

Speed Post

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Ref No.-BCCL/PBA/GM/2017-18/ 278

Date: 30-11-2017

To

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

**Subject: Six Monthly Report on Compliance of Environmental Clearance for the
Period of April' 2017 to September' 2017 in Respect of Cluster VII Group of
Mines of BCCL.**

Ref: EC Order No: J-11015/238/2010-IA.II (M), DATED: 06.02.2013


Dear Sir,

Please find enclosed herewith Six Monthly Compliance of Environmental Clearance for the Period of April' 2017 to September' 2017 in respect of Cluster VII Group of Mines of BCCL.

Thanking You,

Enclosure: As above along with CD

Your's faithfully


General Manager
P.B. Area
Pootkee Bahari Area
Bharat Coking Coal Ltd

Copy to:

1. The Director
1A, Monitoring Cell, Paryavaran Bhawan, CGO Complex, New Dealhi-11003. (Speed Post)
2. The Member Secretary, JSPCB, H.E.C, Dhurwa, Ranchi-834004, Jharkhand. (Speed Post)
3. The Scientist 'E'/In-Charge, Zonal Office Kolkata, CPCP, Southernd Conclave, Bloks 502, 5th and 6th Floor, 1582 Rajdanga Main Road Kolkata-700107. (Speed Post)
4. The General Manager, Kusunda Area
5. The General Manager, Bastacolla Area
6. The Dy. GM (Enc.), Koyla bhawan
7. Office Copy

COMPLIANCE OF EC CONDITIONS OF CLUSTER-VII

EC ORDER NO.: J-11015/238/2010-IA.II (M), DATED: 06.02.2013

(April'17 to Sept'17)

Sl. No.	A. Specific Conditions by MOEF:	Compliance
i	The maximum production shall not exceed beyond that for which environmental clearance has been granted.	The approved normative production and peak production for Dhansar UG, Dhansar OC, Kusunda OC, Industry UG (closed), Alkusa UG, Ena OC and VOCP, ROCP, Burragarh UG, Hurriladih UG and Simlabahal UG are 4.157 MTPA & 5.405 MTPA respectively. The total production of Cluster-VII is 0.978 MT in the F. Year 2017-'18 (Upto Sept'17) which is well within the limit.
ii	The measure identified in the environmental plan for cluster VII 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. The master plan deals with fire control and rehabilitation activities of fire affected areas in the leasehold of BCCL. By implementing complete digging out of fiery seams with water spraying in force as fire control measures air pollution and emission of Green House Gases (GHGs) from the fire affected areas are being prevented. Further rehabilitation of the families from the fire endangered area to the safe places is being taken-up with the help of State Govt. of Jharkhand. The Master plan is being implemented for BCCL as per the prioritization of fire and rehabilitation activities in approved Master Plan. The brief status of Rehabilitation and Fire control measures are enclosed (ANNEXURE-A)
iii	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 VII shall be undertaken.	NRSC had conducted survey of fires of Jharia coalfield by remote sensing methods using thermal infra-red data and land subsidence mapping of Jharia coalfield using Inter-ferometric SAR data. Total fire affected area in Jharia Coalfield has been reduced. Report of NRSC has been attached herewith. Further, the work has been awarded and the next survey by NRSC will be started soon. For evacuation of persons from fire affected areas JRDA has nearly completed survey the basties at fire affected area for evacuation & rehabilitation of the inhabitants under Jharia Master Plan and partially distributed Identity Cards, but evacuation of non-BCCL persons have not yet been done by JRDA. Colliery Management have allotted quarters at other safe place to employees residing at/near fire affected area for their early evacuation and accordingly shifting of employees is going on at the allotted quarters at newly constructed colonies at East Bassuriya , Jagjivan Nagar and Karmik Nagar.

		<p>In Kusunda OC, fiery coal patches are being dug out for the purpose of dealing with fire. After re-start of workings of Ena OC fiery seam will be completely dug out. At Alkusa mine, measures have been taken as per CMR'57 and DGMS Guidelines to control fire and entrances have been filled/sealed to stop ingress of air into fire affected area.</p> <p>Enclosed as ANNEXURE-B</p>
iv	Underground mining should be taken up after completion of reclamation of Opencast mine area after 13 years.	It shall be complied.
v	No mining shall be undertaken where underground fires continue. Measure shall be taken to prevent/ check such fire including in old OB dump areas where the fire could start due to presence of coal /shale with sufficient carbon content.	Action is being taken to control, mine fires as specified in Jharia Master Plan and the mining in fiery seam is being done by OC method as per the guidelines and permissions of Directorate General of Mines Safety (DGMS).
vi	The rejects of washeries in Cluster –VII should be send to FBC based plant.	Coal washery does not exist in this Area.
vii	There shall be no external OB dumps. OB produce from the whole cluster will be 378.86 Mm3. OB from 5 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.	It shall be complied. Action is being taken as specified in EMP. Backfilling of OB is going on concurrent with mining and at the end of mining activity the area will be re-vegetated and reclaimed as per EMP.
viii	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-VII shall be drawn up and implemented.	Calendar plan is enclosed as ANNEXURE-C . Progressive Mine closure plan, as per the guidelines of Ministry of Coal has been prepared by Regional Institute –II, Central Mine planning and Design Institute (CMPDI), Dhanbad. MCP is being implemented in mines.
ix	The void shall be converted into a water reservoir of a maximum depth of 15-20 m and shall be gently sloped and the upper benches of the reservoir shall be stabilized with plantation and the periphery of the reservoir fenced. The abandoned pits and voids should be backfilled with OB and biologically reclaimed with plantation and or may be used for pisciculture	It shall be complied, if safety permits.
x	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	It is being followed. Embankments have been constructed and maintained as specified in EC

	proposed along water body shall be strengthened with stone pitching.	
xi	Active OB dumps near water bodies and rivers should be rehandled for backfilling abandoned mine voids. However, those which have been biologically reclaimed need not be disturbed.	No OB is being dumped near water bodies.
xii	Thick green belt shall be developed along undisturbed areas, mine boundary and in mine reclamation. During post mining stage, a total of 794.09 ha area would be reclaimed. The total additional area under plantation would be 1165.67 ha (90.78 ha abandoned quarry area, 516 ha active quarry area, 27.31 OB dump outside quarry area, 38.55 ha service building /mine infrastructure area /coal dump etc, 395 ha green belt around OCP, 98.5 ha barren area), by planting 2914150 plants at a total cost of Rs 642.20 lakhs.	It shall be complied. Plantation at decoaled area is already being executed for development of green belts as per EC. At degraded OB dump sites at decoaled zone, eco-restoration work are in successful progress. Details of plantation done and programme of eco-restoration are enclosed in ANNEXURE -D .
xiii	The road should be provided with avenue plantation on both side as trees act as sink of carbon and other pollutant	It is being complied.
xiv	Specific mitigative measures identified for the Jharia Coalfields in the Environmental Action Plan prepared for Dhanbad as a critically polluted area and relevant for Cluster VII 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. Some of the salient actions of this cluster are enclosed in ANNEXURE-E .
xv	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 composition of the suspended particulate matter (PM ₁₀ and PM _{2.5}) in Jharia Coalfields and also quantified. These studies would help ascertain source and extent of the air pollution, based on which appropriate mitigative measures could be taken.	Establishment of ambient environment quality monitoring stations has been done after consultation & approval of JSPCB. At present CMPDI is doing the work of monitoring of ambient environment. Report of monitoring is shown in ANNEXURE-F Tender for conducting source apportionment study for BCCL was floated twice, however, none of the bidders qualified. Therefore, as per the MoU "Sustainable Coal Mining in Coal India Limited" entered between CIL and NEERI, NEERI Nagpur was approached for conducting Source Apportionment Study BCCL for compliance of EC conditions. The proposal regarding Conducting the Source Apportionment Study has been submitted by NEERI. Presently it has been submitted to CIL for further scrutiny and approval.
xvi	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.	No ground water is being utilized for the purpose of industrial use. Mine water has been channelized through pipelines and through delivery in to the old quarry for its community use & industrial use. Drinking water is being purchased from the Mineral

