At present no depillaring operation is going on.
xLi	The transportation plan for conveyor-cum-rail for Cluster-IX should be dovetailed with Jharia Action plan. Road transportation of coal during Phase – 1 should be by mechanically covered trucks, which should be introduced at the earliest. The plan for conveyor-cum-rail for Cluster – IX should be dovetailed with Jharia Action Pan. The road transportation of coal during Phase – 1 should be done by mechanically covered trucks.	Action has been taken for formulating adequate transportation plan for conveyor-cum-rail system of dispatch. CMPDIL has been requested to prepare the plan. Till that time transportation is being done by covering vehicle with tarpaulin cover.
xLii	A study should be initiated to analyze extent of reduction in pollution load every year by reducing road transport.	It is being complied. The study has been completed by the CMPDIL to analyse the extent of reduction in pollution load every year by reducing road transport. <b>Enclosed as Annexure II.</b>

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xLiii	<p>R&amp;R of 12246 Nos. of PAF's involved. They should be rehabilitated at cost of Rs. 126092.027 Lakhs as per the approved Jharia Action Plan.</p>	<p>Implementation is being done as per the Master Plan.</p> <p>As per the approved Master Plan prepared for dealing with fire subsidence and rehabilitation in the leasehold of BCCL for Jharia Coal Field, the master plan has identified 595 unstable sites in the entire Jharia Coal Field. Out of these, 98 sites covering an area of 224.56 Ha consisting of 12246 no. of houses/families fall in Cluster-IX mines. The cost for rehabilitation for the families is estimated to be Rs. 126092.03 lakhs. In the NTSTJeenagora mining block, 1716 houses have to be rehabilitated. The cost for rehabilitation is estimated to be Rs. 6989.88 lakhs with an affected area of 22.74 ha.</p> <p>314 Nos. of Quarters have been allotted for shifting of PAFs by JRDA at Belgaria Township, out of which 159 have shifted to this site. The shifted PAFs belongs to the fire affected areas of DB road and Bengal Jharia section of NT-ST OCP.</p>
xLiv	<p>A detailed CSR Action plan shall be prepared for Cluster IX group of mines. Specific activities shall be identified for CSR the budget of RS. 142.55 Lakhs per year @ Rs. 5/T of coal as recurring expenditure. The 391.28 ha. of area within Cluster IX MI 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 1942.12 ha. of area at the post-mining stage, the waste land / barren land within Cluster IX 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 company and to the local youth, who are motivated to carry out the work in future.</p>	<p>It shall be complied. BCCL is implementing CSR activities. A separate CSR committee has been formed for this purpose.</p> <p>TISS has conducted the survey for effective and need based CSR activities implementation. Recommendations of TISS shall be followed. A handloom weaving project (JHARCRAFT) has been started in the area which provides employment to local womenfolk.</p> <p>Under the CSR activities in the purview of NTST-Jeenagora OC, the handloom making projects (Jharkraft) at Mukunda at an expenditure of about Rs.10.38 lakhs during the year 2015-17 and at Alakdiha at an expenditure of about Rs.10.72 lakhs during the year 2016-18 have been established. At these centres, local women are getting training for making of clothes through the handloom.</p>

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xLv	<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 3years (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>It is being complied. Land Use Map of Cluster IX 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 VII.</b></p>
xLvi	<p>A final Mines Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment &amp; Forest 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 during mine reclamation and at the post mining stage for habitat restoration.</p>	<p>Mine closure plan as per the guidelines of Ministry of Coal has been prepared by Central Mine Planning and Design Institute (CMPDI) and progressive mine closure plan is being implemented.</p>
xLvii	<p>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.</p>	<p>A full-fledged Environment Department, headed by a HOD (Environment) along with a suitable qualified multidisciplinary team of Executives (30 nos.) which includes Environment, Mining, Excavation, Civil, Survey, Electrical &amp; Mechanical, Forestry disciplines Executives and Technicians (4 Nos.) has been established. They are also trained in ecological restoration, sustainable development, rainwater harvesting methods etc. At the project level, one Executive in each area has also been nominated as Project 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 Head Quarters levels. GM (Environment) at Head Quarter level Co-ordinates with all the Areas and reports to the Director (Technical) and in turn he reports to the CMD of the company. The team is multidisciplinary and very much motivated under the guidance of company's Director (Technical) and CMD. Further capacity building at both corporate and operating level is being done.</p>
xLviii	<p>Implementation of final mine closure plan for Cluster IX, subject to obtaining prior approval of the DGMS in regard to mine safety issues.</p>	<p>Mine closure plan as per the guidelines of Ministry of Coal has been prepared by Central Mine Planning and Design Institute (CMPDIL) and progressive mine closure plan is being implemented.</p>

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<p>xLix</p>	<p><b>Corporate Environment Responsibility :-</b></p> <p>The company shall have a well laid down Environment Policy approved by the Board of Directors.</p> <p>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.</p> <p>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.</p> <p>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.</p>	<p>A well-defined Corporate Environment Policy has already been laid down and approved by the Board of Directors. This is also posted on BCCL website. <b>Enclosed as Annexure VIII.</b></p> <p>Complied.</p> <p>A hierarchical system of the company to deal with environmental issue from corporate level to mine level already exists.</p> <p>Being complied.</p>	
	<p>Sl. No.</p>	<p><b>B.) General Conditions</b></p>	<p><b>Compliance</b></p>
	<p>--</p>	<p>No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.</p>	<p>Being complied.</p>
<p>::=</p>	<p>No change in the calendar plan of production for quantum of mineral coal shall be made.</p>	<p>Being complied.</p>	
<p>::=</p>	<p>Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM 10, PM 2.5, SO<sub>2</sub> and ND<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.</p>	<p>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 III.</b></p> <p>The work of monitoring of ambient environment had been started by Central Institute of Mining &amp; Fuel Research (CIMFR), Dhanbad which is having CSIR Laboratory recognized under the EP Rules. Currently CMPDIL is carrying out the work of monitoring. Air quality Monitoring report has been enclosed as <b>Annexure IX.</b></p>	

iv	Data on ambient air quality (PM 10, PM 2.5, 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.	It is being complied.
v	Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs / muffs.	Being complied.
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 19 <sup>th</sup> May, 1993 and 31 <sup>st</sup> December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.	Industrial wastewater (workshop and wastewater from the Mine) is not discharged to any water body. 01 no. of Oil & grease trap is in operation. We have raised proposal for analysis of industrial wastewater.
vii	Vehicular emission shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.	It is being complied. PUC Certificate is enclosed as <b>Annexure X</b> .
viii	Monitoring of environment quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analyzed through a laboratory recognized under EPA Rules, 1986.	It is complied.
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.	Being Complied. Vocational training Centers under separate Human Resource Development Dept. is conducting regular training programme on these issues.
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 measure, if needed and records maintained thereof. The quality of environment due to outsourcing and the health and safety issues of the outsourced manpower should be addressed by the company while outsourcing.	Initial Medical Examination (IME) and periodical Medical Examination (PME) of all the personnel are carried out as per the Statutes and Director General of Mines Safety (DGMS) guidelines.



xi	<p>A separate environment 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.</p>	<p>A full-fledged Environment Department, headed by HOD (Environment) along with a suitable qualified multidisciplinary team of executives (30 Nos.) which includes Environment, Mining, Excavation, Civil, Survey, Electrical &amp; Mechanical, Forestry disciplines Executives and Technicians (4 Nos.) has been established. They are also trained in ecological restoration, sustainable development, rainwater harvesting methods etc. At the project level, one Executive in each area has also been nominated as Project 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 Head Quarters levels. GM (Environment) at Head Quarter level Co-ordinates with all the Areas and reports to the Director (Technical) and in turn he reports to the CMD of the company. The team is multidisciplinary and very much motivated under the guidance of company's Director (Technical) and CMD. Further capacity building at both corporate and operating level is being done.</p>
xii	<p>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.</p>	<p>It is being complied.</p>
xiii	<p>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 &amp; Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a>.</p>	<p>It has been complied. <b>Enclosed as Annexure XI.</b></p>
xiv	<p>A copy of the environmental clearance letter shall be marked to concern Panchayat/ZilaParished, 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.</p>	<p>Complied. <b>Enclosed as Annexure XII.</b></p>
xv	<p>A copy of the environmental clearance letter shall 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.</p>	<p>Complied.</p>

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xvi	The clearance letter shall be uploaded on the company's Website. The compliance status of the stipulated environmental clearance conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in public domain. The monitoring data 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.	Complied.
xvii	The project proponent shall submit six monthly compliance reports on status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the Ministry, respective Zonal Offices of CPCB and the SPCB.	Being complied.
xviii	The Regional Office of this Ministry located at Bhubaneswar shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the Office(s) of the Regional Office by furnishing the requisite data / information / monitoring reports.	Project will extend its all possible support and cooperation to the Regional Office in any kind of monitoring/visit/data collection etc.
xix	The Environment Statement for each financial year ending 31 March in for-V is mandated to be submitted by the project proponent for the concerned State Pollution Control Board as prescribed under the Environment (protection) Rules, 1996, 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.	Being complied.
<b>Sl. No.</b>	<b>C.) Other Conditions by MOEF :</b>	<b>Compliance</b>
i	The Ministry or any other Competent Authority may stipulate any further condition(s) for environmental protection.	Agree.
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.	Agree.



14/14

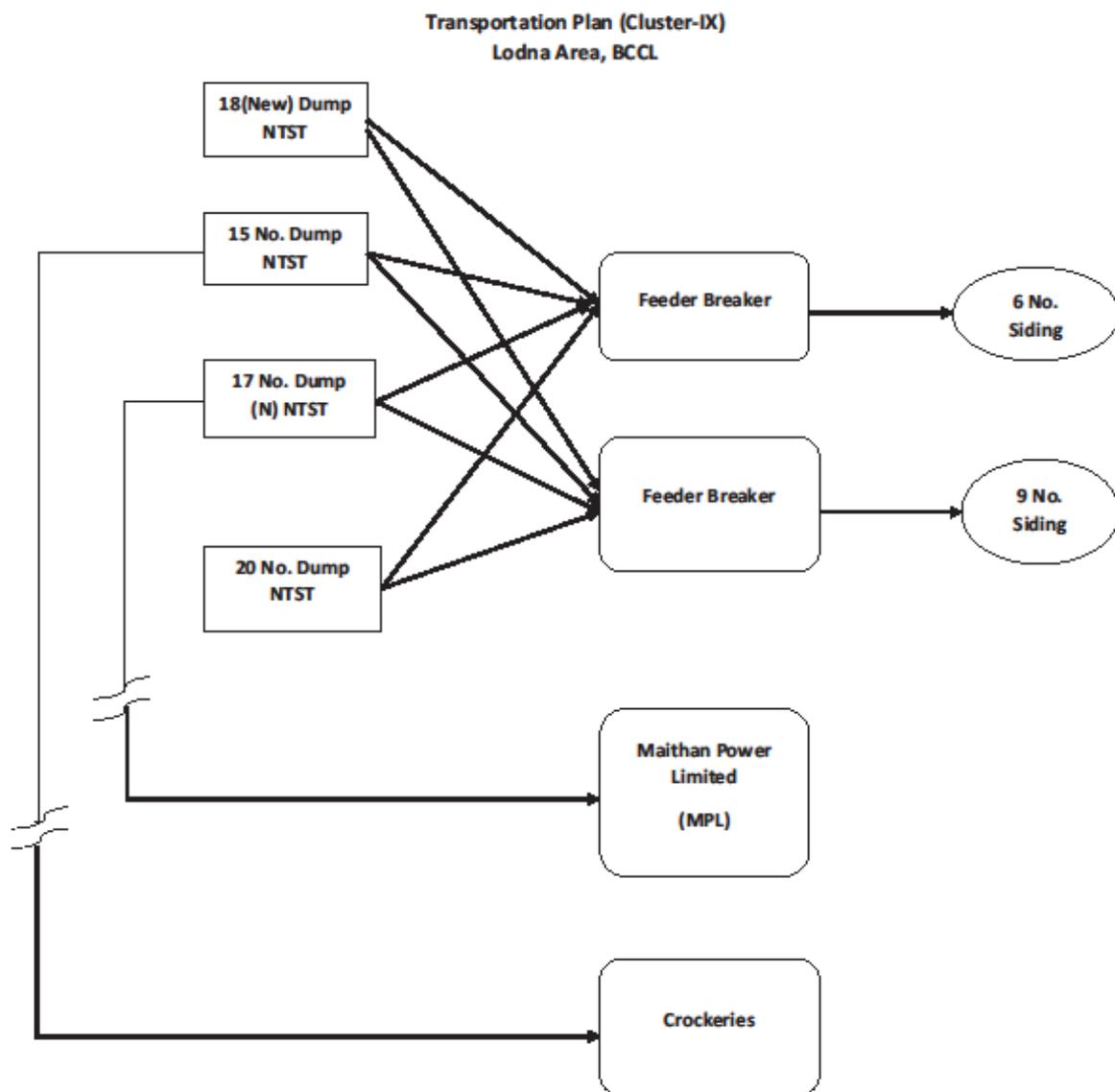
iii	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act 1991 along with their amendments 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.	Agree.
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.	Agree.



