



BHARAT COKING COAL LIMITED

(A Subsidiary of Coal India Limited)

A Mini Ratna Company

Office of the General Manager

Pootkee Balihari Area,

Post- Kusunda, Dist. - Dhanbad, (Jharkhand), 828116

CIN-U10101JH1972GOI000918

By Speed Post

Ref. No. : BCCL/PBA/A.M (Plan.)/2016-17/ **143**

Date: - 26-05-2016

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

Subject: - Six Monthly EC Compliance report for the period from October 2015 to March 2016
in respect of Cluster VII group of Mines.

Ref No.: **J-11015/238/2010-1A.II (M) dated 09.12.2010**

Dear Sir,

Kindly find enclosed herewith six monthly EC Compliance report for the period from October 2015 to March 2016 in respect of Cluster VII group of mines.

Encl: As above

Yours faithfully

26-5-16
Add. General Manager
P.B. Area
Additional General Manager
POOTKEE BALIHARI AREA
B.C.C.L. DHANBAD

Copy to:-

1. The Director, 1A Monitoring Cell, Paryavaran Bhawan, CGO Complex, New Delhi - 110003 (By Speed Post)
2. Chairman, Jharkhand State Pollution Control Board, T.A. Division Building (Ground Floor), H.E.C. Dhruva, Ranchi - 834004 (By Speed Post)
3. HOD (Environment), BCCL Koyla Bhawan.
4. N.O (Environment), Kusunda Area

o/s

COMPLIANCE OF EC CONDITIONS OF CLUSTER-VII

EC order No. J-11015/238/2010-1A.II (M)

(October '15 to March '16)

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 cluster VII are 6.227 and 8.161 MTPA respectively. The total production of the Cluster-VII from October' 15 till March' 16 is 4.74 MT, 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.	<p>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.</p> <p>By implementing digging out of total fiery seam 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 have been taken-up with the help of State Govt. of Jharkhand.</p> <p>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 as ANNEXURE A.</p>
iii	<p>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.</p> <p>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.</p>	<p>NRSC has 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 from 9.0 sq.km to 2.18 sq.km. This could be achieved only due to the successful "excavation method i.e. digging out of fiery coal" adopted by BCCL.</p> <p>Action is being taken as specified in EC and as per Jharia Master Plan. Further at Kusunda OC, fire patch is 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 fiery coal is dug-out/excavated there will be no more chance of re-starting of fresh/ spreading of fire into other</p>

		<p>areas.</p> <p>At Alkusa Colliery, after taking adequate measures in UG as per CMR, 57 and DGMS guidelines, mine entrances (3 pit) have been filled and (6 & 7 pit) sealed to stop ingress of air/spread of ug fire.</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.	It shall be complied. Action is being taken to control, mine fires as specified in Jharia Master Plan and the mining is being done 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.	<p>Calendar plan has been prepared and enclosed as ANNEXURE B.</p> <p>Mine closure plan as per the guidelines of Ministry of Coal has been prepared by Regional Institute –II, Central Mine planning and Design Institute, Dhanbad. MCP is being implemented in mines.</p>
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. A part of the void will be converted into the water body, if safety permit with prior permission from DGMS.
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	It is being Complied. Embankments have been constructed as specified in EC

	embankment 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 degraded area and avenue plantation 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 as ANNEXURE C.
xiii	The road should be provided with avenue plantation on both side as trees act as sink of carbon and other pollutant	It shall be complied.
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 for entire BCCL and not cluster wise. It is being implemented comprehensively for all the mines of BCCL. Some of the salient actions is enclosed.
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, fly ash from TPPs, silica from natural dust, etc.) and a Source Apportionment Study should be got carried out for the entire Jharia Coalfields. Mineralogical composition study should be undertaken on the composition of the suspended particulate matter (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. The work of monitoring of ambient environment has been done by Central Institute of Mining & Fuel Research (CIMFR), Dhanbad having CSIR laboratory recognized under the EP Rules and they are doing work. At present this work is being dealt by CMPDI.
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	No ground water is being utilized for the purpose of industrial use of the water. Mine water has been channelized through pipelines and through delivery in to the old quarry for its community use &

	<p>measures.</p> <p>The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry to dewatering of mine</p>	<p>industrial use. Drinking water is being purchased from the Mineral Area Development Authority (MADA).</p> <p>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 Pressure filters: In Kusunda Area, three Pressure Filters, two Slow Sand Filter and two Rapid Gravity Filter Plant are there. At East Bassuriya New Colony, installation of two nos. Pressure Filters is under process. At Alkusa installation of two nos. of Pressure Filters are under proposal. 2. Rain water Harvesting: to catch run-off water in colonies, proposal for rain water harvesting at two colonies in Kusunda Area is under process from Civil Deptt.
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 piezometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality including Arsenic and Fluoride during the month of May. Data thus collected shall be submitted to the Ministry of Environment & Forest and to the Central Pollution Control Board/SPCB quarterly within one month of monitoring. Rainwater harvesting measures shall be undertaken in case monitoring of water table indicates a declining trend.</p>	<p>The work of monitoring of ground water level is being done by CMPDI.</p> <p>Enclosed as ANNEXURE D</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>The work of monitoring of mine discharge water has been done by Central Institute of Mining & Fuel Research (CIMFR), Dhanbad having CSIR laboratory recognized under the EP Rules. At present the monitoring work is being done by CMPDI. Mine discharge water is filtered in filter plants installed in different collieries for domestic use.</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>Proposal for construction of Oil grease Trap is under process.</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</p>	<p>Regular monitoring of subsidence is done</p>

	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.	
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.	Sufficient coal pillars have been left around air shafts as per the statutes and DGMS guidelines.
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 followed. Sufficient barriers are left for saving the surface installation and infra structures as per the statute and DGMS guidelines.
xxv	No depillaring operation shall be carried out below the township/colony.	It is being 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 transportation 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. Conversion of existing truck in to mechanically covered trucks is under proposal. By that time transportation is being done by covering vehicle with tarpaulin cover. Enclosed as ANNEXURE E
xxvii	A study should be initiated to analyze extent of reduction in pollution load every year by reducing road transport	CMPDI RI-II has been requested for Source Apportionment Study. Enclosed as ANNEXURE F
xxviii	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 group 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-	CSR activities are being taken up on priority basis. The details of activities are enclosed as ANNEXURE G

	<p>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 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 Bhubaneswar.</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 prepared “Time series of land use maps based on satellite imagery of the core zone and buffer zone.</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>It will be complied.</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</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 each area has also</p>

	<p>this regard.</p>	<p>been nominated as Nodal Officer (Environment) under General Manager of Area and at Project level, concerned Safety Officer 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 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 being done.</p>
xxxiii	<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 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>
xxxiv	<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</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>

	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	
B	General Conditions by MOEF:	
i	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment and Forests.	It is being complied.
ii	No change in the calendar plan of production for quantum of mineral coal shall be made.	It is being complied. Production of the cluster is being done well within the peak production capacity as per EC.
iii	Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for PM ₁₀ , PM _{2.5} , SO ₂ and NO _x monitoring. 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.	The work of monitoring of ambient environment has been done by Central Institute of Mining & Fuel Research (CIMFR), Dhanbad having CSIR laboratory recognized under the EP Rules .At present CMPDI is doing the monitoring works.
iv	Data on ambient air quality (PM ₁₀ , PM _{2.5} , SO ₂ and NO _x) and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly submitted to the Ministry including its Regional Office at Ranchi and to the State Pollution Control Board and the Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognised under the EPA rules, 1986 shall be furnished as part of compliance report.	The work of monitoring of ambient environment has been done by Central Institute of Mining & Fuel Research (CIMFR), Dhanbad having CSIR laboratory recognized under the EP Rules. At present CMPDI is doing the monitoring works. Enclosed as ANNEXURE H
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.
vi	Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the	Proposal for construction of oil & grease trap arrangement at w/shop is under process.

	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.	
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.	The work of monitoring of ambient environment has been done by Central Institute of Mining & Fuel Research (CIMFR), Dhanbad having CSIR laboratory recognized under the EP Rules. At present CMPDI is doing the work.
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.	It is being complied. A separate full-fledged Human Resource Development Deptt. 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. Enclosed as ANNEXURE I
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 of the Area is carried out at Bhuli PME Centre, Bhuli, Dhanbad as per the Statutes and guidelines of Director General of Mines Safety (DGMS). Enclosed as ANNEXURE I
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, concerned Safety Officer under

		<p>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 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 being done.</p>
xii	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Ranchi.	It is being complied.
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/Zila Parishad, Municipal corporation or Urban local body and local NGO, if any, from whom any suggestion /representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on company's website.	Complied.
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	Complied.

	displayed at the Regional Office, District Industry Sector and Collector's Office/Tehsildar's Office for 30 days.	
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 may stipulate any further condition(s) for environmental protection.	Agree.
ii	Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract the provisions of the Environment (Protection) Act, 1986.	Agree.

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 946 quarters at newly constructed colonies at East Bassuriya and at Jagjivan Nagar have been allotted to the employees residing at coal bearing/fire affected areas in different collieries under Kusunda Area and out of which 493 employees have been shifted. More quarters are under construction for phase wise shifting of employees.
- In temporary rehabilitation site at decoaled zone of East Bassuriya about 28 PAF/encroachers have been shifted.
- Non-BCCL families will be shifted by JRDA.

