

# भारत कोकिंग कोल लिमिटेड

एक मिनिरत्न कम्पनी

(कोल इंडिया लिमिटेड का एक अंग)

महाप्रबंधक का कार्यालय,

घॉघ विक्टोरिया क्षेत्र

पि.ओ. - बराकर, जिला - पंचगढ़मान, पं. बंगाल

पिन - 713324 दूरभाष - 0341-2520061/62,

पंजीकृत कार्यालय कोयला भवन, कोयला नगर, धनबाद -

826005 (झारखण्ड),

CIN U10101JH1972GOI000918



# Bharat Coking Coal Limited

A MINI RATNA Co.

(A Subsidiary of Coal India Ltd)

Office of the General Manager,

Chanch Victoria Area

P.O.-BARAKAR, DIST-PAS. BARDHAMAN ( W.B.)

PIN- 713324, Tel. 0341-2520061/62

Regd Off. Koyla Bhawan, Koyla Nagar, Dhanbad-826005,

CIN U10101JH1972GOI000918.

Ref. No: BCCL/CV/GM/ ENVT/2019/145

Date: 08/01/20

To,  
The Director,  
Ministry of Environment, Forest, Climate Change,  
Regional Office (ECZ), Bungalow No. A-2,  
Shyamali Colony,  
Ranchi, Jharkhand- 834002

Sub:- Six Monthly Report On Implementation Of Environmental Measures For The Period From April 2018 To September 2018 In Respect Of Cluster-XVI Group Of Mines Of BCCL.

Dear Sir,

Enclosed please find herewith the six monthly reports on implementation of environmental protection measure for the period from April 2018 To September 2018 in respect of Cluster-XVI group of mines of BCCL.

Hope you will find the same in order.

Yours Faithfully

General Manager  
CV Area

- CC to: - (1) Dr. Sunita Aulock, Director 1A monitoring cell, Paryavaran Bhawan CGO Complex, New Delhi-110003  
(2) The Incharge, Zonal Office, CPCB, Southernd Conclave, Block 502, 5<sup>th</sup> & 6<sup>th</sup> Floors, 1582 Rajdanga Main Road Kolkata - 700107 (W.B)  
(3) The Regional Officer, JSPCB, Hirapur, Dhanbad- 826001, Jharkhand  
(4) Dy.GM (Environment), BCCL, Koyla Bhawan, Dhanbad.  
(5) AGM, CV Area.  
(6) Project Officer, DBOCP  
(7) Area Manager (Env), CV Area.  
(8) Office Copy

## COMPLIANCE OF EC CONDITIONS OF CLUSTER- XVI

EC order no- J-11015/185/2010-IA.II (M) Dated 06.02.2013

Up to September 2018

Sl. no.	A. Specific Conditions by MOEF:	Compliance			
i	The maximum production shall not exceed beyond that for which environmental clearance has been granted for the 5 mines of cluster XVI as below:	The approved peak production of coal for Cluster XVI is 1.963 MTPA. The total production of coal for the cluster XVI for the FY 2017-18 is 1.299 MT which is well within the limit. Coal Production report is enclosed as <b>Annexure 1</b> .			
ii	All the void /water bodies should be backfilled up to ground level and no OB dump at the end of mining.	Dahibari Basantimata OCP (DBOCP) is the only operating OC project in Cluster XVI and backfilling is being done simultaneously. At the end of mining all water bodies and void will be filled up to ground level and there will be no OB dump remains left.			
iii	Extensive plantation should be provided on either side of River;	A total of 88,670 Nos. saplings are planted between 2010-11 to 2017-18 in Cluster XVI. Apart from this extensive plantation already exist on both side of Khudia river. <b>Year wise plantation data is enclosed as Annexure 2.</b>			
iv	Impact of mining on ground water of the area (Impact Zone) should be provided;	There is no significant impact on ground water.			
v	A Garland drain should be provided	Garland drain is already present along the periphery of quarry area along with master drain which is named as C-9 drain.			
vi	Excess water from mine after treatment should be supplied to the villagers.	At present excess water from mine is supplied to the villages through settling pond. Location of pond is at the south of Palasia incline .  List of villages where water is supplied is enclosed as <b>Annexure 3</b> .  Apart from this an action plan for Utilization and treatment of surplus mine water has been prepared. In this regard, 26 mines have been identified for the implementation of the action plan in the Phase –I of the scheme.			
vii	Rejects of washery along with dry carbon slurry should be utilized in power plant and other recognized vendors.	Dahibari Washery rejects are being kept separately and will be sold to recognized vendors through auctioning process.			
viii	A time schedule for filling of existing and abandoned quarries be done.	Old abandoned Quarry no. 1, 2, 3 & 3/4 of Kalimati Seam at Basantimata Mine has been filled upto ground level. NLOCP, JOCP & KOCP abandoned quarry has been filled up.  Year wise Backfilling till now is as below:- <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th>Sl No.</th><th>Year</th><th>Quantity (Lakh M<sup>3</sup>)</th></tr> </table>	Sl No.	Year	Quantity (Lakh M <sup>3</sup> )
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		<table><tr><td>1.</td><td>2012-13</td><td>7.25</td></tr><tr><td>2.</td><td>2013-14</td><td>55.00</td></tr><tr><td>3.</td><td>2014-15</td><td>85.75</td></tr><tr><td>4.</td><td>2015-16</td><td>5.00</td></tr><tr><td>5.</td><td>2016-17</td><td>7.00</td></tr><tr><td>6.</td><td>2017-18</td><td>5.00</td></tr></table>	1.	2012-13	7.25	2.	2013-14	55.00	3.	2014-15	85.75	4.	2015-16	5.00	5.	2016-17	7.00	6.	2017-18	5.00	
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ix	The measure identified in the environmental plan for cluster XVI groups of mine and the conditions given in this environmental clearance letter shall be dovetailed to the implementation of the Jharia Action Plan.	Master Plan activities are dovetailed with compliance of environmental clearance conditions.																			
x	As there is no fire in Cluster XVI but the measure should be adopted by proponent to control spread of neighboring fire to this Cluster XVI. The proponent shall prepare time -series maps of the Jharia Coalfields through NRSA to monitor and prevent fire problems in the Jharia Coalfields by Isothermal mapping /imaging and monitoring temperatures of the coal seams (whether they are close to spontaneous ignition temperatures) and based on which, areas with potential fire problems shall be identified. Measures to prevent ingress of air (Ventilation) in such areas, to prevent restart fresh/spread fires in other areas including in mines of cluster XIV shall be undertaken.	Preparation of time series maps is a continuous process and is being complied by BCCL. On three years interval time series maps are being prepared. A study and first of the time series Map has been prepared through NRSC Hyderabad and the report was submitted by NRSC on April, 2014. Presently ( i.e. in 2017) the Work Order for “Delineation of Surface Fire and associated land subsidence in Jharia Coal Field using satellite based remote sensing techniques” has already been awarded to NRSC under the MoU signed with NRSC.																			
xi	Underground mining should be taken up after completion of reclamation of Opencast mine area after 2 years.	It shall be complied. Mining is being done as per the guidance and approval/permission of DGMS.																			
xii	No mining shall be undertaken where underground fires continue. Measure shall be taken to prevent/ check such fire including in old OB dump	It is being complied. The fire control measures are being taken through opencast excavation method to prevent /check its further spread.																			
xiii	A part of cluster XVI is under Barakar River and Damodar River. It was clarified that although the mine is underground, there is no coal underneath River Damodar, which would be mined. The Committee desired that the data of bore wells near River Damodar require to be monitored for permeability and	At present there is no underground mining operation below the River Damodar & Barakar. The data of dugwell near Khudia River is being monitored for ground water level. Working underground mine has not reached near river Damodar & Barakar and it is more than 1000 mtr. away from river bed. When working mine will reach within 15 mtr. of river bed then seepage will be monitored as per requirement of regulation 126 , danger for surface water; of CMR 1957 under Mines act 1952.  The bore hole will be maintained & monitored as per regulation																			

	<b>seepage of waster of River Damodar.</b>	127 (B) of CMR 1957 of Mines act. 1952. So it will be complied on time.
xiv	<b>The rejects of washeries in Cluster –XVI should be send to FBC based plant.</b>	Will be complied.
xv	<b>There shall be no external OB dumps. OB produce from the whole cluster will be 29.01 Mm<sup>3</sup>. OB from One Patch OCP mine shall be backfilled. At the end of the mining there shall be no void and the entire mined out area shall be re-vegetated. Areas where opencast mining was carried out and completed shall be reclaimed immediately thereafter.</b>	There are seven OB dump in the cluster. All the OB dumps are within the leasehold area and are on de-coaled area. These dumps are created outside/externally to excavation area for reasons of safety and to facilitate mining. At the end of mining all the dumps will be leveled and backfilled in opencast excavated area. Action is being taken as specified in EMP for Backfilling of OB concurrent with mining. No fresh land is used for OB dumping. Proper vegetation is being developed on the OB dump to avoid erosion of soil and gully formation and also to stabilize sufficiently the OB slope.
xvi	<b>A detailed calendar plan of production with plan for OB dumping and backfilling (for OC mines) and reclamation and final mine closure plan for each mine of cluster- XVI shall be drawn up and implemented.</b>	Calendar plan has been prepared. Mine closure plan as per the guidelines of Ministry of Coal has been prepared by CMPDI and it is being followed.
xvii	<b>The void in 5 ha area shall be converted into a water reservoir of a maximum depth of 15-20 m in post mining stage and shall be gently sloped and the upper benches of the reservoir shall be stabilised with plantation and the periphery of the reservoir fenced. The abandoned pits and voids should be backfilled with OB and biologically reclaimed with plantation and or may be used for pisciculture</b>	It shall be complied. Continuous process of the backfilling has been adopted. A part of the void will be converted into the water body as specified in EMP.
xviii	<b>Mining shall be carried out as per statuette from the streams/nalas flowing within the lease and maintaining a safe distance from the Nalas flowing along the lease boundary. A safety barrier of a minimum 60m width shall be maintained along the nalas/water bodies. The small water bodies in OC shall be protected to the extent feasible and the embankment proposed along water body shall be strengthened with stone pitching.</b>	Mining is being carried out as per Statute from the streams/Nalas following within the lease and maintaining a safe distance from the nalas flowing along the lease boundary.
xix	<b>Active OB dumps near water bodies and rivers should be</b>	Presently No OB is being dumped near water bodies. The OB dumps created earlier already stabilized & further action has

	rehanded for backfilling abandoned mine voids. However, those which have been biologically reclaimed need not be disturbed.	been taken for their eco-restoration work as per Road Map prepared by FRI, Dehradun and as per the action plan of Prof. CR Babu ,Professor Emirates CEMDE, Delhi University. The OB dumps which are already present at the bank of River will be provided with the Toe-Wall to arrest the silt from going into river.																																			
xx	Thick green belt shall be developed along undisturbed areas, mine boundary and in mine reclamation. During post mining stage, a total of 242.09ha area would be reclaimed by planting native species in consultation with the local DFO/Agriculture Department/institution with the relevant discipline. The density of the trees shall be around 2500 plants per ha.	Year wise plantation (Proposed) is being done as per following plan:- <table><tr><td>Year</td><td>Biologically Reclaimed Area</td></tr><tr><td>2013-14</td><td>1.0 Ha.</td></tr><tr><td>2014-15</td><td>4.6 Ha.</td></tr><tr><td>2015-16</td><td>4.0 Ha.</td></tr><tr><td>2016-17</td><td>12.5 Ha.</td></tr><tr><td>2017-18</td><td>7.0 Ha.</td></tr><tr><td>2018-19</td><td>10.0 Ha.</td></tr><tr><td>2019-20</td><td>15.0 Ha.</td></tr><tr><td>2020-21</td><td>15.0 Ha.</td></tr><tr><td>2021-22</td><td>15.0 Ha.</td></tr><tr><td>2022-23</td><td>15.0 Ha.</td></tr><tr><td>2023-24</td><td>15.0 Ha.</td></tr><tr><td>2024-25</td><td>25.0 Ha.</td></tr><tr><td>2025-26</td><td>25.0 Ha.</td></tr><tr><td>2026-27</td><td>25.0 Ha.</td></tr><tr><td>2027-28</td><td>25.0 Ha.</td></tr><tr><td>2028-29</td><td>28.0 Ha.</td></tr></table>		Year	Biologically Reclaimed Area	2013-14	1.0 Ha.	2014-15	4.6 Ha.	2015-16	4.0 Ha.	2016-17	12.5 Ha.	2017-18	7.0 Ha.	2018-19	10.0 Ha.	2019-20	15.0 Ha.	2020-21	15.0 Ha.	2021-22	15.0 Ha.	2022-23	15.0 Ha.	2023-24	15.0 Ha.	2024-25	25.0 Ha.	2025-26	25.0 Ha.	2026-27	25.0 Ha.	2027-28	25.0 Ha.	2028-29	28.0 Ha.
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xxi	The road should be provided with avenue plantation on both side as trees act as sink of carbon and other pollutant.	1700 gabion trees were planted by DFO along the transportation road and siding in cluster XVI. More roadside plantation has been included in 2018-19 plantation programme.																																			
xxii	Specific mitigative measures identified for the Jharia Coalfields in the Environmental Action Plan prepared for Dhanbad as a critically polluted are and relevant for Cluster -XVI shall be implemented.	Dhanbad Action Plan has been prepared in consultation with Jharkhand Pollution Control Board for entire BCCL and not cluster wise. It is being implemented comprehensively for all the mines of BCCL.																																			
xxiii	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, flyash from TPPs, silica from natural dust, etc) and a Source Apportionment Study should be got carried out for the entire Jharia Coalfields. Mineralogical composition study should be undertaken on the	The locations in the Jharia coalfield have been finalized in consultation with the Jharkhand State Pollution Control Board. CIL has entered a MoU with NEERI to carry out such study. Work order for source apportionment study has been awarded to CSIR-NEERI. Copy of work order is enclosed as <b>Annexure-4</b> .																																			

	composition of the suspended particulate matter (PM <sub>10</sub> and PM <sub>2.5</sub> ) in Jharia Coalfields and also quantified. These studies would help ascertain source and extent of the air pollution, based on which appropriate mitigative measures could be taken.	
xxiv	No groundwater shall be used for the mining activities. Additional water required, if any, shall be met from mine water or by recycling/reuse of the water from the existing activities and from rainwater harvesting measures. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry to dewatering of mine.	No ground water is being utilized for the purpose of industrial use of the water. Mine water has been channelized through pipelines and through discharge in to the ponds for its use for the community and irrigation purposes. During summer season filter water as well as raw water is being supplied through water tanker to local adjacent villages where required. Pressure Filters have been installed for the filtration of mine water being supplied to nearby habitat. Aalready 6 Nos. filters have been installed and in operation.
xxv	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 dome 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.	Ground water level and quality are being monitored by CMPDIL Ranchi. Analysis report is enclosed as <b>Annexure-5</b> . As of now water accumulated in quarries during monsoon is being extracted and being used in recharging of nearby ponds.  Piezometer installation: Tender was done on 28.04.2017. Only one bidder applied who could not fulfill the eligibility criteria. Hence, that tender was cancelled and retendering for this work will be done.
xxvi	Mine discharge water shall be treated to meet standards prescribed standards before discharge into natural water courses/agriculture. The quality of the water discharged shall be monitored at the outlet points and proper records maintained thereof and uploaded regularly on the company website.	Analysis report has been uploaded on the website.

