भारत कोकिंग कोल लिमिटेड
( कोल इण्डिया लिमिटेड का एक अंग)
ऐक मिनीरतन कम्पनी
क्षेत्र त. – 7

**Bharat Coking Coal Limited**
(A Subsidiary of Coal India Limited)
**A Miniratna Company**
P.B. Area No. VII
OFFICE OF THE GENERAL MANAGER
P.O. – Kusunda, Dhanbad. Pin-828116
**CIN : U10101JH1972GOI000918**

**By Speed Post**

Ref. No.: BCCL/PBA/G.M/2018-19/291 Date: - 06-12-2018

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 April' 2018 to September' 2018 in respect of Cluster VII group of Mines.**

Ref No.: **J-11015/238/2010-1A. II (M) dated 06.02.2013**

Dear Sir,

Kindly, find enclosed herewith six monthly EC Compliance report for the period from April 2018 to September 2018 in respect of Cluster VII group of mines.

Thanking You,

Encl: EC Compliance Report

Yours sincerely,
6/12/18
General Manager
P.B. Area
General Manager
Pootkee Balihari Area
Bharat Coking Coal Ltd.

**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. Add. General Manager, Kusunda Area
4. HOD (Environment), BCCL Koyla Bhawan.
5. Project Officer (Burragarh, hurriladih)

# COMPLIANCE OF EC CONDITIONS of CLUSTER-VII (Part)

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

**(April '18 to Sept'18)**

| 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 is **6.227 MTPA** & **8.161 MTPA** respectively. The total production of the mines under cluster VII is **1.26 MT** in the F. Year **2018-'19 (up to Sept'18) which is well within the limit.** Enclosed as **Annexure-A.** |
| ii | **The measure identified in the environmental plan for cluster VII groups of mine and the conditions given in this environmental clearance letter shall be dovetailed to the implementation of the Jharia Action Plan.** | Master Plan activities are dovetailed with compliance of environmental clearance conditions. The master plan deals with fire control and rehabilitation activities of fire affected areas in the leasehold of BCCL.<br>By implementing complete digging out of fiery seams with water spraying in force as fire control measures air pollution and emission of Green House Gases (GHGs) from the fire affected areas are being prevented. Further rehabilitation of the families from the fire endangered area to the safe places is being taken-up with the help of State Govt. of Jharkhand.<br>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-B.** |
| iii | **The proponent shall prepare time -series maps of the Jharia Coalfields through NRSA to monitor and prevent fire problems in the Jharia Coalfields by Isothermal mapping /imaging and monitoring temperatures of the coal seams (whether they are close to spontaneous ignition temperatures) and based on which, areas with potential fire problems shall be identified.**<br>**Measures to prevent ingress of air (Ventilation) in such areas, to prevent restart fresh/spread fires in other areas including in mines of cluster VII shall be undertaken.** | NRSC had conducted survey of fires of Jharia coalfield by remote sensing methods using thermal infra-red data and land subsidence mapping of Jharia coalfield using Inter-ferometic SAR data. Total fire affected area in Jharia Coalfield has been reduced. Report of NRSC has been attached herewith. Further, the work has been awarded and the next survey by NRSC will be started soon.<br><br>For evacuation of persons from fire affected areas JRDA has nearly completed survey the basties at fire affected area for evacuation & rehabilitation of the inhabitants under Jharia Master Plan and partially distributed Identity Cards, but evacuation of non-BCCL persons have not yet been done by JRDA. Colliery Management have allotted |

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| | | quarters at other safe place to employees residing at/near fire affected area for their early evacuation and accordingly shifting of employees is going on at the allotted quarters at newly constructed colonies at East Bassuriya, Jagjivan Nagar and Karmik Nagar.<br>In Kusunda OC, fiery coal patches are being dug out for the purpose of dealing with fire. After re-start of workings of Ena OC fiery seam will be completely dug out. At Alkusa mine, measures have been taken as per CMR'57 and DGMS Guidelines to control ug fire and entrances have been filled/sealed to stop ingress of air into fire affected area. |
| iv | **Underground mining should be taken up after completion of reclamation of Opencast mine area after 13 years.** | It shall be complied. |
| v | **No mining shall be undertaken where underground fires continue. Measure shall be taken to prevent/ check such fire including in old OB dump areas where the fire could start due to presence of coal /shale with sufficient carbon content.** | Action is being taken to control, mine fires as specified in Jharia Master Plan and the mining in fiery seam is being done by OC method as per the guidelines and permissions of Directorate General of Mines Safety (DGMS). |
| vi | **The rejects of washeries in Cluster –VII should be send to FBC based plant.** | Coal washery does not exist in this Area. |
| vii | **There shall be no external OB dumps. OB produce from the whole cluster will be 378.86 Mm3. OB from 5 OCP mine shall be backfilled. At the end of the mining there shall be no void and the entire mined out area shall be re-vegetated. Areas where opencast mining was carried out and completed shall be reclaimed immediately thereafter.** | It shall be complied. Action is being taken as specified in EMP. Backfilling of OB is going on concurrent with mining and at the end of mining activity the area will be re-vegetated and reclaimed as per EMP. |
| viii | **A detailed calendar plan of production with plan for OB dumping and backfilling (for OC mines) and reclamation and final mine closure plan for each mine of cluster-VII shall be drawn up and implemented.** | Progressive Mine closure plan, as per the guidelines of Ministry of Coal has been prepared by Regional Institute –II, Central Mine planning and Design Institute(CMPDI), Dhanbad. MCP is being implemented in mines. |
| ix | **The void shall be converted into a water reservoir of a maximum depth of 15-20 m and shall be gently sloped and the upper benches of the reservoir shall be stabilized with plantation and the periphery of the reservoir fenced. The abandoned pits and voids should be backfilled with OB and biologically reclaimed with plantation and or may be used** | It shall be complied, if safety permits. |

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| | **for pisciculture** | |
| x | **Mining shall be carried out as per statuette from the streams/nalas flowing within the lease and maintaining a safe distance from the Nalas flowing along the lease boundary. A safety barrier of a minimum 60m width shall be maintained along the nalas/water bodies. The small water bodies in OC shall be protected to the extent feasible and the embankment proposed along water body shall be strengthened with stone pitching.** | It is being followed. Embankments have been constructed and maintained as specified in EC |
| xi | **Active OB dumps near water bodies and rivers should be rehandled for backfilling abandoned mine voids. However, those which have been biologically reclaimed need not be disturbed.** | No OB is being dumped near water bodies. |
| xii | **Thick green belt shall be developed along undisturbed areas, mine boundary and in mine reclamation. During post mining stage, a total of 794.09 ha area would be reclaimed. The total additional area under plantation would be 1165.67 ha (90.78 ha abandoned quarry area, 516 ha active quarry area, 27.31 OB dump outside quarry area, 38.55 ha service building /mine infrastructure area /coal dump etc, 395 ha green belt around OCP, 98.5 ha barren area), by planting 2914150 plants at a total cost of Rs 642.20 lakhs.** | It shall be complied. Plantation at decoaled area is already being executed for development of green belts as per EC. At degraded OB dump sites at decoaled zone, eco-restoration work is in successful progress.<br>Details of plantation done and programme of eco-restoration are enclosed in **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 is being complied. |
| xiv | **Specific mitigative measures identified for the Jharia Coalfields in the Environmental Action Plan prepared for Dhanbad as a critically polluted area and relevant for Cluster VII shall be implemented.** | Dhanbad Action Plan has been prepared in consultation with Jharkhand Pollution Control Board for entire BCCL and not cluster wise. It is being implemented comprehensively for all the mines of BCCL. Some of the salient actions of this cluster are enclosed in **Annexure-D**. |