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 Section at East Bassuriya, about 170000 m³ mitti and non-combustible material has been filled, rest will be filled by quarry OB.

NRSC has 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 from 9.0 sq.km to 2.18 km². This could be achieved only due to the successful “excavation method i.e. digging out of fiery coal” adopted by BCCL.

At Kusunda Colliery and Ena OC, total fiery coal are being digged out as a measure of fire dealing with the deployment of hired HEMM. The underground workings of Alkusa Colliery has been sealed due to fire threats after taking measures to control UG fire as per CMR'57 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.

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.

Proposals for 2016-17 include:

- About 90 m block concretized road construction from NH-32 and Kusunda office connecting point to Kusunda Office.
- About 90 m block concretized road construction from NH-32 connecting point to old auto workshop.
- About 125 m of WBM road construction from Godhur office up to Kali Mandir
- About 300 m of two lane WBM road at/ near Godhur CHP.

(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	3-20 KL,3-12KL	50 trips/day
2	Dhansar/Industry	3.5-4.0	6	2-12KL each, 1-20KL, 3-8KL each	20 trips/day
3	Gondudih KKC	5.0-6.0	3	60	15 trips each/day
4	Ena	1.5-2.5	1	9	4 trips /day
5	Huriladih	-	1	7	4 trips /day
6	Simlabahal	-	1	5	4 trips /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 170000 m³ mitti and non-combustible material has been filled, rest will be filled by quarry OB.

In Kusunda OC and Ena OC, fire 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.

(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. 26,250 nos. saplings planted at 10.5 Ha OB dump area and 500 nos. plants as bamboo-gabion plantation done by DFO, Dhanbad. In Gondudih-Khas Kusunda Mine. Ecological restoration work in 2.0 Ha OB dump area at Gondudih are in successful progress; total 5900 plants has been planted there. At new eco-restoration site (more than 1.79 Ha OB dump- area) about 2400 plants along with seeds of grass and shrubs have been spread over during 2015-'16 successfully.

(10) All hazardous wastes shall be disposed off

Complied.

1. All units have applied for authorization as per Hazardous Wastes (Management, Handling and Transboundary Movement) Rules.
2. Burnt oil is used for lubrication of haulage system in underground mine, thus reducing quantity required to be disposed. Remaining burnt/used oil is disposed 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 CIMFR, Dhanbad and at present CMPDI is doing the work.

(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-B

1. Coal Production of the Cluster is well within the limit for which environmental clearance has been granted.
2. Ob Backfilling Programme

Backfilling Programme: (in Mm³)

Year	Dhansar/Vishwa-karma OC	Ena OC	Kusunda OC	Total
2016-17	0.25	-	1.0	1.25
2017-18	0.54	0.5	1.5	2.54
2018-19	1.0	1.55	1.5	4.05
2019-20	1.5	1.55	1.5	4.55
2020-21	2.0	1.80	1.5	5.3

ANNEXURE-C

- **Plantation-** At Gondudih- Khas Kusunda Colliery Plantation has been done by DFO, Dhanbad at about 10.5 Ha area of OB dump. 500 no. bamboo-gabion plantation have been done. At the side of rly. Siding plantation work is being going on. At about 2.0 Ha Ecological restoration site total about 5900 no. plants and plenty of grass-seeds have been planted successfully with encouraging results. At new eco-restoration site (more than 1.79 Ha OB dump- area) about 2400 plants along with seeds of grass and shrubs have spread over during 2015-'16 successfully.

PLANTATION/ECOLOGICAL-RESTORATION PROGRAMME

Plantation/Ecological Restoration Programme (Cluster-VII)

YEAR	CLUSTER VII	No. of saplings/plants
2016-17	2.00 Ha(approx.)	5000
2017-18	4.00 Ha(approx.)	10000
2018-19	6.00 Ha(approx.)	15000
2019-20	6.00 Ha(approx.)	15000
2020-21	6.00 Ha(approx.)	15000



**GROUNDWATER LEVEL & QUALITY
REPORT**

FOR CLUSTER OF MINES, BCCL

(Assessment year - 2014)

[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 – 2015

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

Monitoring of Ground Water levels for cluster VII

Table 1: Water Level Data from Observation Wells (CMPDI)

Year	Location: Hurriladih (D-55)			Rainfall (mm)
	Pre-Monsoon (May)	Post-Monsoon (Nov)	Annual Fluctuation (m)	
2007	6.73	2.85	3.88	1233
2008	3.05	2.90	0.15	1680
2010	5.10	2.92	2.18	1281
2011	6.45	-	-	991
Average	5.33	2.89	2.07	

The groundwater level data of the CMPDI observation well **(D-55)** in the southern part (Kustore Area) of the Cluster-VII shows that the pre-monsoon water level varies from 3.05 m to 6.73 m with an average of 5.33 m. The post-monsoon water level varies from 2.85 m to 2.92 m with an average of 2.89 m. The annual water level fluctuation varies from 0.15 m to 3.88 m with an average of 2.07 m.

Table 2: Water Level Data from Observation Wells (CMPDI)

Year	Location: Dhansar (D-3)			Rainfall (mm)
	Pre-Monsoon (May)	Post-Monsoon (Nov)	Annual Fluctuation (m)	
2005	6.40	3.48	2.92	1233
2007	9.22	2.75	6.47	1680
2008	3.85	2.80	1.05	1281
2010	3.75	3.15	0.60	991
2011	3.15	-	-	-
Average	5.27	3.04	2.76	

The groundwater level data of the CMPDI observation well **(D-3)** in the northern part (Kusunda Area) of the Cluster-VII shows that the pre-monsoon water level varies from 3.15 m to 9.22 m with an average of 5.27 m. The post-monsoon water level varies from 2.75 m to 3.48 m with an average of 3.04 m. The annual water level fluctuation varies from 0.60 m to 6.47 m with an average of 2.76 m.

GROUNDWATER SAMPLE LOCATION DETAILS

SI No	Name of Cluster	Ground Water Sample	Dug well (CMPDI)	Location	Date of sampling
1	CLUSTER-I	GW-1	B-15	BERA VILLAGE	10.03.14
2	CLUSTER-II	GW-2	B-59	KHODOVALY VILLAGE	10.03.14
3	CLUSTER-III	GW-3	A-29	GOVINDPUR, AMBAGAN VILLAGE	10.03.14
4	CLUSTER-IV	GW-4	B-63	KESHALPUR, BATIGHAR	10.03.14
5	CLUSTER-V	GW-5	D-30	BORKIBOA VILLAGE	10.03.14
6	CLUSTER-VI	GW-6	D-25	GODHUR MORE	10.03.14
7	CLUSTER-VII	GW-7	D-80	DHANSAR MINE RESCUE STN.	11.03.14
8	CLUSTER-VIII	GW-8	D-48	NEAR GHANOODIH OC	11.03.14
9	CLUSTER-IX	GW-9	D-5	JEALGORA, NEAR P.O.	11.03.14
10	CLUSTER-X	GW-10	D-35	PATHERDIH RLY. COLONY	11.03.14
11	CLUSTER-XI	GW-11	A-32	MONNIDIH BAZAR	10.03.14
12	CLUSTER-XIII	GW-13	A-23	MACHHAYARA, BESIDE NH-32	10.03.14
13	CLUSTER-XIV	GW-14	B-23	LOHAPATTI VILLAGE	10.03.14
14	CLUSTER-XV	GW-15	B-32A	MADHUBAND VILLAGE	10.03.14
15	CLUSTER-XVI	GW-16	D-22	DAHIBARI, NICHE BASTI	11.03.14

Annexure – V

GROUNDWATER QUALITY DATA (DUG WELLS)

Parameter in (mg/l) except pH	Cluster I	Cluster II	Cluster III	Cluster IV	Cluster V	Cluster VI	Cluster VII	Cluster VIII	IS: 10500 – 1991 Norms
Colour	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless	Colourless	5/25
Odour	Odourless	Odourless	Odourless	Odourless	Odourless	Odourless	Odourless	Odourless	Unobjectionable
Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Turbidity	<5NTU	<5NTU	<5NTU	<5NTU	<5NTU	<5NTU	<5NTU	<5NTU	5/10
pH	7.21	7.56	7.21	8.14	7.98	7.56	6.61	7.7	6.5-8.5
Alkalinity as CaCO ₃	323	180	360	200	140	428	64	152	200/600
T. Hardness	256	416	444	460	152	660	128	284	300/600
Iron as Fe	0.118	0.0375	0.0371	0.0342	0.0344	0.0548	0.033	0.0354	0.30/1.0
Chloride (Cl)	60	272	192	230	64	232	148	144	250/1000
R. Chloride	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	0.2 Min
TDS	254	638	665	229	229	963	273	454	500/2000
Calcium	172	184	192	100	108	240	100	168	75/200
Copper	0.0023	0.0036	0.0044	0.0032	0.0059	0.0106	0.0037	0.0031	0.05/1.50
Manganese	0.0117	0.0092	0.0053	0.0022	0.0026	0.0064	0.1542	0.0059	0.10/0.30
Sulphate	29.25	163.97	148.32	54.38	54.38	279.33	74.16	64.27	200/400
Lead	0.0094	0.015	0.0153	0.0095	0.0057	0.0196	0.0973	0.0108	0.05
Zinc	0.0185	0.0035	0.0075	0.0057	0.0078	0.0112	0.1653	0.0082	5/15
Chromium	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.05
Phenolic Compounds	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001/0.002

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

ANNEXURE E



Point XVI

cmpdi

A Min. Ratna Company

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

पत्रांक: आर.आई.-2/पर्यावरण/एम-30/1150

दिनांक: 20.06.2015

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



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

महोदय,

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

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

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

This is for your kind information.