xxvii	<b>ETP shall also be provided for workshop, and CHP, if any. Effluents shall be treated to confirm to prescribe standards in case discharge into the natural water course.</b>	Proposal for ETP is under process in association with CMPDI at DBOCP. Since only crushing is being done at CHP, hence ETP is not required for CHP.
xxviii	<b>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.</b>	There is no depillaring is going on in underground mines of Cluster XVI, hence no mining induced subsidence is taking place. There has been no subsidence occurred during Environmental Clearance compliance period till now. Regular monitoring of the area is being done by mine officials in this regard.
xxix	<b>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.</b>	Sufficient coal pillars have been left around air shafts as per the statutes and DGMS guidelines.
xxx	<b>High root density tree species shall be selected and planted over areas likely to be affected by subsidence.</b>	It is being complied. The plantation programme includes such plants.
xxxi	<b>Depression due to subsidence resulting in water accumulating within the low lying areas shall be filled up or drained out by cutting drains.</b>	It is being complied.
xxxii	<b>Solid barriers shall be left below the roads falling within the blocks to avoid any damage to the roads.</b>	It is being followed. Sufficient barriers are left for saving the surface installation and infra structures as per the statute and DGMS guidelines.
xxxiii	<b>No depillaring operation shall be carried out below the township/colony.</b>	No depillaring operation is being carried out below township/colony.
xxxiv	<b>The Transportation Plan for conveyor-cum-rail for Cluster-XVI should be dovetailed with Jharia Action Plan. Road transportation of coal during Phase-I should be by mechanically covered trucks, which should be introduced at the earliest. The Plan for conveyor-cum-rail for Cluster-</b>	Presently tarpaulin covered coal transportation is being done as earlier there were no OEM (original equipment manufacturer) which were supplying such trucks for coal transportation. However, Initiatives has been taken at corporate level of coal India Limited for developing the mechanically covered trucks and a vendor meeting for the same has been held with the OEM on dated 07.05.2016. Further, a proposal for inclusion of mechanically covered trucks in the Contract Terms has been initiated to ensure that the

	<p>XIV should be dovetailed with Jharia Action Plan. The road transpiration of coal during phase-I should be by mechanically covered trucks.</p>	<p>Outsourcing company should deploy Mechanically Covered Trucks for coal Transportation.</p> <p>Further, the study regarding installation of conveyer-cum-rail system for transportation of coal has been entrusted to CMPDIL. The conveyor-cum-rail system will be installed during Second Phase of Master Plan.</p> <p>Mechanically covered trucks were deployed of trial basis in Coal India Ltd. but due to their unsuccessful run they have been removed. Tarpaulin covered trucks are being used until the introduction of successful mechanically truck in Coal India Ltd.</p> <p>However the matter has been taken to the higher management for introduction of conveyer-cum-rail system for transportation of coal Proposal for queries &amp; inquiries is under progress for conveyer-cum-rail system.</p>
xxxv	<p>A study should be initiated to analyze extent of reduction in pollution load every year by reducing road transport.</p>	<p>The study regarding pollution load in aspect of Cluster XVI is being been done by CMPDI, Ranchi for year 2017-18.</p>
xxxvi	<p>R&amp;R of 1193 nos of PAF's involved. They should be rehabilitated at cost of Rs 10171.88 lakhs as per the approved Jharia Action Plan.</p>	<p>The rehabilitation of 1193 PAF is being done by Jharia Rehabilitation &amp; Development Authority (JRDA) under Jharia Action Plan. Presently they are surveying the house in Cluster XVI. Final report on rehabilitation is yet to be submitted by District Collector, Dhanbad.</p>
xxxvii	<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 for and submitted to Ministry.</p>	<p>Booklet on CSR, Transportation and R&amp;R activities and implementation of environmental action plan is prepared. The aforesaid Booklet is enclosed as <b>Annexure-6</b>.</p>
xxxviii	<p>A detailed CSR Action Plan shall be prepared for Cluster XVI croup of mines. Specific activities shall be identified for CSR of Rs 20.25/annum @ of Rs 5/ton of coal production. as recurring expenditure. The 242.09ha of area within Cluster XVI ML existing as waste land and not being acquired shall be put to productive use under CSR and developed with fruit bearing and other useful species for the local communities. 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</p>	<p>It is being complied. BCCL is implementing CSR activities.</p>



	<p>of CSR undertaken along with budgetary provisions for the village-wise various activities and expenditure thereon shall be uploaded on the company website every year. The company must give priority to capacity building both within the company and to the local youth, who are motivated to carry out the work in future.</p>	
xxxix	<p>For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1: 5000) of the core zone and buffer zone, from the start of the project until end of mine life shall be prepared once in 3 years (for any one particular season which is consistent in the time series), and the report submitted to MOEF and its Regional office at Bhubaneswar.</p>	<p>Time series map of vegetation cover in the Jharia Coal field has been carried out through CMPDI.</p>
xl	<p>A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment &amp; Forests five year before mine closure for approval. Habitat Restoration Plan of the mine area shall be carried out using a mix of native species found in the original ecosystem, which were conserved in-situ and ex-situ in an identified area within the lease for reintroduction in the mine during mine reclamation and at the post mining stage for habitat restoration.</p>	<p>Mine closure plan as per the guidelines of Ministry of Coal has been prepared by CMPDI and it is being followed.</p>
xli	<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 which includes Environment, Mining, Excavation disciplines executives and technicians has been established in Headquarters. 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 Headquarters levels. GM (Environment) at head quarter level, co-ordinates with all the</p>

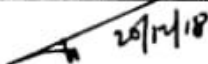
		<p>Areas and reports to the Director (Technical) and in turn he reports to the CMD of the company.</p> <p>The team is multidisciplinary and very much motivated under the guidance of company's Director (Technical) and CMD. Further capacity building at both corporate and operating level is being done.</p>
xlii	<b>Implementation of final mine closure plan for Cluster XVI, subject to obtaining prior approval of the DGMS in regard to mine safety issues.</b>	Final Mine Closure Plan, as per the guideline will be submitted 5 years before the closure of the Mine. For the purpose of safety issues related to the closure prior approval of DGMS will be taken in this regard.
xliii	<p><b>Corporate Environment Responsibility:</b></p> <p>a) The Company shall have a well laid down Environment Policy approved by the Board of Directors.</p> <p>b) The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.</p> <p>c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.</p> <p>d) To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.</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.</p> <p>Complied.</p> <p>A hierarchical system of the company to deal with environmental issues from corporate level to mine level already exists.</p> <p>Being complied.</p>
<b>B</b>	<b>General Conditions by MOEF:</b>	
i	<b>No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.</b>	It is being followed.
ii	<b>No change in the calendar plan of production for quantum of mineral coal shall be made.</b>	The approved peak production of coal for Cluster XVI is 1.963 MTPA. The total production of coal for the cluster XVI for the FY 2017-18 is 1.299 MT which is well within the limit. Coal Production report is

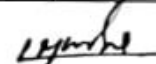
		enclosed as <b>Annexure 1.</b>
iii	Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>x</sub> monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc carried out at least once in six months.	<p>The location of monitoring stations has been finalized after the consultation with JSPCB.</p> <p>The work of monitoring of ambient air quality was being done by CMPDIL. Monitoring report is enclosed as <b>Annexure-7.</b></p> <p>To maintain the air quality as per NAAQS standard following precaution measures is being taken:-</p> <ol style="list-style-type: none"> <li>1. Sprinkling on Transportation road.</li> <li>2. Covered truck transportation</li> <li>3. Plantation</li> <li>4. Dust controlled blasting and drilling.</li> <li>5. Regular maintenance of machineries involved in mining.</li> </ol>
iv	Data on ambient air quality (PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>x</sub> ) and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly submitted to the Ministry including its Regional Office at Bhubaneswar and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognized under the EPA rules, 1986 shall be furnished as part of compliance report.	<p>The location of monitoring stations has been finalized after the consultation with JSPCB.</p> <p>The work of monitoring of ambient air quality was being done by CMPDIL.</p>
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.	It is being complied. All the workers engaged in noisy operations are provided with the Ear plugs/muffs. The report of safety equipment provided to workers is enclosed as <b>Annexure-8.</b>
vi	Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 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.	Proposal for ETP is under process in association with CMPDI at DBOCP. Since only crushing is being done at CHP, hence ETP is not required for CHP.
vii	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be	It is being complied. Only tarpaulin covered vehicles all allowed carrying minerals and they are optimally loaded.

	covered with tarpaulins and optimally loaded.	
viii	Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analysed through a laboratory recognised under EPA Rules, 1986.	Monitoring work is being done by CMPDIL HQ which has a laboratory recognized under EPA rules 1986.
ix	Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.	Dust masks are provided to persons working in dusty areas. Training on safety & health is imparted at regular intervals at VTCs and at work place.
x	Occupational health surveillance programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and to take corrective measures, if needed and records maintained thereof. The quality of environment due to outsourcing and the health and safety issues of the outsourced manpower should be addressed by the company while outsourcing.	Initial Medical Examination (IME) and Periodical Medical Examination (PME) of all the personnel are carried out as per the Statutes and Director General of Mines Safety (DGMS) guideline. Records of IME & PME are also being maintained.
xi	A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.	<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 in Headquarters. 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 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.</p> <p>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</p>

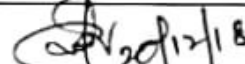
		being done.
xii	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bhubaneswar.	It has been complied. The funds were earmarked as per EMP plan and kept in separate finance head for the expenditure to maintain environmental protection measures. Item wise expenditure on Environment protection measures in enclosed as <b>Annexure-9</b> .
xiii	The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution control Board and may also be seen at the website of the ministry of Environment & Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> .	It has been complied.
xiv	A copy of the environmental clearance letter shall be marked to concern Panchayat/Zila Parishad, Municipal corporation or Urban local body and local NGO, if any, from whom any suggestion /representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on company's website.	It has been complied.
xv	A copy of the environmental clearance letter shall be shall also be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Sector and Collector's Office/Tehsildar's Office for 30 days.	It has been complied.
xvi	The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated environmental clearance conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in public domain. The monitoring	It has been complied.

	data of environmental quality parameter (air, water, noise and soil) and critical pollutant such as PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>x</sub> (ambient) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mine office and in corporate office and on company's website.	
xvii	The project proponent shall submit six monthly compliance reports on status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the Ministry, respective Zonal Office s of CPCB and the SPCB.	It is 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.	Full cooperation is being provided for the regional office authorities for monitoring of Environmental Clearance conditions compliances.
xix	The Environmental statement for each financial year ending 31 March in For -V is mandated to be submitted by the project proponent for the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be uploaded on the company's website along with the status of compliance of EC conditions and shall be sent to the respective Regional Offices of the MoEF by E-mail.	Environmental Statement for each financial year is submitted to the regional office of Jharkhand State pollution control board by 30 <sup>th</sup> June.


  
Project Officer  
DBOCP


  
Manager  
DBOCP

  
Safety Officer  
DBOCP

  
Survey Officer  
DBOCP

  
Staff Officer (Mining)  
CV Area

  
Area Manager (Plg.)  
CV Area

  
Area Survey Officer  
CV Area

  
Area Manager (Env)  
CV Area

  
General Manager  
CV Area

**COAL PRODUCTION FOR CLUSTER XVI, CV AREA BCCL**

SL. No.	Name of mines	Production Capacity (MTPA)		Leasehold area (Ha)	Coal Production in MTe				
		Normative	Peak		2013-14	2014-15	2015-16	2016-17	2017-18
1	Basantimata UG	0.21	0.273	471.00	0.100	0.050	0.051	0.044	0.0168
2	Dahibari Basantimata OCP	1.30	1.69	385.68	1.085	1.814	1.032	1.255	1.2583
3	New Laikdih OCP	00	00	305.10	00	00	00	00	00
4	Laikdih Deep UG	00	00	281.00	00	00	00	00	00
5	Chanch UG	00	00	575.73	00	00	00	00	00
Total Coal Prod. In MTe		1.51	1.963	1964.21	1.185	1.864	1.084	1.299	1.2751

Coal dug out from cluster XVI mines during fire dealing (In MTe)						
Sl. No.	Name of mines	2013-14	2014-15	2015-16	2016-17	2017-18
1	Dahibari Basantimata OCP	00	0.125	00	00	00
Total fiery coal Dug out in MTe		00	0.125	00	00	00

  
 15.7.18  
 PROJECT OFFICER  
 DBOP

# ANNEXURE-2

## Plantation Data For Cluster XVI, CV Area Till March 2018

Sl. No.	Colliery	Year of Plantation	Type of plantation				Area/ Lenght
			Afforestation	Gabion	Avenue	Eco-restoration.	
1	DBOCP	2010-11	36250	0	0	0	14.5 Ha
		2016-17	0	0	1700	0	5 Km.
		2017-18	0	0	0	7500	3 Ha.
3.	Jhunkundar OCP	2013-14	0	0	0	1156	5.6 Ha
		2014-15	0	0	0	14044	
		2015-16	0	0	0	600	
		2016-17	0	0	0	300	
		2017-18	0	0	0	10000	
4.	NLOCP	2015-16	0	0	0	5120	4.0 Ha
		2016-17	0	0	0	12000	12.5 Ha
		Total	36250	0	1700	50720	Total
				Total	88670	43.6 Ha & 5 Km.	

  
 Asst. Mgr. (Envr)  
 CV Area



**भारत कोकिंग कोल लिमिटेड**

एक मिनिरत्न कम्पनी  
(कोल इंडिया लिमिटेड का एक अंग)

महाप्रबंधक का कार्यालय,

चाँच विक्टोरिया क्षेत्र

पि. ओ.- बराकर, जिला - पं. बर्धमान (पं. बंगाल)  
पिन - 713324. दूरभाष - 0341-2520061/62,  
पंजीकृत कार्यालय: कोयला भवन, कोयला नगर,  
धनबाद- 825005, (झारखण्ड)  
CIN U10101JH1972GOI000918

**Bharat Coking Coal Limited**

**A MINI RATNA Co.**

(A Subsidiary of Coal India Ltd)

Office of the General Manager,

Chanch Victoria Area

P.O.-BARAKAR, DIST-PAS.BARDHAMAN ( W.B. )

PIN- 713324, TeL. 0341-2520061/62

Regd Off. Koyla Bhawan, Koyla Nagar, Dhanbad-825005,

CIN U10101JH1972GOI000918.

**Water supply in nearby villages of Cluster XVI, CV Area**

Sl No.	Source of Water	Name of Village benefited.
1.	Basantimata UG Mine Water.	Palasia. Agarchandpur. Palasia-Dhowrah Dahibari KumarBasti
2.	DBOCP Mine Water	Maji Tola Dahibari Dhowrah
3.	Kalyanchak OC Pond Water	Patlabari.
4.	Laikdih UG Mine water	Dumarkunda Babudangal Rakhapara
5.	JOCP Pond Water	Chanch Chanch Potary

  
Asst. Mgr. (Env't)  
CV Area

## भारत कोकिंग कोल लिमिटेड

एक मिनी रत्न कम्पनी  
(कोल इंडिया लिमिटेड का एक अंग)  
उप महाप्रबंधक (पर्यावरण) का कार्यालय  
कोयला भवन, कोयला नगर, धनबाद-826005



## Bharat Coking Coal Limited

A Mini Ratna Company  
(A Subsidiary of Coal India Limited)  
Office of the Dy. GM (Environment)  
Koyla Bhawan, Koyla Nagar, Dhanbad -826005

CIN : U10101JH1972GOI000918

पत्र संख्या : भाकोकोलि/उपमहाप्रबंधक/पर्या/( SOURCE APPORTIONMENT (MoU) /NEERI /2018/  
दिनांक: 12.05.2018

To,  
The Director,  
CSIR-NEERI,  
Nehru Marg,  
Nagpur- 440020  
Maharashtra

**Sub.: Work Order for the Project “Source Apportionment of ambient air particulate matter in Jharia coalfields region, Jharkhand”.**

**Ref:** (i) Memorandum of Understanding between CIL & NEERI dated 03.12.2015  
(ii) your proposal vide email dated 12.09.2016 and subsequent amendment including GST rates  
(iii) “Terms of reference for the Project “Source Apportionment of ambient air particulate matter in Jharia coalfields region, Jharkhand” dated 09.03.2018.  
(iv) NEERI’s acceptance of “TOR” vide email dated 08.05.2018

Dear Sir,

This has reference to proposal “Source Apportionment of ambient air particulate matter in Jharia coalfields region, Jharkhand” vide email dated 12.09.2016. The Competent Authority has approved the award of work to NEERI namely “Source Apportionment of ambient air particulate matter in Jharia coalfields region, Jharkhand” for One Crore forty one Lakh and sixty thousand only inclusive of GST( Rs. 1,41,60,000/-) for a period of Twelve(12) months under the MOU dated 03.12.2015 between CIL & NEERI, extended to all subsidiaries of CIL & the terms of reference. The Project-in-charge will be HOD(Environment) or any of his authorized representative.