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| 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.** | Work Order for source apportionment study has already been issued to NEERI Nagpur on 12.05.2018. And work has been started in September 2018. **Enclosed as Annexure-E.** |
| xvi | **No groundwater shall be used for the mining activities. Additional water required, if any, shall be met from mine water or by recycling/reuse of the water from the existing activities and from rainwater harvesting measures.**<br>**The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry to dewatering of mine** | No ground water is being utilized for the purpose of industrial use. Mine water has been channelized through pipelines and through delivery in to the old quarry for its community use & industrial use. Drinking water is being purchased from the Mineral Area Development Authority (MADA). |
| xvii | **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 dome four times a year in pre-monsoon (May), monsoon (August), post-monsoon (November) and winter (January) seasons and for quality including Arsenic and Fluoride during the month of May. Data thus collected shall be submitted to the Ministry of Environment & Forest and to the Central Pollution Control Board/SPCB quarterly within one month of monitoring. Rainwater harvesting measures shall be undertaken in case monitoring of water table indicates a declining trend.** | Tender was done on 28.04.2017. Only one bidder applied who could not fulfil the eligibility criteria. Hence, that tender was cancelled and retendering in process. |

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| xviii | **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.** | Being complied. The work of monitoring of ambient air and water is being carried out by CMPDI. |
| xix | **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** | It shall be complied. |
| xx | **Regular monitoring of subsidence movement on the surface over and around the working area and impact on natural drainage pattern, water bodies, vegetation, structure, roads, and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence movement, appropriate effective corrective measures shall be taken to avoid loss of life and material. Cracks shall be effectively plugged with ballast and clayey soil/suitable material.** | At present no underground workings is in operation (except pumping mine water). |
| xxi | **Sufficient coal pillars shall be left unextracted around the air shaft (within the subsidence influence area) to protect from any damage from subsidence, if any.** | complied. Action is being taken as specified in EMP. |
| xxii | **High root density tree species shall be selected and planted over areas likely to be affected by subsidence** | It will be complied, if required |
| xxiii | **Depression due to subsidence resulting in water accumulating within the low lying areas shall be filled up or drained out by cutting drains.** | It will be complied, if required. |
| xxiv | **Solid barriers shall be left below the roads falling within the blocks to avoid any damage to the roads.** | It has been complied and maintained |
| xxv | **No depillaring operation shall be carried out below the township/colony.** | At present no ug working is under operation. |
| 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** | CMPDIL, RI-II has been requested to conduct study and prepare the plan in this regard.<br>At present transportation is being done by covering vehicle with tarpaulin cover. |

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| | **with Jharia Action Plan. The road transpiration of coal during phase–I should be by mechanically covered trucks.** | |
| xxvii | **A study should be initiated to analyze extent of reduction in pollution load every year by reducing road transport** | CMPDI RI-2 has done the study. Report is 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 croup of mines. Specific activities shall be identified for CSR the budget of Rs. 311.35 Lakhs per year@ Rs 5/T of coal as recurring expenditure. The 143 ha of area within Cluster VII ML existing as waste land and not being acquired shall be put to productive use under CSR and developed with fruit bearing and other useful species for the local communities. In addition to afforesting 794.09 ha of area at the post-mining stage, 135.5 ha waste land /barren land within Cluster VII ML shall be rehabilitated/reclaimed as forest/agricultural land under CSR Plan in consultation with local communities. Third party evaluation shall be got carried out regularly for the proper implementation of activities undertaken in the 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.** | CSR activities are being taken up on priority basis. The details of activities are enclosed in the CSR booklet as **Annexure G** |
| xxx | **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,** | Presently a time series map of vegetation cover in the Jharia Coal Field is being carried out through CMPDI Ranchi using satellite imagery for every 3 years. CMPDI has started to prepare "Time series |

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| | **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.** | of land use maps based on satellite imagery of the core zone and buffer zone. |
| xxx i | **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.** | CMPDI has prepared Mine Closure Plan for progressive mine closure activities which are being implemented at mines. Final Mine Closure Plan will be prepared in time. |
| xxx ii | **A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company for implementing environment policy and socio-economic issues and the capacity building required in this regard.** | A full-fledged Environment Department, headed by a HoD (Environment) along with a suitable qualified multidisciplinary team of executives. has been established in Headquarters. They are also trained in ecological restoration, sustainable development, rainwater harvesting methods etc. At the Area level, one Executive in area has also been nominated as Nodal Officer (Environment) under. General Manager of Area to co-ordinate environmental issues to the Project Officer of mine and one officer at each mine level, under Project Officer is looking after the environment related jobs and also entrusted with the responsibility of compliance and observance of the environmental Acts/ Laws including environment protection measures .The activities are monitored on regular basis at Area and at 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.<br>The team is multidisciplinary and very much motivative under the guidance of company's Director (Technical) and CMD. Further capacity building at both corporate and operating level is being done. |

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| xxx iii | **Implementation of final mine closure plan for Cluster VII, subject to obtaining prior approval of the DGMS in regard to mine safety issues** | Final Mine Closure Plan, as per the guideline will be submitted 5 years before the final closure of the Mine. For the purpose of safety issues related to the closure prior approval of DGMS will be taken in this regard. |
| xxx iv | **Corporate Environment Responsibility:** | |
| | **a) The Company shall have a well laid down Environment Policy approved by the Board of Directors.** | A well-defined Corporate Environment Policy has already been laid down and approved by the Board of Directors. This is also posted on BCCL website. |
| | **b) 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.** | Complied. |
| | **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.** | A hierarchical system of the company to deal with environmental issues from corporate level to mine level already exists. |
| | **To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large** | Being complied. |
| **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.** | Being followed. |
| ii | **No change in the calendar plan of production for quantum of mineral coal shall be made.** | Being followed. 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 NOx monitoring. Location of the stations shall be decided based on the meteorological** | Air quality monitoring stations and monitoring of ambient environment has been established after consultation with State Pollution Control Board. CMPDIL is presently doing the monitoring work. Results of monitoring is enclosed as **Annexure H**. |