Sd/- Anantanshu S.B.
For compliance purpose.

[Signature]
23/6/15

भवदीय

(वि. कु. सिन्हा)
क्षेत्रीय निदेशक



☎ : (+91) 0326-2230850 फैक्स / Fax : (+91) 0326-2230500

वेब साइट / Website : www.cmpdi.co.in

ईमेल / Email : ri2@cmpdi.co.in

ANNEXURE-F



cmpdi
A Mini-Ratna Company

सेन्ट्रल माईन प्लानिंग एण्ड डिजाइन इन्स्टीच्यूट लिमिटेड
(कोल इण्डिया लिमिटेड की अनुषंगी कम्पनी / भारत सरकार का एक लोक :
गोन्दवाना प्लेस, काँके रोड, राँची - 834 031, झारखंड (भारत)

Central Mine Planning & Design Institute Limited
(A Subsidiary of Coal India Limited / Govt. of India Public Sector Undertaking)
Gondwana Place, Kanke Road, Ranchi - 834 031, Jharkhand (IND)

पत्रांक: सी.एम.पी.डी. आई /2014/पर्यावरण /CMP-4/357

दिनांक: 28/04/14

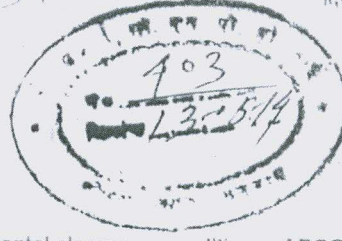
सेवा में,

Director (T) (P&P)

Bharat Coking Coal Limited,

Koyla Bhawan, Koyla Nagar

Dhanbad - 826005



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

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

Dear Sir,

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

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

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

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

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

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

सधन्यता,

ARD/m
Le
28/4/14

cc: Regional Director, RI-2, CMPDI, Dhanbad :

for kind information with a request to follow up with BCCL

दिनांक: 28/04/14
by: S. Anwar

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



फोन नम्बर / Phone No : +91 651 2230055, फैक्स नम्बर / Fax No : +91 651 2230055

वेब साईट / Website Address : www.cmpdi.co.in, e-mail - gmenv.cmpdi@yahoo.co.in

ANNEXURE -G

CSR ACTIVITIES OF BCCL

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 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, tube wells, 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 carrier 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.
- **Blankets:** During winter, Blankets are distributed among poor section of the society.
- **Sports & Cultural:** Various activities are organized to propagate sports and cultures. Sports/games items and instruments are also provided with playground.
- **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, Playground, etc.

CSR work under Cluster VII:

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 by MMV (Mobile Medical Van):

<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

Special Health Camps in

2015-'16	5	354 patients
CSR Clinic 2015-'16		5842 patients
Wellness Clinic 2015-'16		6244 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-- work completed at Dhansar
- 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 Swachh Vidyalaya Yojana. Construction of toilets in 25 boys' school,

15 girls' schools and 139 Co-education

School have been undertaken.

-- Out of 318, 234 toilets have been completed.

Rest are to be completed soon in 2016-17.

Financial assistance by Kusunda Area to Private Committee managed Schools in villages during the financial year 2015-'16:

(Fig. provided by Area Finance Deptt. Kusunda Area)

Name of School	Total Amount (Rs.) in 2015-'16
L.P.School, Dhansar Vikash H.A.School, Bassuriya Bal Vikash P.V.Industry CO Sanjay Gandhi S.M.V.,Godhur Gandhi M.K.E.S.E.,Bassuriya Madhya Vidyalay, Kurmidih Bassuriya Vidyalay,Bassuriya Shishu Vikash M.Vidyalay J.N.Vidyalay, Gondudih DAV School, Kusunda	29,73,750.00

CSR work done under P.B. AREA

Healthcare:

1. Mobile Medical Van:

Month	No. of Mobile Medical Van	Total No. of Beneficiaries	Amount (in Rs.)
October 2015 – March 2016	75	848	15,168.90

2. Health Awareness Programme:

Sl. No.	Month	Activities	Total No. of Beneficiaries	Amount (in Rs.)
1.	November, 2015	Family Planning Awareness Camp	17	25,272.00
2.	November, 2015	Eye Camp	19	19,918.00
3.	February, 2016	Family Planning Awareness Camp	24	27,990.00

Swachh Vidyalaya Abhiyan:

Sl. No.	Details	Physical Progress	Amount (in Cr.)	Remarks
1.	Construction of toilets in various schools at West Singhbhum district of Jharkhand under “Swachh Vidyalaya Abhiyan”	Layout-310 Foundation-305 P/L-305 (Plinth level) R/L-289 (Roof level) R/C-270, (Roof casted) Plaster & flooring-161 Sanitation-33 Final & Finished-19 Out of 354 Units on 31.03.2016	3.28	Work in Progress

ANNEXURE-H

Table 5: Physico-chemical characteristics of Surface water (Kari Jore) in Cluster-VII Mining Area, April to June, 2015

S.N.	Parameter and Unit	SW-16 Kari Jore	SW-17 Kari Jore	CPCB Classification Class C
		09.04.2015	09.04.2015	
1.	Color (Hazen)	blackish	blackish	300
2.	Dissolve Oxygen	2.1	2.8	4.0
3.	pH	7.9	8.0	6.5-8.5
4.	Iron as Fe (mg/l)	0.32	0.28	50.0
5.	Chloride Cl (mg/l)	186.00	168.00	600
6.	BOD (mg/l)	18.0	21.0	3.0
7.	TDS (mg/l)	492.00	474.00	-
8.	Copper as Cu (mg/l)	0.01	0.01	1.5
9.	Sulphate as SO ₄ (mg/l)	343.00	326.00	400
10.	Nitrate as NO ₃ (mg/l)	36.0	41.0	50
11.	Fluoride as F (mg/l)	0.32	0.45	1.0
12.	Selenium as Se (mg/l)	BDL	BDL	-
13.	Arsenic as As (mg/l)	BDL	BDL	0.2
14.	Lead as Pb (mg/l)	BDL	BDL	0.1
15.	Zinc as Zn (mg/l)	0.28	0.31	15
16.	Chromium as Cr ⁺⁶ (mg/l)	BDL	BDL	-
17.	Phenolic compounds	BDL	BDL	-

Note: ND=Not Detected, BDL = Below Detection Limit

Table 6: Physico-chemical characteristics of Groundwater in Cluster- VII Mining Area, April to June 2015

Sl. No.	Parameter	GW 7 Huriladih	IS: 10500
	Date	09.04.2015	
1.	Colour (Hazen)	Colourless	Colourless
2.	Odour	Odourless	Odourless
3.	Taste	Unobjectionable	Agreeable
4.	Turbidity (NTU)	4.2	10 NTU
5.	pH	8.0	6.5-8.5
6.	Alkalinity as CaCO ₃ (mg/l)	341.00	--
7.	Total Hardness as CaCO ₃ (mg/l)	456.00	300
8.	Iron as Fe (mg/l)	0.21	0.3
9.	Chloride Cl (mg/l)	61.00	250
10.	Total Residual chlorrine		02.2
11.	TDS (mg/l)	119.00	500
12.	Calcium as Ca (mg/l)	106.00	75
13.	Copper as Cu (mg/l)	0.01	0.05
14.	Manganese as Mn (mg/l)	0.20	0.1
15.	Sulphate as SO ₄ (mg/l)	254.00	150
16.	Nitrate as NO ₃ (mg/l)	28.09	45.00
17.	Fluoride as F(mg/l)	0.26	0.6-1.2
18.	Selenium as Se (mg/l)	BDL	0.01
19.	Arsenic as As (mg/l)	<0.04	0.05
20.	Lead as pb (mg/l)	BDL	0.1
21.	Zinc as Zn (mg/l)	0.42	5.0
22.	Chromium as Cr ⁺⁶ (mg/l)	BDL	0.05
23.	Total Coliform in MPN /100ml	Nil	
24.	Boron as B (mg/l)	BDL	
25.	Phenolic Compounds	Nil	

Note: ND=Not Detected, BDL = Below Detection limit

Table 7: Physico-Chemical Characteristics of Effluent (Mine water) in Cluster- VII Mining Area, April to June 2015