	<p>The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry to dewatering of mine</p>	<p>Area Development Authority (MADA). Further for the utilization of mine water following actions has been taken by the company</p> <ol style="list-style-type: none"> 1. Installation of filter plants: Mine water is treated by water filter plant before supply to colonies. For which in Kusunda Area, four Pressure Filters, one Slow Sand Filter and two Rapid Gravity Filter Plant are running and at East Bassuriya newly constructed Colony, installation of two Pressure Filters are under process. 2. Rain water Harvesting: Rain water is accumulated at dip most portion of OC mines and at abandoned UG galleries at discontinued UG mines/patch through garland drains for ground water recharge.
xvii	<p>Regular monitoring of groundwater level and quality of the study area shall be carried out by establishing a network of existing wells and construction of new peizometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality including Arsenic and Fluoride during the month of May. Data thus collected shall be submitted to the Ministry of Environment & Forest and to the Central Pollution Control Board/SPCB quarterly within one month of monitoring. Rainwater harvesting measures shall be undertaken in case monitoring of water table indicates a declining trend.</p>	<p>Regular monitoring of Ground water is being carried out by CMPDI. Proposal for establishment of new piezometers is under process. Enclosed as ANNEXURE- G</p>
xviii	<p>Mine discharge water shall be treated to meet standards prescribed standards before discharge into natural water courses/agriculture. The quality of the water discharged shall be monitored at the outlet points and proper records maintained thereof and uploaded regularly on the company website.</p>	<p>Being complied. The work of monitoring of ambient air and water is being carried out by CMPDI.</p>
xix	<p>ETP shall also be provided for workshop, and CHP, if any. Effluents shall be treated to confirm to prescribed standards in case discharge into the natural water course</p>	<p>It shall be complied.</p>
xx	<p>Regular monitoring of subsidence movement on the surface over and around the working area and impact on natural drainage pattern, water bodies, vegetation, structure, roads, and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate effective corrective measures shall be taken to avoid loss of life and material. Cracks shall be</p>	<p>Complied.</p>

	effectively plugged with ballast and clayey soil/suitable material.	
xxi	Sufficient coal pillars shall be left unextracted around the air shaft (within the subsidence influence area) to protect from any damage from subsidence, if any.	Complied. Action is being taken as specified in EMP.
xxii	High root density tree species shall be selected and planted over areas likely to be affected by subsidence	It will be complied, if required
xxiii	Depression due to subsidence resulting in water accumulating within the low lying areas shall be filled up or drained out by cutting drains.	It will be complied, if required.
xxiv	Solid barriers shall be left below the roads falling within the blocks to avoid any damage to the roads.	It has been complied and maintained
xxv	No depillaring operation shall be carried out below the township/colony.	Complied.
xxvi	The Transportation Plan for conveyor-cum-rail for Cluster-VII should be dovetailed with Jharia Action Plan. The Plan for conveyor-cum-rail for Cluster-VII should be dovetailed with Jharia Action Plan. The road transpiration of coal during phase-I should be by mechanically covered trucks.	CMPDIL, RI-II has been requested to conduct study and prepare the plan in this regard. At present transportation is being done by covering vehicle with tarpaulin cover.
xxvi i	A study should be initiated to analyze extent of reduction in pollution load every year by reducing road transport	The work is allotted to CMPDI RI-2 but report is awaited from their end.
xxvi ii	R&R of 13605 nos of PAF's involved. They should be rehabilitated at cost of Rs 529.47Crores as per the approved Jharia Action Plan.	Rehabilitation of PAF is taken up as per the approved Master Plan. JRDA is doing the work.
xxix	A detailed CSR Action Plan shall be prepared for Cluster VII croup of mines. Specific activities shall be identified for CSR the budget of Rs. 311.35 Lakhs per year@ Rs 5/T of coal as recurring expenditure. The 143 ha of area within Cluster VII ML existing as waste land and not being acquired shall be put to productive use under CSR and developed with fruit bearing and other useful species for the local communities. In addition to afforesting 794.09 ha of are at the post-mining stage, 135.5 ha waste land /barren land within Cluster VII ML shall be rehabilitated/reclaimed as forest/agricultural land under CSR Plan in consultation with local communities. Third party evaluation shall be got carried out regularly for the proper implementation of activities undertaken in the	CSR activities are being taken up on priority basis. The details of activities is enclosed in the CSR booklet as ANNEXURE - H

	<p>project area under CSR. Issue raised in the Public Hearing shall also be integrated with activities being taken up under CSR. The details of CSR undertaken along with budgetary provisions for the village-wise various activities and expenditure thereon shall be uploaded on the company website every year. The company must give priority to capacity building both within the company and to the local youth, who are motivated to carry out the work in future.</p>	
xxx	<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 Ranchi.</p>	<p>Presently a time series map of vegetation cover in the Jharia Coal Field is being carried out through CMPDI Ranchi using satellite imagery for every 3 years. CMPDI has started to prepare "Time series of land use maps based on satellite imagery of the core zone and buffer zone.</p> <p>Enclosed as ANNEXURE-I</p>
xxxii	<p>A Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment & Forests five year before mine closure for approval. Habitat Restoration Plan of the mine area shall be carried out using a mix of native species found in the original ecosystem, which were conserved in-situ and ex-situ in an identified area within the lease for reintroduction in the mine during mine reclamation and at the post mining stage for habitat restoration.</p>	<p>CMPDI has prepared Mine Closure Plan for progressive mine closure activities which are being implemented at mines. Final Mine Closure Plan will be prepared in time.</p>
xxxiii	<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 has been established in Headquarters. They are also trained in ecological restoration, sustainable development, rainwater harvesting methods etc. At the Area level, one Executive in area has also been nominated as Nodal Officer (Environment) under General Manager of Area to co-ordinate environmental issues to the Project Officer of mine and one officer at each mine level, under Project Officer is looking after the environment related jobs and also entrusted with the responsibility of compliance and observance of the environmental Acts/ Laws including environment protection measures .The activities are monitored on regular basis at Area and at Head quarters levels. GM (Environment) at head quarter level, co-ordinates with all the Areas and reports to the Director (Technical) and in turn he reports to the CMD of the company.</p> <p>The team is multidisciplinary and very much</p>

		<p>motivative under the guidance of company's Director (Technical) and CMD. Further capacity building at both corporate and operating level is being done.</p>
xxxii	<p>Implementation of final mine closure plan for Cluster VII, subject to obtaining prior approval of the DGMS in regard to mine safety issues</p>	<p>Final Mine Closure Plan, as per the guideline will be submitted 5 years before the final closure of the Mine. For the purpose of safety issues related to the closure prior approval of DGMS will be taken in this regard.</p>
xxxv	<p>Corporate Environment Responsibility:</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>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	General Conditions by MOEF:	
i	<p>No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.</p>	<p>Being followed.</p>
ii	<p>No change in the calendar plan of production for quantum of mineral coal shall be made.</p>	<p>Being followed. Production of the cluster is being done well within the peak production capacity as per EC.</p>
iii	<p>Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM₁₀, PM_{2.5}, SO₂ and NO_x monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with</p>	<p>Air quality monitoring stations and monitoring of ambient environment has been established after consultation with State Pollution Control Board. CMPDIL is presently doing the monitoring work. Results of monitoring are enclosed as ANNEXURE-J.</p>

	the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc carried out at least once in six months.	
iv	Data on ambient air quality (PM ₁₀ , PM _{2.5} , SO ₂ and NO _x) and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly submitted to the Ministry including its Regional Office at Bhubaneswar and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognised under the EPA rules, 1986 shall be furnished as part of compliance report.	It shall be complied.
v	Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.	Being Complied.
vi	Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 th May 1993 and 31 st December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.	It is being followed .Mine discharged water is being reutilized for industrial purposes (sprinkling, cooling/ fire control etc.)
vii	Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.	It is being complied.
viii	Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analyzed through a laboratory recognized under EPA Rules, 1986.	Air quality monitoring stations and monitoring of ambient environment has been established after consultation with State Pollution Control Board. The monitoring work is being carried out by CMPDIL.
ix	Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.	Being Complied. A separate full-fledged Human Resource Development Dep't. Is conducting regular training programme on these issues. Apart from this Group Vocational Training Centers is there in the Area which provides periodical training on the safety and occupational health issue to each of the workers working in the mines. Status of training is shown in ANNEXURE-K
x	Occupational health surveillance programme of the workers shall be undertaken periodically to	Initial Medical Examination (IME) and Periodical Medical Examination (PME) of all the personnel of

	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.	the Area is carried out at Bhuli PME Centre, Bhuli, Dhanbad as per the Statutes and guidelines of Director General of Mines Safety (DGMS). Status of PME is shown in ANNEXURE-K
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.	A full-fledged Environment Department, headed by a HoD (Environment) along with a suitable qualified multidisciplinary team of executives. They are also trained in ecological restoration, sustainable development, rainwater harvesting methods etc. At the Area level, one Executive in each area has also been nominated as Nodal Officer (Environment) under General Manager of Area and at Project level, one executive under Project Officer is looking after the environment related jobs and also entrusted with the responsibility of compliance and observance of the environmental Acts/ Laws including environment protection measures. The activities are monitored on regular basis at Area and at Head quarters levels. GM (Environment) at head quarter level, co-ordinates with all the Areas and reports to the Director (Technical) and in turn he reports to the CMD of the company. The team is multidisciplinary and very much motivated under the guidance of company's Director (Technical) and CMD. Further capacity building at both corporate and operating level is being done.
xii	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bhubaneswar.	It is being complied.
xiii	The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution control Board and may also be seen at the website of the ministry of Environment & Forests at http://envfor.nic.in .	It has been complied.
xiv	A copy of the environmental clearance letter shall be marked to concern Panchayat/ZilaParishad, Municipal corporation	Complied.