You are required to comply the scope, objective & terms and conditions in respect of above mentioned work as agreed in the “Terms of Reference” as given below.

### **1. Scope of the Work:**

- To conduct Source Apportionment Study for varying sources of gasses/smoke/dust emission from source to source (fuel wood, coal, fly-ash, TPPs, coke plants, traffic, silica from natural dust etc., but not limited to this) for the entire Jharia Coalfields (within and up to 10 Km from the periphery / boundary of BCCL mines)

- Study of Mineralogical composition of the suspended particulate matter (PM10 and PM2.5) with their characterization and quantification.
- Ascertaining sources(fuel wood, coal, fly-ash, TPPs, coke plants, traffic, silica from natural dust etc., but not limited to this) and extent of the air pollution of Jharia coalfield with suggesting cluster-wise appropriate techno-economically viable, mitigation management plan including action plan for the control of pollution level.
- The Environment Clearance has been granted to mines of BCCL on Cluster Basis, the final report must be submitted to BCCL on Cluster Basis. JCF has been divided into Clusters. The study to include the entire Jharia Coalfield along with area up to 10 Km from the periphery / boundary of BCCL mines (Key Plan showing Clusters in Jharia Coalfield enclosed)
- Two Presentations to be made by NEERI- One to BCCL Management before submission of Final report & another to the various stake holders including regulatory agencies after submission of the report.
- The dispersion Model should be on GIS platform
- The Hotspots/bottleneck points to be identified where there is increased pollution on GIS platform.
- Skill transfer and capacity building training for BCCL personnel.
- Accommodation , travel , local transport, other incidental cost and ancillary expenditures to be borne by NEERI.

## **2. Objectives of the study:**

The major objective of the study is to assess the current ambient air quality, sources of air pollution and propose the priorities for the actions for improvement of air quality. The study to include the entire Jharia Coalfield along with area up to 10 Km from the periphery / boundary of BCCL mines. The detailed objectives are as following;

### **A) Ambient Air Monitoring related**

- Monitoring of ambient air quality at selected receptor locations for pollutants including PM10, PM 2.5(limited), SO<sub>2</sub>, NO<sub>x</sub>, PAHs to establish the current status of the air quality in Jharia Coalfields along with area up to 10 K.M from the periphery / boundary of BCCL mines. Also review of the available air quality monitoring data from Central Pollution Control Board(CPCB) /Jharkhand State Pollution Control Board(JSPCB) .
- To calibrate dispersion modelling predictions using measured air quality parameters
- To draw supportive data through specific site related monitoring regarding impact causing sources such as kerbside monitoring.
- To establish the impact of meteorological conditions on a few select indicator pollutants in different micro meteorological conditions of the Jharia Coalfields.

### **B) Emission Inventory related of Jharia Coalfields along with area up to 10 Km from the periphery / boundary of BCCL mines**

- To identify the pollution load grid wise for point, line and area source
  - To establish possibilities of receptor level concentrations of air pollutants by matching dispersion modelling and air quality monitoring data.
- C) Source apportionment related
- To identify and apportion the pollution load at receptor level to various sources in the Jharia Coalfields along with area up to 10 Km from the periphery / boundary of BCCL mines.
  - To carry out the source apportionment using molecular markers for a limited number of samples through a time resolved sample collection at various period of the day and day-of-the-week.
- D) Any other item in consensus between both BCCL/CIL & NEERI evolved during the study

### **3. TERMS & CONDITIONS:**

- You would assist BCCL in clarifying/defending/justifying data of report submitted to regulatory authority or information under RTI, Act or reply of parliamentary Questions or any other litigations if required by Dy. GM (Env).
- CSIR-National Environmental Engineering Research Institute (NEERI) shall associate BCCL in projecting the reports/findings at various national & international forums, Conferences, Seminars, CSIR-National Environmental Engineering Research Institute (NEERI) newsletters & annual reports, meetings of regulatory authorities etc.
- All the materials required with regard to monitoring/analysis, videography, photography and presentation for the work shall be arranged by NEERI at its own cost and shall be of appropriate quality.
- The responsibility for the arrangement of the all equipment tools and plants etc. required for monitoring/analysis, videography, photography and presentation for the work lies on NEERI.
- GST and cess as applicable shall be paid as per rule. The Duration of the project is 12 Months.
- The progress report of the work should be submitted every 3 months. These reports shall be in the form of a booklet and soft copies along with videography and photography. Reports should be in line with the scope of work.
- BCCL shall not have any liability in case of any accident etc. towards CSIR-National Environmental Engineering Research Institute (NEERI)'s personnel/ staffs during filed visits
- Child labour is prohibited under Mines Act, therefore, NEERI Nagpur shall not deploy any child labour in the aforesaid work.

- Reports /findings shall be sole property of BCCL and hence the publishing of the reports /findings in any forum (i.e. hard copy / electronic or in any other form) shall be done only with prior permission of BCCL and shall acknowledge BCCL in all such activities.
- Matter relating to any dispute or difference arising out of this work order and subsequent contract awarded based on this work order shall be subject to the jurisdiction of Dhanbad court only
- All other terms and conditions of the MoU executed between CIL and CSIR-National Environmental Engineering Research Institute (NEERI) on 03.12.2015 and extended to its subsidiaries shall be applicable.

#### **4. ARBITRATION:**

Disputes between the parties arising from this agreement shall be settled amicably through negotiations in good faith. Failing the above, the dispute shall be referred to arbitration of three arbitrators one each to be appointed by each party and the two arbitrator shall appoint a third arbitrator in accordance with the provisions of Arbitration and Conciliation Act, 1996 or any subsequent *amendment* thereof. The decision of the three arbitrators shall be final and binding on the parties hereto. The place of arbitration shall be at Nagpur and shall be conducted in English language

#### **5. FORCE MAJEURE :**

Force majeure is herein defined as any cause which is beyond the reasonable control of BCCL or CSIR/NEERI as the case may be, which with a reasonable amount of diligence could not have been foreseen and which substantially affects the performance of the respective obligations of the parties, such as but not limited to :

- Act of God such as flood, drought cyclone, lighting, earthquake, etc.
- Rebellion, civil mutiny, commotion, riot, accident by fire, explosion, epidemic, or any other cause beyond the control of parties.
- Acts of any Government including but not limited to war, declared or undeclared priorities, quarantines.
- Any direction, order of any court or Authority adversely affecting the enforcement of this agreement in any manner.
- Strikes and Lockouts for a continuous period of 30 days

Provided that either party shall within 7 days from the occurrence or cessation of such a cause notify the other in writing of the same.

In the event Force Majeure event continue for more than 30 days, the parties shall mutually discuss and decide the future course of action. If not mutually agreed, the parties shall have the right to terminate this agreement.

BCCL or NEERI shall not be liable for non-performance of their respective obligations or delays in respect thereof as a result of force majeure as referred to and / or defined above

#### **6. INDEMNITY**

- BCCL shall indemnify and keep indemnified CSIR/NEERI from and against any and all loss damage or liability (whether criminal or civil) suffered and legal fees and costs incurred by CSIR/NEERI resulting from a breach of any of this agreement between BCCL and its licensors/consultants/contractors or any other third party.
- Notwithstanding anything in this agreement, in the event of any liability, claim or damage arising out of this agreement, the liability of CSIR/NEERI to BCCL shall under any circumstance exceed the amount received by CSIR-NEERI

## **7. CONFIDENTIALITY**

The Parties, to the extent of their respective rights to do so, shall exchange such technical information and data as is reasonably required of each Party to perform its responsibilities under this agreement. Each Party agrees to keep in confidence and to use the same degree of care as it uses with respect to its own proprietary data to prevent the disclosure to third Parties of all technical information, data and confidential business information (hereinafter referred to as "Consolidated Data"). Exchange, use and maintenance of Confidential Data shall be mutually discussed and agreed to by the parties. The preceding provisions of confidentiality and restriction on use of Consolidated Data shall not apply to

- Information in the public domain or information, which subsequently enter into public domain without committing breach of this Article.
- Information in possession of the Party at the time of disclosure and was not acquired, directly or indirectly, from the other Party.
- Information, which a Party requires to disclose under law, rules or regulations or court orders.
- Information provided to Consultants / advisors, provided they, in turn, sign undertaking of confidentiality

## **8. OWNERSHIP OF INTELLECTUAL PROPERTY -**

- Any intellectual property rights obtained by the respective parties hereto pertaining to the PROJECT prior to signing of the agreement shall remain the property of the respective organizations. On mutual consent foreground IP shall be deployed for the project purpose.
- The intellectual property that is generated in the PROJECT shall be owned by BCCL.
- If an IP is generated the relevant IP clause shall be built in a project specific agreement mutually, as the, case arises.
- In the case of Intellectual Property developed independently by CSIR/NEERI in which BCCL has an interest, CSIR/NEERI shall grant to BCCL/CIL a non-exclusive license to manufacture and sell the product, and CSIR/NEERI reserves the right to grant similar license at its discretion to others.
- During the work as envisaged under this agreement in the event of CSIR/NEERI scientists exploring, inventing, or discovering results other than the specific objectives of the Project, CSIR/NEERI shall retain absolute rights on such results. CSIR/NEERI shall first offer such results to BCCL on negotiated terms by entering into a separate Agreement. In case BCCL does not accept the offer, CSIR/NEERI shall be free to negotiate the release of such results to other parties without any obligations to CIL.

- In case BCCL intends to renounce its interest in the Project, it shall give notice to NEERI of its intention upon receipt of which notice NEERI shall be free to work further on its own on such Projects and or enter into a licensing or joint development Agreement with any other interested third party.

## **9. Deliverables:**

- Emission Inventory and Dispersion Modeling
- Source apportionment for identification of sources impact and prioritization of actions.
- Time-bound action plan guidelines for implementing measures for improving air quality
- 2 copies of Draft Report
- 15 copies of Final Report- Since the Environment Clearance has been granted to mines of BCCL on Cluster Basis, the final reports must be submitted to BCCL on Cluster Basis.

## **10. TERMS OF PAYMENT**

<b>Project Cost</b>	<b>Rs. 120 Lakhs (Rupees One Crore Twenty Lakhs Only)</b>
<b>GST @18%</b>	<b>Rs. 21.6 Lakhs (Rupees Twenty One Lakhs Sixty Thousand Only)</b>
<b>Total Cost (including GST)</b>	<b>Rs. 141.6 Lakhs (Rupees One Crore Forty One Lakhs Sixty Thousand Only)</b>
<b>Payment Terms</b>	1st Installment: 50% + GST + All applicable Cess & surcharges – (After identification of stations in Jharia Coalfield and submission of its report) 2nd Installment: 30% + GST + All applicable Cess & surcharges – (After completion of field data collection) 3rd & Final Installment: 20% + GST + All applicable Cess & surcharges – (After submission of final report and its acceptance by BCCL.)
<b>Project Duration</b>	12 months

- All the payment will be made by ELECTRONIC MODE through bank. The CSIR-National Environmental Engineering Research Institute (NEERI) must furnish the details in the proforma as given in the Annexure-3.

## **11. PERFORMANCE SECURITY/SECURITY DEPOSIT**

11.1 Security Deposit shall consist of two parts:

- a) Performance Security to be submitted at award of work and

b) Retention Money to be recovered from running bills.

The security deposit shall bear no interest.

11.2 Performance Security should be 5% of annualized value of contract amount and should be submitted within 28 days of issue of this term of reference by NEERI in any of the form given below

- A Bank Guarantee in the form given in the bid document from any scheduled Bank payable at its Branch at Dhanbad.

- Govt. Securities, FDR (Scheduled Bank) or any other form of deposit stipulated by the owner.

- Demand Draft drawn in favour of Bharat Coking Coal Limited on any Scheduled Bank payable at its Branch at Dhanbad.

If performance security is provided by NEERI in the form of bank guarantee it shall be issued either –

(a) at Bidder's option by a Scheduled Bank payable at its branch at Dhanbad, or

(b) by a foreign bank located in India and acceptable to the employer.

(c) the validity of the Bank Guarantee shall be for a period of one year or ninety days beyond the period of contract or extended period of contract (if any), whichever is more.

Failure on the part of NEERI to comply with the requirement as above shall constitute sufficient ground for cancellation of this agreement.

11.3 All bills shall be paid at 95%. The balance 5% shall be treated as retention Money and will be second part of security deposit.

11.4 Refund of Security Deposit:

The refund of security deposit shall be subject to company's right to deduct/appropriate its dues against the NEERI under this terms of reference/any other works. On completion of the work and certified as such by the Project-in-Charge *i.e* HOD(Env) or his authorized representative, the security deposit remaining with the company shall be refunded as below:

- Performance Security (1st part of security deposit) shall be refunded within 60 days of the submission of final report and its acceptance by BCCL management (As certified by the Project-in-charge *i.e* HOD(Env) or his authorized representative)
- Retention Money (2nd part of security deposit) shall be refunded after 180 days of the submission of final report and its acceptance by BCCL management (As certified by the Project-in-charge *i.e* HOD(Env) or his authorized representative.)

You are advised to furnish Performance Security/Security Deposit in the Office of HoD (Env), BCCL in the form detailed as under within 28 (twenty eight) days from the date of receipt of this terms of reference to enable the HoD (Env), BCCL to issue a formal work order to you and sign the contract/agreement executed between the company and you (NEERI, Nagpur) with the terms and conditions including, Integrity Pact, etc.



No. of You have to sign the Integrity Pact. This is as per the CVC guidelines. Name, address & contact of the Independent External Monitor(s) for this purpose is as given below:

1. Name: Prof (Dr.) L.C. Singhi, IAS (Retd.)

Address: L-31, Third Floor, Kailash Colony, New Delhi-110048

2. Name: Shri Pramod Deepak Sudhakar, IAS (Retd.)

Address: A-002, Stellar Park Apartments, C-58/24 Sector-62, Noida-201301

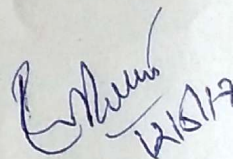
This terms of reference is given to you in duplicate. You are advised to submit your consent by returning second copy of the terms of referenceduly signed by you as a token of acceptance of the award within 7(seven) days from the date of receipt of this letter.

**Failure to comply with the requirement as above shall constitute sufficient ground for cancellation of the award.**

**Enclosed:**

1. Annexure-1 (Proforma of bank guarantee for performance security)
2. Annexure-2 FORMAT FOR CONTRACT AGREEMENT
3. Annexure -3 (Proforma for collecting payment through electronic mode including electronic fund transfer (ETF) & electronic clearing system (ECS))
4. Annexure -4 INTEGRITY PACT

Yours faithfully,



Dy. GM (Env.)