Sl. No.	Parameter	MW 7 Dhansar UGP	Inland Surface water IS:2490
	Date	09.04.2015	
1.	Colour(Hazen)	Colourless	Colourless
2.	Odour	Odourless	Odourless
3.	TSS	146.00	100
4.	pH	6.13	5.5 - 5.90
5.	Oil & Grease(mg/l)	1.8	10.0
6.	Total Residual Chlorine	Nil	1.0
7.	Ammoniacal nitrogen	Nil	
8.	Kjeldahl N (mg/l)	21.4	50.0
9.	NH ₃ (mg/l)	Nil	5.0
10.	BOD(mg/l)	6.8	30.0
11.	COD(mg/l)	79.8	250.0
12.	Arsenic(mg/l)	<0.06	0.2
13.	Lead as Pb(mg/l)	BDL	0.1
14.	Chromium as Cr+6 (mg/l)	BDL	0.1
15.	Total chromium as cr (mg/l)	BDL	2.0
16.	Copper As Cu(mg/l)	0.03	3.0
17.	Zinc as Zn (mg/l)	0.26	5.0
18.	Selenium as Se(mg/L)	BDL	0.05
19.	Nickel as Ni (mg/l)	BDL	3.0
20.	Fluoride as F (mg/l)	0.5	2.0
21.	Dissolve d Phosphate (mg/l)	2.8	5.0
22.	Sulphide as S (mg/l)	0.5	2.0
23.	Phenolic compound	Nil	1.0
24.	Manganese as Mn(mg/l)	0.16	2.0
25.	Iron as Fe(mg/l)	0.16	3.0
26.	Nitrate as NO ₃ (mg/l)	38.0	45.0

Note: ND=Not Detected, BDL = Below Detection Limit

Table 10: Noise Level in Cluster- VII , April to June 2015

Location ID	Location Name	Date	Latitude & Longitude	Leq in dB(A)	
				Day	Night
Core Zone					
N-10	Kusunda OCP/ Dhansar Engg. Office	09.04.2015	23 ⁰ 46. 822' N 86 ⁰ 24. 241' E	68.3	44.7
		25.04.2015		69.7	45.4
		12.05.2015		67.2	43.9
		28.05.2015		69.4	48.1
		08.06.2015		71.0	51.3
		25.06.2015		69.5	46.6
N-28	Hurriladih	09.04.2015	23 ⁰ 44. 065' N 86 ⁰ 24. 101' E	78.3	55.4
		25.04.2015		76.6	54.2
		12.05.2015		78.8	58.1
		28.05.2015		75.4	53.2
		08.06.2015		80.5	61.7
		25.06.2015		77.1	59.5
Buffer Zone					
N-11	Dobari UGP	09.04.2015	23 ⁰ 44'18.93"N 86 ⁰ 13'37.75"E	62.3	46.8
		25.04.2015		61.7	44.6
		12.05.2015		68.3	47.4
		28.05.2015		66.7	46.3
		08.06.2015		63.2	44.8
		25.06.2015		61.6	45.5

ANNEXURE-I

Mines under Cluster-VII	Total Vocational Training done for the period April'15 to March.'16
Dhansar(UG, VOCP, Industry Colliery), Kusunda OC, Ena OC , Alkusa UG, ROCP, Simlabahal, Burragarh and Hurriladih	1995

PME done under Cluster VII

PME Report For The Month Of Oct'15 To March'16		
S.No.	Cluster	PME Done
1	Cluster VII	246

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**ENVIRONMENTAL MONITORING REPORT
OF
BHARAT COKING COAL LIMITED,
CLUSTER – VII**

(FOR THE Q.E. MARCH, 2016)

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

June, 2016



CMPDI

ISO 9001 Company
Regional Institute-II
Dhanbad, Jharkhand

CLUSTER - VII

(FOR THE Q.E. March, 2016)

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**ENVIRONMENTAL MONITORING REPORT
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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 MoEFCC 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 MoEFCC, 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 (PM₁₀), Fine Particulate Matter (PM_{2.5}), Sulphur Di-oxide (SO₂) and Nitrogen Oxides (NO_x). Respirable Dust Samplers (RDS) and Fine Dust Sampler (PM_{2.5} sampler) were used for sampling of PM₁₀, SO₂, & 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-I, Asansol.

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. Effluent samples were also analyzed for 27 parameters on half-yearly 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 PM₁₀, PM_{2.5}, SO₂ 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 PM₁₀ & 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 MoEFCC 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 MoEFCC 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 (MoEFCC), 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 MoEFCC 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, Hurriladih 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 (MoEFCC) 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 MoEFCC & SPCB and other statutory authorities.

.....

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 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 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° 46. 822' N & 86° 24. 241' E. The sampler was placed at 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 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-I, Asansol.

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).

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 PM₁₀

In **core zone** under **Industrial area** varies from 64 to 93 μm^3

In **buffer zone** in **Industrial area** varies from 64 to 94 μm^3

Particulate Matter PM_{2.5}

In **core zone** under **Industrial area** varies from 31 to 48 μm^3

In **buffer zone** in **Industrial area** varies from 28 to 46 μm^3

Sulphur Dioxide:

In **core zone** under **Industrial area** varies from 10 to 12 μm^3

In **buffer zone** in **Industrial area** varies from 10 to 12 μm^3

Oxides of Nitrogen:

In **core zone** under **Industrial area** varies from 19 to 28 μm^3

In **buffer zone** in **Industrial area** varies from 18 to 27 μm^3

AMBIENT AIR QUALITY DATA

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

Year : **2015-16.**

Name of the Cluster : **Cluster – VII**

Q.E.: **March 2016**

Station Code/Name: (a) A10 Kusunda OCP

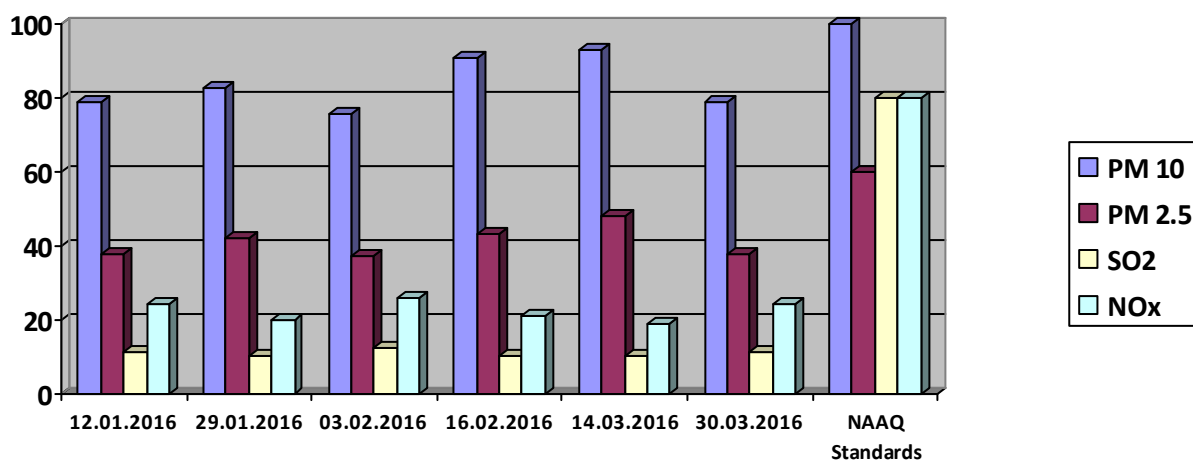
Category: Industrial.

(b) A28 Huririladih UGP

ZONE: Core

(a). Station Code/Name: A10 – Kusunda OCP Category: Industrial.¹

Sl. No.	Dates of sampling	PM 10	PM 2.5	SO ₂	NO _x
1	12.01.2016	79	38	11	24
2	29.01.2016	83	42	<10.0	20
3	03.02.2016	76	37	12	26
4	16.02.2016	91	43	<10.0	21
5	14.03.2016	93	48	<10.0	19
6	30.03.2016	79	38	11	24
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	<0.01	<0.005

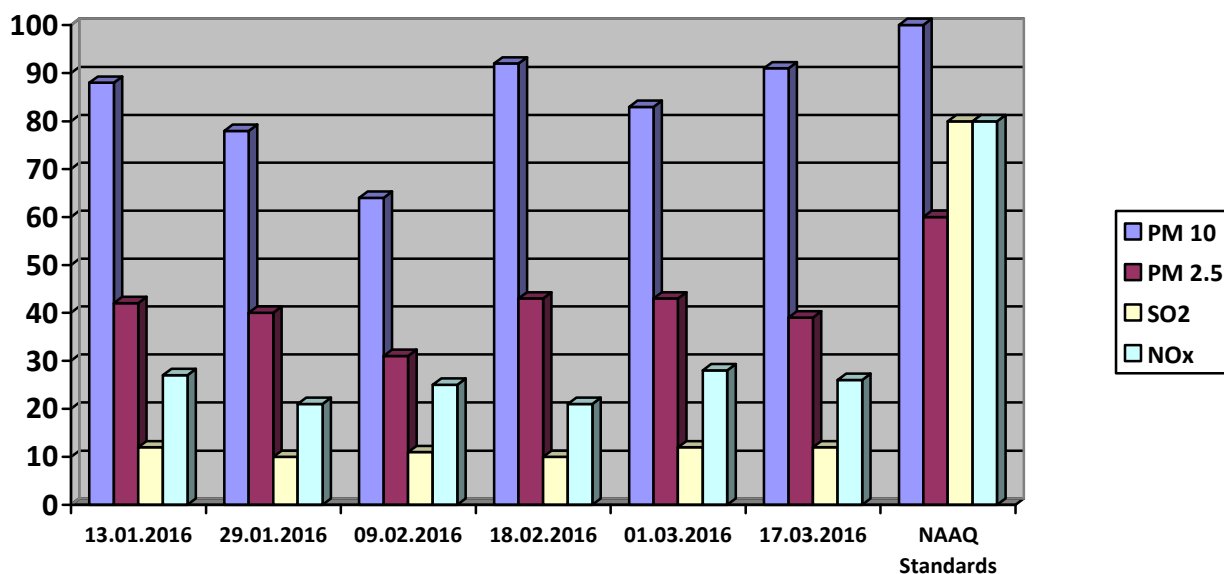
Note:

➤ All values are expressed in microgram per cubic meter.