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| | **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.** | |
| 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 recognized under the EPA rules, 1986 shall be furnished as part of compliance report.** | It shall be complied. Enclosed as **Annexure I** |
| v | **Adequate measures shall be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with ear plugs/muffs.** | Being Complied. |
| vi | **Industrial wastewater (workshop and wastewater from the mine) shall be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993 or as amended from time to time before discharge. Oil and grease trap shall be installed before discharge of workshop effluents.** | It is being followed .Mine discharged water is being reutilized for industrial purposes (sprinkling, cooling/ fire control etc.) |
| vii | **Vehicular emissions shall be kept under control and regularly monitored. Vehicles used for transporting the mineral shall be covered with tarpaulins and optimally loaded.** | It is being complied. |
| viii | **Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring and analysis equipment in consultation with the State Pollution Control Board and data got analyzed through a laboratory recognized under EPA Rules, 1986.** | Air quality monitoring stations and monitoring of ambient environment has been established after consultation with State Pollution Control Board. The monitoring work is being carried out by CMPDIL. |

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| ix | **Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training and information on safety and health aspects.** | 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. Status of training is shown in annexure-F |
| 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). Status of PME is shown in **Annexure-J** |
| xi | **A separate environmental management cell with suitable qualified personnel shall be set up under the control of a Senior Executive, who will report directly to the Head of the company.** | A full-fledged Environment Department, headed by a HoD (Environment) along with a suitable qualified multidisciplinary team of executives. They are also trained in ecological restoration, sustainable development, rainwater harvesting methods etc. At the Area level, one Executive in each area has also been nominated as Nodal Officer (Environment) under General Manager of Area and at Project level, one executive under Project Officer is looking after the environment related jobs and also entrusted with the responsibility of compliance and observance of the environmental Acts/ Laws including environment protection measures. The activities are monitored on regular basis at Area and at 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.<br>The team is multidisciplinary and very much motivated under the guidance of company's Director (Technical) and CMD. Further capacity building at both corporate and operating level is being done. |
| xii | **The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other** | It is being complied. |

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| | **purpose. Year-wise expenditure shall be reported to this Ministry and its Regional Office at Bhubaneswar.** | |
| xiii | **The Project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in the vernacular language of the locality concerned within seven days of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and may also be seen at the website of the ministry of Environment & Forests at http://envfor.nic.in.** | It has been complied. |
| xiv | **A copy of the environmental clearance letter shall be marked to concern Panchayat/ZilaParishad, Municipal corporation 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 displayed at the Regional Office, District Industry Sector and Collector's Office/Tehsildar's Office for 30 days.** | Complied. |
| xvi | **The clearance letter shall be uploaded on the company's website. The compliance status of the stipulated environmental clearance conditions shall also be uploaded by the project authorities on their website and updated at least once every six months so as to bring the same in public domain. The monitoring data of environmental quality parameter (air, water, noise and soil) and critical pollutant such as $PM_{10}$, $PM_{2.5}$, $SO_2$ and $NO_x$ (ambient) and critical sectoral parameters shall also be displayed at the entrance of the project premises and mine** | Complied. |

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| | **office and in corporate office and on company's website.** | |
| xvii | **The project proponent shall submit six monthly compliance reports on status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the Ministry, respective Zonal 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 *inter-alia*, under the provisions of the Water (Prevention & Control of Pollution)** | It is being complied. |

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| | **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.** | |
| 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. |

5/12/18

Nodal Officer (Env.)
P.B. Area

5-12-2018

Project Officer
Burragarh/Hurriladih

5-12-18

Add.GeneralManager
Kusunda

# ANNEXURE-A

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

2. **<u>OB BACKFILLING PROGRAMME</u>**

At Kusunda OC- Mine is currently not running

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

# ANNEXURE-B

## STATUS OF JHARIA MASTER PLAN DOVETAILED WITH ENVIRONMENT CLEARANCE CONDITIONS

### Rehabilitation and Fire control measures

**Socio-Economic Survey:**

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

**Accommodation provided in Satellite Township:**

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

**Status of fire Dealing:**

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

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

At Kusunda Colliery total firey coal are being dug out as a measure of fire dealing with the deployment of hired HEMM, and at Ena OC, after restart, total firey coal will be dug out. The underground workings of Alkusa Colliery have been sealed due to fire threats after taking measures to control UG fire as per CMR'57 and DGMS guidelines. The coal reserve of Alkusa Colliery will be extracted from Kusunda OC side. For control and monitoring of threat of subsidence at fire affected area within Godhur lease hold special attention has been made by mine management, at Godhur OC total firey coal are being dug out as a measure of fire dealing with the deployment of hired HEMM. At Dhansar-Industry Colliery complete digging of fiery coal of X seam by OC method is being done with water jet through pipe line and submersible pump installed at Industry 2Pit in addition by fire-tender.

# ANNEXURE-C

**Ecological Restoration and Plantation Under Cluster VII**

- Plantation- At Gondudih- Khas Kusunda Colliery about 500 no. bamboo-gabion plantation have already been done.
- At 1st Ecological restoration site a total of about 6402 no. plants and plenty of grass-seeds in an area of 2.0 Ha have been planted successfully with encouraging results, and natural eco-system is being established there with increasing flora & fauna (Fig.2).
- At 2nd. eco-restoration site (about 1.79 Ha OB dump- area) about 2400 plants along with seeds of grass and shrubs have spread over since 2015-'16 successfully.
- And at 3rd. site, (about 3.0 Ha OB dump area) about 5322 plants and plenty of grass seeds have been planted
- A 4th site of area about 4.99 Ha has been taken up in the year 2018-19. Till September, 2018 a total of 10,050 saplings have been planted.
- Ecological Restoration work in 5 Ha at Burragarh colliery is under process from April'18 till Date around 7000 saplings are planted at the site

**PLANTATION/ECOLOGICAL-RESTORATION PROGRAMME**

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

| YEAR | CLUSTER VI & CLUSTER VII | No. of saplings/plants |
|---|---|---|
| 2018-19 | 5.00 Ha(approx.)<br>5.00 Ha (approx..) | 12500<br>12500 |
| 2019-20 | 6.00 Ha(approx.) | 15000 |
| 2020-21 | 6.00 Ha(approx.) | 15000 |

# ANNEXURE-D
## COMPLIANCE OF DHANBAD ACTION PLAN

**1. Covering of loaded transport vehicles**

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

**2. Coal transport roads shall be made pucca**

In 2015-16 about 80 m pucca road near Kusunda Office has been constructed.
In 2016-17: about 57 m cement concrete road made from NH-32 connecting pt. to Kusunda-Godhur office.
About 37 m cement concrete made of 15 no. road from NH-32 connecting pt. to Godhur W/Bridge.