**Copy to:**

- 1) TS to D (T) OP/ D (F)/ D (T) P&P ..... for kind information
- 2) ES to CVO, BCCL ..... for kind information
- 3) TS to CMD, BCCL ..... for kind information
- 4) GM (Finance) I/C, BCCL, Koyla Bhawan
- 5) HOD(Fin)Pay.
- 6) GM(Env.), CIL ..... for kind information
- 7) Prof (Dr.) L.C Singhi, IAS (Retd.), L-31 Third Floor, Kailash Colony, New Delhi-1100481. Address:  
L-31, Third Floor, Kailash Colony, New Delhi-110048.
- 8) Concerned Fille.

**PROFORMA OF BANK GUARANTEE FOR PERFORMANCE SECURITY**

To,

\_\_\_\_\_  
\_\_\_\_\_

Re: Bank Guarantee in respect of contract No-----

Dated-----between -----(Name of the company)

And----- (Name of the contractor).

M/s ----- (Name and address of the contractor) (herein after called “the contractor”) has entered into a contract dated -----(herein after called the said contract) with M/s ----- (Name of the company) (hereinafter called “the company”) to execute -----(name of the contract and brief description of work) on the terms and conditions contained in the said contract.

It has been agreed that contractor shall furnish the Bank guarantee from a Nationalized / Scheduled Bank for a sum of Rs----- as security for due compliance and performance of the terms and conditions of the said contract.

The----- (name of the Bank) having its office at ----- has at the request of the contractor agreed to give the Guarantee hereinafter contained.

We, the----- Bank (hereinafter called “the Bank” ) do hereby unconditionally agree with the company that if the contractor shall in any way fail to observe or perform the terms and conditions of the said contract or shall commit any breach of its obligation there under, the Bank shall on demand and without any objection or demur pay to the company the said sum of Rs.-----or such portion as shall then remain due with interest without requiring the company to have recourse to any legal remedy that may be available to it to compel the Bank to pay the sum , or calling on the company to compel such payment by the contractor.

Any such demand shall be conclusive as regards the liability of the contractor to the company and as regards the amount payable by the Bank under this Guarantee. The Bank Shall not be

entitled to withhold payment on the ground that the contractor has disputed its liability to pay or has disputed the quantum of the amount or that any arbitration proceeding or legal proceeding is pending between the company and the contractor regarding the claim.

We, the ----- Bank further agree that the Guarantee shall come into force from the date hereof and shall remain in force and effect till the period that will be taken for the performance of the said contract which is likely to be----- day of ----- but if the period of contract is extended either pursuant to the provisions in the said contract or by mutual agreement between the contractor and the company the Bank shall renew the period of the Bank Guarantee failing which it shall pay to the company the said sum of Rs.----- or such lesser amount of the said sum of Rs----- as may be due to the company and as the company may demand. The Guarantee shall remain in force until the dues of the company in respect of the said sum of Rs----- and interest are fully satisfied and the company certifies that the contract has been fully carried out by the contractor and discharged the guarantee.

The Bank further agrees with the company that the company shall have the fullest liberty without consent of the Bank and without affecting in any way the obligations hereunder to vary any of the terms and conditions of the said contract or to extend time for performance of the said contract from time to time or to postpone for any time or from time to time any of the powers exercisable by the company against the contractor and to forbear to enforce any of the terms and conditions relating to the said contract and the Bank shall not be relieved from its liability by reason of such failure or extension being granted to the contractor or to any forbearance, act or omissions on the part of the company or any indulgence by the company to the contractor or any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect of relieving or discharging the Guarantor.

The Bank further agrees that in case this guarantee is required for a longer period and it is not extended by the Bank beyond the period specified above, the Bank shall pay to the company the said sum of Rs ----- or such lesser sum as may then be due to the company and as the company may require.

Notwithstanding anything contained herein the liability of the Bank under this Guarantee is restricted to Rs ----- the guarantee shall remain in force till the day ----- of ----- and unless the Guarantee is renewed or claim is preferred against the Bank on or before

the said date all rights of the company under this Guarantee shall cease and the Bank shall be relieved and discharged from all liabilities hereunder except as provided in the preceding clause.

The Guarantee will not be discharged due to the change in the constitution of the Bank or the contractor.

The Bank has under its constitution power to give this Guarantee and Shri----- who has signed it on behalf of the Bank has authority to do so.

Dated this----- day of -----

“The Bank Guarantee as referred above shall be payable at Kolkata Branch/Dhanbad Branch at..... (pl. specify name of Branch with address)”

Signature of the authorized Person.

For and on behalf of the Bank.

Place:

Under Jurisdiction of Dhanbad Court only.

**FORMAT FOR CONTRACT AGREEMENT**

(on Non Judicial Stamp Paper)

Agreement No-

THIS ARTICLE OF AGREEMENT made on this ----- day of -----200- between the Bharat Coking Coal Limited, Koyla Bhawan , Dhanbad a company registered under the Indian Companies Act 1956 (hereinafter referred to as “the Company” which expression where the context so admit shall include its successors in interest and assign) of the one Part and ----- (herein after referred to as “the Contractor” which expression where the context so admit shall include its heirs, executors administrators, legal representatives, successors in business and assign ) of the other Part.

WHEREAS, the Company invited bid for the work \_\_\_\_\_ and the bid of the contractor has been accepted by the Company vide their letter No. \_\_\_\_\_ dated \_\_\_\_\_ for a sum of \_\_\_\_\_ ( Contract sum in figure and words).

WHEREAS the contractor has agreed to execute the works on the terms and conditions as stipulated in the bid document and subsequent amendments thereto for successful completion of the work.

NOW THIS AGREEMENT WITNESSETH AND IT IS HEREBY AGREED AS FOLLOWS

1. In this agreement words and expressions shall have the same meanings as respectively assigned to them in the Bid document, General, Special and Additional conditions of Contract.

2. The following documents shall constitute the Contract between the Employer and the Contractor. And each shall be read and construed as an integral part of the contract.

- i). Your proposal for the Project “Source Apportionment of ambient air particulate matter in Jharia coalfields region, Jharkhand”.
- ii). Letter of Award.
- iii). Terms and Conditions of Contract including Financial/payment terms and conditions
- iv). Billing Schedule.
- vi). Any other documents as may be necessary.

3. In consideration of payment to be made by the Company to the Contractor, the Contractor hereby covenants with the Company to execute the work in conformity in all respects with the provisions of the Contract.
4. The Company hereby covenants to pay the Contractor, in consideration of the execution, completion and maintenance of the work, the Contract Price at the time and in the manner prescribed by the Contract.
5. The Contract shall abide by the Indian Laws.

In witness whereof the parties hereto have set their respective hands and seals on the day, month and Year first above written.

SIGNED, SEALED AND DELIVERED.

Signed on behalf of the Contractor

Signed on behalf of the Company

Designation

Designation

(Name of the Contractor with address)

(Name of the Company with address)

---

---

---

---

In the presence of :

WITNESS – 1

WITNESS – 1

(Signature)  
(Name in Block letters)  
Official address :

(Signature)  
(Name in Block letters)  
Official address :

WITNESS – 2

WITNESS – 2

(Signature)  
(Name in Block letters)  
Official address :

(Signature)  
(Name in Block letters)  
Official address :

**ANNEXURE -3****PROFORMA FOR COLLECTING PAYMENT THROUGH ELECTRONIC MODE INCLUDING  
ELECTRONIC FUND TRANSFER (ETF) & ELECTRONIC CLEARING SYSTEM (ECS)**

1	VENDOR/SUPPLIER/CONTRACTOR/CUSTOMER'S NAME & ADDRESS (With Telephone No. and Fax No.)	
2	PARTICULARS OF BANK ACCOUNT	
	A) BANK NAME	
	B) BRANCH NAME (Including RTGS Code)	
	ADDRESS	
	TELEPHONE No. & FAX No.	
	C) 9 – DIGIT CODE NUMBER OF THE BANK & BRANCH (Appearing on the MICR cheque issued on the bank) OR 5 – digit code No. OF SBI	
	D) ACCOUNT TYPE (S.B. Account/Current Account OR Cash Credit with code 10/11/13)	
	E) LEDGER No./LEDGER FOLIO No.	
	F) ACCOUNT NUMBER (CORE BANKING) & STYLE OF ACCOUNT (As appearing on the cheque Book)	
3	DATE OF EFFECT	

I hereby declare that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold the user institution responsible. I have read the option invitation letter and agree to discharge responsibility expected of me as a participant under the scheme. Any Bank charges levied by the Bank of such e-transfer shall be borne by us.

Date :

Signature of the Contractor

Certified that the particulars furnished above are correct as per our records.

Signature of the Authorized Officials  
from the Bank

**INTEGRITY PACT**

Between

BHARAT COKING COAL LIMITED (BCCL) hereinafter referred to as "The Principal"

And

.....hereinafter referred to as "The Bidder/Contract"

**Preamble**

The Principal intends to award, under laid down organizational procedures, contract/s for ..... The Principal values full compliance with all relevant laws and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder/s and Contractor/s.

In order to achieve these goals, the Principal cooperates with the renowned international Non-Governmental Organisation "Transparency International" (TI). Following TI's national and international experience, the Principal will appoint an external independent Monitor who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

**Section 1 – Commitments of the Principal**

(1) The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

1. No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for him/herself or third person, any material or immaterial benefit which he/she is not legally entitled to.
2. The Principal will, during the tender process treat all Bidders with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidders the same information and will not provide to any Bidder confidential/additional information through which the Bidder could obtain an advantage in relation to the tender process or the contract execution.
3. The Principal will exclude from the process all known prejudiced persons.

(2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the relevant Anti-Corruption Laws of India, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

**Section 2 – Commitments of the Bidder/Contractor**

(1) The Bidder/Contractor commits itself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.



1. The Bidder/Contractor will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or immaterial benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
  2. The Bidder/Contractor will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.
  3. The Bidder/Contractor will not commit any offence under the relevant Anti-corruption Laws of India; further the Bidder/Contractor will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
  4. The Bidder/Contractor will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- (2) The Bidder/Contractor will not instigate third persons to commit offences outlined above or be an accessory to such offences.

### **Section 3 – Disqualification from tender process and exclusion from future contracts**

If the Bidder, before contract award has committed a transgression through a violation of Section 2 or in any other form such as to put his reliability or credibility as Bidder into question, the Principal is entitled to disqualify the Bidder from the tender process or to terminate the contract, if already signed, for such reason.

1. If the Bidder/Contractor has committed a transgression through a violation of Section 2 such as to put his reliability or credibility into question, the Principal is entitled also to exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the circumstances of the case, in particular the number of transgressions, the position of the transgressions within the

company hierarchy of the Bidder and the amount of the damage. The exclusion will be imposed for a minimum of 6 months and maximum of 3 years.

2. The Bidder accepts and undertakes to respect and uphold the Principal's absolute right to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.
3. If the Bidder/Contractor can prove that he has restored/recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal may revoke the exclusion prematurely.
4. A transgression is considered to have occurred if in light of available evidence no reasonable doubt is possible.

#### **Section 4 – Compensation for Damages**

1. If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover from the Bidder liquidated damages equivalent to 3 % of the value of the offer or the amount equivalent to Earnest Money Deposit/Bid Security, whichever is higher.
2. If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.
3. The bidder agrees and undertakes to pay the said amounts without protest or demur subject only to condition that if the Bidder/Contractor can prove and establish that the exclusion of the Bidder from the tender process or the termination of the contract after the contract award has caused no damage or less damage than the amount or the liquidated damages, the Bidder/Contractor shall compensate the Principal only to the extent of the damage in the amount proved.

#### **Section 5 – Previous transgression**

1. The Bidder declares that no previous transgression occurred in the last 3 years with any other Company in any country conforming to the TI approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

2. If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

#### **Section 6 – Equal treatment of all Bidders/Contractor/Subcontractors**

1. The Bidder/Contractor undertakes to demand from all subcontractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.
2. The Principal will enter into agreements with identical conditions as this one with all Bidders, Contractors and Subcontractors.
3. The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

#### **Section 7 – Criminal charges against violating Bidders/Contractors/Subcontractors**

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor, which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

#### **Section 8 – External Independent Monitor/Monitors** (three in number depending on the size of the contract) (to be decided by the Chairperson of the Principal)

1. The Principal appoints competent and credible external independent Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
2. The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the Chairperson of the Board of the Principal.
3. The Contractor accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder/Contractor/Subcontractor with confidentiality.

4. The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
5. As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or heal the violation, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.
6. The Monitor will submit a written report to the Chairperson of the Board of the Principal within 8 to 10 weeks from the date of reference or intimation to him by the 'Principal' and, should the occasion arise, submit proposals for correcting problematic situations.
7. Monitor shall be entitled to compensation on the same terms as being extended to/provided to Outside Expert Committee members/Chairman as prevailing with Principal.
8. If the Monitor has reported to the Chairperson of the Board a substantiated suspicion of an offence under relevant Anti-Corruption Laws of India, and the Chairperson has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
9. The word 'Monitor' would include both singular and plural.

#### **Section 9 – Pact Duration**

This Pact begins when both parties have legally signed it. It expires for the Contractor 12 months after the last payment under the respective contract, and for all other Bidders 6 months after the contract has been awarded.

If any claim is made/ lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/determined by Chairperson of the Principal.

### Section 10 – Other provisions

1. This agreement is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of the Principal, i.e. Dhanbad.
2. Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
3. If the Contractor is a partnership or a consortium, this agreement must be, signed by all partners or consortium members.
4. Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

.....  
For the Principal

.....  
For the Bidder/Contractor

Place.....  
Date .....

Witness 1: .....  
Witness 2: .....



**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.

**WATER QUALITY REPORT  
OF  
BHARAT COKING COAL LIMITED,  
CLUSTER – XVI**

**(FOR THE Q.E. DEC 2017)**

**E. C. no. J-11015/185/2010-IA.II (M) dated 06.02.2013-**



**CMPDI**

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

**CLUSTER - XVI**  
**(FOR THE Q.E. DEC 2017)**

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3.	CHAPTER-II	WATER SAMPLING & ANALYSIS
4.	<b>Plates:</b> Plate No. - I	SURFACE PLAN SHOWING WATER MONITORING LOCATIONS



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**Dhanbad, Jharkhand**

# **EXECUTIVE SUMMARY**

## **1.0 Introduction**

The purpose of environmental monitoring is to assess the quality of various attributes that affects the environment around us. In accordance with the quality of these attributes appropriate strategy is to be developed to control the pollution level within the permissible limits. One of these major attributes is water.

Bharat Coking Coal Limited (BCCL), a Subsidiary company of Coal India Limited is operating Underground and Opencast Mines in Raniganj Coalfield (RCF) is a part of Gondwana Coalfields located in Burdwan district of West Bengal, the RCF is bounded by 23°42' N to 23°75' N latitudes and 86°43' E to 86°85' E longitude occupying an area of 450 Sq.km. BCCL has awarded Environmental monitoring work of Raniganj Coalfield (RCF) 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 Water sampling stations**

The Water sampling stations were selected for mine sump water, drinking water supply, well/ Hand pump water & also surface water samples.

## **3.0 Methodology of sampling and analysis**

### **3.1 Water quality**

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

## **4.0 Results and interpretations**

### **4.1 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, IS.10500/2012 (Drinking water) and IS: 2296 (Surface water), are within permissible limits.

# **CHAPTER - I**

## **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.

Bharat Coking Coal Limited (BCCL), a subsidiary company of Coal India Limited (CIL) is operating UG Mines and Opencast Mines in Raniganj Coalfield (RCF).

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-XVI is in the Western part of the Raniganj coalfield and situated in the C.V. area of BCCL. It includes a group of 5 Mines (viz. Dahibari Basantimata OCP, Basantimata UG, New Laikdih OCP, Laikdih Deep UG & Chanch UG). The Cluster – XVI is situated about 50 - 55 kms from Dhanbad Railway Station. The mines of this Cluster – XVI are operating since pre nationalization period (prior to 1972-73). It is connected by both Railway and Road. The drainage of the area is governed by Khudia River & Barakar River.