	or Urban local body and local NGO, if any, from whom any suggestion /representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on company's website.	
xv	A copy of the environmental clearance letter shall be shall also be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industry Sector and Collector's Office/Tehsildar's Office for 30 days.	Complied.
xvi	The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated environmental clearance conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in public domain. The monitoring data of environmental quality parameter (air, water, noise and soil) and critical pollutant such as PM ₁₀ , PM _{2.5} , SO ₂ and NO _x (ambient) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mine office and in corporate office and on company's website.	Complied.
xvii	The project proponent shall submit six monthly compliance reports on status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the Ministry, respective Zonal Offices of CPCB and the SPCB.	Being complied.
xviii	The Regional Office of this Ministry located at Ranchi shall monitor compliance of the stipulated conditions. The Project authorities shall extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/information/monitoring reports.	Shall be complied.
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	Being complied.
C	Other Conditions by MOEF:	
i	The Ministry or any other Competent Authority	Agree.

	may stipulate any further condition(s) for environmental protection.	
ii	Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract the provisions of the Environment (Protection) Act, 1986.	Agree.
iii	The above conditions will be enforced <i>inter-alia</i> , under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and Rules. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations.	It is being complied.
iv	The Environmental Clearance is subject to the outcome of the Writ Petition filed by M/S Bharat Coking Coal Limited (BCCL) in response to the closure orders issued by the Jharkhand State Pollution Control Board which is pending in the Jharkhand High Court.	Agree.

ANNEXURE-A

STATUS OF JHARIA MASTER PLAN DOVETAILED WITH ENVIRONMENT CLEARANCE CONDITIONS

Rehabilitation and Fire control measures

Socio-economic Survey:

Survey of fire affected families (non-BCCL) at Kusunda Area has been nearly completed by JRDA and distribution of ID Card has been partially done by JRDA.

Accommodation provided in Satellite Township:

- Till about 1152 quarters at newly constructed colonies situated at East Bassuriya , Jagjiwan Nagar and Karmik Nagar have been allotted to the BCCL employees residing at coal bearing/fire affected areas in different collieries under Kusunda Area and out of which 480 employees have been shifted, and 480 houses in coal bearing/fire affected area has been demolished. More quarters are under construction for phasewise shifting of employees.
- In temporary rehabilitation site at decoaled zone of East Bassuriya about 28 PAF/encroachers have been shifted.
- Non-BCCL families are being shifted by JRDA. At Dhansar-Industry 15 no. families have been shifted at Belgaria Colony. At Gondudih Khas Kusunda 15 no. encroachers have been allotted, but they are not shifted, and 10 no. unauthorised PAF have been shifted.

Status of fire dealing:

Under Master Plan, many Fire schemes have been formulated / prepared /implemented for dealing fires sites spread in collieries of BCCL. Further for expediting the fire dealing process, excavation methods has been resorted to by deploying Hired HEMM at various mines of BCCL. Total digging out of fiery coal has been adopted for dealing of fire.

In fire patch of V/VI/VII/VIII seam of Gareria Secn. at East Bassuriya, about 1,70,000 cu.m. mitti and non-combustible material has been filled, rest will be filled by quarry OB .

At Kusunda Colliery total firey coal are being dug out as a measure of fire dealing with the deployment of hired HEMM, and at Ena OC, after restart, total firey coal will be dug out

The underground workings of Alkusa Colliery has been sealed due to fire threats after taking measures to control UG fire as per CMR'57 and DGMS guidelines. The coal reserve of Alkusa Colliery will be extracted from Kusunda OC side.

For control and monitoring of threat of subsidence at fire affected area within Godhur lease hold special attention has been made by mine management, at Godhur OC total firey coal are being dug out as a measure of fire dealing with the deployment of hired HEMM. At Dhansar-Industry Colliery complete digging of fiery coal of X seam by OC method is being done with water jet through pipe line and submersible pump installed at Industry 2Pit in addition by fire-tender.

ANNEXURE-B

As per specific condition no xiii. The proponent shall prepare time -series maps of the Jharia Coalfields through NRSA to monitor and prevent fire problems in the Jharia Coalfields by Isothermal mapping /imaging and monitoring temperatures of the coal seams.

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

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



Jharia coal field, Dhanbad, Jharkhand.

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

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

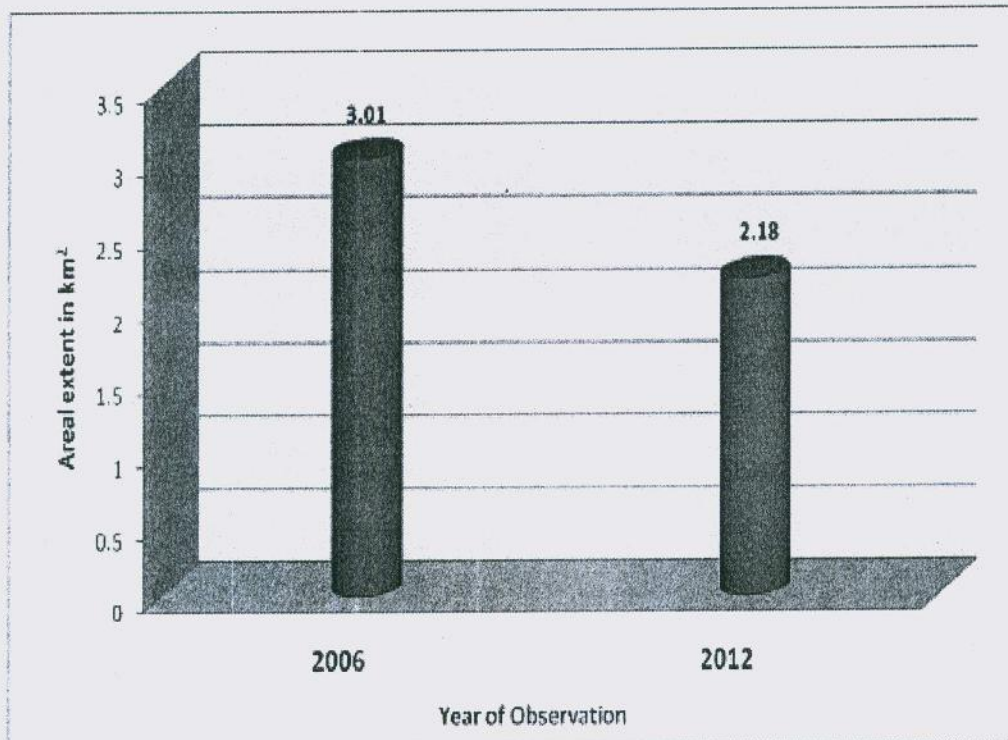


Figure 10: Total fire area statistics

ANNEXURE-C

1. Coal Production of the Cluster will be within the limit for which environmental clearance has been granted.

2. **OB BACKFILLING PROGRAMME**

At Kusunda OC- After progressive extraction of coal upto V/VI/VII/VIII combined seam back filling of OB is going on.

At Ena OC- At present workings are discontinued. After re-start of oc mining progressive back filling of OB will be done in continuous succession of total coal extraction

At Dhansar/Vishwakarma OC- Back filling will be done in continuous succession of total coal extraction upto '0'seam.

ANNEXURE-D

- **Plantation-** At Gondudih- Khas Kusunda Colliery Plantation has already been done by DFO, Dhanbad at about 10.5 Ha area of OB dump, and at present more than 26250 trees are there. 500 no. bamboo-gabion plantation have already been done. At about 2.0 Ha Ecological restoration site total about 6402 no. plants and plenty of grass-seeds have been planted successfully with encouraging results, and natural eco-system is being established there with increasing flora & fauna.
- At 2nd. eco-restoration site (about 1.79 Ha OB dump- area) about 2400 plants along with seeds of grass and shrubs have spread over since 2015-'16 successfully. And at 3rd. site, (about 3.0 Ha OB dump area) about 5322 plants and plenty of grass seeds have been planted and spreaded over during monsoon successfully.

PLANTATION/ECOLOGICAL-RESTORATION PROGRAMME

Plantation/Ecological Restoration Programme (Cluster-VI & part of Cluster-VII mines of Kusunda Area):

YEAR	CLUSTER VI & CLUSTER VII(Part under Kusunda Area)	No.of saplings/plants
2016-17	3.00 Ha(approx.)	5322 nos. were planted with plenty of grass seeds and plants in 2016-17
2017-18	3.00 Ha(approx.)	2495 saplings have already been planted till Sept'17 against an yearly target of 7500
2018-19	5.00 Ha(approx.)	12500
2019-20	6.00 Ha(approx.)	15000
2020-21	6.00 Ha(approx.)	15000

ANNEXURE-E

COMPLIANCE OF DHANBAD ACTION PLAN

(1) Covering of loaded transport vehicles

It has been complied. The clause of covering of loaded coal transport vehicle has also been incorporated in the transport agreement/ contract.