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

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

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

**4. MOBILE SPRINLKLERS**

| S. No. | Mine | Haul road length in Km | No. of mobile sprinklers | Total Capacity(KL) | Trips per day |
|---|---|---|---|---|---|
| 1 | Kusunda OC + Godhur mixed | 6.5-7.0 | 6 | 1-20 KL each,5-12KL each | 35 trips/day |
| 2 | Dhansar/Industry | 7.0-8.0 | 5 | 2-12KL, 2-16KL, 1 - 28KL | 40 trips/day |
| 3 | Gondudih KKC | (mine not running currently) | | | |
| 4 | Burragarh, Hurriladih and Kustore | -do- | | | |

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

Creation of water bodies in coal bearing area will pose safety threats to nearby mine and it will be violation of mines act. This will also create grave danger of inundation of the adjacent mines since the mines are 100 years old and interconnected with each other. So this action cannot be complied.
However, to catch run-off water in colonies proposal for Rain Water Harvesting in colonies is under process

**6. Dealing of mine fires**

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

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

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

**7. The waste water shall be passed through oil separator-cum-filtration system**

-- It shall be complied

**8. The removed OBs shall be utilized for low land filling or for making roads.**
**Complied.** Removed OB is used for low land filling and for making roads as and when required.

**9. Tree plantation on the dumps**

**See Annexure C.**

**10. All hazardous wastes shall be disposed off**
**Complied.**

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

**Monitoring and Reporting six monthly**

Monitoring work has been done by CMPDI, Dhanbad as per work order issued by BCCL HQ. Report is enclosed as **Annexure G**

**(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-E

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# GROUNDWATER LEVEL & QUALITY REPORT

# FOR CLUSTER OF MINES, BCCL

**(Assessment year - 2017)**

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

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

For

## (BHARAT COKING COAL LIMITED)

(A Subsidiary of Coal India Limited)

KOYLA BHAWAN (DHANBAD)

## MARCH – 2018

### 3.3 G Monitoring of Ground Water Levels of Cluster-VII

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

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

7 hydrograph stations (**D-3, D-4, D-33, D-34, D-47, D-55 and D-80**) are located in the core zone of the mine area. Water level monitoring in these monitoring stations has been done in the months of February, April, August & November '2017 and the Ground water level data is enclosed in the table below:

| Sl No. | Well No. | Location | Water level (bgl in meters) | | | |
|---|---|---|---|---|---|---|
| | | | Feb'17 | Apr'17 | Aug'17 | Nov'17 |
| 1 | D-3 | Dhansar | 1.30 | 2.15 | 1.25 | 2.30 |
| 2 | D-4 | Jharia | 1.11 | 1.21 | 0.91 | 1.46 |
| 3 | D-33 | Kustore | 0.60 | 0.75 | 0.60 | 0.75 |
| 4 | D-34 | Kusunda | 0.35 | 0.80 | 0.90 | 0.55 |
| 5 | D-47 | Parastanr | 3.20 | 3.15 | 1.92 | 2.85 |
| 6 | D-55 | Hariladih | 4.52 | 6.42 | 2.12 | 2.37 |
| 7 | D-80 | Bastacolla | 3.70 | 8.65 | 2.15 | 3.70 |
| ***Average WL (bgl)*** | | | ***2.11*** | ***3.30*** | ***1.41*** | ***2.00*** |

Ground Water Level (in bgl) varies from 0.35 to 4.52 m during February, 0.75 to 8.65 m during April, 0.60 to 2.15 m during August and 0.55 to 3.70 m during November within the Core Zone of Cluster-VII area.

**ANNEXURE-F**

| STRICTLY RESTRICTED |
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# Study to Analyze the Extent of Reduction of Pollution Load Every Year by reducing Coal Transportation by Road

## CLUSTER VII GROUP OF MINES

(Dhansar UG , Dhansar OC, Kusunda OC, Industry UG (Closed), Alkusa UG, Ena OC, South Jharia/ Rajapur OCP, Burragarh UG, Simlabahal UG, Hurriladih UG, Bhutgoria UG (Re-opening), Kustore UG (Closed), East Bhuggatdih UG (Closed), Vishwakarma OC ( Proposed)

| | |
| --- | --- |
| Normative Production | : 6.227 MTPA |
| Peak Production | : 8.161 MTPA |
| Lease Hold Area | : 2127.70 Ha |

Bharat Coking Coal Limited

(July, 2018)

Prepared by

**Environment Division**

**Central Mine Planning & Design Institute Limited**

**CMPDI (HQ)**

**Gondwana Place**

**Kanke Road, Ranchi-834008**

## Chapter – II

## Fugitive Dust Generation Due To Movement of Coal

### 2.1 Introduction

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

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

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

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

### 2.2 Movement of Coal

Distance travelled by coal and subsequent release of fugitive dust during its journey towards the consumer end has been describedand dust load has been worked out for the year 2013-14, 2014-15 and 2015-16.

### 2.2.1 Cluster Mines :

**Table: 2.1 Dust Generation (Kg/day)**

| Sl No. | Name of the Mine | Year | Location | Distance from Face to Siding (Km) | Coal Transferred (Te) | Daily Coal Production (Te/Day) | Capacity of the Dumper | Vehicle Kilometer Travelled | Emission Rate for PM 10 ( kg/VKT) | Pollution Load * Dust Generated Per Day (Kg/day) | Dust generated Kg/per tonne |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Dhansar | 13-14 | KDS K Rly.Siding | 6.18 | 543322.7 | 1646.00 | 20.00 | 1017.23 | 0.53 | 539.131 | |
| | | | BNR Rly. Siding | 7.94 | 202558.2 | 614.00 | 20.00 | 487.52 | 0.53 | 258.383 | |
| | | | **Total for 13-14** | | | **2260.00** | | | | **797.514** | 0.35 |
| | | | | | | | | | | | |
| | | 14-15 | KDS K Rly.Siding | 6.18 | 1210648 | 3669.00 | 20.00 | 2267.44 | 0.53 | 1201.744 | |
| | | | BNR Rly. Siding | 7.94 | 558267.2 | 1692.00 | 20.00 | 1343.45 | 0.53 | 712.027 | |
| | | | **Total for 14-15** | | | **5361.00** | | | | **1913.772** | 0.36 |
| | | | | | | | | | | | |
| | | 15-16 | KDS K Rly.Siding | 6.18 | 1755265 | 5319.00 | 20.00 | 3287.14 | 0.53 | 1742.185 | |
| | | | BNR Rly. Siding | 7.94 | 490542.3 | 1486.00 | 20.00 | 1179.88 | 0.53 | 625.339 | |
| | | | **Total for 15-16** | | | **6805.00** | | | | **2367.524** | 0.35 |
| 2 | Kusunda OC | 13-14 | KDS K Rly.Siding | 3.58 | 1628434 | 4935.00 | 20.00 | 1766.73 | 0.53 | 936.367 | |
| | | | **Total for 13-14** | | | **4935.00** | | | | **936.367** | 0.19 |
| | | | | | | | | | | | |
| | | 14-15 | KDS K Rly.Siding | 3.58 | 1264326 | 3831.00 | 20.00 | 1371.50 | 0.53 | 726.894 | |
| | | | **Total for 14-15** | | | **3831.00** | | | | **726.894** | 0.19 |
| | | | | | | | | | | | |
| | | 15-16 | KDS K Rly.Siding | 3.58 | 1287591 | 3902.00 | 20.00 | 1396.92 | 0.53 | 740.365 | |
| | | | **Total for 15-16** | | | **3902.00** | | | | **740.365** | 0.19 |