1.2 The Cluster-XVI is designed to produce 1.51 MTPA (normative) and 1.963 MTPA (peak) capacity of coal.

The Project has Environmental Clearance from Ministry of Environment, Forest and Climate Change (MoEF&CC) for a rated capacity 1.51 MTPA (normative) and 1.963 MTPA (peak) capacity of coal production vide letter no. J-11015/185/2010-IA.II (M) dated 06<sup>th</sup> February, 2013.

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

## **CHAPTER – II**

### **WATER QUALITY MONITORING**

#### **2.1 Location of sampling sites**

(Refer **Plate No. - I**)

- i) Drinking water quality of **Mine Discharge of Amalgamated Dahibari Basantimata.**
- ii) Ground Water quality at **Patlabari Village (GW16)**
- iii) Surface Water quality at **U/S of Khudia River (SW33)**
- iv) Surface Water quality at **D/S of Khudia River (SW34)**
- v) **Mine Effluent Quality at Dahibari UGP (MW-16).**

#### **2.2 Methodology of sampling and analysis**

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

#### **2.3 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**

## **(MINE EFFLUENT WATER- 25 PARAMETERS)**

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

Year : **2017-18**

Name of the Project: **Cluster - XVI**

Period: **Q.E. DEC 2017**

Type of Sample: **Mine Discharge Water Sample**

Name of Mine

**AMALGAMATED DAHIBARI  
BASANTIMATA**

Testing Protocol: **As per DW Standards (IS- 10500)**

Date of Sampling: **06-Dec-17**

Sl. No	Parameter	Test Result	Detection Limit	Permissible Limit	Method of Testing
1	Boron (as B), mg/l, Max	<0.20	0.20	0.5	APHA, 22 <sup>nd</sup> Edition ,Carminc
2	Colour,in Hazen Units	3	1	5	APHA, 22 <sup>nd</sup> Edition ,Pt.-Co. Method
3	Calcium (as Ca), mg/l, Max	46.8	1.60	75	IS-3025/40:1991, EDTA
4	Chloride (as Cl), mg/l, Max	50	2.00	250	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	0.008	0.001	0.05	IS 3025/42 : 1992 R : 2009, AAS-Flame
6	Fluoride (as F) mg/l, Max	0.82	0.02	1.0	APHA, 22 <sup>nd</sup> Edition , SPADNS
7	Free Residual Chlorine, mg/l, Min	<0.02	0.02	0.2	APHA, 22 <sup>nd</sup> Edition, DPD
8	Iron (as Fe), mg/l, Max	0.06	0.06	0.3	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
9	Lead (as Pb), mg/l, Max	<0.005	0.005	0.01	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
10	Manganese (as Mn), mg/l, Max	0.028	0.02	0.1	IS-3025/59:2006, AAS-Flame
11	Nitrate (as NO <sub>3</sub> ), mg/l, Max	8.84	0.5	45	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
12	Odour	Agreeable	Qualitative	Agreeable	IS 3025 /05:1983, R-2012, Qualitative
13	pH value	7.79	2.5	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l, Max	<0.001	0.001	0.001	APHA, 22 <sup>nd</sup> Edition, 4-Amino Autipyrine
15	Selenium (as Se), mg/l, Max	<0.002	0.002	0.01	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
16	Sulphate (as SO <sub>4</sub> ) mg/l, Max	94	2.00	200	APHA, 22 <sup>nd</sup> Edition. Turbidity
17	Taste	Acceptable	Qualitative	Acceptable	APHA, 22 <sup>nd</sup> Edition. Taste
18	Total Alkalinity (c <sub>a</sub> CO <sub>3</sub> ), mg/l, Max	102	4.00	200	IS-3025/23:1986, Titration
19	Total Arsenic (as As), mg/l, Max	<0.002	0.002	0.01	IS 3025/ 37:1988 R : 2003, AAS-VGA
20	Total Chromium (as Cr), mg/l, Max	<0.04	0.04	0.05	IS-3025/52:2003, AAS-Flame
21	Total Dissolved Solids, mg/l, Max	644	25.00	500	IS 3025 /16:1984 R : 2006, Gravimetric
22	Total Hardness (c <sub>a</sub> CO <sub>3</sub> ), mg/l, Max	308	4.00	200	IS-3025/21:1983, R-2002, EDTA
23	Turbidity, NTU, Max	2.0	1.0	1	IS-3025/10:1984 R-1996, Nephelometric
24	Zinc (as Zn), mg/l, Max	0.036	0.01	5.0	IS 3025/ 49 : 1994, R : 2009, AAS-Flame
25	Nickel as Ni, mg/l Max	<0.005	0.005	0.02	IS 3025/ 49 : 1994, R : 2009, AAS-Flame

All values are expressed in mg/lit unless specified.

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21/06/19

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# **WATER QUALITY**

## **(SURFACE WATER- 17 PARAMETERS)**

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

Year : **2017-18**

Name of the Project: **Cluster - XVI**

Period: **Q.E. DEC 2017**

**Stations:** 1. Upstream in Khudia River SW-33  
2. Downstream in Khudia River SW-34

06/12/2017

06/12/2017

Sl.N o	Parameter	Sampling Stations			Detection Limit	IS:2296 – 1982 (Inland surface water) Class C	BIS Standard & Method
		SW-33	SW-34				
1	Arsenic (as As), mg/l, Max	<0.002	<0.002		0.002	0.2	IS 3025/37:1988 R : 2003, AAS-VGA
2	BOD (3 days 27°C), mg/l, Max	2.6	2.6		2.00	300	IS 3025 /44: 1993, R : 2003 3 day incubation at 27°C
3	Colour ( Hazen Unit)	colourless	colourless		Qualitativ e	300	APHA, 22 <sup>nd</sup> Edition ?Pt.-Co Method
4	Chlorides (as Cl), mg/l, Max	62	32		2.00	600	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.001	<0.001		0.001	1.5	IS 3025 /42 : 1992 R : 2009, AAS-Flame
6	Disolved Oxygen, min.	4.0	3.2		0.10	4	IS 3025/38:1989, R : 2003, Winkler Azide
7	Fluoride (as F) mg/l, Max	0.44	0.88		0.02	1.5	APHA, 22 <sup>nd</sup> Edition SPADNS
8	Hexavalent Chromium, mg/l, Max	<0.01	<0.01		0.01	0.05	APHA, 22 <sup>nd</sup> Edition, 1,5 - Diphenylcarbohydrazide
9	Iron (as Fe), mg/l, Max	0.18	0.17		0.06	50	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
10	Lead (as Pb), mg/l, Max	<0.005	<0.005		0.005	0.1	APHA, 22 <sup>nd</sup> Edition AAS-GTA
11	Nitrate (as NO <sub>3</sub> ), mg/l, Max	12.27	10.83		0.50	50	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
12	pH value	8.42	8.43		2.5	6.5-8.5	IS-3025/11:1983, R-1996, Electrometric
13	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l, Max	<0.002	<0.002		0.002	5.0	APHA, 22 <sup>nd</sup> Edition 4-Amino Antipyrine
14	Selenium (as Se), mg/l, Max	<0.002	<0.002		0.002	0.05	APHA, 22 <sup>nd</sup> Edition AAS-GTA
15	Sulphate (as SO <sub>4</sub> ) mg/l, Max	79	90		2.00	400	APHA, 22 <sup>nd</sup> Edition Turbidity
16	Total Dissolved Solids, mg/l, Max	338	343		25.00	1500	IS 3025 /16:1984 R : 2006, Gravimetric
17	Zinc (as Zn), mg/l, Max	0.08	0.13		0.01	5.0	IS 3025 /49 : 1994, R : 2009, AAS-Flame

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# **WATER QUALITY**

## **(GROUND/DRINKING WATER- 25 PARAMETERS)**

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

Year : **2017-18**

Name of the Project : **Cluster - XVI**

Period: **Q.E. DEC 2017**

**Stations:**

1. Drinking Water from Patlabari village DW-16

**Date of Sampling:**

20.12.2017

Sl. No	Parameter	Sampling Stations			Detection Limit	IS:10500 Drinking Water Standards	Standard / Test Method
		DW-16	2	3			
1	Boron (as B), mg/l, Max	<0.20			0.20	0.5	APHA, 22 <sup>nd</sup> Edition ,Carmine
2	Colour,in Hazen Units	2			1	5	APHA, 22 <sup>nd</sup> Edition ,Pt.-Co. Method
3	Calcium (as Ca), mg/l, Max	43.2			1.60	75	IS-3025/40:1991, EDTA
4	Chloride (as Cl), mg/l, Max	22			2.00	250	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.001			0.001	0.05	IS 3025/42 : 1992 R : 2009, AAS-Flame
6	Fluoride (as F) mg/l, Max	0.97			0.02	1.0	APHA, 22 <sup>nd</sup> Edition , SPADNS
7	Free Residual Chlorine, mg/l, Min	0.06			0.02	0.2	APHA, 22 <sup>nd</sup> Edition, DPD
8	Iron (as Fe), mg/l, Max	0.06			0.06	0.3	IS 3025/53 : 2003, R : 2009 , AAS-Flame
9	Lead (as Pb), mg/l, Max	<0.005			0.005	0.01	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
10	Manganese (as Mn), mg/l, Max	<0.02			0.02	0.1	IS-3025/59:2006, AAS-Flame
11	Nitrate (as NO <sub>3</sub> ), mg/l, Max	3.9			0.5	45	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
12	Odour	Agreeable			Qualitative	Agreeable	IS 3025/05:1983, R-2012, Qualitative
13	pH value	8.10			2.5	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric
14	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l, Max	<0.001			0.001	0.001	APHA, 22 <sup>nd</sup> Edition,4-Amino Autipyrine
15	Selenium (as Se), mg/l, Max	<0.002			0.002	0.01	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
16	Sulphate (as SO <sub>4</sub> ) mg/l, Max	119			2.00	200	APHA, 22 <sup>nd</sup> Edition. Turbidity
17	Taste	Acceptable			Qualitative	Acceptable	APHA, 22 <sup>nd</sup> Edition. Taste
18	Total Alkalinity (c <sub>a</sub> CO <sub>3</sub> ),, mg/l, Max	120			4.00	200	IS-3025/23:1986, Titration
19	Total Arsenic (as As), mg/l, Max	<0.002			0.002	0.01	IS 3025/ 37:1988 R : 2003, AAS-VGA
20	Total Chromium (as Cr), mg/l, Max	<0.04			0.04	0.05	IS-3025/52:2003, AAS-Flame
21	Total Dissolved Solids, mg/l, Max	349			25.00	500	IS 3025/16:1984 R : 2006, Gravimetric
22	Total Hardness (c <sub>a</sub> CO <sub>3</sub> ), mg/l, Max	196			4.00	200	IS-3025/21:1983, R-2002, EDTA
23	Turbidity, NTU, Max	2			1.0	1	IS-3025/10:1984 R-1996, Nephelometric
24	Zinc (as Zn), mg/l, Max	<0.01			0.01	5.0	IS 3025/ 49 : 1994, R : 2009, AAS-Flame
25	Nickel (as Ni), mg/l, Max	<0.005			<0.001	5.0	IS 3025/ 49 : 1994, R : 2009, AAS-Flame

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Analysed By  
JSA/SA/SSA

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21/12/17

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

# **WATER QUALITY**

## **(MINE EFFLUENT - 27 PARAMETERS)**

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

Year : **2017-18**

Name of the Project : **Cluster - XVI**

Period: **Q.E. DEC 2017**

**Stations:**

1. Mine Water Discharge Dahibari UGP MW-16

**Date of Sampling:**

20.12.2017

Sl.No.	Parameter	Sampling Stations			Detection Limit	MOEF -SCH-VI STANDARDS Class 'A'	BIS Standard & Method
		MW-16	2	3			
1	Ammonical Nitrogen, mg/l, Max	0.02			0.02	50.0	IS 3025/34:1988, R : 2009, Nessler's
2	Arsenic (as As), mg/l, Max	<0.002			0.002	0.2	IS 3025/37:1988 R : 2003, AAS-VGA
3	B.O.D (3 days 27°C), mg/l, Max	<2.00			2.00	30.0	IS 3025 /44:1993,R:2003 3 day incubation at 27°C
4	COD, mg/l, Max	40			4.00	250.0	APHA, 22 <sup>nd</sup> Edition, Closed Reflux, Titrimetric
5	Colour	Colorless			Qualitative	Qualitative	Physical/Qualitative
6	Copper (as Cu), mg/l, Max	0.001			0.001	3.0	IS 3025/42: 1992 R : 2009, AAS-Flame
7	Dissolved Phosphate, mg/l, Max	<0.3			0.30	5.0	APHA, 22 <sup>nd</sup> Edition Molybdovanadate
8	Fluoride (as F) mg/l, Max	0.49			0.02	2.0	APHA, 22 <sup>nd</sup> Edition, SPADNS
9	Free Ammonia, mg/l, Max	<0.01			0.01	5.0	IS:3025/34:1988, Nessler's
10	Hexavalent Chromium, mg/l, Max	<0.01			0.01	0.1	APHA, 22 <sup>nd</sup> Edition, Diphenylcarbohydrazide
11	Iron (as Fe), mg/l, Max	<0.06			0.06	3.0	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
12	Lead (as Pb), mg/l, Max	<0.005			0.005	0.1	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
13	Manganese(as Mn), mg/l, Max	<0.02			0.02	2.0	IS-3025/59:2006, AAS-Flame
14	Nickel (as Ni), mg/l, Max	<0.005			0.005	3.0	IS-3025/54:2003, AAS-Flame
15	Nitrate Nitrogen, mg/l, Max	2.30			0.50	10.0	APHA, 22 <sup>nd</sup> Edition, UV-Spectrophotometric
16	Oil & Grease, mg/l, Max	<2.00			2.00	10.0	IS 3025/39:1991, R : 2003, Partition Gravimetric
17	Odour	Agreeable			Agreeable	Qualitative	Is-3015/5:1983/R:2012/Qualitative
18	pH value	8.41			2.5	5.5 to 9.0	IS-3025/11:1983, R-1996, Electrometric
19	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH),mg/l, Max	<0.002			0.002	1.0	APHA, 22 <sup>nd</sup> Edition 4-Amino Antipyrine
20	Selenium (as Se), mg/l, Max	<0.002			0.002	0.05	APHA, 22 <sup>nd</sup> Edition, AAS-GTA
21	Sulphide (as SO <sub>3</sub> ), mg/l, Max	<0.005			0.005	2.0	APHA, 22 <sup>nd</sup> Edition Methylene Blue
22	Temperature (°C )	21.1			Shall not exceed 5° C above the receiving temp.		IS-3025/09:1984, Thermometric
23	Total Chromium (as Cr), mg/l, Max	<0.06			0.06	2.0	IS-3025/52:2003, AAS-Flame
24	Total Kjeldahl Nitrogen, mg/l, Max	1.8			1.00	100.0	IS:3025/34:1988, Nessler's
25	Total Residual Chlorine, mg/l, Max	0.02			0.02	1.0	APHA, 22 <sup>nd</sup> Edition, DPD
26	Total Suspended Solids, mg/l, Max	32			10.00	100.0	IS 3025/17:1984, R :1996, Gravimetric
27	Zinc (as Zn), mg/l, Max	0.01			0.01	5.0	IS 3025 /49 : 1994, R : 2009, AAS-Flame