(2) Coal transport roads shall be made pucca

In 2015-16 about 80 m pucca road near Kusunda Office has been constructed.

In 2016-17: about 57 m cement concrete road made from NH-32 connecting pt. to Kusunda-Godhur Office. About 37 m cement concrete made of 15 no. road from NH-32 connecting pt. to Godhur W/Bridge.

(3) All drillings to be done with dust containment and suppression systems. Sprinklers will be installed including at all coal stock & sidings

DUST EXTRACTOR: Regarding drilling it has already been complied in all OC mines. Drill machines are having OEM fitted DUST EXTRACTION system.

Complied. Water sprinkling at all coal stock and sidings is being done by mobile water tankers and through pipe lines. Proposal for installation of fixed sprinklers at siding is under process.

(4) MOBILE SPRINKLERS

Sl. no.	Mine	Haul road length in Km	No. of mobile sprinklers	Total Capacity(KL)	Trips per day
1	Kusunda OC + Godhur mixed	6.5-7.0	6	1-20 KL each, 5-12KL each	35 trips/day
2	Dhansar-Industry	5.4-5.8	6	1-28 KL, 3-12KL each, 2- 8 KL each	40 trips/day
3	Gondudih KKC	5.0-6.0	4	10 KL each	15 trips each/day,
4.	East Bassuriya	2.5-3.0	1	12KL	9 trips each/day

(5) The direction of surface run-off of the premises of collieries shall be diverted to created water bodies.

Creation of water bodies in coal bearing area will pose safety threats to nearby mine and it will be violation of mines act. This will also create grave danger of inundation of the adjacent mines since the mines are 100 years old and interconnected with each other. So this action cannot be complied.

However to catch run-off water in colonies proposal for Rain water Harvesting in colonies is under process

(6) Dealing of mine fires

A Master plan for Dealing with fires and subsidence and rehabilitation in the leasehold of BCCL has been approved by Govt. of India vide letter no- 22020/1/2005-CRC dated 12 08 09. In fire patch of V/VI/VII/VIII seam of Gareria Secn. At East Bassuriya about 1, 70,000 cu.m. mitti and non-combustible material has been filled, rest will be filled by quarry OB .

In Kusunda OC, fiery coal patches are being dug out for the purpose of dealing with fire and combustible materials are extracted out to save the coal from burning and to stop further spread of the fire. Once the total fiery coal is dug-out/excavated there will be no more chance of re-starting of fresh/spreading of fire into other areas.

At Alkusa mine, measures have been taken as per CMR'57 and DGMS Guidelines to control ug fire and entrances have been filled/sealed to stop ingress of air into fire affected area. At Dhansar-Industry Colliery complete digging of fiery coal of X seam by OC method is being done with water jet through pipe line and submersible pump installed at Industry 2Pit in addition by fire-tender.

(7) The waste water shall be passed through oil separator-cum-filtration system

-- It shall be complied

(8) The removed OBs shall be utilized for low land filling or for making roads.

Complied. Removed OB is used for low land filling and for making roads as and when required.

(9) Tree plantation on the dumps

Complied. At Gondudih- Khas Kusunda Colliery Plantation has already been done by DFO, Dhanbad at about 10.5 Ha area of OB dump, and at present more than 26250 trees are there. 500 no. bamboo-gabion plantation have already been done. At about 2.0 Ha Ecological restoration site total about 6402 no. plants and plenty of grass-seeds have been planted successfully with encouraging results, and natural eco-system is being established there with increasing flora & fauna. At 2nd. eco-restoration site (about 1.79 Ha OB dump- area) about 2400 plants along with seeds of grass and shrubs have spread over since 2015-'16 successfully. And at 3rd. site, (about 3.0 Ha OB dump area) about 5322 plants and plenty of grass seeds have been planted and spreaded over during this monsoon successfully.

(10) All hazardous wastes shall be disposed off

Complied.

1. All units have applied for authorization as per Hazardous Wastes (Management, Handling and Trans boundary Movement) Rules.
2. Burnt/used oil is disposed off as per rule.
3. Disposal of Hazardous waste, burnt Oil / batteries is being done through E-auctioning to authorized recycler/ re-processor having valid authorization from CPCB/ SPCB. Return are also being filed.

(11) Monitoring and Reporting six monthly

Monitoring work has been done by CMPDI, Dhanbad as per work order issued by BCCL HQ.

(12) Introduction of GIS/ GPS

CMPDI, HQ has been given the job of satellite surveillance of the Jharia coal field through NRSA Hyderabad and the information is being uploaded in the website.

ANNEXURE-F

Monitoring Stations have been fixed in consultation with JSPCB.



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

Ph: 0326-2204933

(7)

Letter No.... 2650

Dated 6/7/13

From,

Regional Officer,
Dhanbad

To,

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


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

Sir,

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

Encl-A/a.

Your's faithfully,


(Dinesh Prasad Singh)
Regional Officer.

Memo.....

Dhanbad, dated.....

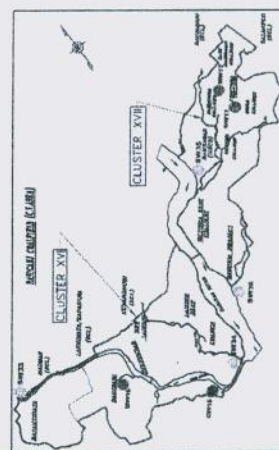
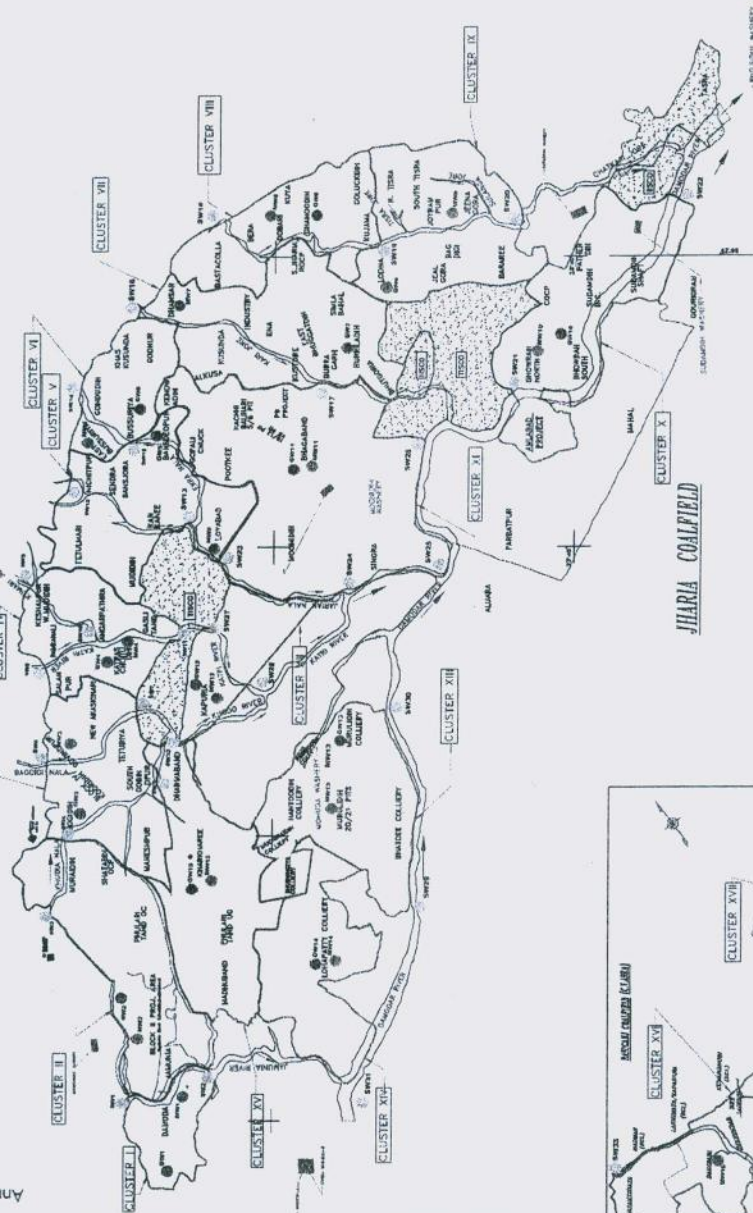
Copy to: The Member Secretary, Jharkhand State Pollution Control Board for information & enclose a copy of the map for necessary action.

Encl-A/a.

(Dinesh Pd. Singh)
Regional Officer.