*[Handwritten Signature]*  
20/5/19

General Manager (Mining)  
Lodna Area  
BCCL, Dhanbad

*[Handwritten Initials]*



**Amalgamated NT-ST Jeenagora Colliery**



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**Study to Analyze the Extent of Reduction of Pollution Load  
Every Year by reducing Coal Transportation by Road**

**CLUSTER IX GROUP OF MINES**

**(NT/ST Expan. OCP, Amalgamated Joyrampur OC)**

Peak Production : 8.512 MTPA  
Lease Hold Area : 1942.12 Ha

**Bharat Coking Coal Limited**

(March, 2019)

**Prepared by**

**Environment Division**

**Central Mine Planning & Design Institute Limited**

**CMPDI (HQ)**

**Gondwana Place**

**Kanke Road, Ranchi-834008**

## CONTENTS

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II	FUGITIVE DUST GENERATION DUE TO MOVEMENT OF COAL	7-14

## **Chapter – I**

### **Introduction**

#### **1.1 Genesis:**

MOEF provided Environmental Clearance to the various mines of the Cluster EC granted vide J-11015/307 / 2010 -IA.II(M) ; dated 21st May 2013, Amended vide J-11015/307 / 2010 -IA.II(M) dated 01.03.2018 .

As per the Environmental Clearance Conditions given by the Ministry of Environment & Forest “A study should be initiated to analyse extent of reduction in pollution load every year by reducing road transport of coal”. Therefore the present study has been carried out to quantify the pollution load due to coal transportation.

#### **1.2 Methodology:**

In order to find out the pollution load due to coal transportation a Questionnaire was developed by the Environment Division of CMPDI Headquarter and Regional Institute –II, Dhanbad. The Questionnaire was circulated to the various mines of BCCL for collection of the requisite inputs for this study. The quantification of pollution load for PM-10 has been carried out on the basis of the field visit, data provided by BCCL officials and interaction with them.

#### **1.3 General Information about the Cluster:**

##### **1.3.1 Brief Description:**

Cluster-IX group of mines of BCCL is a group of nine mines consisting of opencast and underground mines. BCCL is the proponent of the cluster and it is under the administrative control of Coal India Limited. Coal India Limited is a Public Sector Undertaking of Government of India and functioning under the Ministry of Coal, Govt. of India.

The history of coal mining in Jharia Coalfield was started since eighteenth century. The only energy source during those years, the mining was carried out through manual and semi-manual methods resulting into large scale degradation of land, forests and environment. The unscientific mining resulted into large scale mine fires, subsidence and land degradation. The mines of Jharia Coalfield were taken

over mines by BCCL from the erstwhile private mine owners. Most of the mines had their history from pre-nationalization period.

During the takeover of the mines in 1972 in BCCL from private mine owners, the data like leasehold area, underground mine planning, production capacity were unknown. However, most of the mines were further reorganized.

BCCL is the proponent of the cluster and it is under the administrative control of Coal India Limited.

### 1.3.2 Nature and Size of the Cluster:

The details of the mines showing normative/ peak productions, lease hold areas and life are given in Table no. 1.1.

**Table 1.1: Details of the Mines of Cluster – IX**

SI No	Name of Mine	Production Capacity (MTY)		Lease Hold Area (Ha)
		Normative	Peak	
1	Amalgamated Joyrampur Colliery (OC)	2.512	3.25	1186.97
2	NT-ST Expansion OCP	6.0	7.8	755.15
	Total		8.512*	1942.12

\*Peak of the cluster will remain same, as peak of individual will be achieved in different year.

### 1.3.3 Impact of Fire Control on Ambient Air Quality:

Due to unscientific mining prior to nationalization there are unstable sites identified in the BCCL. Out of 595 unstable sites identified in the Master Plan, 98 sites affected area of 2.246 Km<sup>2</sup> consisting of 12246 no. of houses/families are affected. The affected families will be rehabilitated in adjacent non coal bearing area at a cost of Rs. 126092.027 lakhs.

#### **1.3.4 Impact of Resettlement on Ambient Air Quality:**

As per Jharia Action Plan (JAP) household will be shifted for implementation of master plan. The reduction in number of households within the leasehold area of Cluster will lead to reduction in generation of air pollutants due to reduction in movement of man & materials apart from decrease in consumption of coal as a domestic fuel. As per Jharia Action Plan (JAP) household will be shifted as per for implementation.

#### **1.4 Meteorological Data**

A meteorological data generated during 1<sup>st</sup> January 16 to 31<sup>st</sup> March 2016 has been presented in this report .The micro meteorological set up was established at the roof of BCCL Dugda Guest house and parameters like temperature, relative humidity, wind speed and directions, cloud cover and rainfall were recorded. The data were collected on hourly basis during the entire study period.

Generally, moderate winds prevailed throughout the study period. The wind velocity ranged between  $\leq 0.5$  m/s to 13.2 m/s. The seasonal average wind speed was observed to be 0.69 m/s. Wind-roses were made by using latest WRPLOT View of Lakes Environmental Software.

The analysis of wind pattern during the season showed that the predominant wind directions were from North-West & West followed by North-East having frequencies 15.71%, 11.45% & 4.67% respectively. The receptors located in the Downwind directions i.e. SE and East from the dust generating sources are likely to be affected. The dispersion of air borne dust during calm period (45% of time) will be very poor and buildup of pollutant concentration during this period will occur.

The maximum temperature recorded was 39.3<sup>o</sup>C and the minimum was 6.2<sup>o</sup>C. The daily average relative humidity values were in the range of 32.2 to 65.0%. The sky was mostly clear during the study period. The average atmospheric pressure value has been found to be around 732.3 mm Hg. Total 94.5mm rainfall was recorded

during the study period. The average rainfall during the season was found to be 1.04 mm.

**Table 1.2: SEASONAL WIND DISTRIBUTION**  
 Period: 01<sup>st</sup> JAN.'2016 – 31<sup>st</sup>MAR.'2016

Wind Direction	Wind Velocity (m/s) & Duration (%)				
	< 0.5	0.6 -1.5	1.6 -3.5	>3.5	Total
N		1.61	0.78	0.00	2.38
NNE		0.83	0.37	0.00	1.19
NE		3.17	1.47	0.05	4.67
ENE		0.41	0.14	0.00	0.55
E		1.10	0.69	0.00	1.79
ESE		0.50	0.37	0.00	0.87
SE		1.28	0.41	0.05	1.74
SSE		0.64	0.18	0.00	0.82
S		0.41	0.09	0.00	0.50
SSW		0.28	0.05	0.00	0.32
SW		2.29	0.60	0.00	2.88
WSW		1.06	0.41	0.00	1.47
W		8.99	2.48	0.00	11.45
WNW		1.24	1.01	0.00	2.24
NW		11.47	4.22	0.05	15.71
NNW		2.11	3.59	0.00	5.7
CALM	44.97	-	-	-	44.97
<b>Total</b>	<b>44.97</b>	<b>37.32</b>	<b>17.56</b>	<b>0.15</b>	<b>100</b>

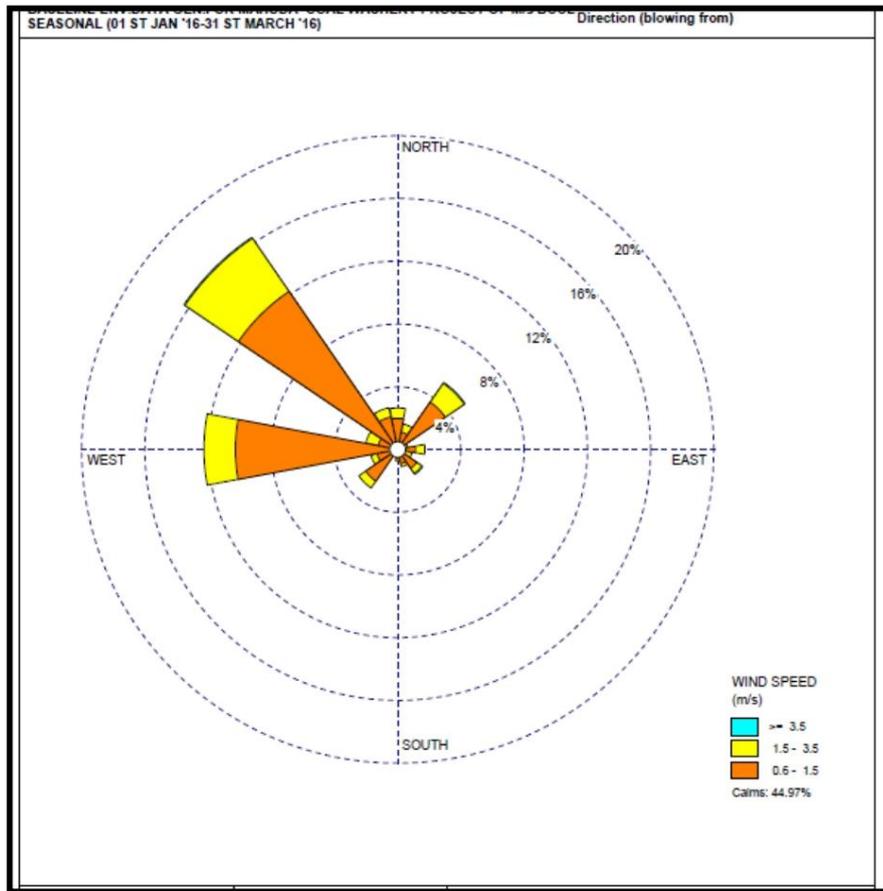


Figure No.-1.1 Wind Rose diagram for the period 1<sup>st</sup> Jan to 31<sup>st</sup> March 2016

## Chapter – II

### Fugitive Dust Generation Due To Movement of Coal

#### 2.1 Introduction

The coal produced moves to the consumers via Road & Rail. Coal from the mine face is brought to the surface dumps and bulk of it goes to the nearby railway sidings for further movement to the consumer- end through rail. The journey from the mine face to the railway siding is covered by road. A portion of the coal produced by the mine directly goes to the consumers via road. Transportation of coal by rail is an environmentally better option than the road transportation. Road Transportation results in generation of fugitive dust from road surface apart from other pollutants released due to consumption of Diesel.

The fugitive dust generated due to coal transportation through road depend upon the following factors:

1. Speed and Weight of the moving vehicles.
2. Silt Content of the Road Dust (Particles less than 200 mesh size is considered as silt)
3. Silt loading of the road dust ( $\text{Kg/m}^2$ ).
4. Moisture Content of the dust lying on the road surface.
5. Ambient Temperature, Humidity & wind velocity.

The dust generation will be lower if the quantity of dust (silt loading) lying on the road surface is minimum and the moisture content of the loose material lying on the road surface is high.

## **2.2 Movement of Coal**

Distance travelled by coal and subsequent release of fugitive dust during its journey towards the consumer end has been described and dust load has been worked out.

2.2.1 Dust Generation :

Table: 2.1 Dust Generation (Kg/day)

Sl No.	Name of the Mine	Year	Location	Dust generated per day (Kg/Day)								
				Distance from Face to Siding (Km)	Coal Transferred (Te)	Daily Production (Te/Day)	Coal Capacity of the Dumper	Vehicle Kilometer Travelled	Emission Rate for PM 10 ( kg/VKT)	Pollution Load Dust Generated Per Day (Kg/day)	Dust generated Kg/per tonne	
1	Amal. Joyrampur Colliery	16-17	9 no. siding	4.5	56363.00	185.41	10.00	166.87	0.53	88.441		
		<b>Total for 16-17</b>					<b>185.41</b>				<b>88.441</b>	<b>0.48</b>
2	Amal. NT-ST-JG Colliery	16-17	6/9 no. siding	3.47	3074877.00	9315.87	10.00	6465.21	0.53	3426.563		
		<b>Total for 16-17</b>					<b>9315.87</b>				<b>3426.563</b>	<b>0.37</b>
		17-18	6/9 no. siding	3.47	3324372.00	8300.45	10.00	5760.51	0.53	3053.072		
		<b>Total for 17-18</b>					<b>8300.45</b>				<b>3053.072</b>	<b>0.37</b>

\* In terms of PM 10 expressed as kg/day, \*\* Average distance has been considered, \*\*\* Capacities of Dumpers used in transportation of coal from face to siding taken as 30Te, to Washery 20Te, and Outside Transport 15 Te. .## Emission rate for PM<sub>10</sub> has been taken from the S&T work (funded by MoC) carried out by CMPDI during 2002-2007.

### **2.3 Optimum Coal Transportation scheme in the Present Scenario:**

#### **Phase – I (for 10 + 05 Years)**

As suggested by the Environmental Appraisal Committee, it is proposed to continue the existing Road–Rail transport network system in view of the implementation of the Jharia Action Plan (JAP) for 10 years and another 05 years gestation period after the completion of the JAP for consolidation of the backfilled dug out fire areas and unstable areas is required. Thus the period of 15 years, make the Phase – I. All mitigation measures like covered trucks, green belting on either side of the road, enhanced water sprinkling, proper maintenance of roads, removal of spilled materials etc shall be adopted for 15 years with the existing road – rails transport system.