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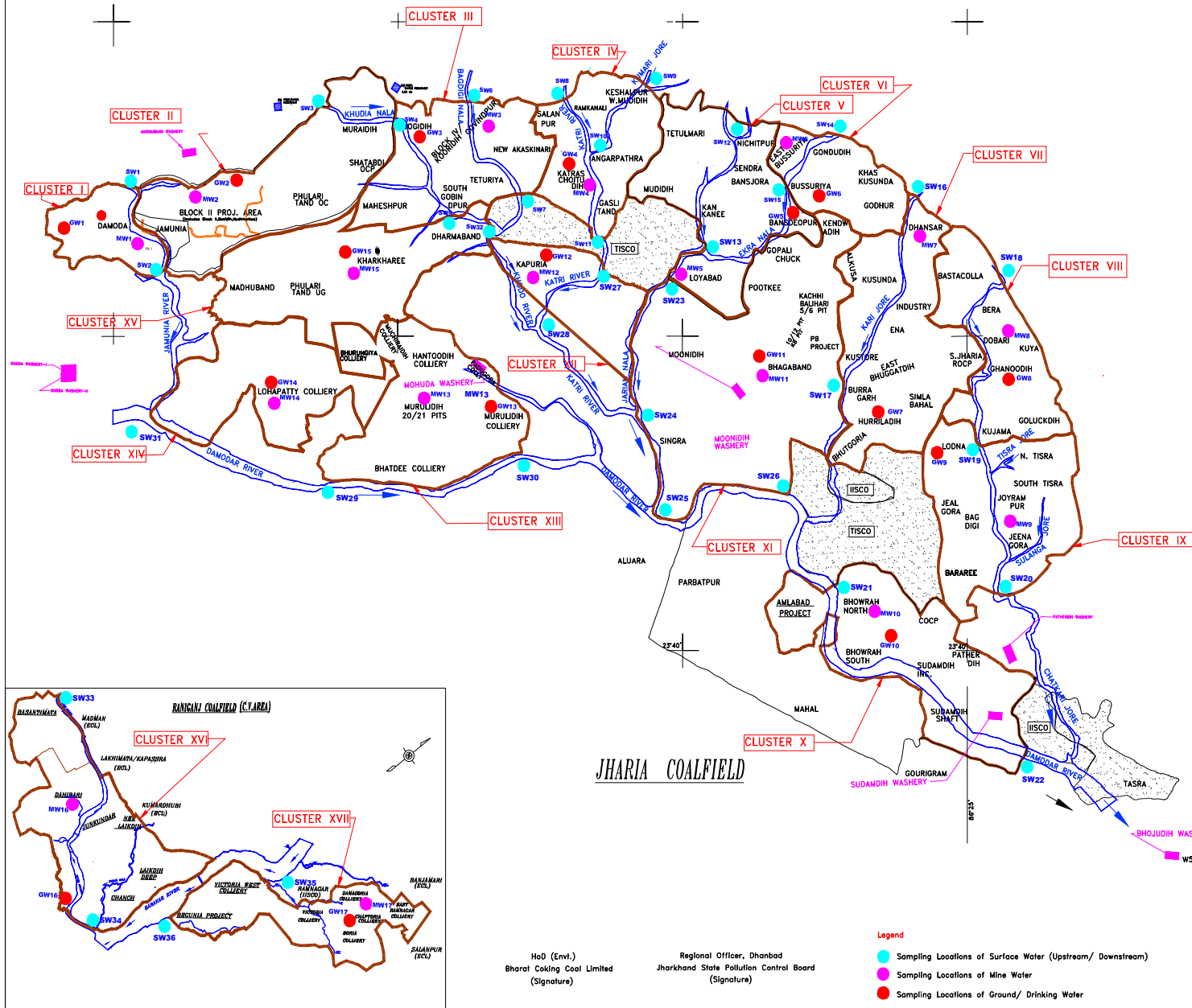
Checked By  
Lab In Charge  
RI-2, CMPDI, Dhanbad

21/12/17

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



# Water Sampling Locations in BCCL



## INDEX

Cluster	Surface Water (U.S.D.S)	Name of River / Jore	Mine Effluent Water	Sampling Location	Ground Water	Sampling Location
I	SW1, SW2	Jamunia River	MW1	Damoda Area Block II OCP	GW1	Ghutway Village
II	SW3, SW4	Khudia Nala	MW2	Govindpur Colliery	GW2	Joyrampur Village
III	SW4, SW5, SW6, SW7	Khudia Nala	MW3	Govindpur Colliery	GW3	Jogidih Village
IV	SW8, SW11, SW9, SW10	Karti River	MW4	Choudih	GW4	Kankanee Village
V	SW12, SW13, SW15	Jarian Nala, Ekra Nala	MW5	Muddih	GW5	Nichipur
VI	SW14, SW15	Ekra Nala	MW6	East Basturia UGP	GW6	Bansjora Borewell
VII	SW16, SW17	Karti Jore	MW7	Dhansar UGP	GW7	Hunladih South
VIII	SW18, SW19	Kashi Jore	MW8	Dobari UGP	GW8	Ghanudih
IX	SW19, SW20	Kashi Jore	MW9	Jeenagom	GW9	Lodna
X	SW21, SW22	Damodar River	MW10	Bhowrah North	GW10	Bhowrah South
XI	SW23, SW24, SW25, SW26	Jarian Nala, Damodar River	MW11	Bhagabandh UGP	GW11	Bhagabandh
XII	SW27, SW28	Karti River	MW12	Kapuria	GW12	Kapuria
XIII	SW29, SW30	Damodar River	MW13	Munlidih (2002)	GW13	Munlidih
XIV	SW31, SW32	Damodar River	MW14	Lohapatti	GW14	Lohapatti
XV	SW5, SW32	Khudia Nala	MW15	Kharkharee UGP	GW15	Kharkharee
XVI	SW33, SW34	Khudia Nala	MW16	Dahbari OCP	GW16	Patlabari Village
XVII	SW35, SW36	Barakar River	MW17	Dumagom Colliery	GW17	Chaptoria

## Legend

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

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

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

Company	BHARAT COKING COAL LIMITED
Title	WATER SAMPLING LOCATIONS
Subject	MONITORING STATIONS
CMPDI	Date: Not to Date



## **CSR, R&R AND TRANSPORTATION PLAN OF CLUSTER-XVI, BCCL**

**As per**

***EC condition ( Specific Condition :37) The Details of transportation, CSR, R&R and implementation of environmental action plan for the clusters-XVI should be brought out in a booklet form within a year and regularly updated.***

**FY 2017-18**

### **INTRODUCTION**

Coal India has adopted CSR as a strategic tool for sustainable growth. For Coal India in the present context, CSR means not only investment of funds for Social Activity but also Integration of Business processes with Social processes. Even much before the issue of CSR became global concern; Coal India was aware of its Corporate Social Responsibility and was fulfilling the aspiration of the Society through well-defined "Community Development Policy" within the periphery of 8 Kms. of the Project sites. This has resulted into a harmonious relationship between Coal India and the peripheral Communities.

Coal India has identified land oustees, PAP and those staying within the radius of 25 Kms of the Project as primary beneficiaries. Poor and needy section of the society living in different parts of India are second beneficiaries. For carrying out CSR activities, 80% of the budgeted amount are be spent within the radius of 25 Km of the Project Site/Mines/Area HQ/Company HQ and 20% of the budget to be spent within the States in which operating.

### **SCOPE**

As per Schedule VII of New Companies Act 2013 the following should be the Scope of Activities under Corporate Social Activities:

- i) Eradicating hunger, poverty and malnutrition, promoting healthcare including preventive health care and sanitation and making available safe drinking water.
- ii) Promoting education, including special education and employment enhancing vocation skills especially among children, women, elderly, and differently abled and livelihood enhancement projects;
- iii) Promoting gender equality, empowering women, setting up homes and hostels for women and orphans, setting up old age homes, day care centres and such other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups;
- iv) Ensuring environmental sustainability, ecological balance, protection of Flora and Fauna, animal welfare, agro-forestry, conservation of natural resources and maintaining quality of soil, air and water;
- v) Protection of national heritage, art and culture including restoration of buildings and sites of historical importance and works of art; setting up public libraries, promotion and development of traditional arts and handicrafts;
- vi) Measures for the benefit of armed forces veterans, war widows and their dependents
- vii) Training to promote rural sports, nationally recognized sports, Paralympics sports and Olympic sports;
- viii) Contribution to the Prime Minister's National Relief Fund or any other fund set up by the Central Government for socio-economic development and relief and welfare of the Scheduled Castes, the Scheduled Tribes, other backward classes, minorities and women;
- ix) Contributions or funds provided to technology incubators located within academic institutions which are approved by the Central Government;
- x) Rural development projects

### **SOURCE OF FUND**

The fund for the CSR should be allocated based on 2% of the average net profit of the Company for the three immediate preceding financial years or Rs. 2.00 per tonne of Coal Production of previous year whichever is higher.

### **ACTION PLAN FOR CORPORATE SOCIAL RESPONSIBILITY**

When the EC was granted, it was estimated as per prevailing policy, 5% of the retained earning of the previous year subject to minimum of Rs. 5 per tonne of coal production of the previous year will be provided for Corporate Social

Responsibility (CSR) . Since Normative Capacity of the Cluster XVI is 1.51 MT ,an amount to the tune of Rs. 75,55,000 will be used for the CSR works per year for Cluster-XVI.

The CV Area under the Bharat Coking Coal Limited is committed to good corporate citizenship and makes constant efforts to build and nurture long lasting relationships with members of the society in general and its peripheral communities in Particular.

#### **CSR committee of CV Area**

<b>Sr. No .</b>	<b>Name</b>	<b>Designation</b>	<b>Post Hold</b>
1	Sri. A. Banerjee	Addl. General Manager, CV Area	Chairman
2	Sri. S.R. Prasad	Chief Manager (P)/APM, CV Area	Member
3	Sri. Trilok Meena	Area Manager (Civil), CV Area	Member
4	Dr. S. Sinha	MS, CV Area	Member
5	Sri. B.B. Saharoy	Area Manager (Finance), CV Area	Member

The EMP contained the following:

<b>Sl. No.</b>	<b>HEAD OF WORKS</b>	<b>CSR expenditure to be done per year in Rs. lakhs</b>						
		<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>
1	Education facilities including grant of schools, providing education kits, running of schools etc.	10.00	8.00	12.00	10.00	8.00	8.00	8.00
2	Water Supply and rain water harvesting works, wells, ponds, hand pumps and tube wells	20.00	22.00	18.00	20.00	22.00	22.00	22.00
3	Health Care and vaccination, awareness camp, mobile medical camp, Immunisation, medicine etc.	7.00	7.00	5.00	5.00	7.00	7.00	7.00
4	Environnent Protection i.e plantation etc.	10.00	8.00	10.00	8.00	8.00	8.00	8.00
5	Social Empowerment like Community centre, Literacy drive, shopping complex.	5.00	7.00	5.00	5.00	5.00	5.00	5.00
6	Infrastructure Development like road, bridge, repairing of school, drains, electric line etc.	10.00	12.00	14.55	15.00	14.00	14.00	14.00
7	Sports Culture like village	3.00	3.00	3.00	3.00	3.00	3.00	3.00

	stadium village stadium, grant to village sports body, organizing sports meet							
8	Grant to NGO for community development	5.00	4.55	3.00	5.00	4.55	4.55	4.55
9	Miscellaneous welfare for adopted villages	5.55	4.00	5.00	4.55	4.00	4.00	4.00
	<b>TOTAL</b>	<b>75.55</b>	<b>75.55</b>	<b>75.55</b>	<b>75.55</b>	<b>75.55</b>	<b>75.55</b>	<b>75.55</b>

## **CURRENT STATUS**

### **Healthcare: Annual CSR (Healthcare) Expenditure for the year 2017-18**

#### **I. General Medical Camps (2017-18):**

SN .	Month	No. of General Medical Camp	Beneficiaries	Amount (in Rs.)
1	April'16	1	102	2400
2	May'16	1	43	1600
3	June'16	1	67	2000
4	July'16	1	60	3000
5	August'16	0	0	00
6	September'16	1	59	3000
7	October'16	1	72	3000
8	November'16	0	0	00
9	December'16	1	106	3000
10	January'17	1	36	2000
11	February'17	1	46	2000
12	March'17	1	38	2000
Total =		<b>10</b>	<b>629</b>	<b>24000</b>

#### **II. Health Awareness Programmes (2017-18):**

S N	Date	Activities	Amount (in Rs.)
1.	10.07.2017	Uric acid Camp	Medicine supplied by company
2.	10.08.2017	Uric acid Camp	Medicine supplied by company
3.	15.11.2017	Blood donation camp	9500.00
4.	17.11.2017	Uric acid camp	Medicine supplied by company

## **EDUCATION**

### **School Grants (2017-18):**

<b>Sr. No .</b>	<b>Name and allocation of Private Committee Managed School</b>	<b>No. of eligible teachers for getting financial assistance</b>	<b>Under Graduate Rs. 5000/- PM/PT</b>	<b>Graduate Rs 5500/- PM/PT</b>	<b>Graduate with BT Rs 6500/- PM/PT</b>	<b>Graduate with B. Ed Rs 7000/- PM/PT</b>	<b>Total amount of financial assistance for 2017-18 (In Rs.)</b>
1	Adarsh Primary School, Dahibari	2	1	1	0	0	126000
2	U.P. School Laikdih, CMWO Colony	3	2	1	0	0	186000
3	U.P. School, Chanch	2	2	0	0	0	120000
4	Prathmik Vidhyalay, Laikdih Deep	2	1	1	0	0	126000
Total		558000/-					



**Proposed Reduction in Transport-Distance for Phase-I as presented to EAC**

**BHARAT COKING COAL LTD.**  
**CHANCH/VICTORIA AREA**  
**SURFACE PLAN OF**  
**CLUSTER - XVI**  
**Scale : 1 : 1000**

**LEGEND**

1) Road	2) Boundary
3) Backing/Track	4) Proposed Partition
5) Back Log Road	
6) Road Paving Area	
7) Road Paving Area	
8) Road Paving Area	
9) Road Paving Area	
10) Road Paving Area	
11) Road Paving Area	
12) Road Paving Area	
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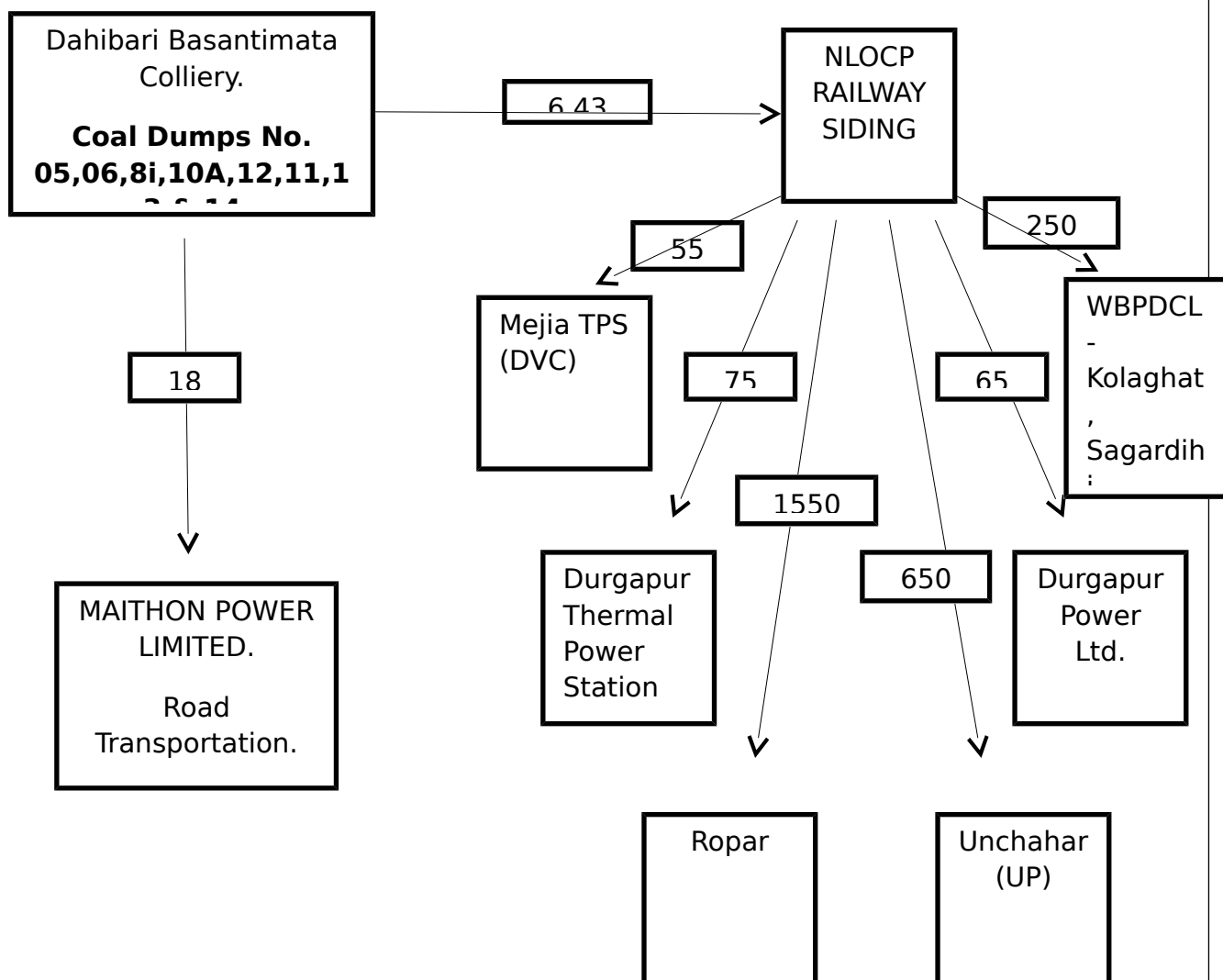
**LEGEND**