| Sl No. | Name of the Mine | Year | Location | Distance from Face to Siding (Km) | Coal Transferred (Te) | Daily Coal Production (Te/Day) | Capacity of the Dumper | Vehicle Kilometer Travelled | Emission Rate for PM 10 ( kg/VKT) | Pollution Load * Dust Generated Per Day (Kg/day) | Dust generated Kg/per tonne |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Alkusa Colliery | 13-14 | BNR Rly. Siding | 1.5 | 0 | 0.00 | 20.00 | 0.00 | 0.53 | 0.000 | |
| | | | **Total for 13-14** | | | **0.00** | | | | **0.000** | |
| | | | | | | | | | | | |
| | | 14-15 | BNR Rly. Siding | 1.5 | 34199.11 | 104.00 | 20.00 | 15.60 | 0.53 | 8.268 | |
| | | | **Total for 14-15** | | | **104.00** | | | | **8.268** | 0.08 |
| | | | | | | | | | | | |
| | | 15-16 | KDS K Rly.Siding | 1.5 | 0 | 0.00 | 20.00 | 0.00 | 0.53 | 0.000 | |
| | | | **Total for 15-16** | | | **0.00** | | | | **0.000** | |
| 4 | Ena OC | 13-14 | Burragarh Rly.Siding | 2.00 | 0 | 0.00 | 20.00 | 0.00 | 0.53 | 0.000 | |
| | | | **Total for 13-14** | | | **0.00** | | | | **0.000** | |
| | | | | | | | | | | | |
| | | 14-15 | Burragarh Rly.Siding | 2.00 | 27947.89 | 85.00 | 20.00 | 17.00 | 0.53 | 9.010 | |
| | | | **Total for 14-15** | | | **85.00** | | | | **9.010** | 0.11 |
| | | | | | | | | | | | |
| | | 15-16 | Burragarh Rly.Siding | 2.00 | 0 | 0.00 | 20.00 | 0.00 | 0.53 | 0.000 | |
| | | | **Total for 15-16** | | | **0.00** | | | | **0.000** | |
| 5 | South Jharia /Rajapur OCP | 15-16 | BNR Rly. Siding | 6.50 | 405829 | 1230.00 | 20.00 | 799.50 | 0.53 | 423.735 | |
| | | | **Total for 15-16** | | | **1230.00** | | | | **423.735** | 0.34 |
| 6 | Burragarh UG | 13-14 | Bhojudih coal washery | 18 | 25948 | 79.00 | 20.00 | 142.20 | 0.53 | 75.366 | |
| | | | **Total for 13-14** | | | **79.00** | | | | **75.366** | 0.95 |
| | | | | | | | | | | | |
| | | 14-15 | Bhojudih coal washery | 18 | 9117 | 28.00 | 20.00 | 50.40 | 0.53 | 26.712 | |

| Sl No. | Name of the Mine | Year | Location | Distance from Face to Siding (Km) | Coal Transferred (Te) | Daily Coal Production (Te/Day) | Capacity of the Dumper | Vehicle Kilometer Travelled | Emission Rate for PM 10 ( kg/VKT) | Pollution Load * Dust Generated Per Day (Kg/day) | Dust generated Kg/per tonne |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | **Total for 14-15** | | | **28.00** | | | | **26.712** | 0.95 |
| | | | | | | | | | | | |
| | | 15-16 | Bhojudih coal washery | 18 | 9385 | 28.00 | 20.00 | 50.40 | 0.53 | 26.712 | |
| | | | **Total for 15-16** | | | **28.00** | | | | **26.712** | 0.95 |
| 7 | Simlabahal UG | 13-14 | Moonidih Washery | 9 | 14646 | 44.00 | 20.00 | 39.60 | 0.53 | 20.988 | |
| | | | Burragarh Rly.Siding | 1 | 26904 | 82.00 | 20.00 | 8.20 | 0.53 | 4.346 | |
| | | | **Total for 13-14** | | | **126.00** | | | | **25.334** | 0.20 |
| | | | | | | | | | | | |
| | | 14-15 | Tata Steel Jamadoba | 13 | 20671 | 63.00 | 20.00 | 81.90 | 0.53 | 43.407 | |
| | | | Burragarh Rly.Siding | 1 | 14219 | 43.00 | 20.00 | 4.30 | 0.53 | 2.279 | |
| | | | **Total for 14-15** | | | **106.00** | | | | **45.686** | 0.43 |
| | | | | | | | | | | | |
| | | 15-16 | Tata Steel Jamadoba | 13 | 15551 | 47.00 | 20.00 | 61.10 | 0.53 | 32.383 | |
| | | | Burragarh Rly.Siding | 1 | 7432 | 23.00 | 20.00 | 2.30 | 0.53 | 1.219 | |
| | | | **Total for 15-16** | | | **70.00** | | | | **33.602** | 0.48 |
| 8 | Hurriladih UG | 13-14 | Burragarh siding | 5.9 | 11377 | 34.00 | 20.00 | 20.06 | 0.53 | 10.632 | |
| | | | **Total for 13-14** | | | **34.00** | | | | **10.632** | 0.31 |
| | | | | | | | | | | | |
| | | 14-15 | Burragarh siding | 5.9 | 11649 | 35.00 | 20.00 | 20.65 | 0.53 | 10.945 | |
| | | | **Total for 14-15** | | | **35.00** | | | | **10.945** | 0.31 |
| | | | | | | | | | | | |
| | | 15-16 | Burragarh siding | 5.9 | 0 | 0.00 | 20.00 | 0.00 | 0.53 | 0.000 | |
| | | | **Total for 15-16** | | | **0.00** | | | | **0.000** | |

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

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

**Phase – I (for 10 + 05 Years)**

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

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

**Phase – II (after 15 Years):**

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

During 2015-16, the combined daily coal production of the Cluster was 12035.00 tones resulting in 3591.94 kg of daily fugitive dust generation. The dust (PM-10) generation rate at present is 2.32 kg/te.