### **2.4 Conceptual Plan of Proposed Integrated Coal Transportation Network for the Cluster:**

#### **Phase – II (after 15 Years):**

As suggested by the EAC Members, BCCL shall implement conveyor –cum-rail transport to avoid movement of trucks within the cluster for coal transportation in Phase –II. Loading of coal by pay-loaders shall be discontinued.

During 2016-17, the combined daily coal production of the Cluster was 9501 tones resulting in 3535 kg of daily fugitive dust generation. The dust (PM-10) generation rate at present is 0.37 kg/te.

As a result of replacement of existing road transportation of coal by Conveyor to railway siding will result in reduction of fugitive dust generation to the extent of 9544 kg/day for daily coal production of 25797 tonnes (0.234 MTY) during Phase –II.

**Table 2.2: Proposed Infrastructure for Coal Transportation (phase – II)**

Cluster	Mines in Operation in Phase - II	Production Capacity (MTY)	Proposed Transport Infrastructure in Phase – II
IX	Amalgamated Joyrampur Colliery (OC)	3.25	<b>Coal transport by Conveyor to Railway Siding</b>
	NT-ST Expansion OCP	7.8	
		8.512*	

\*Peak of the cluster will remain same, as peak of individual will be achieved in different year.

**2.5 Conclusion:**

On the basis of the study undertaken to assess the impact of coal transportation on pollution load, the followings may be concluded:

**Phase – I :( 2016-17 to 2028 -29):**

1. During Phase – I, business as usual (BAU) scenario will prevail and the existing road cum rail transport network system will be used for coal dispatch to the consumers. During 2016-17, the combined daily coal production of the Cluster was 9501 tones resulting in 3515 kg of daily fugitive dust generation. The dust (PM-10) generation rate at present is 0.37 kg/te.
2. The generation of fugitive dust due to transportation of coal by road can be further reduced by enforcing covering of loaded trucks, periodical removal of loose materials lying on the road surface and black topping of coal transportation roads.
3. Avenue plantation, effective wetting of the road surface and proper maintenance of roads will further result in mitigation of the impact of road generated dust on ambient air quality.
4. Better road condition, by the use of Mechanical Sweeper or vacuum cleaner dust generation may be minimized.

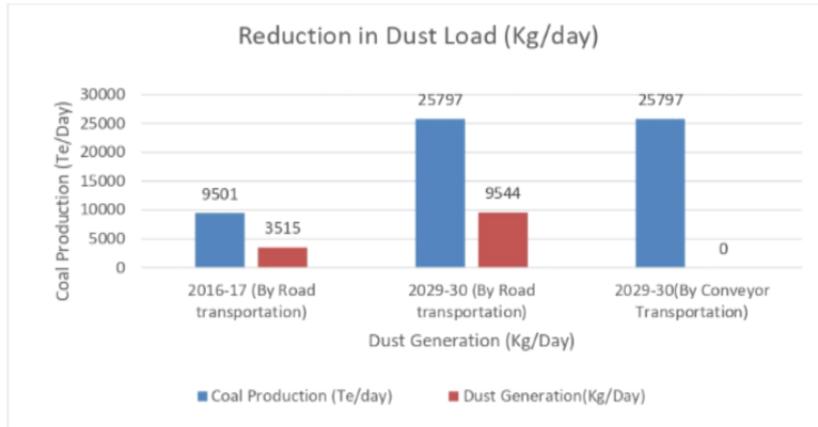
**Phase – II :( From 2029-30 Onwards):**

1. As a result of replacement of existing road transportation of coal by Conveyor to railway siding will result in reduction of fugitive dust generation to the extent of 9544 kg/day for daily coal production of 25797 tonnes (0.234 MTY) during Phase –II.
2. During Phase –II, dust load will further reduce due to quenching of mine fire and domestic coal consumption after resettlement of general population dwelling within the command area of cluster, as a result of implementation of Jharia Action Plan. It will result in significant improvement in ambient air quality.
3. **Coal Production Vs. Dust Generation due to Road Transportation is presented below:**

**Table2.3: Coal Production Vs. Dust Generation due to Road Transportation**

Year	Coal Production (Te/day)	Dust Generation(Kg/Day)
2016-17 (By Road transportation)	9501	3515
2029-30 (By Road transportation)	25797	9544
2029-30(By Conveyor Transportation)	25797	0

**Figure 2.1:** Presentation of reduction in dust generation due to replacement of Road transportation by Conveyor system.





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

Ph: 0326-2204933

(7)

Letter No.... 2650

Dated .... 6/2/13

From,

Regional Officer,  
Dhanbad

To,

HOD (Envt.),  
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(Envt.)/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,

  
 617113  
 (Dinesh Prasad Singh)  
 Regional Officer.

Memo.....

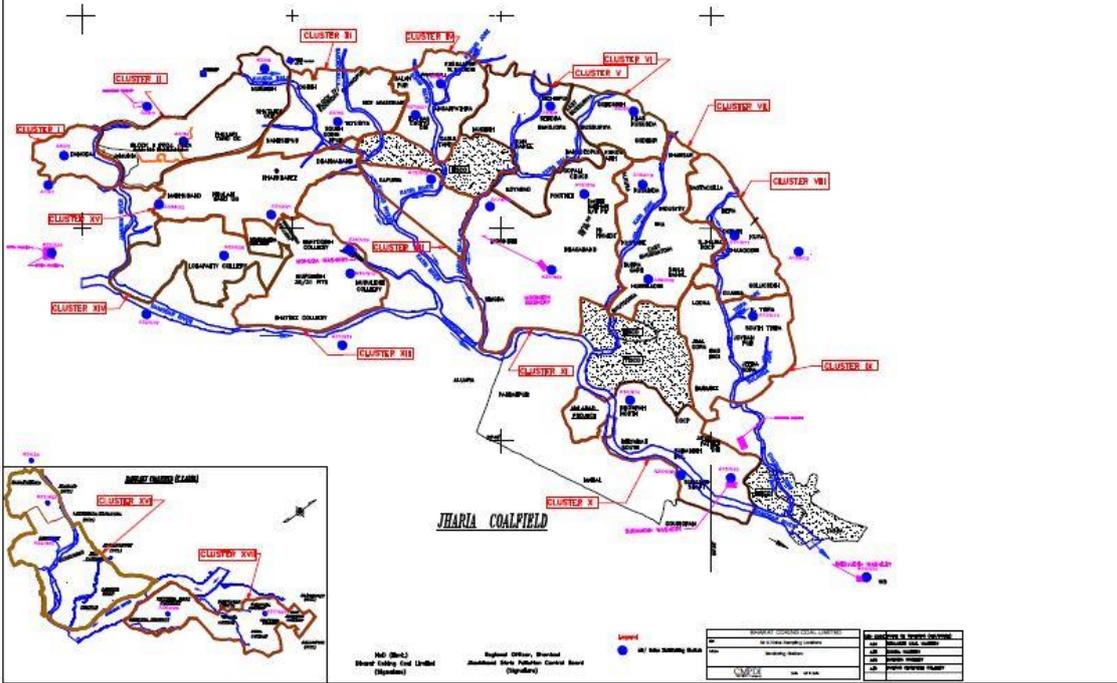
Dhanbad, dated.....

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

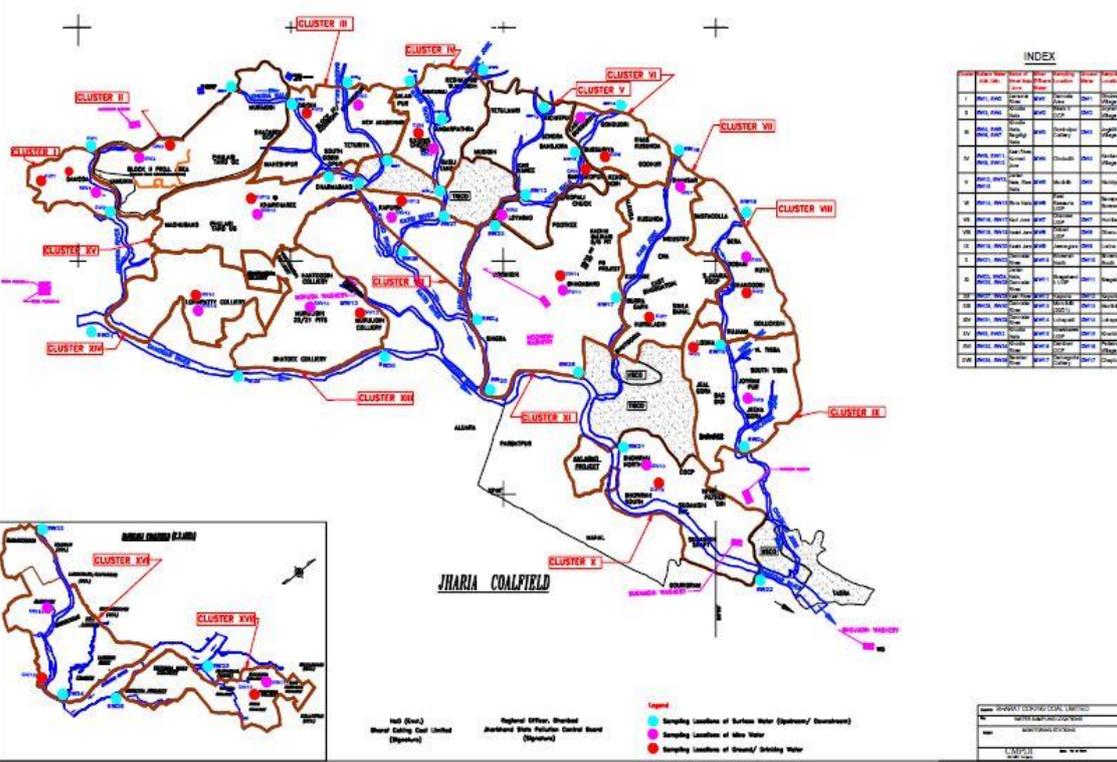
Encl-A/a.

(Dinesh Pd. Singh)  
 Regional Officer.

## Location of Air & Noise Monitoring Stations in BCCL



## Water Sampling Locations in BCCL





COAL INDIA LIMITED  
कोयला इण्डिया लिमिटेड  
ENVIRONMENT DIVISION  
पर्यावरण विभाग

Corporate Identity Number: L23109WB1973GO1028844  
COAL BHAWAN, Plot No - 94MAR Plot no - AE-III, Action Area-1A  
RAJARHAT, NEW TOWN KOLKATA - 700136,  
E-mail: [cgmenv.cil@gov.in](mailto:cgmenv.cil@gov.in), Web: [www.coalindia.in](http://www.coalindia.in)  
TEL: 033-25246638 / FAX: 033-23244232

CIL/ENV/2015-16/7000

09/12/2015

प्रति,

General Manager (Environment)/ HOD (Environment),  
ECL, BCCL, OCL, 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 : 3 प्रतियाँ

Ranchi  
Coal India Ltd  
4/12/15



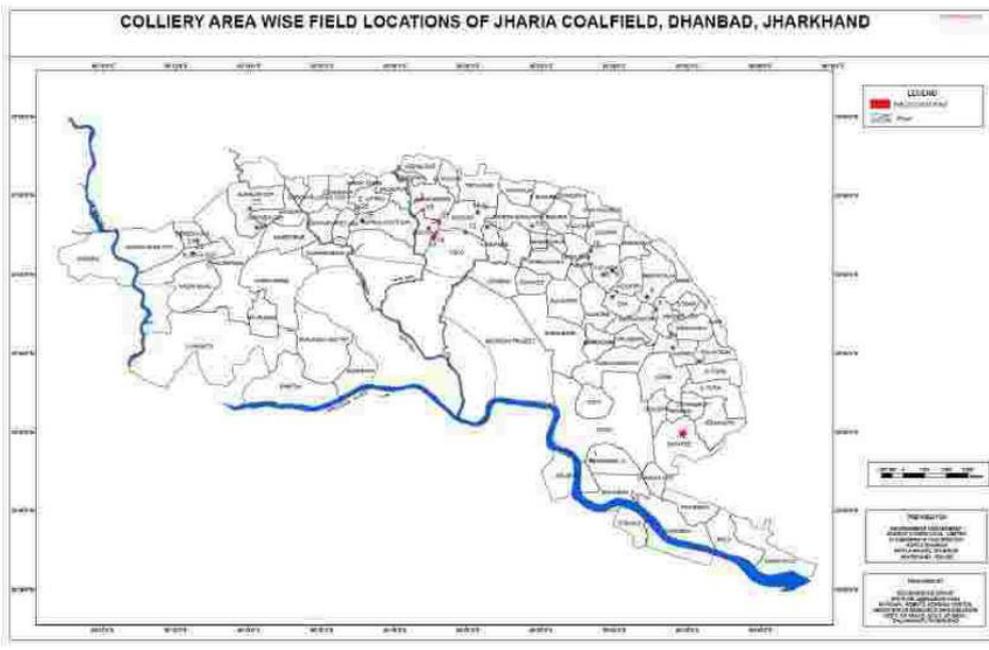


Figure 7: Field locations of coal mine fire shown over colliery area boundary in Jharia coal field, Dhanbad, Jharkhand.