¹ Report released by Shri Indranil De, Manager (Env), CMPDI, RI-1, Asansol, Signed..........Dated 28.05.2016. Job No. 110310

(b). Station Code/Name: A28 – Hurriladih UGP Category: Industrial.²


Sl. No.	Dates of sampling	PM 10	PM 2.5	SO ₂	NO _x
1	13.01.2016	88	42	12	27
2	29.01.2016	78	40	<10.0	21
3	09.02.2016	64	31	11	25
4	18.02.2016	92	43	<10.0	21
5	01.03.2016	83	43	12	28
6	17.03.2016	91	39	12	26
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	<0.01	<0.005

Note:

- All values are expressed in microgram per cubic meter.

² Report released by Shri Indranil De, Manager (Env), CMPDI, RI-1, Asansol, Signed..........Dated 28.05.2016. Job No. 110310

AMBIENT AIR QUALITY DATA

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

Year : **2015-16.**

Name of the Cluster : **Cluster – VII**

Q.E.: **March 2016**

Station Code/Name: **(a) A11 Dobari UGP**

Category:

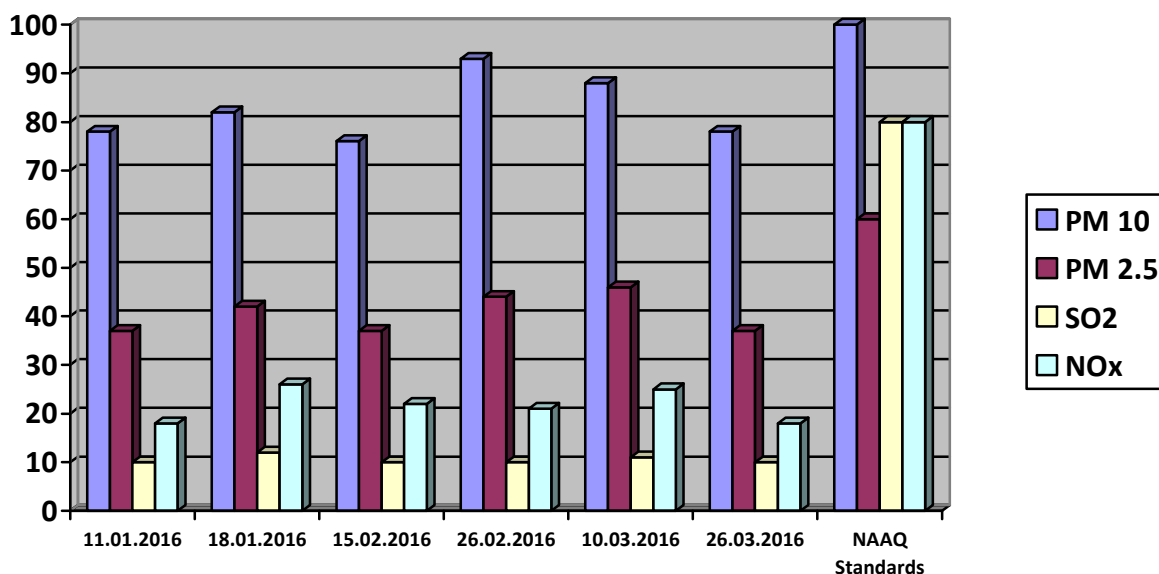
(b) A29 Moonidih Washery

Industrial.

ZONE: BUFFER

(a). Station Code/Name: A11 – Dobari UGP, Category: Industrial.³

Sl. No.	Dates of sampling	PM 10	PM 2.5	SO ₂	NO _x
1	11.01.2016	78	37	<10.0	18
2	18.01.2016	82	42	12	26
3	15.02.2016	76	37	<10.0	22
4	26.02.2016	93	44	<10.0	21
5	10.03.2016	88	46	11	25
6	26.03.2016	78	37	<10.0	18
	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	<0.01	<0.005

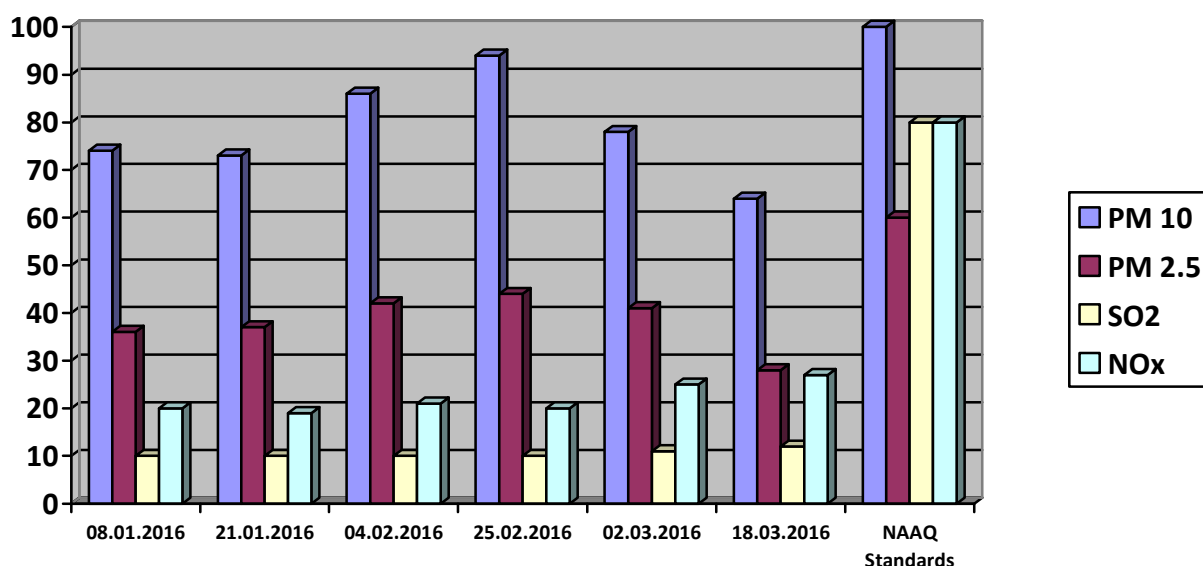
Note:

➤ All values are expressed in microgram per cubic meter.

³ Report released by Shri Indranil De, Manager (Env), CMPDI, RI-1, Asansol, Signed..........Dated 28.05.2016. Job No. 110310

(b). Station Code/Name: A29 – Moonidih washery, Category: Industrial.⁴

Sl. No.	Dates of sampling	PM 10	PM 2.5	SO ₂	NO _x
1	08.01.2016	74	36	<10.0	20
2	21.01.2016	73	37	<10.0	19
3	04.02.2016	86	42	<10.0	21
4	25.02.2016	94	44	<10.0	20
5	02.03.2016	78	41	11	25
6	18.03.2016	64	28	12	27
	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	<0.01	<0.005

Note:

- All values are expressed in microgram per cubic meter.
- 24 hours duration
- Predominant wind direction South – West.