As a result of replacement of existing road transportation of coal by Conveyor to railway siding will result in reduction of fugitive dust generation to the extent of 57279.78 kg/day for daily coal production of 24730 tonnes (8.161 MTY) during Phase –II.

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

| Cluster | Production Capacity (MTY) | Proposed Transport Infrastructure in Phase – II |
|---|---|---|
| Cluster-VII | 8.161 | **Coal transport by Conveyor to Railway Siding** |
| | 8.161MTY = 24730 tonnes /Day | |

### 2.5 Conclusion:

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

**Phase – I :( 2013-14 to 2028 -29) :**

1. During Phase – I, business as usual(BAU) scenario will prevail and the existing road cum rail transport network system will be used for coal dispatch to the consumers. During 2015-16, the combined daily coal production of the Cluster was 12035.00 tones resulting in 3591.94 kg of daily fugitive dust generation. The dust (PM-10) generation rate at present is 2.32 kg/te.
2. The generation of fugitive dust due to transportation of coal by road can be further reduced by enforcing covering of loaded trucks, periodical removal of loose materials lying on the road surface and black topping of coal transportation roads.
3. Avenue plantation, effective wetting of the road surface and proper maintenance of roads will further result in mitigation of the impact of road generated dust on ambient air quality.
4. Better road condition, by the use of Mechanical Sweeper or vacuum cleaner dust generation may be minimized.

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

As a result of replacement of existing road transportation of coal by Conveyor to railway siding will result in reduction of fugitive dust generation to the extent of

57279.78 kg/day for daily coal production of 24730 tonnes (8.161 MTY) during Phase –II.

1. During Phase –II, dust load will further reduce due to quenching of mine fire and domestic coal consumption after resettlement of general population dwelling within the command area of cluster, as a result of implementation of Jharia Action Plan. It will result in significant improvement in ambient air quality.

2. **Coal Production Vs. Dust Generation due to Road Transportation is presented below:**

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

| Year | Coal Production (Te/day) | Dust Generation(Kg/Day) |
|---|---|---|
| 2015-16 (By Road transportation) | 12035 | 3592 |
| 2029-30 (Considering peak production and all the coal transported through Road) | 24730 | 57280 |
| 2029-30(By Conveyor Transportation) | 24730 | 0 |

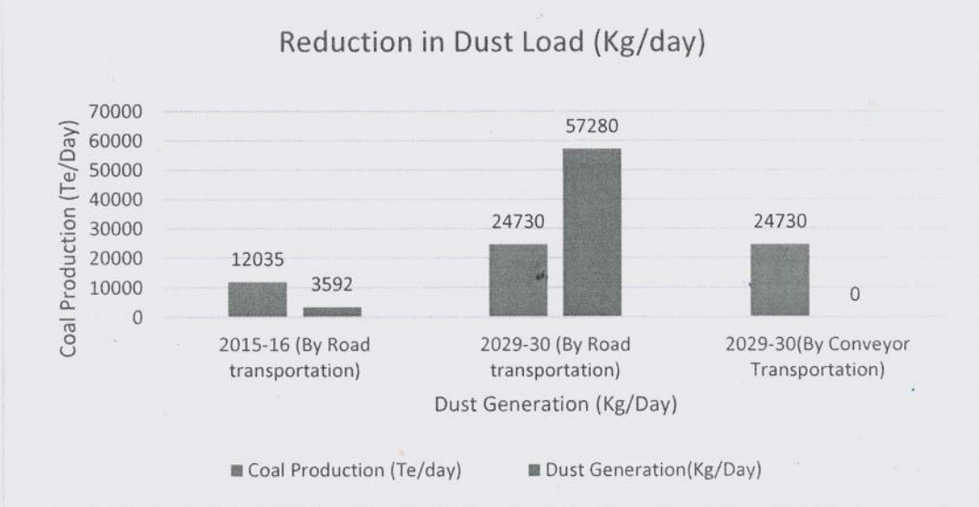



**Figure 2.1:** Presentation of reduction in dust generation due to replacement of Road transportation by Conveyor system.

## ANNEXURE - G

## CSR and Transportation Plan

**Corporate Social Responsibility (CSR) in Adjoining Villages**

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

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

**Scope of CSR:**

1. Education
2. Water supply
3. Health care
4. Environment
5. Social empowerment
6. Infrastructure for villages
7. Sports and culture
8. Generation of Employment and setting up of co-operatives
9. Infrastructure support
10. Grant/donation/financial assistance/sponsorship to reputed NGOs of the society/locality doing/involved in the uplifting of standard of the society
11. Miscellaneous: Adoption of villages for carrying out the activities like infrastructural development, collection of old clothes from employees and distribution in the nearby villages

**Bharat Coking Coal Limited (BCCL)** is committed to good corporate citizenship and makes constant efforts to build and nurture long lasting relationships with members of the society in general and its peripheral communities in particular.

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

**The CSR activities presently being done by BCCL**

- To meet the acute shortage of drinking water in peripheral villages' drinking Water is provided through deep borewells, tubewells, pumps/motors, in the peripheral villages of BCCL. Water supply through pipeline, through water tanker is provided also to the villages. Mine water is supplied after proper filtration in Filter Plants.

- **Education**: BCCL adopts a multi-pronged approach to promote quality education in backward areas. The measures taken by BCCL comprise Construction, Extension, and Renovation of school buildings etc. are done to promote quality education in the nearby villages. BCCL is Extending financial aid for educational facilities to 83 nos. Private Committee Managed schools. Measures are taken to promote women literacy and 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.
- **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.

**Upkeep and Maintenance of Assets**

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

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

**Special Health Camps**

| Year | No. of camps | Beneficiaries |
|---|---|---|
| 2018-19 (upto Sept'18) | 2 | 404 |

**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 -- work completed of Ranguni Panchayat**
- **Constr. of boundary wall , Chabutra and a shed near Gram Dewata at Dhansar -- work completed**
- **Construction of PCC road in Lahbera Basti at Dhansar -- work completed**
- **Construction of 318 toilets in 179 schools in Chaibasa has been undertaken by Kusunda Area under the Pradhan Mantri Swatchh Vidyalaya Yojana . Construction of toilets in 25 boys' school, 15 girls' schools and 139 Co-education School have been undertaken. -- Out of 318, 236 toilets have been complete**