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.*

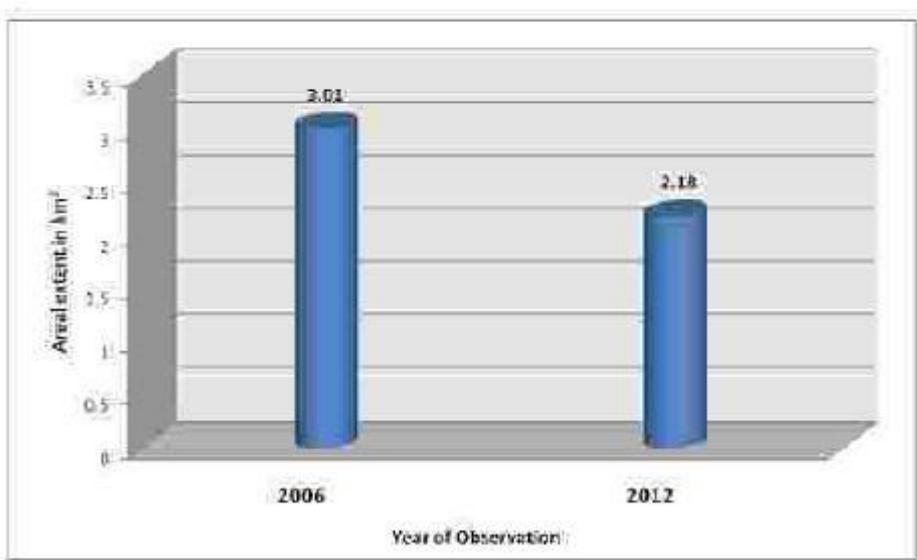


Figure 10: Total fire area statistics



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## GROUNDWATER LEVEL & QUALITY REPORT

### FOR CLUSTER OF MINES, BCCL

(Assessment year – 2018-19)

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

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

For  
**(BHARAT COKING COAL LIMITED)**

(A Subsidiary of Coal India Limited)

KOYLA BHAWAN (DHANBAD)

Prepared by

Hydrogeology Department

Exploration Division

CMPDI (HQ), Ranchi

**MARCH – 2019**

### 3.3 I Monitoring of Ground Water Levels of Cluster-IX

Cluster-IX consists of eight mines namely; North Tisra/South Tisra Expansion OCP, Lodna UG, Bagdigi UG, Bararee UG and Joyrampur UG and Jealgora UG (closed) are under the administrative control of Lodna 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-IX is 1942.12 Ha. The topography of the area is undulating with gentle slope towards south. The RL varies from 221 m to 188.44 m AMSL. Chatkari Jore, Tisra Jore, Sulunga Jore and its tributaries controlling the drainage pattern of the area. The area comes under the watershed of Chatkari Jore.

6 hydrograph stations (**D-5, D-7, D-39, D-40A, D-41 and D-74**) 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 2018 and the Ground water level data is enclosed in the table below:

Sl No.	Well No.	Location	Water level (bgl in meters)			
			Feb'18	Apr'18	Aug'18	Nov'18
1	D-5	Jiyalgora	5.80	7.80	4.39	5.30
2	D-7	Golden Pahari	5.15	7.53	2.23	2.83
3	D-39	Tilaboni	3.18	4.95	2.50	4.35
4	D-40A	Khapa Dhawra	1.70	2.10	1.10	1.40
5	D-41	Joyrampur	1.30	1.59	1.08	1.32
6	D-74	Bhulan Bararee	5.80	8.60	3.40	4.80
<b>Average WL (bgl)</b>			3.82	5.43	2.45	3.33

Ground Water Level (in bgl) varies from 1.30 to 5.80 m during February, 1.59 to 8.60 m during April, 1.08 to 4.39 m during August and 1.32 to 5.30 m during November within the Core Zone of Cluster-IX area.

## 4.0 GROUNDWATER LEVEL SCENARIO

During the month of February'2018 the depth to water level (in bgl) within 15 nos Cluster of mines varies from 0.50 m to 11.68 m with an average varies from of 1.55 m to 5.39 m. During the month of April'2018 the depth to water level varies from 1.20 m to 14.58 m with an average varies from 3.12 m to 8.50 m. During the month of August'2018 the depth to water level varies from 0.80 m to 6.47 m with an average varies from 0.80 m to 3.73 m. During the month of November'2018 the depth to water level varies from 0.40 m to 7.17 m with an average varies from 1.75 m to 4.26 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 14.58 m during pre-monsoon'2018 and maximum upto 8.50 m during post-monsoon'2018. Unconfined 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 and VI**) 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 and CMPDI observation wells, there are decline trends in both Pre and Post-monsoon GW level trends (max. upto 0.50 cm/year in Patherdih/D-35) but no significant decline trend (>1.0 m/year) 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** and Quality is given in **Annexure–V**.

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

<b>Sl. No.</b>	<b>Cluster of BCCL</b>	<b>No. of Monitoring Wells</b>	<b>Water level fluctuation Below ground level (Feb, Apr, Aug &amp; Nov'18)</b>	<b>Formation</b>
1	I	4 nos.	0.75 to 9.65 m	Barakar
2	II	5 nos.	0.90 to 13.68 m	Barakar
3	III	5 nos.	0.40 to 6.63 m	Barakar
4	IV	4 nos.	0.55 to 10.03 m	Barakar
5	V	4 nos.	0.37 to 4.40 m	Barakar
6	VI	2 nos.	0.50 to 4.58 m	Barakar
7	VII	7 nos.	0.45 to 9.35 m	Barakar
8	VIII	4 nos.	1.45 to 10.93 m	Barakar
9	IX	6 nos.	1.08 to 8.60 m	Barakar
10	X	4 nos.	0.45 to 8.40 m	Barakar
11	XI	5 nos.	1.0 to 3.65 m	Barakar & Barren Measure
12	XIII	6 nos.	1.10 to 11.15 m	Raniganj
13	XIV	3 nos.	1.74 to 9.55 m	Raniganj
14	XV	3 nos.	1.27 to 14.58 m	Barakar & Barren Measure
15	XVI	4 nos.	1.20 to 8.70 m	Barakar

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

Cluster/ Area	Adminis- trative Blocks/Stage Of GW Develo- Pment (SOD)	Total Water demand (Lakh cum/year)				Avg. GW level (bgl in m) 2018		GW level declining trend 2005-2018		Quantity Recharge/ future use (Lakh Cum/ Year)
		Mine Discharge (GW + Rainwater)	Surface Water Source	Total Use (Domestic + Industrial)	Excess Or other use	Pre- monsoon	Post- monsoon	Pre- monsoon	Post- monsoon	
Cluster-I	Bermo (SOD: Over- exploited)	9.56	NIL	7.42	2.14	5.11	1.84	YES	YES	NIL
Cluster-II	Baghmara  (SOD: Critical)	170.17	Jamunia river	22.55	23.83	6.57	2.84	YES	NO	123.75
Cluster-III		58.18	NIL	2.58	12.65	6.64	2.64	NO	YES	42.95
Cluster-IV		68.84	MADA (Damodar river)	18.47	12.31	5.64	2.66	NO	NO	38.06
Cluster-V		127.29	MADA	77.92	31.02	3.22	2.13	YES	YES	18.35
Cluster-VI	Dhanbad  (SOD: Over- exploited)	3.86	MADA (Damodar river)	3.69	0.0	3.60	1.75	YES	YES	NIL (loss due to FF)
Cluster-VII		93.33	MADA	27.70	6.87	4.87	2.50	YES	NO	58.76
Cluster-VIII	Jharia  (SOD: Over- exploited)	29.27	MADA	24.04	1.18	6.80	3.71	NO	NO	4.05
Cluster-IX		310.34	MADA	160.28	45.05	5.43	3.33	NO	NO	105.01
Cluster-X		59.38	Damodar river	11.47	0.0	5.36	3.18	YES	NO	47.91
Cluster-XI	Dhanbad (SOD: Over- exploited)	249.67	MADA & DVC	19.86	43.92	3.20	2.16	YES	YES	185.89
Cluster-XIII	Baghmara  (SOD: Critical)	64.61	Damodar river	10.09	9.86	6.88	3.97	YES	YES	44.66
Cluster-XIV		NA	NA	NA	NA	8.49	3.49	NO	NO	NA
Cluster-XV		5.11	Jamunia river	0.0	5.11	7.97	4.27	NO	YES	0.0
Cluster-XVI	Nirsa (SOD:Safe)	29.78	DVC (Barakar river)	14.60	6.57	4.34	2.75	NO	NO	8.61

**Landuse Map generated from Remote Sensing Data**

CMPDI

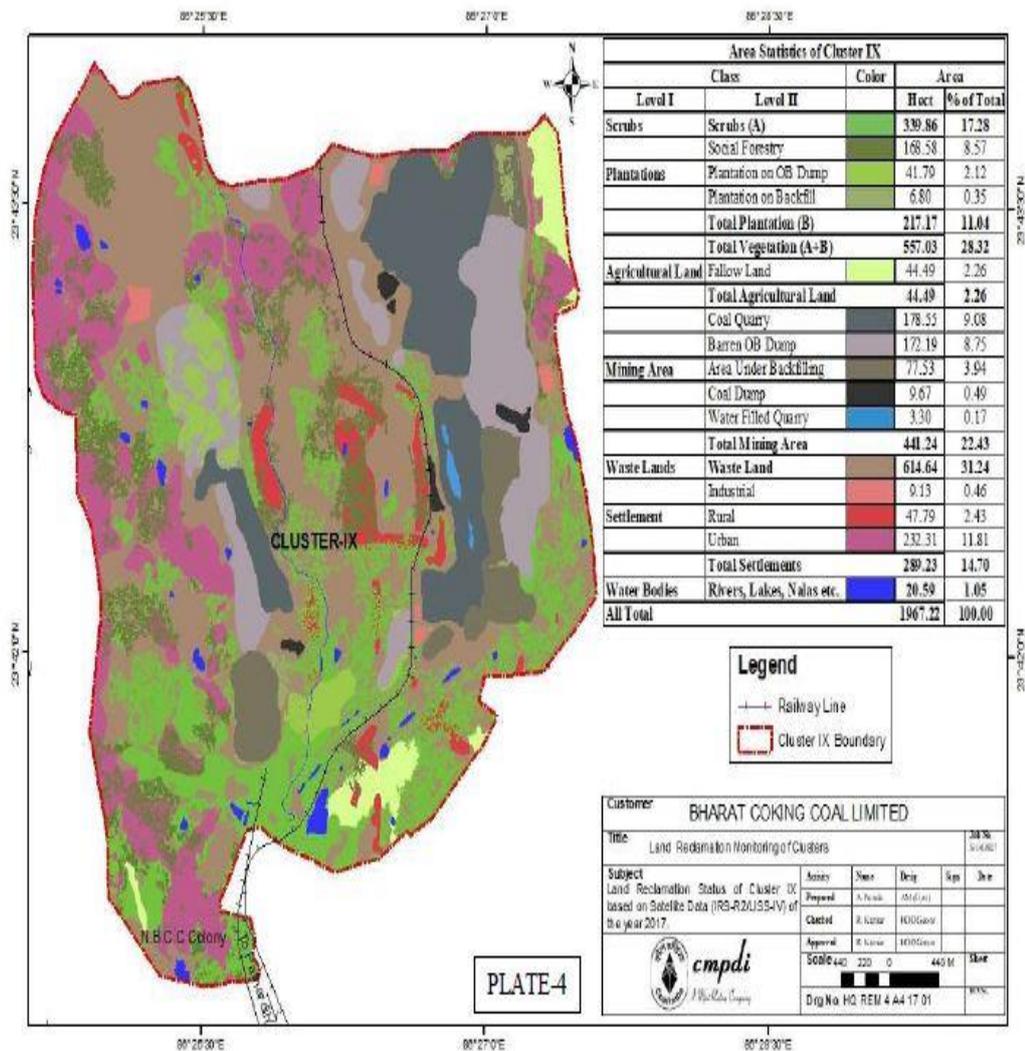


PLATE-4



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

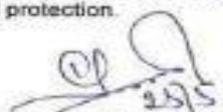
## **CORPORATE ENVIRONMENTAL POLICY**

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**  
K. S. Shuman, Dhanbad - 824 008

**STRICTLY RESTRICTED**

**FOR COMPANY USE ONLY RESTRICTED**

The information given in this report is not to be communicated either directly or indirectly to the press or to any person not holding an official position in the CIL /GOVERNMENT.