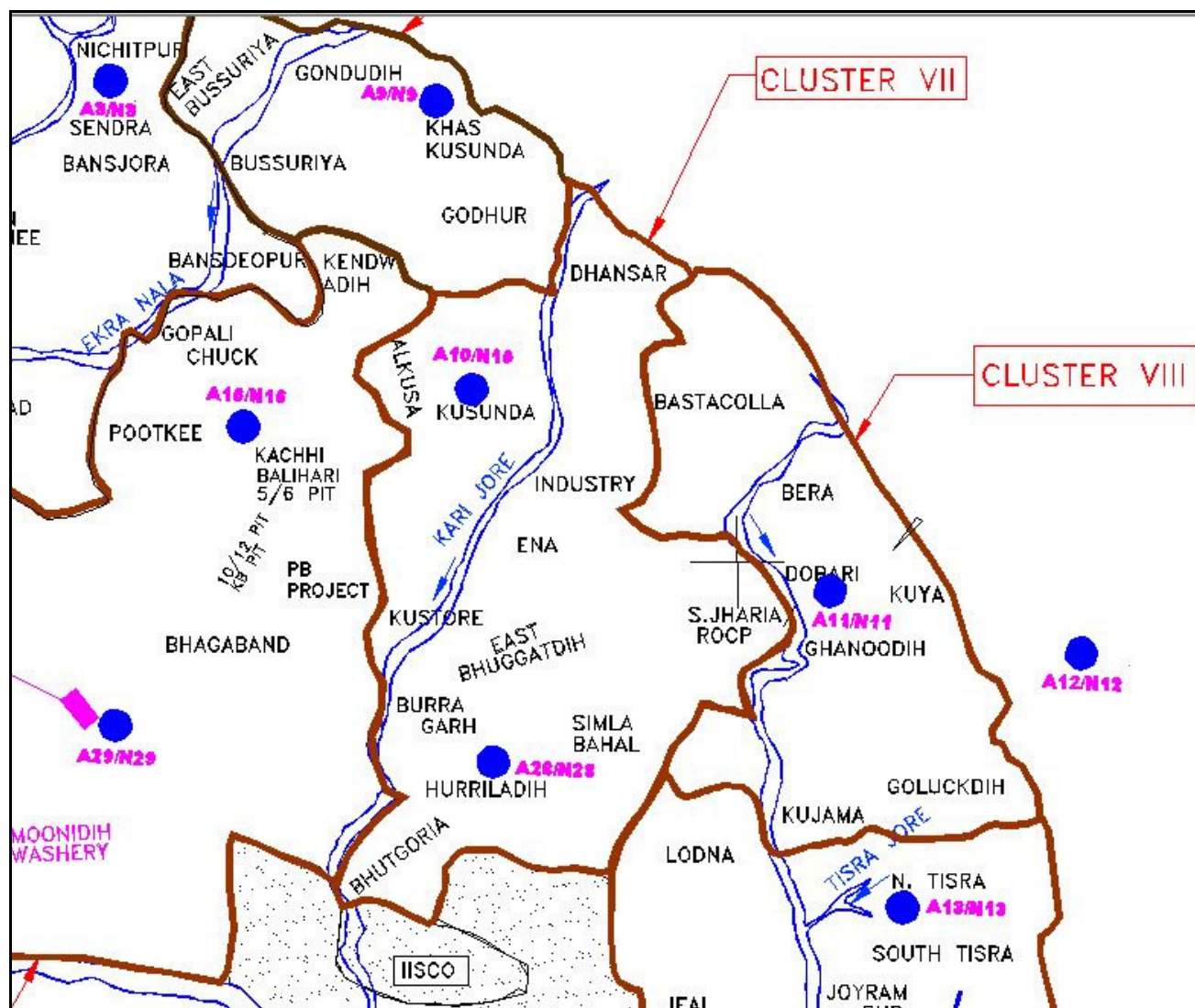
⁴ Report released by Shri Indranil De, Manager (Env), CMPDI, RI-1, Asansol, Signed..........Dated 28.05.2016. Job No. 110310

Fig I: Ambient Air Monitoring Stations in Cluster- VII in Core & Buffer Zones



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
III Coal mines located in the coal fields of <ul style="list-style-type: none"> • Jharia • Raniganj • Bokaro 	Suspended Particulate Matter (SPM)	Annual Average * 24 hours **	500 µg/m ³ 700 µg/m ³	- High Volume Sampling (Average flow rate not less than 1.1 m ³ /minute)
	Respirable Particulate Matter (size less than 10 µm) (RPM)	Annual Average * 24 hours **	250 µg/m ³ 300 µg/m ³	Respirable Particulate Matter sampling and analysis
	Sulphur Dioxide (SO ₂)	Annual Average * 24 hours **	80 µg/m ³ 120 µg/m ³	1.Improved west and Gaeke method 2.Ultraviolet fluorescene
	Oxide of Nitrogen as NO ₂	Annual Average * 24 hours **	80 µg/m ³ 120 µg/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 18th November 2009

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

Pollutant	Time Weighted Average	Concentration in Ambient Air		Methods of Measurement
		Industrial, Residential, Rural and other Areas	Ecologically Sensitive Area (Notified by Central Government)	
Sulphur Dioxide (SO₂), µg/m³	Annual * 24 Hours **	50 80	20 80	-Improved West and Gaeke Method -Ultraviolet Fluorescence
Nitrogen dioxide (NO₂), µg/m³	Annual * 24 Hours **	40 80	30 80	-Jacob & Hochheiser modified (NaOH-NaAsO ₂) Method -Gas Phase Chemiluminescence
Particulate Matter (Size less than 10µm) or PM₁₀, µg/m³	Annual * 24 Hours **	60 100	60 100	-Gravimetric -TEOM -Beta attenuation
Particulate Matter (Size less than 2.5µm) or PM_{2.5}, µg/m³	Annual * 24 Hours **	40 60	40 60	-Gravimetric -TEOM -Beta attenuation
Ozone (O₃), µg/m³	8 Hours * 1 Hour **	100 180	100 180	-UV Photometric -Chemiluminescence -Chemical Method
Lead (Pb), µg/m³	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
Carbon Monoxide (CO), mg/m³	8 Hours ** 1 Hour **	02 04	02 04	-Non dispersive Infrared (NDIR) Spectroscopy
Ammonia (NH₃), µg/m³	Annual * 24 Hours **	100 400	100 400	-Chemiluminescence -Indophenol blue method
Benzene (C₆H₆), µg/m³	Annual *	05	05	-Gas Chromatography (GC) based continuous analyzer -Adsorption and desorption followed by GC analysis
Benzo(a)Pyrene (BaP) Particulate phase only, ng/m³	Annual *	01	01	-Solvent extraction followed by HPLC/GC analysis
Arsenic (As), ng/m³	Annual *	06	06	-AAS/ICP Method after sampling on EPM 2000 or equivalent filter paper
Nickel (Ni), ng/m³	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.

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) Drinking Water Quality at **Hurriladih (DW7)**

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 analysed for four parameters on fortnightly basis. Effluent samples were also analysed for 27 parameters on half-yearly 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 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 Limited** Year : **2015-16.**

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

Month: **January, 2016.**

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
		02.01.2016	
1	Total Suspended Solids	48	100 (Max)
2	pH	6.88	5.5 - 9.0
3	Oil & Grease	<2.0	10 (Max)
4	COD	32	250 (Max)

Second Fortnight

Sl. No.	Parameters	MW7 (Mine Discharge)	As per MOEF General Standards for schedule VI
		25.01.2016	
1	Total Suspended Solids	28	100 (Max)
2	pH	6.98	5.5 - 9.0
3	Oil & Grease	<2.0	10 (Max)
4	COD	20	250 (Max)


Analysed By


Dy. Technical Manager
Env. Lab, CMPDI(HQ)
(Authorized Signatory)

All values are expressed in mg/lit unless specified.

WATER QUALITY DATA

(Effluent Water)

Name of the Company: **Bharat Coking Coal Limited** Year : **2015-16.**

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

Month: **February, 2016.**

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
		03.02.2016	
1	Total Suspended Solids	48	100 (Max)
2	pH	6.69	5.5 - 9.0
3	Oil & Grease	<2.0	10 (Max)
4	COD	36	250 (Max)

Second Fortnight

Sl. No.	Parameters	MW7 (Mine Discharge)	As per MOEF General Standards for schedule VI
		16.02.2016	
1	Total Suspended Solids	44	100 (Max)
2	pH	6.65	5.5 - 9.0
3	Oil & Grease	<2.0	10 (Max)
4	COD	32	250 (Max)


Analysed By


Dy. Technical Manager
Env. Lab, CMPDI(HQ)
(Authorized Signatory)

All values are expressed in mg/lit unless specified.

WATER QUALITY DATA

(Effluent Water)

Name of the Company: **Bharat Coking Coal Limited** Year : **2015-16.**

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

Month: **March, 2016.**

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
		03.03.2016	
1	Total Suspended Solids	44	100 (Max)
2	pH	7.40	5.5 - 9.0
3	Oil & Grease	<2.0	10 (Max)
4	COD	40	250 (Max)

Second Fortnight

Sl. No.	Parameters	MW7 (Mine Discharge)	As per MOEF General Standards for schedule VI
		15.03.2016	
1	Total Suspended Solids	38	100 (Max)
2	pH	8.00	5.5 - 9.0
3	Oil & Grease	<2.0	10 (Max)
4	COD	32	250 (Max)


Analysed By


Dy. Technical Manager
Env. Lab, CMPDI(HQ)
(Authorized Signatory)

All values are expressed in mg/lit unless specified.