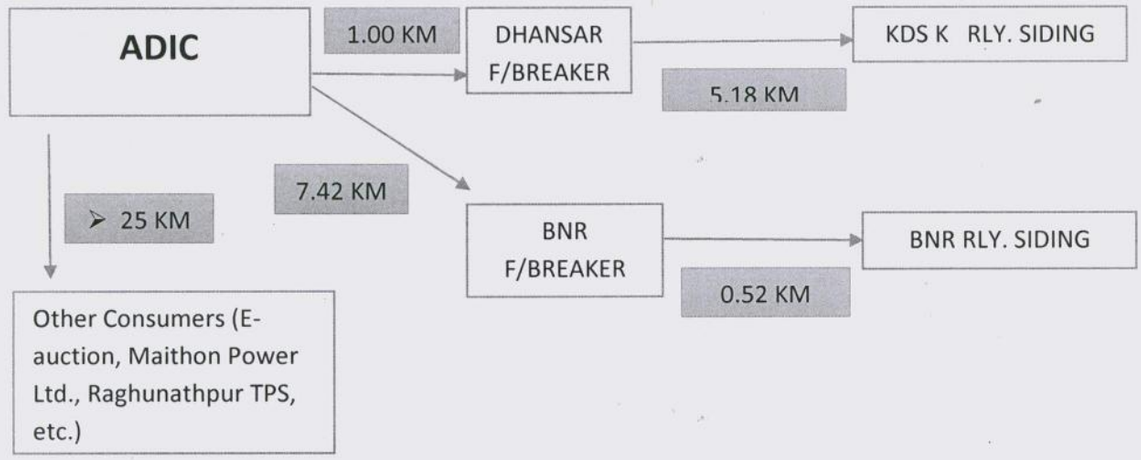
Financial grants given to various privately managed schools is Rs 12,64,500.00 for the period of 1.04.2018 to 30.09.2018

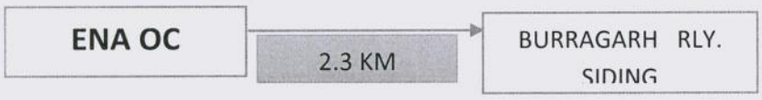
**Production Process**

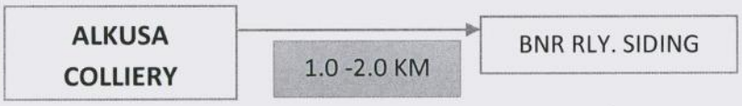
The coal produced from the working faces of the mine are transported and dumped in the coal stock yard and thereafter it is transported to different plants contractually under road sale, or transported to the railway sidings for dispatch to different organizations (steel/power/fertilizer plants etc.).

In Kusunda Area of BCCL, two railway sidings are there namely KDS-K and KDS II. BNR railway siding under Bastacolla Area is also being used for coal dispatch by railway wagon.

**Av. Distance of Sidings from Mines**




[ At present Alkusa UG, Burragarh UG, Kustore UG and Hurriladih UG are discontinued]

## ANNEXURE-H

Fixing up Monitoring Station/ Sampling locations of ari, water and noice

(4)

Ph: 0326-2204933

झारखण्ड राज्य प्रदूषण नियंत्रण पर्षद्

Jharkhand State Pollution Control Board

HIG-1, Housing Colony, Dhanbad-826001

Letter No. 2630 Dated 6/7/13

From,

Regional Officer,
Dhanbad

To,

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

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

Sir,

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

Encl-A/a.

Your's faithfully,

6/7/13

**( Dinesh Prasad Singh)**
Regional Officer.

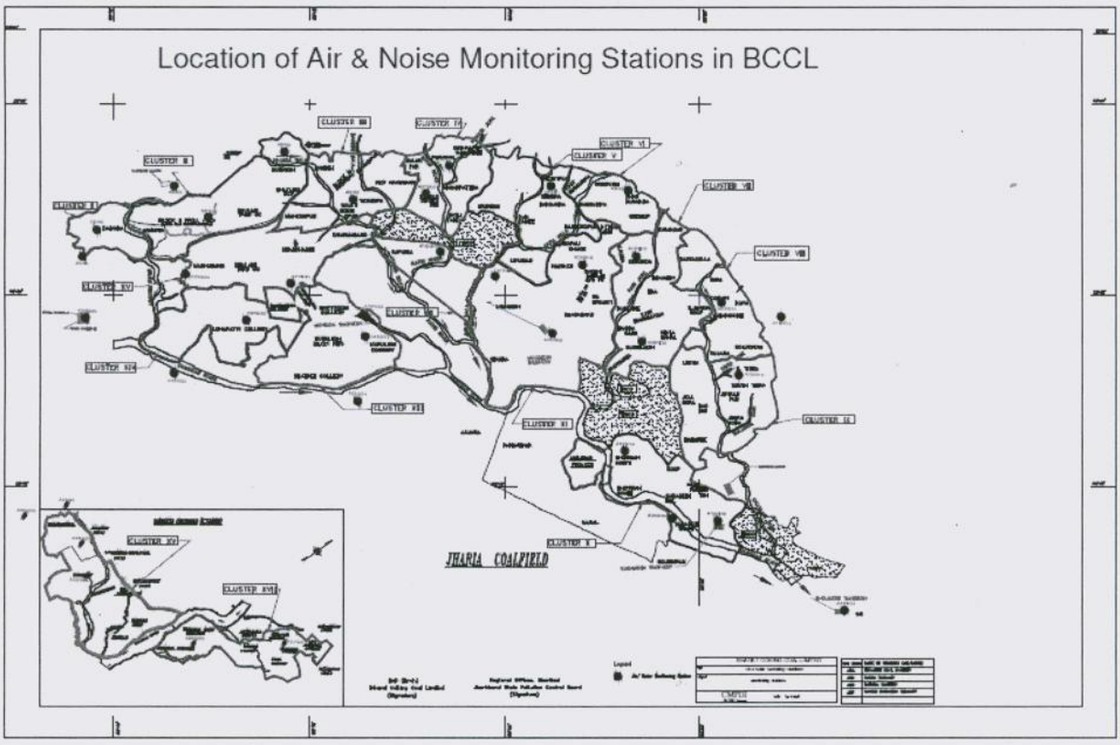
Memo..... Dhanbad, dated.....