Water Sampling Locations in BCCL

Annexure-03



- Legend**
- Sampling Locations at Surface Water (Upstream/ Downstream)
 - Sampling Locations at Mine Water
 - Sampling Locations at Ground/ Shallow Water
 - Regional Office, District
 - Approved State Pollution Control Board (Department)
 - Head (Dist.)
 - Mineral Coking Coal Limited (Department)

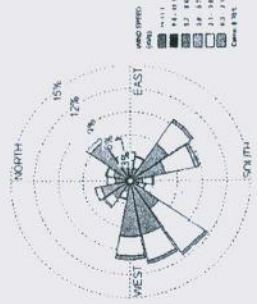
INDEX

Cluster	Location	Water Type	Sampling Point
I	Barh	Surface	Barh
II	Barh	Surface	Barh
III	Barh	Surface	Barh
IV	Barh	Surface	Barh
V	Barh	Surface	Barh
VI	Barh	Surface	Barh
VII	Barh	Surface	Barh
VIII	Barh	Surface	Barh
IX	Barh	Surface	Barh
X	Barh	Surface	Barh
XI	Barh	Surface	Barh
XII	Barh	Surface	Barh

BCCL
Jharia Coalfield
Jharkhand
India

Location of Air & Noise Monitoring Stations in BCCL

Annexure-02



ANNEXURE-G



cmpdi
A Min. Rules Company

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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.

**GROUNDWATER LEVEL & QUALITY
REPORT**

FOR CLUSTER OF MINES, BCCL

(Assessment year - 2016)

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

JHARIA COALFIELD AND RANIGANJ COALFIELD (PART)

(BHARAT COKING COAL LIMITED)

MARCH – 2017

**Regional Institute – II
Central Mine Planning & Design Institute Ltd.**

**(An ISO 9001:2000 Company)
(A Subsidiary of Coal India Ltd.)
Koyla Bhawan Complex, Koyla Nagar
DHANBAD – 826005**

3.3 G Monitoring of Ground Water Levels of Cluster-VII

Cluster-VII consists of fourteen mines namely; Dhansar mixed mine, Kusunda OCP, Viswakama OCP, Industry UG (closed), Alkusa UG, Ena OCP, S.Jharia/Rajapur OCP, Burragarh UG, Simlabahal UG, Huriladih UG, Bhutgoria UG, Kustore UG (closed) and E.Bhuggatdih UG (closed) under the administrative control of Kusunda Area and Kustore Area of BCCL. This Cluster of mines is located in east central part of Jharia Coalfield in Dhanbad district of Jharkhand.

The present leasehold area of Cluster-VII is 2127.70 Ha. The area has a general undulating topography with general slope towards south. The RL varies from 172 m to 221 m above M.S.L. Kari Jore, Chatkari Jore and its tributaries are controlling the drainage pattern of the area. The area comes under the watershed of Kari Jore and Chatkari Jore.

7 hydrograph stations (D-3, D-4, D-33, D-34, D-47, D-55 and D-80) are located in the core zone of the mine area. Water level monitoring in these monitoring stations has been done in the months of February, April, August & November'2016 and the Ground water level data is enclosed in the table below:

Sl No.	Well No.	Location	Water level (bgl in meters)			
			Feb'16	Apr'16	Aug'16	Nov'16
1	D-3	Dhansar	2.10	2.35	1.20	1.90
2	D-4	Jharia	1.01	1.21	0.41	1.38
3	D-33	Kustore	1.00	2.50	0.20	1.95
4	D-34	Kusunda	0.75	2.30	0.22	0.30
5	D-47	Parastanr	3.05	3.18	3.35	2.95
6	D-55	Hariladih	2.72	2.52	1.62	3.62
7	D-80	Bastacolla	3.63	6.55	2.05	4.15
Average WL (bgl)			2.04	2.94	1.29	2.32

Ground Water Level (in bgl) varies from 0.75 to 3.63 m during February, 1.21 to 6.55 m during April, 0.20 to 3.35 m during August and 0.30 to 4.15 m during November'2016 within the Core Zone of Cluster-VII area.

ANNEXURE-H



CSR, R&R AND TRANSPORTATION PLAN OF CLUSTER-VII

As per the condition [Specific condition : A(xxxv)] of Environment Clearance of Cluster VI group of Mines of BCCL granted by Ministry of Environment & Forest, Govt. of India vide order no.: J-11015/183/2011-1A.II(M), dated 26th. August, 2013.

CSR ACTIVITIES OF BCCL

Corporate Social Responsibility (CSR) in Adjoining Villages

As per Corporate Social Responsibility policy of Coal India, the community facilities is being provided by Bharat Coking Coal Limited. The following areas are being covered:

- Poor and needy section of the society
- Within the radius of 15 km for every project and areas including HQ

Scope of CSR:

- a) Education
- b) Water supply
- c) Health care
- d) Environment
- e) Social empowerment
- f) Infrastructure for villages
- g) Sports and culture
- h) Generation of Employment and setting up of co-operatives
- i) Infrastructure support
- j) Grant/donation/financial assistance/sponsorship to reputed NGOs of the society/locality doing/involved in the uplifting of standard of the society
- k) Miscellaneous: Adoption of villages for carrying out the activities like infrastructural development, collection of old clothes from employees and distribution in the nearby villages

Bharat Coking Coal Limited (BCCL) 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.

BCCL is taking up activities from the HQ level and through its administrative areas for the implementation of CSR activities. For this purpose A CSR cell is functioning at HQ, which is headed by General Manager(CSR) under the direct control of Director(Personnel) of the company.

The CSR activities presently being done by BCCL

- To meet the acute shortage of drinking water in peripheral villages' drinking Water is provided through deep borewells, tubewells, pumps/motors, in the peripheral villages of BCCL. Water supply through pipeline, through water tanker is provided also to the villages. Mine water is supplied after proper filtration in Filter Plants.
- **Education:** BCCL adopts a multi-pronged approach to promote quality education in backward areas. The measures taken by BCCL comprise Construction, Extension, and Renovation of school buildings etc are done to promote quality education in the nearby villages. BCCL is Extending financial aid for educational facilities to 83 nos. Private Committee Managed schools. Measures are taken to promote women literacy and career development.
- **Health Care:** BCCL Conducts medical/health camps for dwellers of peripheral villages for rendering free medical consultancy. CSR Clinics, wellness clinics, artificial limbs centers are organized for the benefit of the needy section of the society.. Mobile medical vans are deployed as special arrangement for medical services. AIDS awareness camps are organized as special drive to develop awareness and to render free consultancy. In Kusunda Area many medical /health camps

in peripheral villages and in collieries and various awareness programmes have already been conducted, and is being conducted regularly by Area Medical Team.

- **Occupational health:** awareness programme are organized.
- **Other Welfare Activities:** this includes Construction / renovation of Community Halls, construction / repair of roads, construction of Health-sub centres, construction of drain, construction of Chhat Ghat in the ponds, Construction of Boundary wall, providing Choupal for community gatherings, etc.
- **Mashla Chakki centres :** Mashla Chakki centres has been established with machines to promote self employment.
- **Sports & Cultural:** Various activities are organized to propagate sports and cultures. Sports/games items and instruments are also provided with play ground.
- **Village adoption:** Lahbera – A SC/ST village nearby Dhansar Mine has been adopted for its all round development and a number of development activities have been carried out including school, health care and Ambulance facility, Mashla Chakki Centre, Community Centre, Play ground, etc.

Upkeep and Maintenance of Assets

Before any capital investment made the concerned State Government and the local representative of the society, took an undertaking from the representatives of the local community that they would be responsible for the maintenance of the assets.

IN KUSUNDA AREA [Cluster- VI & VII (part)]:

A lot of CSR activities have been done in the peripheral villages in the field of **medical and civil and welfare**.