**ENVIRONMENTAL MONITORING REPORT  
OF  
BHARAT COKING COAL LIMITED,  
CLUSTER –IX  
(FOR THE MONTH MARCH, 2019)**

**E. C. no. J-11015/307/2010-IA.II (M) dated 21.05.2013**

**CMPDI**

ISO 9001 Company  
**Regional Institute-II**  
Dhanbad, Jharkhand

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## EXECUTIVE SUMMARY

### 1.0 Introduction

The purpose of environmental monitoring is to assess the quality of various attributes that affects the fauna and flora. In accordance with the quality of these attributes appropriate strategy is to be developed to control the pollution level within the permissible limits. The three major attributes are air, water and noise level.

Bharat Coking Coal Limited (BCCL), a Subsidiary company of Coal India Limited is operating Underground and Opencast Mines in Jharia Coalfield (JCF) is a part of Gondwana Coalfields located in Dhanbad district of Jharkhand, the JCF is bounded by 23<sup>0</sup>37' N to 23<sup>0</sup>52' N latitudes and 86<sup>0</sup>09' E to 86<sup>0</sup>30' E longitude occupying an area of 450 Sq.km. BCCL has awarded Environmental monitoring work of Jharia Coalfield (JCF) to Central Mine Planning & Design Institute Limited (CMPDIL). The environmental monitoring has been carried out as per the conditions laid down by the MoEF&CC while granting environmental clearance of project, consent letter issued by the respective SPCB, and other statutory requirements.

### 2.0 Sampling location and rationale

#### 2.1 Ambient air sampling locations

The ambient air quality monitoring stations were selected to represent core, buffer zone area. The rationale has been based on the guidelines stipulated by MoEF&CC, consent letter of SPCB, as well as other statutory requirements.

#### 2.2 Water sampling stations

The Water sampling stations were selected for mine sump water.

#### 2.3 Noise level monitoring locations

Noise levels vary depending on the various activities in mining areas. The monitoring of noise level in different locations will be helpful to take appropriate mitigating measures. The rationale has been based on the guidelines stipulated by MoEF&CC, consent letter of SPCB, as well as other statutory requirements

### 3.0 Methodology of sampling and analysis

#### 3.1 Ambient air quality

Parameters chosen for assessment of ambient air quality were Particulate Matter (PM<sub>10</sub>), Fine 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) and Fine Dust Sampler (PM<sub>2.5</sub>

sampler) were used for sampling of PM<sub>10</sub>, SO<sub>2</sub>, & NO<sub>x</sub> and Fine Dust Sampler (PM<sub>2.5</sub> sampler) were used for sampling of PM<sub>2.5</sub> 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.

### **3.2 Water quality**

Water samples were collected as per standard practice. The Mine effluent samples were collected and analyzed for four parameters on fortnightly basis. Thereafter the samples were preserved and analyzed at the Environmental Laboratory of CMPDI, RI- II, Dhanbad.

### **3.3 Noise level monitoring**

Noise level measurements in form of 'LEQ' were taken using Integrated Data Logging Sound Level Meter. Noise levels were measured in Decibels, 'A' weighted average, i.e. dB(A).

## **4.0 Results and interpretations**

### **4.1 Air quality**

It has been seen from the analysis results that the 24 hours average concentration parameters like PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>x</sub> are mostly within the permissible limits in all sampling locations as per MoEF&CC Gazette Notification No. GSR 742(E) dt 25.09.2000 Standards for Coal Mines and National Ambient Air Quality Standard -2009. Sometimes the concentration of PM<sub>10</sub>& PM<sub>2.5</sub> exceeds the limits due to heavy public traffic, poor road condition, coke oven plants, burning of coal by surrounding habitants, brick making, municipal waste dumps and industries like Steel Plant, thermal Plants including their fly ash etc.

The following preventive and suppressive mitigative measures can be undertaken to contain the pollution level within prescribed level:-

- Wet drilling and controlled blasting should be practice.
- Explosive used should be optimised to restrict the dust generation.
- Transportation roads should be permanently asphalted free of ruts, potholes etc.
- Water should be sprayed on coal transportation road, service road more frequently and at regular interval.
- Dust from roads should be removed physically or mechanically.
- Greenbelts around industrial sites, service building area besides Avenue plantation along roads should be created.
- Coal dust should be suppressed by using fixed sprinklers.
- Regular maintenance of plant and machinery should be undertaken.

**4.2 Water quality**

The test results indicate that the major parameters compared with MoEF&CC Gazette Notification No. GSR 742(E) dt.25.09.2000 Standards for Coal Mines were within permissible limits.

**4.3 Noise Level**

During the noise level survey it has been observed that the noise level in the sampling locations is within the permissible limits prescribed as per MoEF&CC Gazette Notification No. GSR 742(E) dt.25.09.2000 Standards for Coal Mines for Industrial Area and Noise pollution (Regulation and Control) Rules, 2000.

## INTRODUCTION

- 1.0 Any industry and development activities including coal mining is bound to affect environmental attributes. There are positive as well as negative impacts of such operations. For controlling the adverse impacts a regular monitoring is essential. The environmental monitoring is being done as per the guide-lines stipulated by Ministry of Environment, Forest and Climate Change (MoEF&CC), Govt. of India.

The very purpose of environmental monitoring is to assess the quality of various attributes which affects the environment. As per quality of these attributes appropriate strategy is to be developed to control the pollution level within the permissible limits. The three major attributes are air, water and noise level.

Bharat Coking Coal has awarded Environmental Monitoring work of all Projects, Cluster wise, to Central Mine Planning & Design Institute Limited (CMPDIL). The environmental monitoring has been carried out as per conditions laid down by MoEF&CC while granting environmental clearance to different projects. CMPDI has trained manpower and well equipped laboratory to carry out monitoring, analysis and R&D work in the field of environment.

- 1.1 The Cluster-IX is in the Eastern part of the Jharia coalfield. It includes a group of 7 Mines (viz. Lodna, S. Tisra/NTST OC, Jealgora, Joyrampur, Jeenagora, Bararee, S.Tisra/NTST Expan. OC. The Cluster – IX is situated about 25 - 30 kms from Dhanbad Railway Station. The mines of this Cluster – IX are operating since pre nationalization period (prior to 1972-73). It is connected by both Railway and Road. The drainage pattern of the area is governed by Kashi Jore.
- 1.2 The Cluster-IX is designed to produce 6.548 MTPA (normative) and 8.512 MTPA (peak) capacity of coal.

The Project has Environmental Clearance from Ministry of Environment, Forest and Climate Change (MoEF&CC) for a rated capacity 6.548 MTPA (normative) and 8.512 MTPA (peak) capacity of coal production vide letter no. J-11015/307/2010-IA.II (M) dated 21<sup>st</sup> May, 2013.

Ministry of Environment, Forest and Climate Change while granting environmental clearance has given one of the General conditions that “ Four ambient air quality monitoring stations should 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>, NO<sub>x</sub> monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets, other conditions regarding water / effluent and noise level monitoring in consultation with the State Pollution Control Board.”

In compliance of these conditions the Environmental Monitoring has been carried out & report prepared for submission to MoEF&CC & JSPCB and other statutory authorities.

**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) Jeenagora (A13) : Industrial Area**

The location of the sampling station is 23° 42' 31.00" N & 86° 25' 48.00" E. The sampler was placed at a height of 1.5 m from the ground level at the Safety Office.

**II. BUFFER ZONE Monitoring Location****i) Kusmatand Village (A12): Industrial Area**

The location of the sampling station is 23°45' 4.65" N & 86° 26' 42.10" E. The sampler was placed at a height of 1.5 m from the ground level of the village.

**ii) Bhowrah North (A14) : Industrial Area**

The location of the sampling station is 23°41' 37.00" N & 86°23' 54.00"E. The sampler was placed at 1.5 m above the ground level of Project Office.

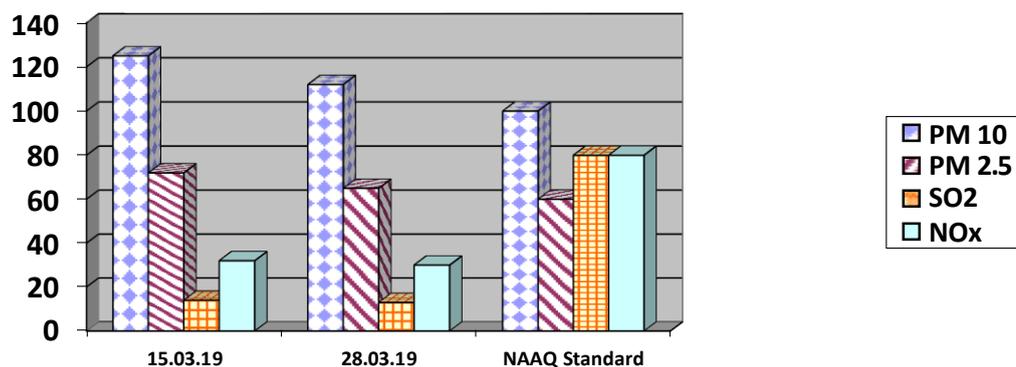
**lii) Hurriladih UGP (A28) : Industrial Area**

The location of the sampling station is 23°44' 4.18" N & 86° 24' 6.21" E. The sampler was placed at a height of 1.5 m from the ground level of the mine office.

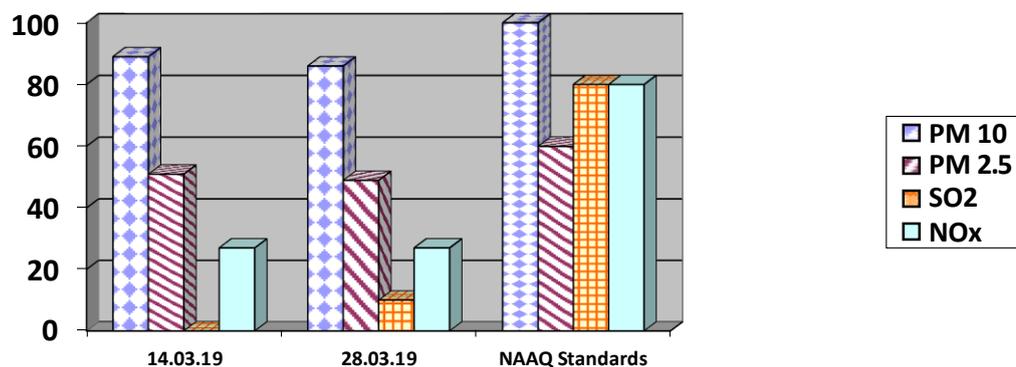
### AMBIENT AIR QUALITY DATA

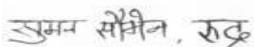
Cluster – IX, Bharat Coking Coal limited Month: MARCH, 2019 Year: 2018-19.

Station Name: A13 – Jeenagora		Zone: Core		Category: Residential	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO <sub>2</sub>	NO <sub>x</sub>
1	15.03.19	125	72	14	32
2	28.03.19	112	65	13	30
	NAAQ Standard	100	60	80	80

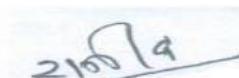


StationName:A12- Kusmatand Village		Zone: Buffer		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO <sub>2</sub>	NO <sub>x</sub>
1	14.03.19	89	51	<10	27
2	28.03.19	86	49	10	27
	NAAQ Standards	100	60	80	80

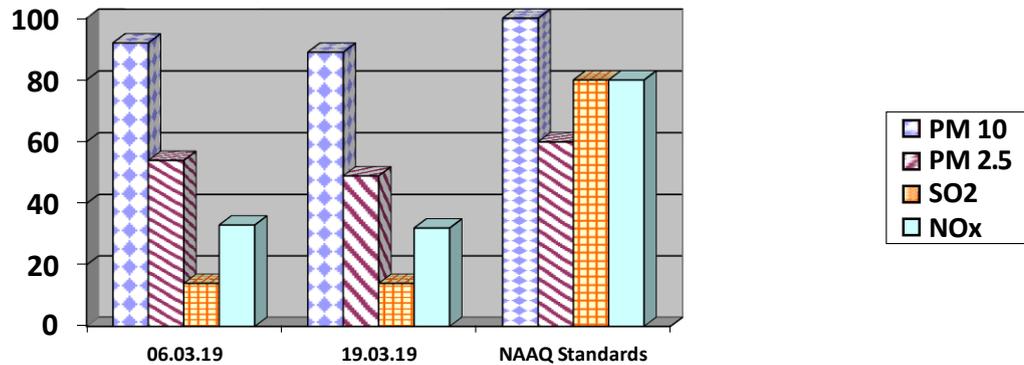


  
 Analysed By  
 JSA/SA/SSA

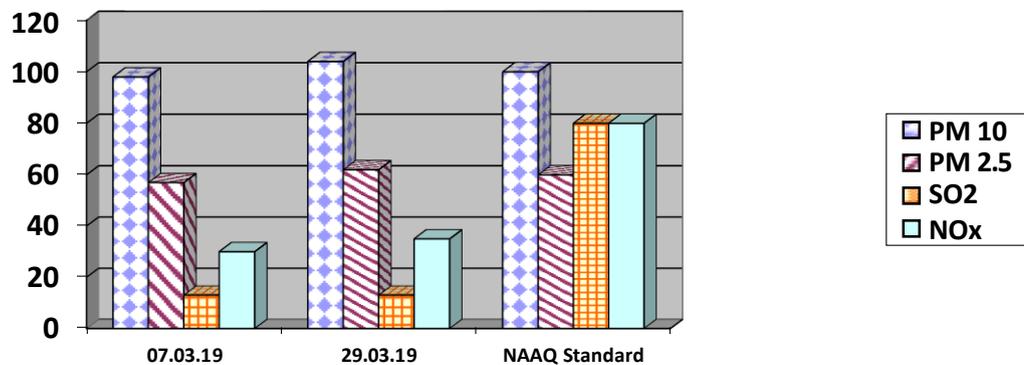
  
 Checked By  
 Lab In Charge  
 RI-2, CMPDI, Dhanbad

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

Station Name:A14- Bhowrah North		Zone: Buffer		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO2	NOx
1	06.03.19	92	54	14	33
2	19.03.19	89	49	14	32
	NAAQ Standards	100	60	80	80



Station Name: Hurriladih UGP (A28)		Zone: Buffer		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO2	NOx
1	07.03.19	98	57	13	30
2	29.03.19	104	62	13	35
	NAAQ Standard	100	60	80	80



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

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 Analysed By  
 JSA/SA/SSA

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

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

## WATER QUALITY MONITORING

### 3.1 Location of sampling sites

(Refer Plate No. – II)

#### i) Mine Discharge of Jeenagora (MW9)

A sampling point is fixed to assess the effluent quality of Mine discharge.