WATER QUALITY

(EFFLUENT WATER- ALL PARAMETERS)

Name of the Company: **Bharat Coking Coal Limited** Year : **2015-16.**

Name of the Cluster : **Cluster - VII** Period: **H. E. March, 2016.**

Area : **Dhansar UGP**

Project: **Dhansar UGP** Cluster **VII**

Stations:

1. Mine Water Discharge Dhansar UGP MW-7

Date of Sampling:
15/03/2016

Sl.No.	Parameter	Sampling Stations			Detection Limit	MOEF -SCH-VI STANDARDS Class 'A'	BIS Standard & Method
		MW-7	2	3			
1	Ammonical Nitrogen, mg/l, Max	0.55			0.02	50.0	IS 3025/34:1988, R : 2009, Nessler's
2	Arsenic (as As), mg/l, Max	<0.002			0.002	0.2	IS 3025/37:1988 R : 2003, AAS-VGA
3	B.O.D (3 days 27°C), mg/l, Max	<2.00			2.00	30.0	IS 3025 /44:1993.R:2003 3 day incubation at 27°C
4	COD, mg/l, Max	32			4.00	250.0	APHA, 22 nd Edition, Closed Reflux, Titrimetric
5	Colour	colourless			Qualitative	Qualitative	Physical/Qualitative
6	Copper (as Cu), mg/l, Max	<0.03			0.03	3.0	IS 3025/42: 1992 R : 2009, AAS-Flame
7	Dissolved Phosphate, mg/l, Max	<0.30			0.30	5.0	APHA, 22 nd Edition Molybdovanadate
8	Fluoride (as F) mg/l, Max	0.74			0.02	2.0	APHA, 22 nd 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 nd 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 nd 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	<0.10			0.10	3.0	IS-3025/54:2003, AAS-Flame
15	Nitrate Nitrogen, mg/l, Max	<0.5			0.50	10.0	APHA, 22 nd 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	8.00			2.5	5.5 to 9.0	IS-3025/11:1983, R-1996, Electrometric
19	Phenolic compounds (as C ₆ H ₅ OH),mg/l, Max	<0.002			0.002	1.0	APHA, 22 nd Edition 4-Amino Antipyrine
20	Selenium (as Se), mg/l, Max	<0.002			0.002	0.05	APHA, 22 nd Edition, AAS-GTA
21	Sulphide (as SO ₃), mg/l, Max	<0.005			0.005	2.0	APHA, 22 nd Edition Methylene Blue
22	Temperature (°C)	36.1			Shall not exceed 5° C above the receiving temp.		IS-3025/09:1984, Thermometric
23	Total Chromium (as Cr), mg/l, Max	<0.04			0.04	2.0	IS-3025/52:2003, AAS-Flame
24	Total Kjeldahl Nitrogen, mg/l, Max	1.4			1.00	100.0	IS:3025/34:1988, Nessler's
25	Total Residual Chlorine, mg/l, Max	0.04			0.02	1.0	APHA, 22 nd Edition, DPD
26	Total Suspended Solids, mg/l, Max	38			10.00	100.0	IS 3025/17:1984, R :1996, Gravimetric
27	Zinc (as Zn), mg/l, Max	0.06			0.01	5.0	IS 3025 /49 : 1994, R : 2009, AAS-Flame

Analysed By

Dy. Technical Manager
Env. Lab, CMPDI(HQ)
(Authorized Signatory)

WATER QUALITY

(SURFACE WATER- ALL PARAMETERS)

Name of the Company: **Bharat Coking Coal Limited** Year : **2015-16.**

Name of the Cluster : **Cluster - VII** Period: **Q. E. March, 2016.**

Area : **Dhansar UGP**

Project: **Dhansar UGP** Cluster **VII**

Stations:

1. Upstream in Kari Jore SW-16
2. Downstream in Kari Jore SW-17

Date of Sampling:
11/03/2016
11/03/2016

Sl. No	Parameter	Sampling Stations				Detection Limit	BIS Standard & Method
		SW-16	SW-17	3	4		
1	Arsenic (as As), mg/l, Max	<0.002	<0.002			0.002	IS 3025/37:1988 R : 2003, AAS-VGA
2	BOD (3 days 27°C), mg/l, Max	2.4	2.6			2.00	IS 3025 /44: 1993, R : 2003 3 day incubation at 27°C
3	Colour (Hazen Unit)	colourless	colourless			Qualitative	Physical/Qualitative
4	Chlorides (as Cl), mg/l, Max	80	92			2.00	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03	<0.03			0.03	IS 3025 /42 : 1992 R : 2009, AAS-Flame
6	Dissolved Oxygen, min.	3.2	2.5			0.10	IS 3025/38:1989, R : 2003, Winkler Azide
7	Fluoride (as F) mg/l, Max	0.98	1.09			0.02	APHA, 22 nd Edition SPADNS
8	Hexavalent Chromium, mg/l, Max	<0.01	<0.01			0.01	APHA, 22 nd Edition, 1,5 - Diphenylcarbohydrazide
9	Iron (as Fe), mg/l, Max	<0.06	<0.06			0.06	IS 3025 /53 : 2003, R : 2009 , AAS-Flame
10	Lead (as Pb), mg/l, Max	<0.005	<0.005			0.005	APHA, 22 nd Edition AAS-GTA
11	Nitrate (as NO ₃), mg/l, Max	11.96	14.18			0.50	APHA, 22 nd Edition, UV-Spectrophotometric
12	pH value	7.27	7.05			2.5	IS-3025/11:1983, R-1996, Electrometric
13	Phenolic compounds (as C ₆ H ₅ OH), mg/l, Max	<0.002	<0.002			0.002	APHA, 22 nd Edition 4-Amino Antipyrine
14	Selenium (as Se), mg/l, Max	<0.002	<0.002			0.002	APHA, 22 nd Edition AAS-GTA
15	Sulphate (as SO ₄) mg/l, Max	59	85			2.00	APHA, 22 nd Edition Turbidity
16	Total Dissolved Solids, mg/l, Max	296	328			25.00	IS 3025 /16:1984 R : 2006, Gravimetric
17	Zinc (as Zn), mg/l, Max	0.018	0.011			0.01	IS 3025 /49 : 1994, R : 2009, AAS-Flame


Analysed By


Dy. Technical Manager
Env. Lab, CMPDI(HQ)
(Authorized Signatory)

WATER QUALITY

(DRINKING WATER- ALL PARAMETERS)

Name of the Company: **Bharat Coking Coal Limited** Year : **2015-16.**

Name of the Cluster : **Cluster - VII** Period: **Q. E. March, 2016.**

Area : **Dhansar UGP**

Project: **Dhansar UGP**

Cluster **VII**

Stations:

1. Drinking Water from Hurriladih DW-7

Date of Sampling:
16/03/2016

Sl.No	Parameter	Sampling Stations			Detection Limit	IS:10500 Drinking Water Standards	Standard / Test Method
		DW-7	2	3			
1	Boron (as B), mg/l, Max	<0.20			0.20	0.5	APHA, 22 nd Edition ,Carmin
2	Colour,in Hazen Units	2			1	5	APHA, 22 nd Edition ,Pt.-Co. Method
3	Calcium (as Ca), mg/l, Max	80			1.60	75	IS-3025/40:1991, EDTA
4	Chloride (as Cl), mg/l, Max	64			2.00	250	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03			0.03	0.05	IS 3025/42 : 1992 R : 2009, AAS-Flame
6	Fluoride (as F) mg/l, Max	0.72			0.02	1.0	APHA, 22 nd Edition , SPADNS
7	Free Residual Chlorine, mg/l, Min	0.06			0.02	0.2	APHA, 22 nd 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 nd Edition, AAS-GTA
10	Manganese (as Mn), mg/l, Max	0.025			0.02	0.1	IS-3025/59:2006, AAS-Flame
11	Nitrate (as NO ₃), mg/l, Max	2			0.5	45	APHA, 22 nd Edition, UV-Spectrophotometric
12	Odour	Agreeable			Qualitative	Agreeable	IS 3025 /05:1983, R-2012, Qualitative
13	pH value	8.19			2.5	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric
14	Phenolic compounds (as C ₆ H ₅ OH), mg/l, Max	<0.001			0.001	0.001	APHA, 22 nd Edition,4-Amino Autipyrine
15	Selenium (as Se), mg/l, Max	<0.002			0.002	0.01	APHA, 22 nd Edition, AAS-GTA
16	Sulphate (as SO ₄) mg/l, Max	136			2.00	200	APHA, 22 nd Edition. Turbidity
17	Taste	Acceptable			Qualitative	Acceptable	APHA, 22 nd Edition. Taste
18	Total Alkalinity (c _a CO ₃), mg/l, Max	232			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	736			25.00	500	IS 3025 /16:1984 R : 2006, Gravimetric
22	Total Hardness (c _a CO ₃), mg/l, Max	480			4.00	200	IS-3025/21:1983, R-2002, EDTA
23	Turbidity, NTU, Max	4			1.0	1	IS-3025/10:1984 R-1996, Nephelometric
24	Zinc (as Zn), mg/l, Max	0.018			0.01	5.0	IS 3025/ 49 : 1994, R : 2009, AAS-Flame

[Signature]
Analysed By

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18/5/16
Dy. Technical Manager
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(Authorized Signatory)

WATER QUALITY

(GROUND WATER- ALL PARAMETERS)

Name of the Company: **Bharat Coking Coal Limited** Year : **2015-16.**

Name of the Cluster : **Cluster - VII** Period: **Q. E. March, 2016.**

Area : **Dhansar UGP**

Project: **Dhansar UGP**

Cluster **VII**

Stations:

1. Ground Water from Dhansar Mine Rescue Station GW-7

Date of Sampling:
29/02/2016

Sl.No	Parameter	Sampling Stations			Detection Limit	IS:10500 Drinking Water Standards	Standard / Test Method
		GW-7	2	3			
1	Boron (as B), mg/l, Max	<0.20			0.20	0.5	APHA, 22 nd Edition ,Carmin
2	Colour,in Hazen Units	<1			1	5	APHA, 22 nd Edition ,Pt.-Co. Method
3	Calcium (as Ca), mg/l, Max	42			1.60	75	IS-3025/40:1991, EDTA
4	Chloride (as Cl), mg/l, Max	90			2.00	250	IS-3025/32:1988, R-2007, Argentometric
5	Copper (as Cu), mg/l, Max	<0.03			0.03	0.05	IS 3025/42 : 1992 R : 2009, AAS-Flame
6	Fluoride (as F) mg/l, Max	0.26			0.02	1.0	APHA, 22 nd Edition , SPADNS
7	Free Residual Chlorine, mg/l, Min	0.03			0.02	0.2	APHA, 22 nd 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 nd 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 ₃), mg/l, Max	16			0.5	45	APHA, 22 nd Edition, UV-Spectrophotometric
12	Odour	Agreeable			Qualitative	Agreeable	IS 3025 /05:1983, R-2012, Qualitative
13	pH value	7.93			0.20	6.5 to 8.5	IS-3025/11:1983, R-1996, Electrometric
14	Phenolic compounds (as C ₆ H ₅ OH), mg/l, Max	<0.001			0.001	0.001	APHA, 22 nd Edition,4-Amino Antipyrine
15	Selenium (as Se), mg/l, Max	<0.002			0.002	0.01	APHA, 22 nd Edition, AAS-GTA
16	Sulphate (as SO ₄) mg/l, Max	76			2.00	200	APHA, 22 nd Edition. Turbidity
17	Taste	Acceptable			Qualitative	Acceptable	APHA, 22 nd Edition. Taste
18	Total Alkalinity (c _a CO ₃),, mg/l, Max	152			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	388			25.00	500	IS 3025 /16:1984 R : 2006, Gravimetric
22	Total Hardness (c _a CO ₃), mg/l, Max	156			4.00	200	IS-3025/21:1983, R-2002, EDTA
23	Turbidity, NTU, Max	<1			1.0	1	IS-3025/10:1984 R-1996, Nephelometric
24	Zinc (as Zn), mg/l, Max	0.045			0.01	5.0	IS 3025/ 49 : 1994, R : 2009, AAS-Flame


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CHAPTER - IV

NOISE LEVEL QUALITY MONITORING

4.1 Location of sampling sites and their rationale

i) **Kusunda OCP (N10)**

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

ii) **Hurriladih UGP (N28)**

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

iii) **Dobari UGP (N11)**

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

iv) **Moonidih Washery (N29)**

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

4.2 Methodology of sampling and analysis

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

4.3 Results & Interpretations

Ambient noise levels were recorded during day and night time and the observed values were compared with standards prescribed by MoEFCC.

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

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

NOISE LEVEL DATA

Name of the Company: **Bharat Coking** Year : **2015-16.**

Coal Limited

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

Month: **January, 2016.**

Name of the Stations & Code :

1. **Kusuda OCP (N10)**
2. **Hurriladih 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	12.01.2016	63.8	75
2	Hurriladih UGP (N28)	Industrial area	13.01.2016	60.7	75
3	Dobari UGP (N11)	Industrial area	11.01.2016	59.7	75
4	Moonidih Washery (N29)	Industrial area	08.01.2016	60.6	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	29.01.2016	62.6	75
2	Hurriladih UGP (N28)	Industrial area	29.01.2016	57.3	75
3	Dobari UGP (N11)	Industrial area	18.01.2016	62.4	75
4	Moonidih Washery (N29)	Industrial area	21.01.2016	59.8	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, +Night Time: 10.00 PM to 6.00 AM.

¹ Report released by Shri Indranil De, Manager (Env), CMPDI, RI-1, Asansol, Signed..........Dated 28.05.2016. Job No. 110310

NOISE LEVEL DATA

Name of the Company: **Bharat Coking Coal Limited** Year : **2015-16.**

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

Month: **February, 2016.**

Name of the Stations & Code :

1. Kusuda OCP (N10)
2. Hurriladih 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	Kusuda OCP (N10)	Industrial area	03.02.2016	61.3	75
2	Hurriladih UGP (N28)	Industrial area	09.02.2016	62.8	75
3	Dobari UGP (N11)	Industrial area	15.02.2016	63.4	75
4	Moonidih Washery (N29)	Industrial area	04.02.2016	61.3	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	16.02.2016	58.7	75
2	Hurriladih UGP (N28)	Industrial area	18.02.2016	63.7	75
3	Dobari UGP (N11)	Industrial area	26.02.2016	61.6	75
4	Moonidih Washery (N29)	Industrial area	25.02.2016	62.6	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, +Night Time: 10.00 PM to 6.00 AM.

² Report released by Shri Indranil De, Manager (Env), CMPDI, RI-1, Asansol, Signed..........Dated 28.05.2016. Job No. 110310

NOISE LEVEL DATA

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

Year : **2015-16.**

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

Month: **March, 2016.**

Name of the Stations & Code :

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

a. First 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	Kusuda OCP (N10)	Industrial area	14.03.2016	55.6	75
2	Hurriladih UGP (N28)	Industrial area	01.03.2016	55.8	75
3	Dobari UGP (N11)	Industrial area	10.03.2016	64.8	75
4	Moonidih Washery (N29)	Industrial area	02.03.2016	61.8	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	Kusuda OCP (N10)	Industrial area	30.03.2016	64.8	75
2	Hurriladih UGP (N28)	Industrial area	17.03.2016	54.7	75
3	Dobari UGP (N11)	Industrial area	26.03.2016	59.2	75
4	Moonidih Washery (N29)	Industrial area	18.03.2016	58.7	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, +Night Time: 10.00 PM to 6.00 AM.


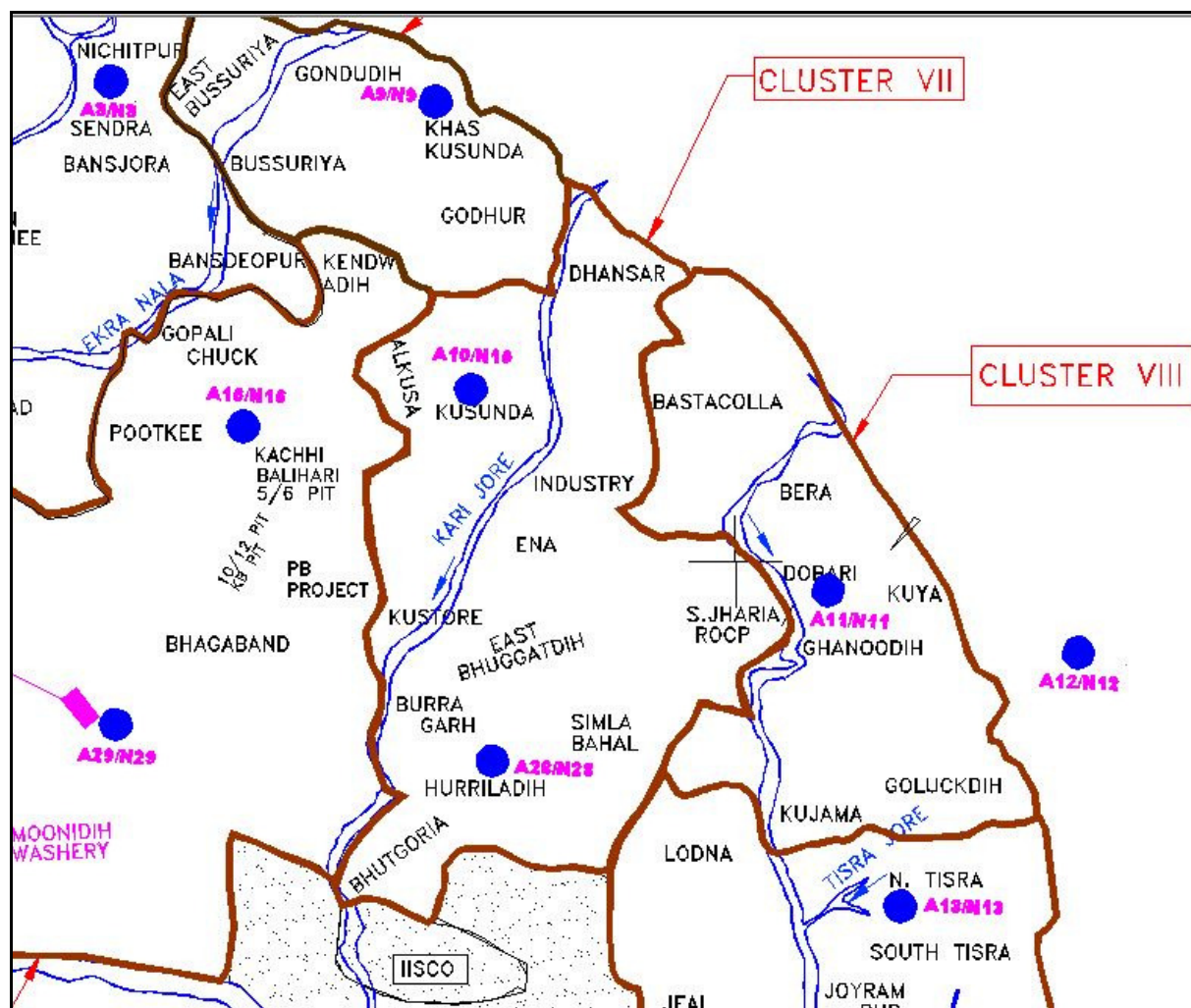
³ Report released by Shri Indranil De, Manager (Env), CMPDI, RI-1, Asansol, Signed..........Dated 28.05.2016. Job No. 110310

Fig: Noise Level Monitoring Location of Cluster VII



Location of Air & Noise Monitoring Stations in BCCL