Health Campaigning at surrounding villages

<u>Year</u>	<u>No. of MMV camps</u>	<u>Beneficiaries</u>
2013-'14	298	11,171 patients
2014-'15	306	11,884 patients
2015-'16	380	11,013 patients

Village Health Camps-

<u>YEAR</u>	<u>No. of camps</u>	<u>Beneficiaries</u>
2017-'18 (upto Sept.'17)	109	2556

Special Health Camps

<u>Year</u>	<u>No. of camps</u>	<u>Beneficiaries</u>
2015-'16	5	354 patients
2016-'17	2	62 children
2017-'18(upto Sept'17)	1	46 patients

CSR Clinic :

2015-'16	5842 patients
2016-'17	1387 patients
2017-18 (upto Sept'17)	1069 patients

Welness Clinic

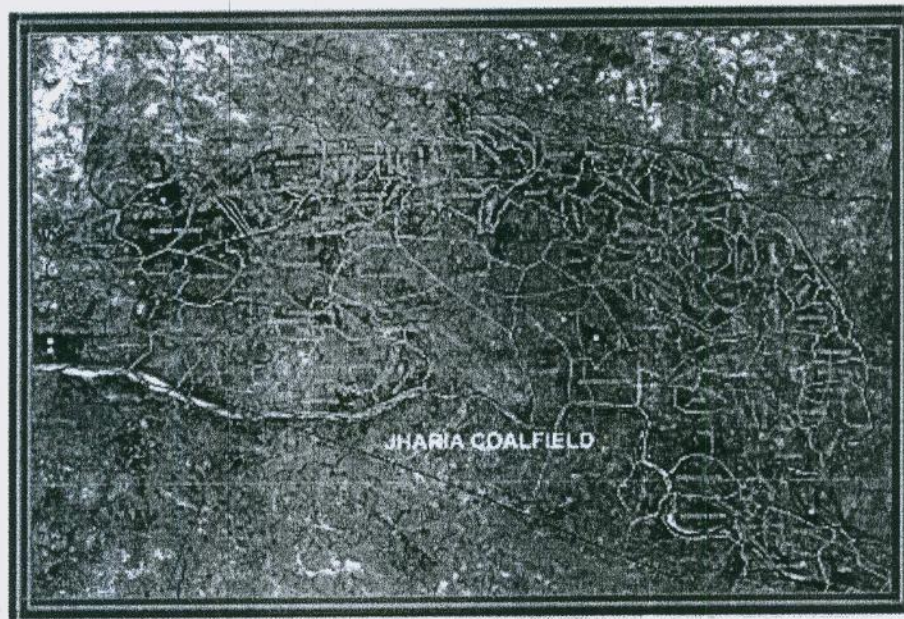
2015-'16	6244 patients
2016-'17	3922 patients
2017-18	2194 patients

In 2013-'14 & 2014-'15 and 2015-16 following civil work have been completed under CSR Activity

- Construction of compound wall for Lahbera School at Dhansar -- work completed
- Deeping of Pond at Lahbera Basti at Dhansar -- work completed
- Constr. of pcc road from Dom tola to Kali Mandir at Barki Bowa Village -- work completed
- Constr. of pcc road from near house of Vikash Rajak to main road at Satitand Village -- work completed
- Constr. of pcc road from Parduman Singh Chowk to near house of Sri Kishore Pandey at Ranguni Panchayat -- work completed
- Constr. of Yatri shed at Dutta Tola near Hanuman Mandir of Ranguni Panchayat -- work completed
- Constr. of boundary wall , Chabutra and a shed near Gram Dewata at Dhansar -- work completed
- Construction of PCC road in Lahbera Basti at Dhansar -- work completed
- Construction of 318 toilets in 179 schools in Chaibasa has been undertaken by Kusunda Area under the Pradhan Mantri Swatchh Vidyalaya Yojana . Construction of toilets in 25 boys' school, 15 girls' schools and 139 Co-education School have been undertaken. -- Out of 318, 236 toilets have been completed.

ANNEXURE- I

**Vegetation Cover Mapping of Jharia Coalfield based on
Satellite Data of the Year- 2016**



Submitted to
Bharat Coking Coal Ltd (BCCL)
Dhanbad

March 2017



Chapter 1

Introduction

1.1 Project Reference

To monitor the regional impact of coal mining on land use pattern and vegetation cover in the 28 major coalfields at regular interval of three years based on remote sensing satellite data, Coal India Ltd. issued a work order to CMPDI vide letter no.CIL/WBP/ENV/2011/4706 dated 12.10.12. As the Impact of coal mining on land environment has to be assessed regularly at interval of three years, Geo-environmental data base for Jharia coalfield based on satellite data was prepared earlier in the year 2010, 2012 under the above project. The present study is based on the satellite data of the year 2016. BCCL vide their letter No BCCL/ DGM(Env)/File-/16/276 dated 25.05.2016 requested that the map of each cluster under Jharia Coalfield shall also be incorporated in the report for EC compliance. Therefore cluster-wise land use/cover maps are also included in this report.

1.2 Objective

The objective of the present study is to prepare a regional land use and vegetation cover map of Jharia coalfield on 1:50,000 scale based on satellite data of the year 2016, using digital image processing technique for monitoring the impact of coal mining and other industrial activities on land use and vegetation cover in the coalfield area in period of last three years.

1.4 Location of the Area & Accessibility

The Jharia Coalfield (JCF) is located in the north east part of the State of Jharkhand, approximately 260 km west of Kolkata. It is linked to Kolkata and Delhi through NH 2, which is the part of Golden Quadrilateral highway network of India. The coalfield contains proven coal reserves of approximately one billion tonnes in a crescent-shaped basin of approximately 400 km². BCCL operates within an area of approximately 258 Sq km. The Jharia coalfield covers an area of about 393 sq km. it is bounded by Lat 23°49'0.63"N and 23°38'36.50"N and Long 86°08'49.91"E and 86°25'54.92"E. The major part of coalfield (about 400 sq km) lies in Dhanbad district of Jharkhand. Coalfield is connected by Major Highways road with Ranchi (117 km), Asansol (60 km), Jamshedpur (108 km) and Dhanbad (8 km). The nearest major railway station is Dhanbad, located on Delhi-Howrah Grand Chord line of East Central Railway which passes parallel to northern boundary of the coalfield.

1.5 Physiography and Geology

Jharia coalfield is characterized by gently undulating to a rolling topography with an overall slope towards east-southeast. The coalfield is roughly sickle shaped on plan and occurs as a basin with its axis trending broadly east-west and plunging towards the west. The southern flank is truncated by a major Boundary Fault. The general dip of the formation is 10 to 15 degrees. Flatter dips have also been noted at places. The entire southern part of Jharia coalfield in the vicinity of the Boundary Fault, however shows generally steep dipping beds with amounts increasing even up to 70 degrees.

The drainage pattern in the Jharia coalfield is dendritic in nature. This may be due to more or less homogeneous lithology and structural controls. Damodar river is the main control of drainage system along the Jharia coalfield. It is a fourth order stream to which a number of third to first order streams, viz.

Jamunia, Khudia, Katri, Ekra, Tisra, Chatkari etc. join. Damodar river flows along the southern periphery of the coalfield and is guided by the Main Boundary Fault. The main flow direction is from west to east.

The strike of the formation is generally WSW to ENE in the western part and WNW to ESE in the southern part of the coalfield. This gradually swings to EW in the centre of the coalfield and then to NS further east. In the south-eastern part the strike is generally WNW-ESE. Besides the boundary part the coalfield is traversed by a number of other major and minor faults.

The Barakar formation contains 18 standard coal horizons (numbered I to XVIII). Of the Barakar formations, the coal seams XIII and above are generally thin and of relatively superior quality. Seams XII to IX/X are of medium to superior quality and attain sizable thickness at places. The V, VI, VII, IV, III & II are generally thick seams of inferior quality. The bottom most seam I is of superior medium coking quality in the eastern part of the coalfield.

A map of India showing the location of Jharia Coalfield is given in Fig1.1.

Chapter 4

Conclusion & Recommendations

4.1 Conclusion

In the present study, land use/ vegetation cover mapping has been carried out based on IRS-R2/ L4FMX satellite data of January, 2016 in order to monitor the impact of coal mining on land environment which may helps in formulating the mitigation measures required, if any.

Study reveals that the total area of settlements which includes urban, rural and industrial settlements in the Jharia coalfields covers 41.08 km² (10.45%) area. There is a decrease in settlements by 0.49 sq km over the 2013 study primarily because dismantling of some industrial establishments. Vegetation cover which includes dense forests, open forests, scrubs, avenue plantation & plantation on over-burden dumps, covers an area of 140.54 km² (35.78%). As compared to 2013 study there is a decrease in overall vegetation cover by 22.11 sq km (5.62%) this is mainly because there is a reduction in scrubs areas. Area of scrubs has decreased by 16.63 sq km. because of its use in opencast mines and use of scrub land for agriculture. The analysis further indicates that total agricultural land which includes both crop and fallow land covers an area of 44.39km² (11.31%) has increased 4.60 sq km (1.19%) from that was in 2013. The increase in 4.60 sq km is due to some scrubland getting converted into agricultural land. The mining area which includes coal quarry, advance quarry site, barren OB dump, area under backfilling, covers 40.53 km² (10.32%). There is a significant increase in areas under mining operations because large areas have now been taken up for Open cast mining in BCCL. As compared to 2013 there is an increase of 5.31 sq km (1.35%) in the areas under mining operation. Wasteland covers 118.82 km²

(30.24%). Waste lands have increased because some scrubland has been converted to wasteland. Surface water bodies covered area of 7.48 km² (1.90).

The detail statistical analysis is given under Table-3.2.

4.2 Recommendations

It is essential to maintain the ecological balance for sustainable development of the area together with coal mining in Jharia Coalfield. It is recommended that land reclamation of the mining area should be taken up on top priority by BCCL. Such studies should be carried out regularly to assess the impact of coal mining on land use pattern and vegetation cover in the coalfield to formulate and take remedial measures, if any, required for mitigating the adverse impact of coal mining on land environment. Regional study will also be helpful in assessing the environmental degradation / up gradation carried out by different industries operating in the coalfield area.