### 3.2 Methodology of sampling and analysis

Water samples were collected as per standard practice. The effluent samples were collected and analyzed for four parameters on fortnightly basis at the Environmental Laboratory of CMPDI RI-II, Dhanbad.

### 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.

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

Name of the Cluster: <b>Cluster -IX</b>		Month: <b>MARCH, 2019</b>	Name of the Station: <b>Mine Discharge of Jeenagora</b>	
Sl. No.	Parameters	MW9 First Fortnight	MW9 Second Fortnight	As per MOEF General Standards for schedule VI
		<b>14.03.19</b>	<b>28.03.19</b>	
1	Total Suspended Solids	38	40	100 (Max)
2	pH	8.14	8.23	5.5 - 9.0
3	Oil & Grease	<2.0	<2.0	10 (Max)
4	COD	52	44	250 (Max)

All values are expressed in mg/lit except pH.

सुमन सेठी, रुद्र

Analysed By  
JSA/SA/SSA

J

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

21/03/19

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

## NOISE LEVEL QUALITY MONITORING

### 4.1 Location of sampling sites

1. Jeenagora (N13)
2. Kusmatand Village (N12)
3. Bhowrah North (N14)
4. Hurriladih UGP (N28)

**4.2 Methodology of sampling and analysis** - Noise level measurements in form of 'L<sub>EQ</sub>' 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

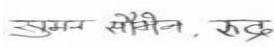
Ambient noise levels were recorded during day time and the observed values were compared with standards prescribed by MoEF&CC. The results of Noise levels recorded during day time on fortnightly basis are presented in tabular form along with the applicable standard permissible limits. The observed values in terms of L<sub>EQ</sub> are presented. The observed values at all the monitoring locations are found to be within permissible limits.

## NOISE LEVEL DATA

Name of the Project: <b>Cluster -IX</b>			Month: <b>MARCH, 2019</b>		
Sl. No.	Station Name/Code	Category of area	Date	Noise level dB(A)LEQ	*Permissible Limit of Noise level in dB(A)
1	Kusmatand Village (N12)	Residential area	14.03.19	52.9	55
2	Kusmatand Village (N12)	Residential area	28.03.19	54.8	55
3	Jeenagora (N13)	Industrial area	15.03.19	60.3	75
4	Jeenagora (N13)	Industrial area	28.03.19	64.7	75
5	Bhowrah North(N14)	Industrial area	06.03.19	61.4	75
6	Bhowrah North(N14)	Industrial area	19.03.19	55.6	75
7	Hurriladih UGP (N28)	Industrial area	07.03.19	59.6	75
8	Hurriladih UGP (N28)	Industrial area	29.03.19	64.9	75

\*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.

  
 Analysed By  
 JSA/SA/SSA

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

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

**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 $\mu\text{g}/\text{m}^3$  700 $\mu\text{g}/\text{m}^3$	- High Volume Sampling (Average flow rate not less than 1.1)
	Respirable Particulate Matter (size less than 10 $\mu\text{m}$ ) (RPM)	Annual Average * 24 hours **	250 $\mu\text{g}/\text{m}^3$  300 $\mu\text{g}/\text{m}^3$	Respirable Particulate Matter sampling and analysis
	Sulphur Dioxide ( $\text{SO}_2$ )	Annual Average * 24 hours **	80 $\mu\text{g}/\text{m}^3$  120 $\mu\text{g}/\text{m}^3$	1.Improvedwest and Gaeke method 2.Ultraviolet fluorescene
	Oxide of Nitrogen as $\text{NO}_2$	Annual Average * 24 hours **	80 $\mu\text{g}/\text{m}^3$  120 $\mu\text{g}/\text{m}^3$	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.

## NATIONAL AMBIENT AIR QUALITY STANDARDS

New Delhi the 18<sup>th</sup> November 2009

In exercise of the powers conferred by Sub-section (2) (h) of section 16 of the Air (Prevention and Control of Pollution) Act, 1981 (Act No. 14 of 1981), and in supersession of the notification No(s).S.O.384(E), dated 11<sup>th</sup> April 1994 and S.O.935(E), dated 14<sup>th</sup> October 1998, the Central Pollution Control Board hereby notify the National Ambient Air Quality Standards with immediate effect.

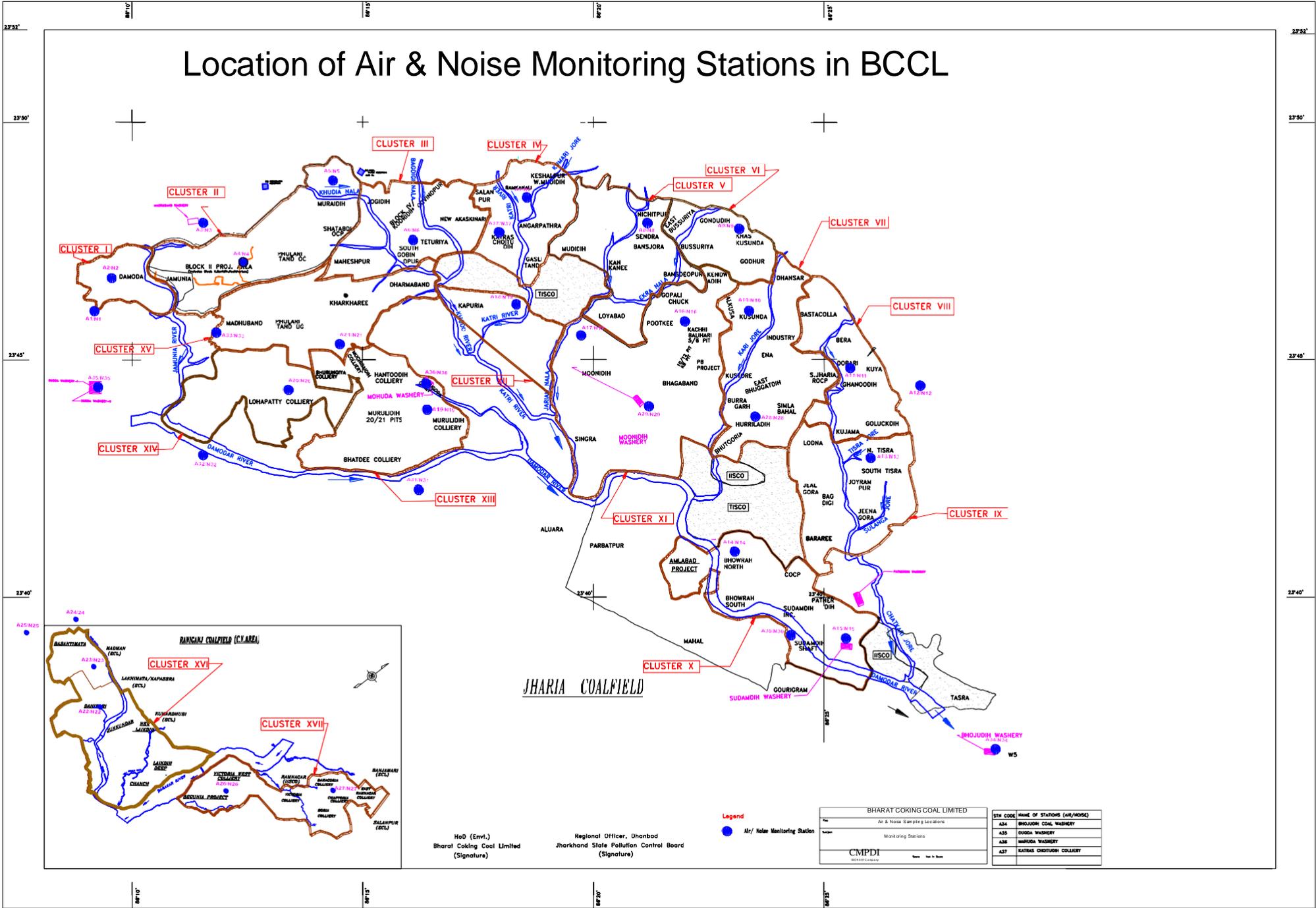
Pollutant	Time Weighted Average	Concentration in Ambient Air		Methods of Measurement
		Industrial, Residential, Rural and other Areas	Ecologically Sensitive Area (Notified by Central Government)	
<b>Sulphur Dioxide (SO<sub>2</sub>), µg/m<sup>3</sup></b>	Annual * 24 Hours **	50 80	20 80	-Improved West and Gaeke Method -Ultraviolet Fluorescence
<b>Nitrogen dioxide (NO<sub>2</sub>), µg/m<sup>3</sup></b>	Annual * 24 Hours **	40 80	30 80	-Jacob & Hochheiser modified (NaOH-NaAsO <sub>2</sub> ) Method -Gas Phase Chemiluminescence
<b>Particulate Matter (Size less than 10µm) or PM<sub>10</sub>, µg/m<sup>3</sup></b>	Annual * 24 Hours **	60 100	60 100	-Gravimetric -TEOM -Beta attenuation
<b>Particulate Matter (Size less than 2.5µm) or PM<sub>2.5</sub>, µg/m<sup>3</sup></b>	Annual * 24 Hours **	40 60	40 60	-Gravimetric -TEOM -Beta attenuation
<b>Ozone (O<sub>3</sub>), µg/m<sup>3</sup></b>	8 Hours * 1 Hour **	100 180	100 180	-UV Photometric -Chemiluminescence -Chemical Method
<b>Lead (Pb), µg/m<sup>3</sup></b>	Annual * 24 Hours **	0.50 1.0	0.50 1.0	-AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper -ED-XRF using Teflon filter
<b>Carbon Monoxide (CO), mg/m<sup>3</sup></b>	8 Hours ** 1 Hour **	02 04	02 04	-Non dispersive Infrared (NDIR) Spectroscopy
<b>Ammonia (NH<sub>3</sub>), µg/m<sup>3</sup></b>	Annual * 24 Hours **	100 400	100 400	-Chemiluminescence -Indophenol blue method
<b>Benzene (C<sub>6</sub>H<sub>6</sub>), µg/m<sup>3</sup></b>	Annual *	05	05	-Gas Chromatography (GC) based continuous analyzer -Adsorption and desorption followed by GC analysis
<b>Benzo(a)Pyrene (BaP) Particulate phase only, ng/m<sup>3</sup></b>	Annual *	01	01	-Solvent extraction followed by HPLC/GC analysis
<b>Arsenic (As), ng/m<sup>3</sup></b>	Annual *	06	06	-AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper
<b>Nickel (Ni), ng/m<sup>3</sup></b>	Annual *	20	20	-AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper

\* Annual Arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

\*\* 24 hourly or 8 hourly or 1 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

**NOTE:** Whenever and wherever monitoring results on two consecutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigations.