1) Road	2) Boundary
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1. Name of the Cluster : CLUSTER XVI
2. Name of the mines of the Cluster: Dahibari-Basantimata Colliery
3. Annual Coal Production : 1.96 MTPA

Name of the Mine	2015-16	2016-17
Dahibari-Basantimata Colliery	1.084 MT	1.299 MT

4. Diagram showing the lead distance from the coal dumps to the railway sidings and other consumers:





## 5. Coal Dispatch of Cluster-XVI :

Name of the Mine	year	Location	Distance from face to siding (km)	Coal Transferred (in tonnes)	Daily coal Production	Average capacity of the dumpers
Dahibari Basantimat a Colliery.	2015-16	NLOCP SIDING	3.5 KM	1279860	2800 Te	30 Te
	2015-16	Road Transport	-----	42583		20 Te
Dahibari Basantimat a Colliery.	2016-17	NLOCP SIDING	4.0 KM	947615	3300 Te	30 Te
	2016-17	Road Transport	-----	28680		20 Te

## **REHABILITATION AND RESETTLEMENT PLAN**

The cluster of mines will be dovetailed with the approved Jharia Action Plan for dealing with fire, subsidence and rehabilitation of people. Master Plan for dealing with fire, subsidence and rehabilitation within the leasehold area of BCCL has already been approved by Government of Jharkhand & Government of India. Out of 595 unstable sites identified in the Master Plan, 51 sites consisting of 7012 no. of houses are affected in this cluster. The affected families will be rehabilitated in adjacent non-coal bearing area at a cost of Rs. 26273.69 lakhs.

### **Requirement of land at Resettlement site:**

#### **A) For BCCL houses**

The BCCL houses will be resettled in satellite townships with equivalent type of houses in triple storey building. The weighted average plinth area of the houses proposed to be rehabilitated has been estimated at 48.09 sq m /house. Considering the amenities, infrastructure, internal roads etc. to be provided in the township, requirement of land for BCCL houses has been estimated at 34.30 Ha. (@ 160 m<sup>2</sup> /House)

#### **B) For Non BCCL Houses**

##### **(i) Private (Authorised)**

Head of every family will be provided a plot of land measuring 100 sq.m. Considering the amenities, infrastructure, internal roads etc to be provided in the township, requirement of land for private authorized houses has been estimated at 82.94 Ha. (@ 270 m<sup>2</sup> /house)

## (ii) Private Houses (Encroachers)

Encroachers will be provided with a house constructed on about 27 sq.m land in triple storied building in the resettlement site. However provision of 11 sq . m of land has been considered for construction of another room in future . Considering the amenities, infrastructure, internal roads etc to be provided in the township, requirement of land for encroachers has been estimated at 22.74 Ha. (@ 130 m<sup>2</sup>/house)

### **CURRENT STATUS**

#### **SHIFTING OF BCCL EMPLOYEES:**

A total of 420 No. of houses construction has been completed and BCCL families is being shifted.

### **REHABILITATION AND RESETTLEMENT**

*As per the Action plan for rehabilitation , the demographic survey has been conducted by the JHARIA REHABILITATION & DEVELOPMENT AUTHORITY and they have completed the said survey in respect of the following sites:-*

Sl.	Name of the site	No. of house surveyed
1	Nutungram	776
2	Jograd Bastee	161
3	Yadavpur Luchibai	362
4	Bautdih 2	118
5	Reliance Factory	766
6	Dumurkonda Co's quarter	210
7	Dumurkonda Village	1804
8	Manjhi Bastee	108

*Besides the above the BCCL management is taking action to rehabilitate 5 houses at Kalyanchak Bastee for their rehabilitation at the Non coal bearing area.*

Area Manager (Estate)  
C V Area, BCCL

## **Environmental Action Plan**

To improve and maintain the environment following action is being taken:-

### **1. Air Quality:-**

#### **Drilling operation:-**

- All the drills are equipped with well-designed dust extractor arrangement.

#### **Blasting operation**

- Controlled blasting is being done in daytime during the shift change over period.

#### **Loading and transport**

- Frequent and at regular intervals, water is be sprayed on haul roads, service roads. Mobile water sprinklers of 28 KL capacity have been provided in the project.
- Regular maintenance of HEMM engines to limit emission of harmful exhaust fumes.
- Optimal loading of coal transport vehicle is being ensured.

#### **Coal handling**

- Fixed nozzle sprinkler has been installed & maintained for dust suppression at CHP & Mobile Crusher.

#### **Firefighting**

- Exposures of coal benches for long time are being avoided.
- Provision of adequate firefighting arrangements including storage of sufficient quantity of water at all critical points is being done.
- Careful removal of all loose coal from the abandoned coal faces is being done.
- Regular supervision is being done.

### **2. Water Quality**

- The mine discharge is being effectively utilized to meet the mine's domestic and industrial needs. The entire industrial and domestic water demand of the Cluster-XVI mines has been met from treated mine water of UGP and OCP.
- The abandoned mine workings behave as water pool and improves the resources availability in the area.
- The construction of surface tanks and de-siltation/deepening of existing ponds in the local villages are being done to enhance the water availability of nearby area.
- Mine water is being utilized for irrigation purposes which will also enhance the groundwater recharge potential through artificial recharge of the area.
- Drinking water is being supplied to nearby villages through pipeline network.
- The discharge mine water has been gainfully utilized for the Industrial and domestic requirement. Thereby the mine water, from existing mines in the area, is a resource for local villages.

- The excess mine water is being discharged to local Nalas to recharge groundwater system.
- Plantation is being done on regular basis.

### **3. Noise pollution control**

- Proper designing of plant & machinery by providing in-built mechanisms like silencers, mufflers and enclosures for noise generating parts and shock absorbing pads at the foundation of vibrating equipment.
- Routine maintenance of equipment.
- Rational deployment of noise generating plant and machinery.
- Greenbelts around the quarry, infrastructure sites and service building area besides avenue plantation on both sides of the roads.
- HEMMs with sound proof cabins.
- Personal protective devices to all the persons working in high noise areas.
- Regular monitoring of noise levels at various points.

**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 – XVI**

**(FOR THE MONTH SEPTEMBER, 2018)**

**E. C. no. J-11015/185/2010-IA.II (M) dated 06.02.2013-**



**CMPDI**

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

# **CONTENTS**

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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°37' N to 23°52' N latitudes and 86°09' E to 86°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 noise levels were recorded in mining areas, washery areas and in residential areas.

### **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 analysed for four parameters on fortnightly basis. Thereafter the samples were preserved and analysed at the Environmental Laboratory of CMPDI RI- II, Dhanbad.

### 3.3 Noise level monitoring

Noise level measurements in form of 'L<sub>EQ</sub>' 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 optimized 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, are 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

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-XVI is in the Western part of the Raniganj coalfield and situated in the C.V. area of BCCL. It includes a group of 5 Mines (viz. Dahibari Basantimata OCP, Basantimata UG, New Laikdih OCP, Laikdih Deep UG & Chanch UG). The Cluster – XVI is situated about 50 - 55 kms from Dhanbad Railway Station. The mines of this Cluster – XVI are operating since pre nationalization period (prior to 1972-73). It is connected by both Railway and Road. The drainage of the area is governed by Khudia River & Barakar River.

1.2 The Cluster-XVI is designed to produce 1.51 MTPA (normative) and 1.963 MTPA (peak) capacity of coal.

The Project has Environmental Clearance from Ministry of Environment, Forest and Climate Change (MoEF&CC) for a rated capacity 1.51 MTPA (normative) and 1.963 MTPA (peak) capacity of coal production vide letter no. J-11015/185/2010-IA.II (M) dated 06<sup>th</sup> February, 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 in consultation with the State Pollution Control Board.” And other conditions regarding water / effluent and noise level monitoring.

In compliance of these conditions the Environmental Monitoring has been carried out & report prepared for submission to MoEF&CC & SPCB 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) Dahibari OCP (A22): Industrial Area**

The location of the sampling station is 23° 43' 43.11"N 86° 45' 5.00" E. The sampler was placed at a height of 1.5m from above ground level of Substation Office.

###### **ii) Basantimata Colliery Office (A23): Industrial Area**

The location of the sampling station is 23° 44' 0.24"N 86° 44' 54.71" E. The sampler was placed at Roof of Project Office.

##### **II. BUFFER ZONE Monitoring Location**

###### **i) Gopinathpur village (A24): Residential Area**

The location of the sampling station is 23° 44' 57.21"N 86° 44' 39.19" E. The sampler was placed at a height of 1.5m from above ground level.

###### **ii) Guliardih Village (A25): Residential Area**

The sampler was placed at a height of 1.5m from above ground level.

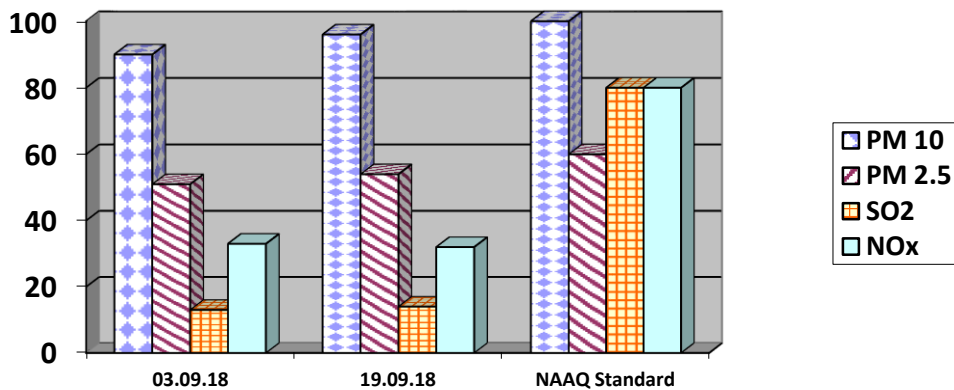
**AMBIENT AIR QUALITY DATA**

Cluster –XVI, Bharat Coking Coal Ltd

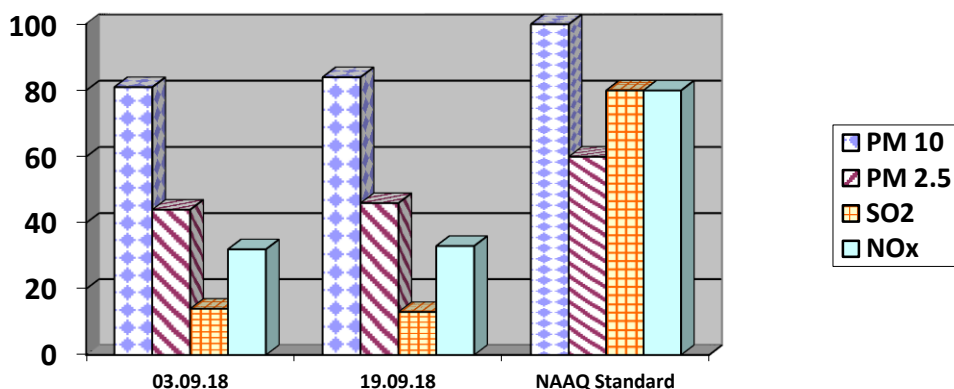
Month: SEP,2018

Year : 2018-19.

Station Name:A22, Dahibari OCP		Zone: Core		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO <sub>2</sub>	NO <sub>x</sub>
1	03.09.18	90	51	13	33
2	19.09.18	96	54	14	32
	NAAQ Standard	100	60	80	80



Station Name: A23, Basantimata Office		Zone: Core		Category: Industrial	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO <sub>2</sub>	NO <sub>x</sub>
1	03.09.18	81	44	14	32
2	19.09.18	84	46	13	33
	NAAQ Standard	100	60	80	80



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JSA/SA/SSA

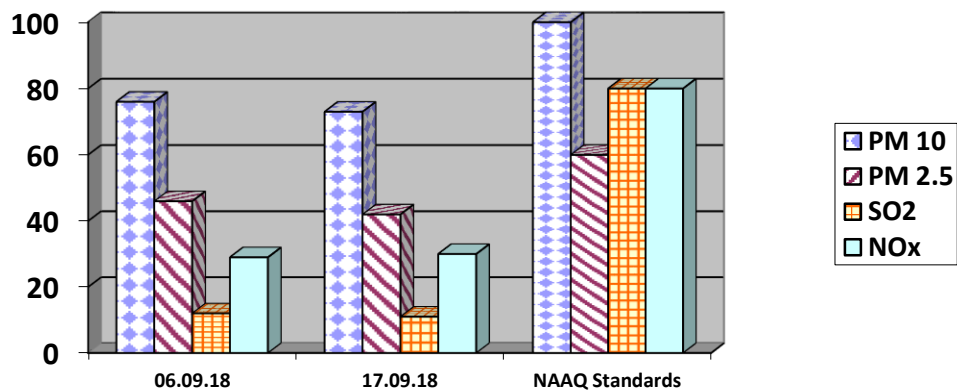
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Checked By  
Lab In Charge  
RI-2, CMPDI, Dhanbad

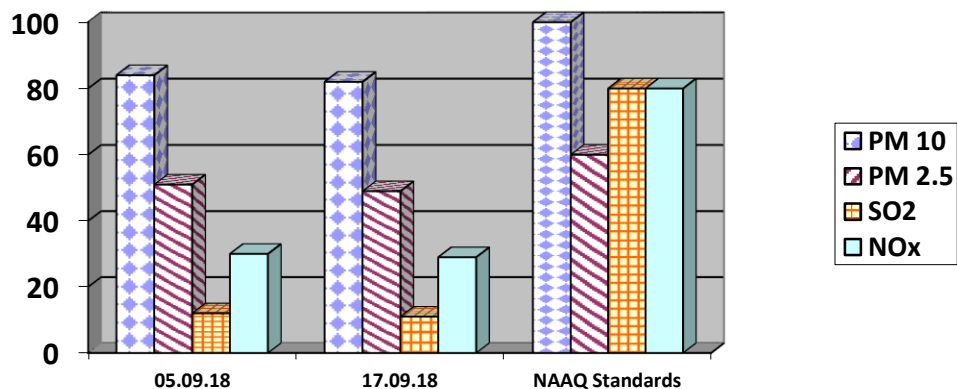
21/9/19

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

Station Name: A24, Gopinathpur village		Zone: Buffer		Category: Residential	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO2	NOx
1	06.09.18	76	46	12	29
2	17.09.18	73	42	11	30
	NAAQ Standards	100	60	80	80



Station Name: A25, Guliardih Village		Zone: Buffer		Category: Residential	
Sl. No.	Dates of sampling	PM 10	PM 2.5	SO2	NOx
1	05.09.18	84	51	12	30
2	17.09.18	82	49	11	29
	NAAQ Standards	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

21/05/19

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 Dahibari (MW16)**

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 -XVI</b>		Month: <b>SEP, 2018</b>	Name of the Station: <b>Mine Discharge of Dahibari</b>	
Sl. No.	Parameters	MW16 First Fortnight 03-09-2018	MW16 Second Fortnight 18-09-2018	As per MOEF General Standards for schedule VI
1	Total Suspended Solids	38	46	100 (Max)
2	pH	7.74	7.89	5.5 - 9.0
3	Oil & Grease	<2.0	<2.0	10 (Max)
4	COD	32	24	250 (Max)

All values are expressed in mg/lit unless specified.