ANNEXURE-J
MONITORING REPORT

STRICTLY RESTRICTED
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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 – VII**

(FOR THE Q.E. JUNE, 2017)

E. C. no. J-11015/238/2010-IA.II (M) dated 06.02.2013.

October, 2017



CMPDI

ISO 9001 Company
Regional Institute-II
Dhanbad, Jharkhand

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, drinking water supply, well/ Hand pump water and also surface water samples.

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 area, washery and in residential area.

3.0 Methodology of sampling and analysis

3.1 Ambient air quality

Parameters chosen for assessment of ambient air quality were Particulate Matter (PM_{10}), Fine Particulate Matter ($PM_{2.5}$), Sulphur Di-oxide (SO_2) and Nitrogen Oxides (NO_x). Respirable Dust Samplers (RDS) and Fine Dust Sampler ($PM_{2.5}$ sampler) were used for sampling of PM_{10} , SO_2 , & NO_x and Fine Dust Sampler ($PM_{2.5}$ sampler) were used for sampling of $PM_{2.5}$ at 24 hours interval once in a fortnight and the same for the gaseous pollutants. Also in compliance of the EC conditions Half yearly analysis of Heavy metals has been carried out for Arsenic (As), Cadmium (Cd), Chromium (Cr), Mercury (Hg), Nickel (Ni), Lead (Pb). The samples were analyzed in Environmental Laboratory of CMPDI, RI-II, Dhanbad.

3.2 Water quality

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

3.3 Noise level monitoring

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

4.0 Results and interpretations

4.1 Air quality

It has been seen from the analysis results that the 24 hours average concentration parameters like PM_{10} , $PM_{2.5}$, SO_2 and NO_x are mostly within the permissible limits in all sampling locations as per MoEFCC 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_{10} & $PM_{2.5}$ 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.

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, IS.10500/2012 (Drinking water) and IS: 2296 (Surface water), 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.

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.

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 Limited (BCCL), a subsidiary company of Coal India Limited (CIL) is operating UG Mines and Opencast Mines in Jharia Coalfield (JCF). The Jharia Coalfield (JCF) having an area of 450 Sq.KM.

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-VII is in the Eastern part of the Jharia coalfield of BCCL area. It includes a group of 13 Mines (viz. Dhansar UG/OC, Alkusa UG, Kusunda OC, Industry UG, Ena OC, Viswakarma OC, East Bhuggatdih, South Jharia/Rajapur OC, Burragarh UG, Simlabahal UG, Humladih UG, Bhutgoria UG and Kustore UG mines. The Cluster - VII is situated about 25 - 30 kms from Dhanbad Railway Station. The mines of this Cluster - VII are operating since pre nationalization period (prior to 1972-73). It is connected by both Railway and Road. The Kari Jore flows in the mid part of the cluster area.
- 1.2 The Cluster-VII is designed to produce 6.227 MTPA (normative) and 8.161 MTPA (peak) capacity of coal.

The Project has Environmental Clearance from Ministry of Environment, Forest and Climate Change (MoEF&CC) for a rated capacity 6.227 MTPA (normative) and 8.161 MTPA (peak) capacity of coal production vide letter no. J-11015/238/2010-IA.II (M) dated 6th 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 PM₁₀, PM_{2.5}, SO₂, NO_x 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.

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CHAPTER-II

AMBIENT AIR QUALITY MONITORING

2.1 Location of sampling station and their rationale:

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

2.1.1 Ambient Air Quality Sampling Locations

I. CORE ZONE Monitoring Location

i) Kusunda OCP (A10) : Industrial Area

The location of the sampling station is 23° 46. 822' N & 86° 24. 241' E. The sampler was placed at 1.5 m above the ground level of Safety Office. The station was selected to represent the impact of mining activities of Kusunda area, poor roads condition, heavy public traffic, burning of coal by the surrounding habitants.

ii) Hurriladih UGP (A28)

The location of the sampling station is 23°44' 065" N & 86° 24. 101' E. The sampler was placed at 1.5 m above the ground level of Safety Office. The station was selected to represent the impact of mining activities of Kusunda area, poor roads condition, heavy public traffic, burning of coal by the surrounding habitants.

II. BUFFER ZONE Monitoring Location

i) Dobari UGP (A11) : Industrial Area

The location of the sampling station is 23°45'422" N & 86°24' 241" E. The sampler was placed at 1.5 m above the ground level of Safety Office.

ii) Moonidih Washery (A29) : Industrial Area

The location of the sampling station is 23°44'31" N & 86°26'13"E. The sampler was placed at 1.5 m above the ground level of Project office.

2.2 Methodology of sampling and analysis

Parameters chosen for assessment of ambient air quality were Particulate Matter (PM₁₀), Particulate Matter (PM_{2.5}), Sulphur di-oxide (SO₂) and Nitrogen oxides (NO_x). Respirable Dust Samplers (RDS) & fine particulates for PM_{2.5} sampler were used for sampling PM₁₀ & PM_{2.5} respectively at 24 hours interval once in a fortnight and the same for the gaseous pollutants. The samples were analysed in Environmental Laboratory of CMPDI, RI-II, Dhanbad.

2.3 Results & Interpretations

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

2.3.1 Ambient air quality

Particulate Matter PM_{10}

In core zone under Industrial area varies 59 to 278 $\mu\text{g}/\text{m}^3$

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

Particulate Matter $PM_{2.5}$

In core zone under Industrial area varies 30 to 86 $\mu\text{g}/\text{m}^3$

In buffer zone in Industrial area varies from 25 to 68 $\mu\text{g}/\text{m}^3$

Sulphur Dioxide:

In core zone under Industrial area varies 10 to 12 $\mu\text{g}/\text{m}^3$

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

Oxides of Nitrogen:

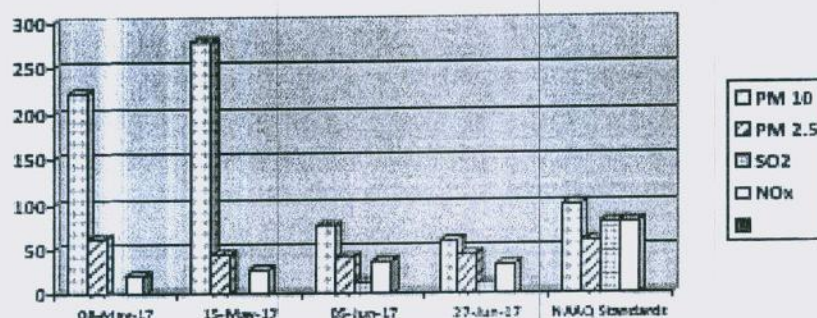
In core zone under Industrial area varies 18 to 37 $\mu\text{g}/\text{m}^3$

In buffer zone in Industrial area varies from 19 to 34 $\mu\text{g}/\text{m}^3$

AMBIENT AIR QUALITY DATA

Name of the Company: **Bharat Coking Coal limited**Year : **2017-18.**Name of the Cluster : **Cluster – VII**Q.E.: **JUNE 2017**Station Code/Name: **(a) A10 – Kusunda OCP**Category: **Industrial.**ZONE: **Core**

Sl. No.	Dates of sampling	PM 10	PM 2.5	SO ₂	NO _x
1	08- May - 17	222	62	<10	21
2	15- May - 17	278	44	<10	28
3	05- June - 17	75	41	14	37
4	27- June - 17	59	44	12	33
	NAAQ Standards	100	60	80	80



Trace Metal analysis report of Ambient Air Quality

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

Note:

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

Analysed By
BPA/NAN/SA

Checked By
Lab. In Charge
HCL-2, C. NIP/131, Bhamburda

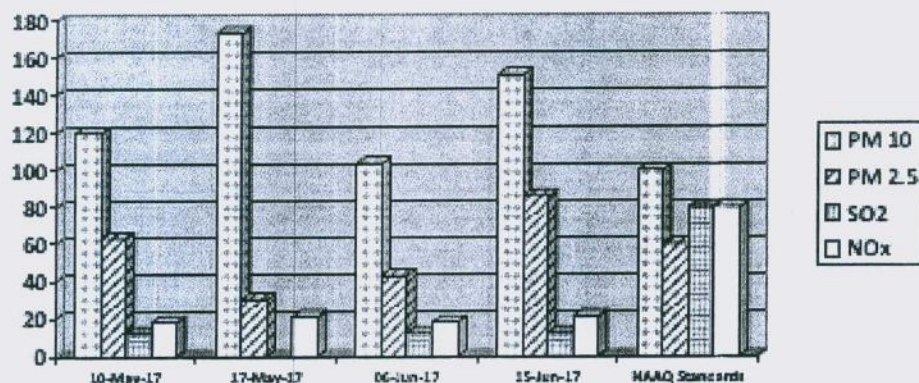
Approved By
HCL/2, C. NIP/131, Bhamburda

Job no:200316026

CLUSTER VII, BCCL ENVIRONMENTAL MONITORING REPORT

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

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



Trace Metal analysis report of Ambient Air Quality

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

Note:

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

Analysed By
JKA/SA/SSA

Checked By
Lab In Charge
M. J. C. MPPD, Dharmbad

Approved By
MPPD (Managing Environment)
M. J. C. MPPD, Dharmbad

AMBIENT AIR QUALITY DATA

Name of the Company: Bharat Coking Coal limited

Year : 2017-18.