# Location of Air & Noise Monitoring Stations in BCCL



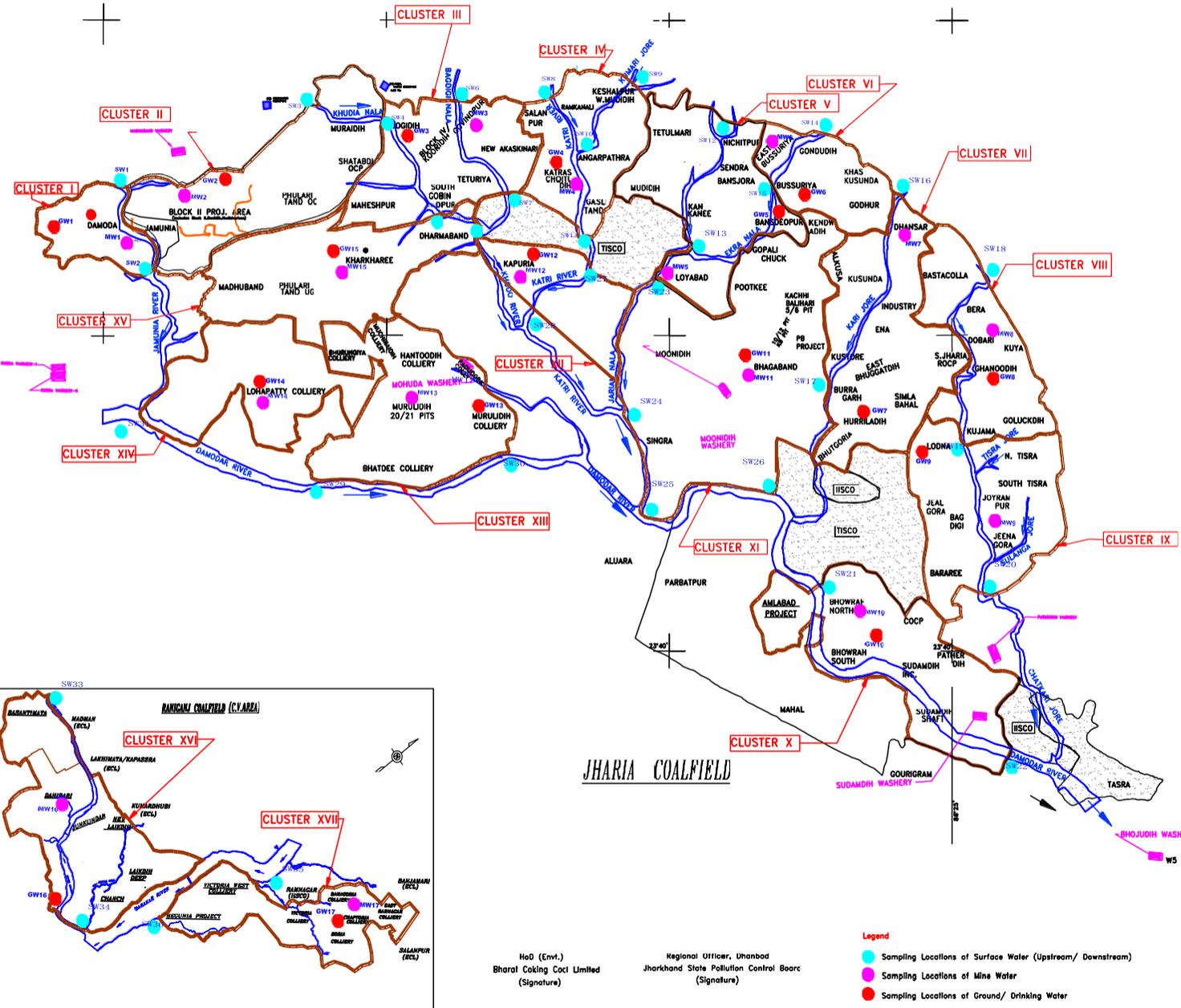
HoD (Envr.)  
Bharat Coking Coal Limited  
(Signature)

Regional Officer, Dhanbad  
Jharkhand State Pollution Control Board  
(Signature)

**BHARAT COKING COAL LIMITED**  
Air & Noise Sampling Locations  
Marking Stations  
**CMPDI**  
CONSULTANTS

STN CODE	NAME OF STATIONS (AIR/NOISE)
A34	BHOJUDIH COAL WASHERY
A35	DUGDA WASHERY
A36	BARUDA WASHERY
A37	KATRAE CHONGHUM COLLIERY

# Water Sampling Locations in BCCL



## INDEX

Cluster	Surface Water (U/S, D/S)	Name of River/Nala/Effluent after	Minor Area	Sampling Location	Ground Water	Sampling Location
I	SW1	Khudra River	MW1	Damoda Area	GW1	Chandrapur Village
II	SW3, SW4	Khudra Nala	MW2	Block I OCP	GW2	Soyampur Village
III	SW4, SW5, SW6, SW7	Nala, Jagdigi Nala	MW3	Govindpur Colliery	GW3	Jogdigi Village
IV	SW5, SW11, SW9, SW10	Kari River	MW4	Chotudih	GW4	Kankane Village
V	SW12, SW13	Nala, Etra Nala	MW5	Muddih	GW5	Nichtpur
VI	SW14, SW15	Etra Nala	MW6	East Bastaria UGP	GW6	Bansjora Borewell
VII	SW16, SW17	Kari River	MW7	Chansar UGP	GW7	Nehelid
VIII	SW18, SW19	Kari River	MW8	Dobari UGP	GW8	Gharadh
IX	SW20, SW21	Kari River	MW9	Jeamaga UGP	GW9	Lodna
X	SW22, SW23	Damodar River	MW10	Bhowrah North	GW10	Bhowrah South
XI	SW24, SW25	Nala, Damodar River	MW11	Bagasara UGP	GW11	Bagasara
XII	SW26, SW27, SW28	Kari River	MW12	Kapuria Damoda	GW12	Kapuria
XIII	SW29, SW30	Damodar River	MW13	Mudidi (20/21)	GW13	Mudidi
XIV	SW31, SW32	Damodar River	MW14	Lohapatti	SW14	Lohapatti
XV	SW33, SW32	Khudra Nala	MW15	Khairone UGP	SW15	Khairharee
XVI	SW33, SW34	Khudra Nala	MW16	Zahbari UGP	GW16	Pasaban Village
XVII	SW35, SW36	Barakar River	MW17	Damagona Colliery	GW17	Chaptoria

- Legend**
- Sampling Locations of Surface Water (Upstream/ Downstream)
  - Sampling Locations of Mine Water
  - Sampling Locations of Ground/ Drinking Water

Head (Enr.)  
Bharat Coking Coal Limited  
(Signature)

Regional Officer, Uanbad  
Jharkhand State Pollution Control Board  
(Signature)

BHARAT COKING COAL LIMITED

WATER SAMPLING LOCATIONS

MONITORING STATIONS

CMPDI

Date: Not to Blank

**POLLUTION UNDER CONTROL CERTIFICATE** All India Valid  
 TRANSPORT DEPARTMENT, GOVT. OF JHARKHAND,  
 प्रदूषण नियंत्रित प्रमाण पत्र  
 परिचालन विभाग, झारखण्ड सरकार  
 Pollution Control Board, Bhubaneswar, Orissa (Chhatisgarh)  
 आइएन सी को 2 वरं HBU स्तर (% आयतन) (PPM)

Co2 एवं Hsu level as follows (V/V) (PPM)

16537

REFERENCE NO:- 1177/13

प्राधिकृत प्रमाण पत्र

प्रमाणित किया जाता है कि निम्नलिखित वाहन का Co<sub>2</sub> एवं H<sub>2</sub>O परतर्जने पर HBU परतर्जने पर वाहन को 1989 के नियम 115 (2) में निर्दिष्ट मानकों के अनुसार है।

वाहन का प्रकार	वाहन का प्रकार	निर्दिष्ट मानक HBU	मापित मानक HBU
Unpolluted Standard	CO-Measured Level CO <sub>2</sub>	Standard	Measured Level HBU
वाहन का प्रकार	वाहन का प्रकार	निर्दिष्ट मानक HBU	मापित मानक HBU
Unpolluted Standard	CO-Measured Level CO <sub>2</sub>	Standard	Measured Level HBU
65	28		

Category:- 10W  
 Fuel:- DIESEL  
 DATE:- 15/06/2018

Valid Up to:- 14/12/2018

JH10AE 1637

Authorised Signatory

**POLLUTION UNDER CONTROL CERTIFICATE** All India Valid  
 TRANSPORT DEPARTMENT, GOVT. OF JHARKHAND,  
 प्रदूषण नियंत्रित प्रमाण पत्र  
 परिचालन विभाग, झारखण्ड सरकार  
 Pollution Control Board, Bhubaneswar, Orissa (Chhatisgarh)  
 आइएन सी को 2 वरं HBU स्तर (% आयतन) (PPM)

Co2 एवं Hsu level as follows (V/V) (PPM)

16538

REFERENCE NO:- 1177/13

प्राधिकृत प्रमाण पत्र

प्रमाणित किया जाता है कि निम्नलिखित वाहन का Co<sub>2</sub> एवं H<sub>2</sub>O परतर्जने पर HBU परतर्जने पर वाहन को 1989 के नियम 115 (2) में निर्दिष्ट मानकों के अनुसार है।

वाहन का प्रकार	वाहन का प्रकार	निर्दिष्ट मानक HBU	मापित मानक HBU
Unpolluted Standard	CO-Measured Level CO <sub>2</sub>	Standard	Measured Level HBU
वाहन का प्रकार	वाहन का प्रकार	निर्दिष्ट मानक HBU	मापित मानक HBU
Unpolluted Standard	CO-Measured Level CO <sub>2</sub>	Standard	Measured Level HBU
65	30		

Category:- 10W  
 Fuel:- DIESEL  
 DATE:- 15/06/2018

Valid Up to:- 14/12/2018

JH10AG 5639

Authorised Signatory



POLLUTION UNDER CONTROL CERTIFICATE  
TRANSPORT DEPARTMENT, GOVT. OF JHARKHAND,

All India Valid

REFERENCE NO:- 1177/13

प्रदूषण नियंत्रित प्रमाण पत्र  
परिवहन विभाग, झारखण्ड सरकार  
मैदानी प्रमाण प्रदूषण प्रयोगशाला, धनबाद

16537

Co2 एवं Hsu level in Idle (ppm) (ppm)

गतिमान (MOVING) RPM

PUCO NO. 28834  
उपकरण नं. 5882  
Vehicle Reg. No. **JH10AG 5637**  
वाहन नं. 5637  
Make- **TATA**  
मॉडल-  
Model- **TIPPER**  
वर्ग-  
Category- **10W**  
वर्ग-  
Engine Stroke -  
इंधन प्रणाली -  
Year of Mfg. - **2012**  
निर्माण का वर्ष -  
Exhaust System -  
वायुमंडलीय प्रणाली -  
इंधन  
Fuel - **DIESEL**  
विशेष  
DATE- **15/06/2018**

इंधन प्रणाली का प्रकार Type of Fuel System	वायुमंडलीय CO <sub>2</sub> स्तर CO <sub>2</sub> Level	वायुमंडलीय Hsu स्तर Hsu Level	निर्दिष्ट वायुमंडलीय Hsu Specified Hsu	मापित वायुमंडलीय Hsu Measured Hsu
परिसर Hsu परीक्षण Ambient Hsu Test	—	—	—	—
वाहन पर परीक्षण On Vehicle Test	—	—	—	—
वाहन 115 (2) से निम्न स्तर पर Vehicle 115 (2) or below	—	—	—	—
वाहन पर परीक्षण On Vehicle Test	—	—	65	33

वैधता  
Valid Up to:- **14/12/2018**



परिचालक  
Signature  
Authorized Signatory



POLLUTION UNDER CONTROL CERTIFICATE  
TRANSPORT DEPARTMENT, GOVT. OF JHARKHAND,

All India Valid

REFERENCE NO:- 1177/13

प्रदूषण नियंत्रित प्रमाण पत्र  
परिवहन विभाग, झारखण्ड सरकार  
मैदानी प्रमाण प्रदूषण प्रयोगशाला, धनबाद

16533

Co2 एवं Hsu level in Idle (ppm) (ppm)

गतिमान (MOVING) RPM

PUCO NO. 28829  
उपकरण नं. 5882  
Vehicle Reg. No. **JH10AE 1636**  
वाहन नं. 1636  
Make- **TATA**  
मॉडल-  
Model- **TIPPER**  
वर्ग-  
Category- **10W**  
वर्ग-  
Engine Stroke -  
इंधन प्रणाली -  
Year of Mfg. - **2012**  
निर्माण का वर्ष -  
Exhaust System -  
वायुमंडलीय प्रणाली -  
इंधन  
Fuel - **DIESEL**  
विशेष  
DATE- **15/06/2018**

इंधन प्रणाली का प्रकार Type of Fuel System	वायुमंडलीय CO <sub>2</sub> स्तर CO <sub>2</sub> Level	वायुमंडलीय Hsu स्तर Hsu Level	निर्दिष्ट वायुमंडलीय Hsu Specified Hsu	मापित वायुमंडलीय Hsu Measured Hsu
परिसर Hsu परीक्षण Ambient Hsu Test	—	—	—	—
वाहन पर परीक्षण On Vehicle Test	—	—	—	—
वाहन 115 (2) से निम्न स्तर पर Vehicle 115 (2) or below	—	—	—	—
वाहन पर परीक्षण On Vehicle Test	—	—	65	29