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JSA/SA/SSA

✓

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

21/9/18

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

## NOISE LEVEL QUALITY MONITORING

### 4.1 Location of sampling sites

- i) Dahibari OCP (N22)
- ii) Basantimata UGP (N23)
- iii) Gopinathpur village (N24)
- iv) Guliardih Village (N25)

### 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 MoEFCC. 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 -XVI</b>			Month: <b>SEPTEMBER, 2018</b>		
Sl. No.	Station Name/Code	Category of area	Date	Noise level dB(A) <sub>L<sub>EQ</sub></sub>	*Permissible Limit of Noise level in dB(A)
1	Dahibari OCP (N22)	Industrial area	03.09.18	62.7	75
2	Dahibari OCP (N22)	Industrial area	19.09.18	63.8	75
3	Basantimata UGP (N23)	Industrial area	03.09.18	63.9	75
4	Basantimata UGP (N23)	Industrial area	19.09.18	64.4	75
5	Gopinathpur village (N24)	Residential area	06.09.18	53.7	55
6	Gopinathpur village (N24)	Residential area	17.09.18	52.9	55
7	Guliardih Village (N25)	Residential area	05.09.18	51.5	55
8	Guliardih Village (N25)	Residential area	17.09.18	50.2	55

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

\* Day Time: 6.00 AM to 10.00 PM,

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

21/09/18

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 $\text{m}^3/\text{min}$ )
	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.Improved wet and Gaeke method 2.Ultraviolet fluorescence
	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 Chemiluminescence

**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> FEBRUARY 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.

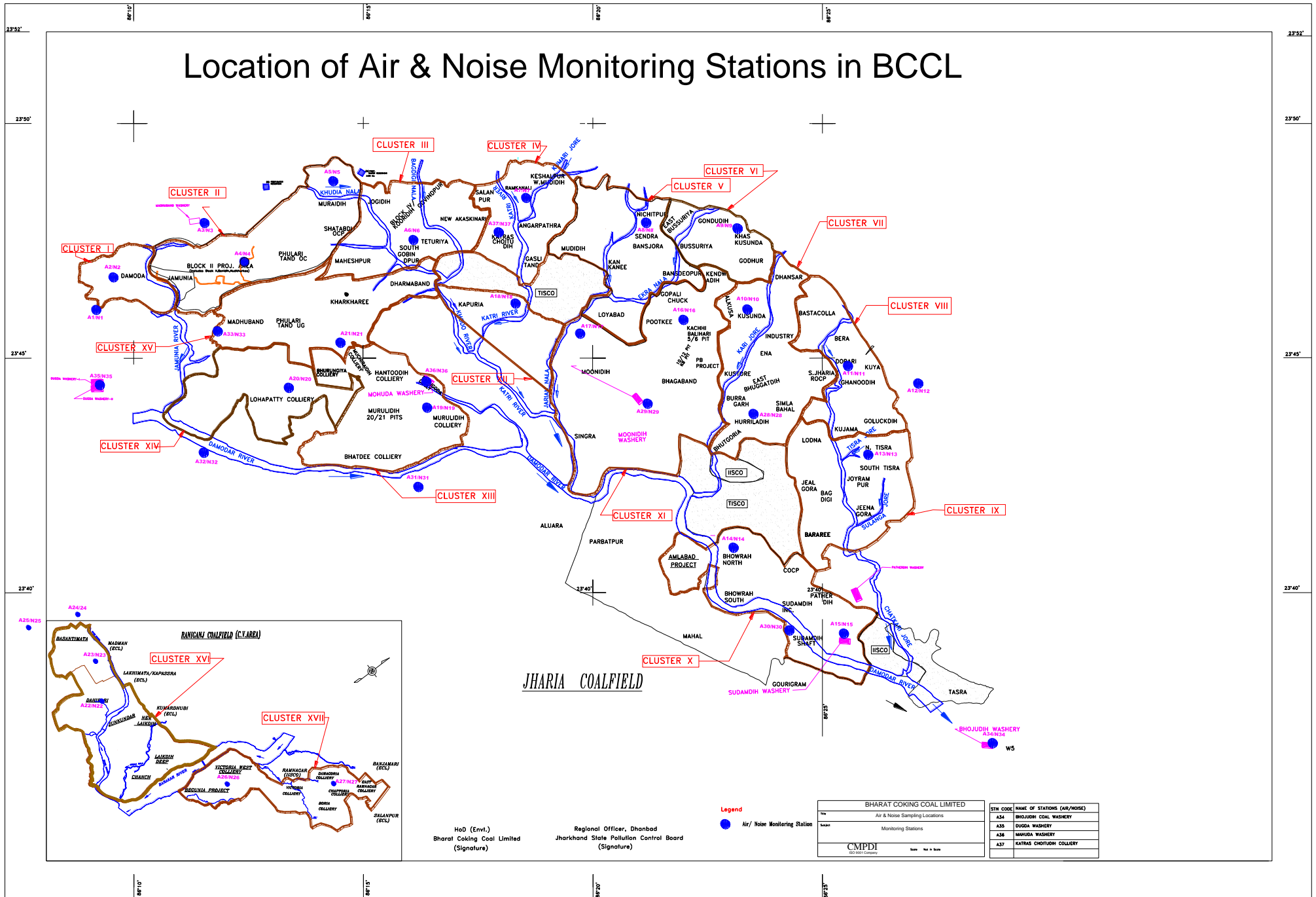
Pollutant	Time Weighted Average	Concentration in Ambient Air		Methods of Measurement
		Industrial, Residential I, Rural and other Areas	Ecologically Sensitive Area (Notified by Central Government)	
<b>Sulphur Dioxide (SO<sub>2</sub>), µg/m<sup>3</sup></b>	Annual * 24 Hours **	50 80	20 80	-Improved West 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.

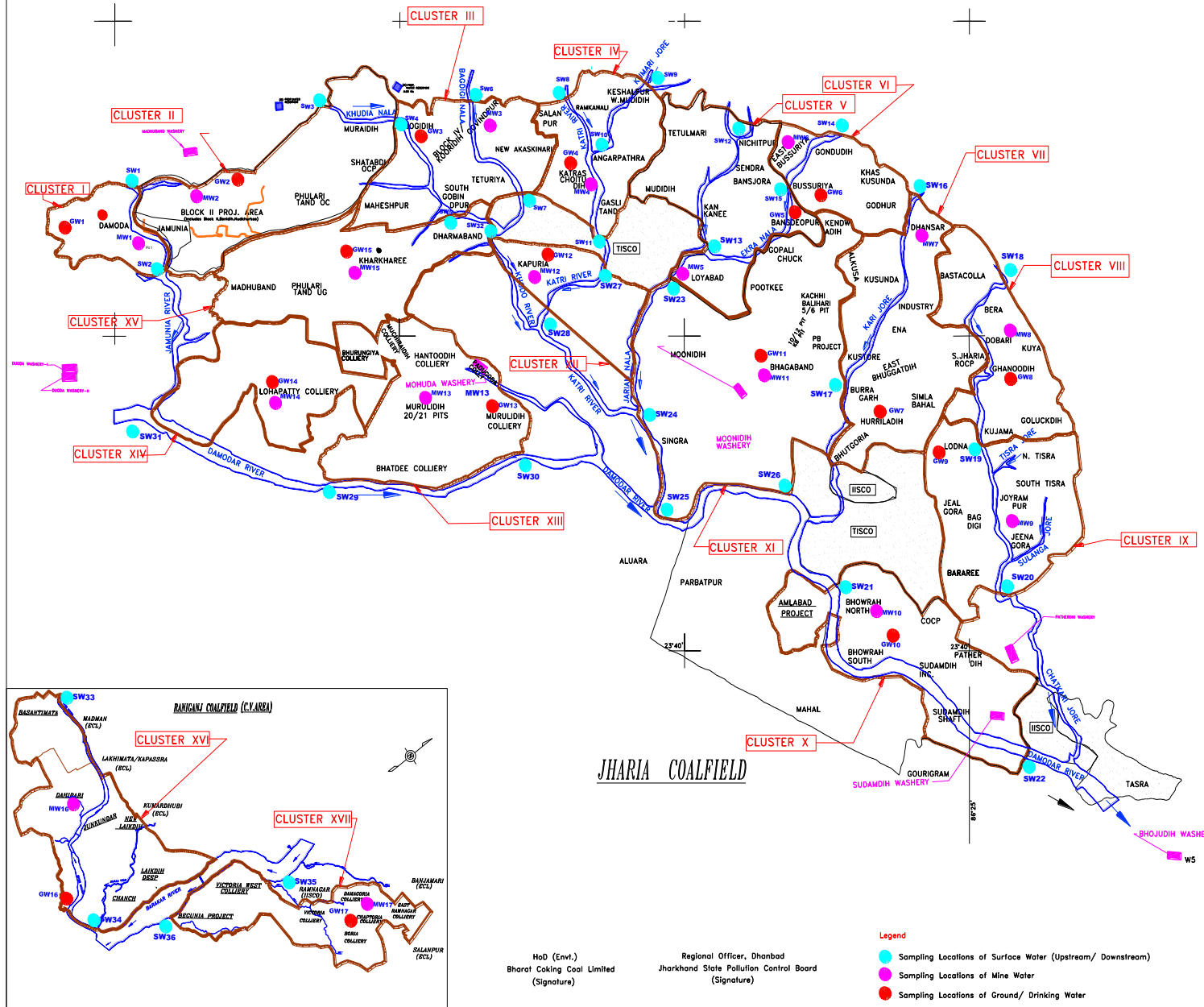
\*\* 24 hourly or 8 hourly or 1 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

**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



# Water Sampling Locations in BCCL



## INDEX

Cluster	Surface Water (US, DS)	Name of River/Nala/Jore	Mineral Effluent Water	Sampling Location	Ground Water	Sampling Location
I	SW1, SW2	Jamunia River	MW1	Damoda Kusa	GW1	Chutway Village
II	SW3, SW4	Khudra Nala	MW2	Block II OCP	GW2	Joyrampur Village
III	SW4, SW5, SW6, SW7	Khudra Nala, Bagdigi Nala	MW3	Govindpur Colliery	GW3	Jogdih Village
IV	SW8, SW11, SW9, SW10	Kan River, Kurnari Jore	MW4	Chotudih	GW4	Kankanees Village
V	SW12, SW13, SW15	Jarian Nala, Ekra Nala	MW5	Mudidih	GW5	Nichitpur
VI	SW14, SW15	Ekra Nala	MW6	East Bassuria UGP	GW6	Banspora Borewell
VII	SW16, SW17	Kan Jore	MW7	Dobari UGP	GW7	Humradih
VIII	SW18, SW19	Kashi Jore	MW8	Dobari UGP	GW8	Gharudih
IX	SW19, SW20	Kashi Jore	MW9	Jeevagra	GW9	Lodra
X	SW21, SW22	Damodar River	MW10	Showrah North	GW10	Showrah South
XI	SW23, SW24, SW25, SW26	Kan River, Damodar River	MW11	Shagaband UGP	GW11	Shagaband
XII	SW27, SW28	Kan River, Damodar River	MW12	Kapuria	GW12	Kapuria
XIII	SW29, SW30	Damodar River	MW13	Muridih (20/21)	GW13	Muridih
XIV	SW31, SW32	Damodar River	MW14	Lohapatti	GW14	Lohapatti
XV	SW5, SW32	Kharkhane UGP	MW15	Kharkhane	GW15	Kharkhane
XVI	SW33, SW34	Khudra River	MW16	Dahabani OCP	GW16	Pallabani Village
XVII	SW35, SW36	Barakar River	MW17	Damagoria Colliery	GW17	Chaptoria

## Legend

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

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

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

Company	BHARAT COKING COAL LIMITED
Title	WATER SAMPLING LOCATIONS
Subject	MONITORING STATIONS
CMPDI	Scale: Not to Scale

# भारत कोकिंग कोल लिमिटेड

एक मिनिरत्न कम्पनी

(कोल इंडिया लिमिटेड का एक अंग)

महाप्रबंधक का कार्यालय,

चाँच विक्टोरिया क्षेत्र

पि. ओ.- बराकर, जिला - पं.बर्धमान (पं. बंगाल)

पिन - 713324. दूरभाष - 0341-2520061/62,

पंजीकृत कार्यालय: कोयला भवन, कोयला नगर, धनबाद-  
826005. (झारखण्ड)

CIN U10101JH1972GOI000918



# Bharat Coking Coal Limited

A MINI RATNA Co.

(A Subsidiary of Coal India Ltd)

Office of the General Manager,

Chanch Victoria Area

P.O.-BARAKAR, DIST-PAS.BARDHAMAN ( W.B.)

PIN- 713324, TeL. 0341-2520061/62

Regd.Off: Koyla Bhawan, Koyla Nagar, Dhanbad-826005,

CIN: U10101JH1972GOI000918,

## Safety Equipment issued to Dahibari- Basantimata Colliery, CV Area in the year 2017-18

Sl No.	Particulars	Quantity
1.	Gum Boot	13
2.	Mining shoes	1044
3.	Helmet	250
4.	Fluorescent Jacket	930
5.	Hand Gloves	17

*Ktc*  
Area Store Manager  
CV Area, BCCL  
29/10/2018

## भारत कोकिंग कोल लिमिटेड

एक मिनिरत्न कम्पनी  
(कोल इंडिया लिमिटेड का एक अंग)

महाप्रबंधक का कार्यालय,  
चॉंच विक्टोरिया क्षेत्र

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**Environmental Fund Expenditure in 2017-18 (Cluster XVI)**

Sl No.	Activity	Expenditure Amount (Rs.)
1.	Plantation /Eco-Restoration/Afforestation	1,80,000/-
2.	Sprinkling	23,72,554/-
3.	Wages of Manpower Involved	2,10,00,000/-
4.	Expenditure on EMP Study & Monitoring	2,00,000/-
5.	Expenditure on mine closure activity	1,89,73,000/-
	<b>Total</b>	<b>4,27,25,554/-</b>

*Shakti* 18/05/18  
Ass. Mgr. (Envt)  
CV Area