Name of the Cluster : Cluster - VII

Q.E.: JUNE 2017

Station Code/Name: (a) A11 Dobari UGP

Category:

(b) A29 Moonidih Washery

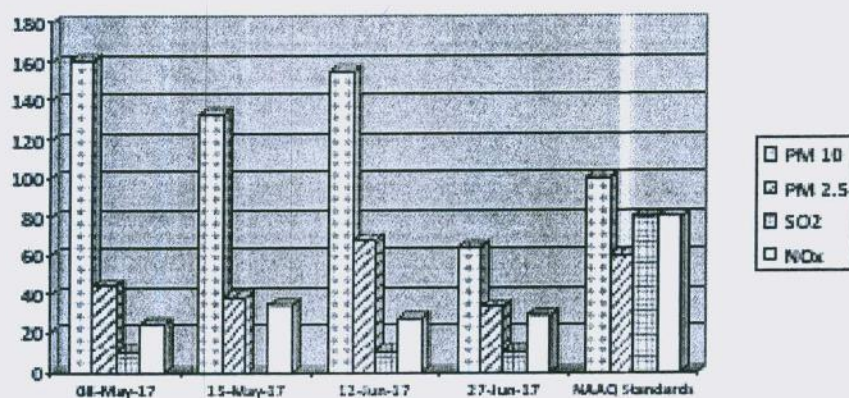
Industrial.

ZONE: BUFFER

(a). Station Code/Name: A11 - Dobari UGP,

Category: Industrial.

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



Trace Metal analysis report of Ambient Air Quality


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

Note:

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


 Analysed By
 P.S.A./S.A./S.S.A.


 Checked By
 Lab In Charge
 RL-2, CAMPOL, Dhanbad


 Approved By
 HOD Monitoring Environment
 RL-2, CAMPOL, Dhanbad

Job no:200316028

CLUSTER VII, BCCL ENVIRONMENTAL MONITORING REPORT

CHAPTER – III

WATER QUALITY MONITORING

3.1 Location of sampling sites

(Refer Plate No. - II)

- i) **Mine Discharge of Dhansar UGP (MW7)**
A sampling point is fixed to assess the effluent quality of Mine discharge. This location is selected to monitor effluent discharge in to Kari jore.
- ii) **Ground Water Quality at Hurriladih (GW7)**
- iii) **Surface Water Quality at U/S of Kari Jore (SW16)**
- iv) **Surface Water Quality at D/S of Kari Jore (SW17)**

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. Effluent samples were also analysed for 27 parameters on half-yearly basis. The ground and Surface water samples were collected and analyzed for 25 & 17 parameters respectively on quarterly basis. Thereafter the samples were preserved and analysed at the Environmental Laboratory at CMPDI (HQ), Ranchi.

3.3 Results & Interpretations

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

WATER QUALITY DATA

(Effluent Water)

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

Limited

Name of the Cluster: **Cluster - VII**

Month: **MAY, 2017.**

Name of the Stations & Code :

**1. MW7- Mine Discharge of
Dhansar UGP**

First Fortnight

Sl. No.	Parameters	MW7 (Mine Discharge)	As per MOEF General Standards for schedule VI
		08.05.2017	
1	Total Suspended Solids	56	100 (Max)
2	pH	8.39	5.5 - 9.0
3	Oil & Grease	<2.0	10 (Max)
4	COD	24	250 (Max)

Second Fortnight

Sl. No.	Parameters	MW7 (Mine Discharge)	As per MOEF General Standards for schedule VI
		16.05.2017	
1	Total Suspended Solids	36	100 (Max)
2	pH	8.41	5.5 - 9.0
3	Oil & Grease	<2.0	10 (Max)
4	COD	28	250 (Max)

All values are expressed in mg/lit unless specified.

अनुसंधान अधिकारी, रूड़

Analysed By
JSA/NA/SSA

Checked By
Lab In Charge

RI-2, CMPDI, Dhansar

21/5/17
Approved By
HOD (Mining/Environment)
RI-1, CMPDI, Dhansar

WATER QUALITY DATA

(Effluent Water)

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

Name of the Cluster : **Cluster - VII**

Month: **JUNE, 2017.**

Name of the Stations & Code :

1. MW7- Mine Discharge of Dhansar UGP

First Fortnight

Sl. No.	Parameters	MW7 (Mine Discharge)	As per MOEF General Standards for schedule VI
		06.06.2017	
1	Total Suspended Solids	28	100 (Max)
2	pH	8.07	5.5 - 9.0
3	Oil & Grease	<2.0	10 (Max)
4	COD	28	250 (Max)

Second Fortnight

Sl. No.	Parameters	MW7 (Mine Discharge)	As per MOEF General Standards for schedule VI
		27.06.2017	
1	Total Suspended Solids	36	100 (Max)
2	pH	6.52	5.5 - 9.0
3	Oil & Grease	<2.0	10 (Max)
4	COD	28	250 (Max)

All values are expressed in mg/lit unless specified.

अनुसंधान, रजि.

Analysed By
ASA/SA/SSA

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

Approved By
EC/DMining/Environment
RI-2, CMPDI, Dhansar

NOISE LEVEL DATA

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

Coal Limited

Name of the Cluster: **Cluster -VII**

Month: May, 2017.

Name of the Stations & Code :

1. Kusuda OCP (N10)
2. Huriladih UGP (N28)
3. Dobari UGP (N11)
4. Moonidih Washery (N29)¹

(a) First Fortnight

Sl. No.	Station Name/Code	Category of area	Date	Noise level dB(A)LEQ	*Permissible Limit of Noise level in dB(A)
1	Kusuda OCP (N10)	Industrial area	08.05.2017	64.1	75
2	Huriladih UGP (N28)	Industrial area	10.05.2017	63.1	75
3	Dobari UGP (N11)	Industrial area	08.05.2017	58.6	75
4	Moonidih Washery (N29)	Industrial area	11.05.2017	59.8	75

(b) Second Fortnight

Sl. No.	Station Name/Code	Category of area	Date	Noise level dB(A)LEQ	*Permissible Limit of Noise level in dB(A)
1	Kusuda OCP (N10)	Industrial area	15.05.2017	60.6	75
2	Huriladih UGP (N28)	Industrial area	17.05.2017	61.2	75
3	Dobari UGP (N11)	Industrial area	15.05.2017	59.1	75
4	Moonidih Washery (N29)	Industrial area	18.05.2017	60.7	75

¹Permissible 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.

NOISE LEVEL DATA

Name of the Company: **Bharat**Year : **2017-18.****Coking Coal Limited**Name of the Cluster: **Cluster –VII**Month: **June, 2017.**

Name of the Stations & Code :

1. Kusunda OCP (N10)
2. Huriladih UGP (N28)
3. Dobari UGP (N11)
4. Moonidih Washery (N29)²

(a) First Fortnight

Sl. No.	Station Name/Code	Category of area	Date	Noise level dB(A)LEQ	*Permissible Limit of Noise level in dB(A)
1	Kusunda OCP (N10)	Industrial area	05.06.2017	61.6	75
2	Huriladih UGP (N28)	Industrial area	06.06.2017	62.2	75
3	Dobari UGP (N11)	Industrial area	12.06.2017	57.9	75
4	Moonidih Washery (N29)	Industrial area	07.06.2017	61.6	75

(b) Second Fortnight data

Sl. No.	Station Name/Code	Category of area	Date	Noise level dB(A)LEQ	*Permissible Limit of Noise level in dB(A)
1	Kusunda OCP (N10)	Industrial area	27.06.2017	63.8	75
2	Huriladih UGP (N28)	Industrial area	15.06.2017	60.7	75
3	Dobari UGP (N11)	Industrial area	27.06.2017	58.1	75
4	Moonidih Washery (N29)	Industrial area	16.06.2017	62.2	75

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

* Day Time : 6.00 AM to 10.00 PM.

ANNEXURE-K

Status of Periodical Medical Examination & Training

Mines under Cluster-VII	Total PME done for the period April'17 to Sept'17	Total Vocational Training done for the period April'17 to Sept'17
Dhansar (UG, VOCP, Industry Colliery), Kusunda OC, Ena OC, ROCP, Burragarh, Hurriladih, Simlabahal and Alkusa UG	632	513