वैधता  
Valid Up to:- **14/12/2018**



परिचालक  
Signature  
Authorized Signatory



POLLUTION UNDER CONTROL CERTIFICATE  
TRANSPORT DEPARTMENT, GOVT. OF JHARKHAND,

All India Valid

POLLUTION UNDER CONTROL CERTIFICATE  
TRANSPORT DEPARTMENT, GOVT. OF JHARKHAND,

All India Valid

REFERENCE NO:- 1177/13

प्रदूषण नियंत्रित प्रमाण पत्र  
परिवहन विभाग, झारखण्ड सरकार  
मेसर्स प्रभास इन्टरप्राइजेज, भागा (घनबाद)

16534

Co2 एवं Hsu level condition (% Volume) (PPM) वाहन में CO2 एवं Hsu स्तर (% आयतन) (PPM)  
आवृत्ति के RPM

PUC NO. 29931  
उपकरण पत्र संख्या  
Vehicle Reg. No. **JH10AG 5640**  
वाहन पंजी संख्या  
Make- **TATA**  
ब्रांड  
Model- **TIPPER**  
मॉडल  
Category- **10W**  
शर्त  
Engine Stroke -  
इंजन स्ट्रोक  
Year of Mfg- **2012**  
निर्माण का वर्ष  
Exhaust Norms -  
उत्सर्जन मानक  
इंधन  
Fuel - **DIESEL**  
विशेष  
DATE:- **15/06/2018**

प्रमाणित किया जाता है कि वाहन का Co<sub>2</sub> एवं Hsu स्तर परम सीमा के अंदर है।  
वाहन 115 (2) में निर्दिष्ट है।  
वाहन परम सीमा के अंदर है।

इंधन (Fuel)	वाहन का वर्गीकृत CO <sub>2</sub> स्तर (Vehicle Category CO <sub>2</sub> Level)	वाहन स्तर (Vehicle Level)	निर्दिष्ट मानक Hsu (Prescribed Standard)	मापित मानक Hsu (Measured Level Hsu)
डिजेल (Diesel)	परम सीमा (Permissible)	परम सीमा (Permissible)	65	30



**JH10AG 5640**

वैधता  
Valid Up to:- **14/12/2018**



*Pamraj Kumar*  
Authorized Signatory



POLLUTION UNDER CONTROL CERTIFICATE  
TRANSPORT DEPARTMENT, GOVT. OF JHARKHAND,

All India Valid

REFERENCE NO:- 1177/13

प्रदूषण नियंत्रित प्रमाण पत्र  
परिवहन विभाग, झारखण्ड सरकार  
मेसर्स प्रभास इन्टरप्राइजेज, भागा (घनबाद)

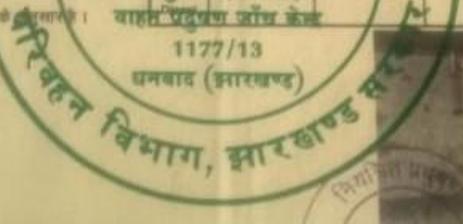
16536

Co2 एवं Hsu level condition (% Volume) (PPM) वाहन में CO2 एवं Hsu स्तर (% आयतन) (PPM)  
आवृत्ति के RPM

PUC NO. 29933  
उपकरण पत्र संख्या  
Vehicle Reg. No. **JH10AG 5638**  
वाहन पंजी संख्या  
Make- **TATA**  
ब्रांड  
Model- **TIPPER**  
मॉडल  
Category- **10W**  
शर्त  
Engine Stroke -  
इंजन स्ट्रोक  
Year of Mfg- **2012**  
निर्माण का वर्ष  
Exhaust Norms -  
उत्सर्जन मानक  
इंधन  
Fuel - **DIESEL**  
विशेष  
DATE:- **15/06/2018**

प्रमाणित किया जाता है कि वाहन का Co<sub>2</sub> एवं Hsu स्तर परम सीमा के अंदर है।  
वाहन 115 (2) में निर्दिष्ट है।  
वाहन परम सीमा के अंदर है।

इंधन (Fuel)	वाहन का वर्गीकृत CO <sub>2</sub> स्तर (Vehicle Category CO <sub>2</sub> Level)	वाहन स्तर (Vehicle Level)	निर्दिष्ट मानक Hsu (Prescribed Standard)	मापित मानक Hsu (Measured Level Hsu)
डिजेल (Diesel)	परम सीमा (Permissible)	परम सीमा (Permissible)	65	32



**JH10AG 5638**

वैधता  
Valid Up to:- **14/12/2018**



*Pamraj Kumar*  
Authorized Signatory

सूत्रों का कहना है कि राज्य की जाएगी। शिक्षक बीआरसी पहुंचे थे। पार  
शिक्षकों का कहना था कि विद्यालय

## भारत कोकिंग कोल लिमिटेड

'एक मिनीरत्न कंपनी'  
(कोल इण्डिया लिमिटेड का एक अंग)  
कोयला भवन, कोयला नगर, धनबाद  
पर्यावरण विभाग



## BHARAT COKING COAL LIMITED

(A Mini Ratna Company)  
(A subsidiary of Coal India Limited)  
Koyla Bhawan, Koyla Nagar, Dhanbad  
Environment Department

is to bring to notice of all concerned that the Environmental Clearance granted to Cluster-IX of Bharat Coking Coal Limited, located at Dhanbad District, Jharkhand vide letter-no.J- 11015/307/2010-IA.II(M), dated 21st May, 2013 has been amended as following by Ministry of Environmental, Forests and Climate Change Vide sanctioned Order No. J-11015/307/2010IA.II(M), dated 1st March, 2018.

Name of the Mine	Lease hold Area	Normative Capacity	Peak Capacity
Amalgamated Joyrampur Colliery (OC)	1186.97 ha	2.512 MTPA	3.25 MTPA
NT-ST Expansion OCP	755.15 ha	6.0 MTPA	7.8 MTPA
Cluster Total peak capacity of 8.512 MTPA on lease hold area of 1942.12 ha			

Environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may be seen at the website of the Ministry of Environment & Forests at <http://envfor.nic.in> and also on Bharat Coking Coal Limited official Website <http://www.bcclweb.in>

सभी सम्बंधित व्यक्तियों को सूचित किया जाता है कि भारत कोकिंग कोल लिमिटेड के क्लस्टर-9 को पर्यावरण एवं वन-मंत्रालय के द्वारा पर्यावरणीय स्वीकृति में बदलाव की गई है जिसकी स्वीकृति पत्र संख्या -11015/307/2010-IA.II (M) दिनांक 01 मार्च, 2018 है।

खान का नाम	खान पट्टा क्षेत्र	उत्पादन क्षमता सामान्य	अधिकतम क्षमता
अमलगमेटेड जयरामपुर कोलियरी (ओसीपी)	११८६.९७ हेक्टर	२.५१२ मिलियन टन प्रति वर्ष	३.२५ मिलियन टन प्रति वर्ष
एन टी-एस टी बिस्तार (ओसीपी)	७५५.१५ हेक्टर	६.० मिलियन टन प्रति वर्ष	७.८ मिलियन टन प्रति वर्ष
क्लस्टर कुल अधिकतम क्षमता ८.५१२ मिलियन टन प्रति वर्ष एवं खान पट्टा क्षेत्र १९४२.१२ हेक्टर			

पर्यावरणीय स्वीकृति की प्रतिलिपि झारखंड राज्य प्रदूषण नियंत्रण बोर्ड के पास उपलब्ध है तथा इसे पर्यावरण एवं वन मंत्रालय की आधिकारिक वेबसाइट <http://envfor.nic.in> और भारत कोकिंग कोल लिमिटेड के आधिकारिक वेबसाइट <http://www.bccl.gov.in> पर उपलब्ध है।

१४. १०. २०१४

No.J-11015/307/2010-IA-II (M)  
Government of India  
Ministry of Environment, Forest and Climate Change  
IA-II (Coal Mining) Division

Indira Paryavaran Bhawan,  
Jorbagh Road, N Delhi-3  
Dated: 1<sup>st</sup> March, 2018

To,  
The General Manager (E&F)  
M/s Bharat Coking Coal Ltd,  
Koyala Bhawan,  
District Dhanbad (Jharkhand)  
Email: envbccl@gmail.com

**Sub: Cluster IX Coal Mining Project (Group of 6 Mixed Mines) of total capacity 8.512 MTPA (peak) of M/s Bharat Coking Coal Limited located in Jharia Coal field, District Dhanbad (Jharkhand) - Amendment in EC - reg.**

Sir,

This has reference to your letter No. BCCL/GM (Lodhna Area) /F-EC/318 dated 14.11.2017 along with online proposal No.IA/JH/CMIN/8452/2010, and subsequent letters dated 19.12.2018, 22.12.2018, 06.01.2018, 07.01.2018 and 11.01.2018 on the above mentioned subject.

2. The Ministry of Environment, Forest and Climate Change has considered the proposal for amendment in environmental clearance granted vide letter No.J-11015/307/2010-IA.II (M) dated 21<sup>st</sup> May, 2013 in favour of M/s Bharat Coking Coal Limited for the Cluster IX Coal Mining project (Group of 6 Mixed Mines) of total capacity of 8.512 MTPA in a total ML area of 1942.12 ha of located in Jharia Coal field District Dhanbad (Jharkhand), due to restructuring of individual mines of the cluster.

3. The proposal was considered by the Expert Appraisal Committee (EAC) in the Ministry for Thermal & Coal Mining Sector in its 24<sup>th</sup> meeting held on 11<sup>th</sup> January, 2018. During the meeting the project proponent informed about the proposed amendment in the above said Environmental clearance due to restructuring of individual mines of the cluster, with the total production capacity of 8.512 MTPA and the total mining lease area remaining same, with the details as under:-

S. No.	Mine	Status	As per existing EC				Modification sought					
			Normative Capacity (MTPA)	Peak Capacity (MTPA)	Lease Hold Area (Ha)	Life (years)	SI No	Name of the Mine	Production Capacity (MTPA)		Lease Hold Area (Ha)	Life (Yr)
									normative	peak		
1	Lodna UG	In operation	0.115	0.150	391.64	30	1	Amalgamated Joyrampur Colliery(OC)	2.512	3.25	1186.97	25
2	Bagdigi UG	In operation	0.110	0.143	61.0	30						
3	Joyrampur UG	In operation	0.153	0.199	89.04	30						
4	Bararee UG	In operation	0.170	0.221	475.0	30						
5	JealgoraUG		Nil	nil	138.0(wil	-						

	(closed for operation, mine not closed)				to be closed after fire dealing)							
6	NT/ST Expan. OCP	Proposed	6.0	7.8	755.15	30	2	NT-ST expansion OCP (in operation)	6.0	7.8	755.15	26
	total		6.548	8.512	1942.12*					8.512**	1942.12	

\*Inclusive of 14.24 ha of North Tisra UG & 18.05 ha of Jeenagora OCP. \*\*Peak of Cluster will remain same, as peak of individual will be achieved in different years.

The EAC was also informed that the Mining Plan after the proposed restructuring of individual mines was duly revised and approved by the Board of M/s BCCL on 9<sup>th</sup> December, 2017.

4. The EAC has recommended the amendments in the environmental clearance dated 21<sup>st</sup> May, 2013 due to restructuring of individual mines within the cluster, as proposed by the project proponent, on the above lines.

5. Based on recommendations of the EAC, the Ministry of Environment, Forest and Climate Change hereby accords approval to the amendments in the environmental clearance dated 21<sup>st</sup> May, 2013 for **Cluster IX Coal Mining Project (Group of 6 Mixed Mines) of total capacity 8.512 MTPA** of M/s Bharat Coking Coal Limited in combined ML area of 1942.12 ha located in Jharia Coal field, District Dhanbad (Jharkhand), as proposed by the project proponent and mentioned in para 3 above, with the total production capacity of 8.512 MTPA and the total mine lease area of 1942.12 ha remaining the same.

6. All other terms and conditions stipulated in the said environmental clearance dated 21<sup>st</sup> May, 2013 shall remain unchanged.

  
 11/3/2018  
 (S K Srivastava)  
 Scientist E

Copy to:

1. The Secretary, Ministry of Coal, Shastri Bhawan, New Delhi.
2. Secretary, Department of Environment & Forests, Govt. of Jharkhand, Secretariat, Ranchi
3. The APCCF, Ministry of Environment Forest and Climate Change, Regional Office (EZ), A-31, Chandrashekarapur, Bhubaneswar - 751023 (Odisha)
4. The Member Secretary, Jharkhand State Pollution Control Board, TA Building, HEC Complex, PO Dhurwa, Ranchi (Jharkhand)
5. The Member Secretary, CPCB, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 2
6. The Member-Secretary, Central Ground Water Authority, Ministry of Water Resources, Curzon Road Barracks, A-2, W-3 Kasturba Gandhi Marg, N Delhi
7. The District Collector, Dhanbad, Government of Jharkhand
8. Monitoring File 9. Guard File 10. Record File 11. Notice Board

  
 11/3/2018  
 (S K Srivastava)  
 Scientist E