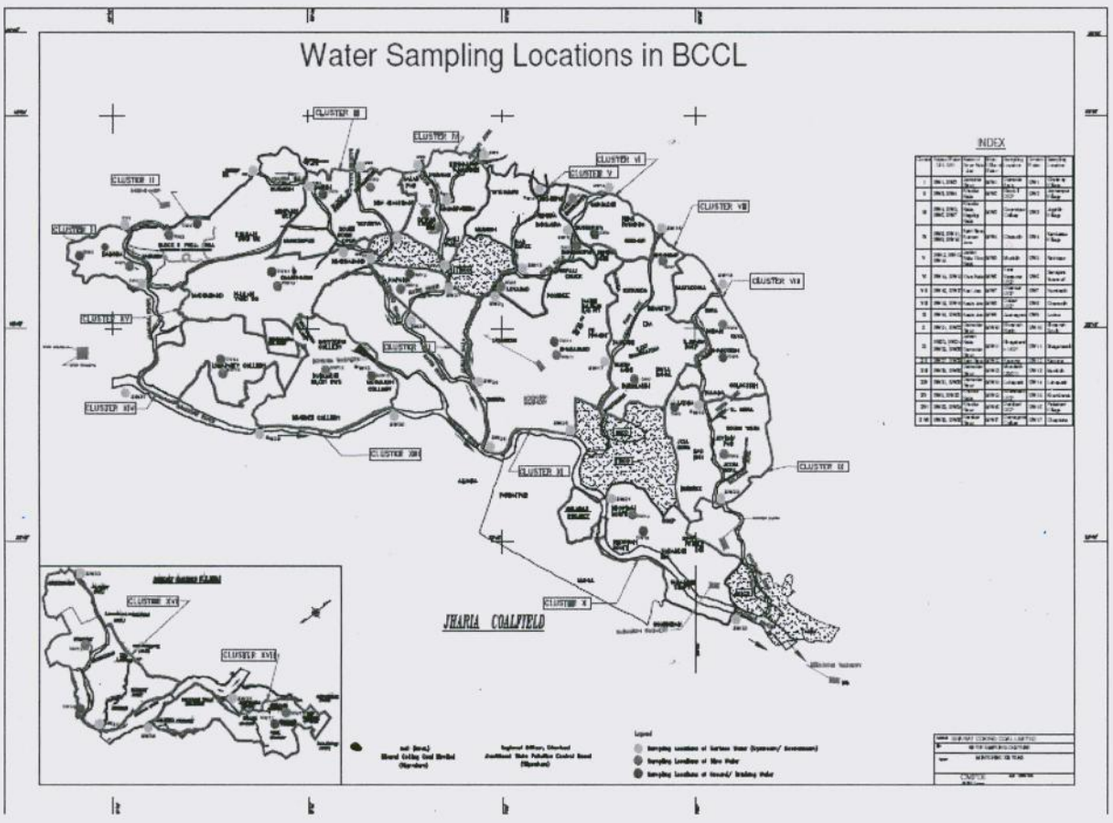
Copy to: The Member Secretary, Jharkhand State Pollution Control Board for information & enclose a copy of the map for necessary action.

Encl-A/a.

**(Dinesh Pd. Singh)**
Regional Officer.

Printed by Sandip


Location of Air & Noise Monitoring Stations in BCCL
JHARIA COALFIELD


Water Sampling Locations in BCCL
INDEX
JHARIA COALFIELD

## ANNEXURE-I

## ENVIRONMENTAL MONITORING REPORT OF CLUSTER – VII

(From April'18 to September '18)

**Action taken for improvement:**

1. Regular and sufficient water spraying by mobile tankers and through pipe lines is done at roads (haul roads, transportation roads, etc.), at all strategic dust generating points such as loading, un-loading, transfer points etc.
2. Covered coal transportation by trucks is already implemented
3. Plantation/eco-restoration at non-coal bearing/decoaled OB dump site is being done.
4. Making transportation road pucca and its regular maintenance
5. Use of dust extractors at drill m/c., etc.

Note: Pollution inventory of different sources within the area apart from the coal mining is required to be carried out for actual assessment of pollution load by mining and other sources.

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

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

**E. C. no. J-11015/93/2009-IA.II (M) dated 06.02.2013.**

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

## AMBIENT AIR QUALITY MONITORING

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

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

**Ambient Air Quality Sampling Locations**

I. **CORE ZONE Monitoring Location**

**i) Kusunda OCP (A10) : Industrial Area** The location of the sampling station is $23^0$46' 49.07'' N & $86^0$ 24' 15.71'' E. The sampler was placed at 1.5 m above the ground level of Safety Office.

**ii) Hurriladih UGP (A28)** The location of the sampling station is $23^0$44' 4.18'' N & $86^0$ 24. 6.21 E. The sampler was placed at 1.5 m above the ground level of Safety Office.

II. **BUFFER ZONE Monitoring Location**

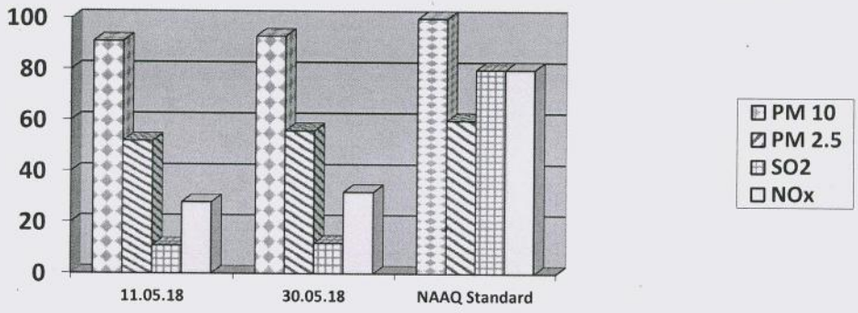
**i) Dobari UGP (A11):Industrial Area** The location of the sampling station is $23^0$45'50.00'' N & $86^0$26' 1.00'' E. The sampler was placed at 1.5 m above the ground level of Safety Office.

**ii) Moonidih Washery (A29) : Industrial Area** The location of the sampling station is $23^0$44'26.00'' N & $86^0$21'16.00''E. The sampler was placed at 1.5 m above the ground level of Project office.

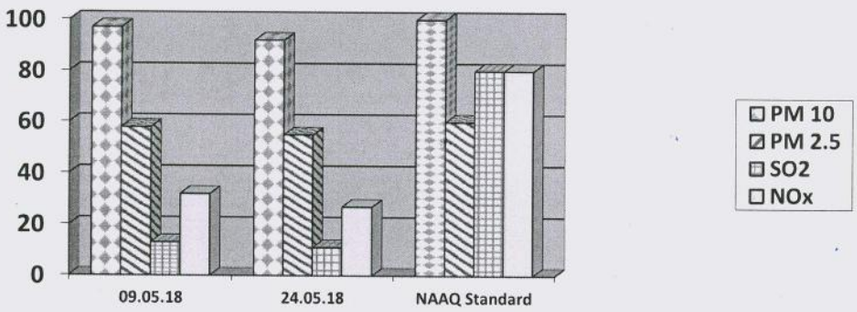
## AMBIENT AIR QUALITY DATA

**Cluster –VII, Bharat Coking Coal limited** Month: **MAY,2018** Year: **2018-19.**

| Station Name: Kusunda OCP (A10) | | Zone: Core | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | $SO_2$ | $NO_x$ |
| 1 | 11.05.18 | 91 | 52 | 11 | 28 |
| 2 | 30.05.18 | 93 | 56 | 12 | 32 |
| | NAAQ Standard | 100 | 60 | 80 | 80 |




| Station Name: Hurriladih UGP (A28) | | Zone: Core | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | $SO_2$ | $NO_x$ |
| 1 | 09.05.18 | 97 | 58 | 13 | 32 |
| 2 | 24.05.18 | 92 | 55 | 11 | 27 |
| | NAAQ Standard | 100 | 60 | 80 | 80 |

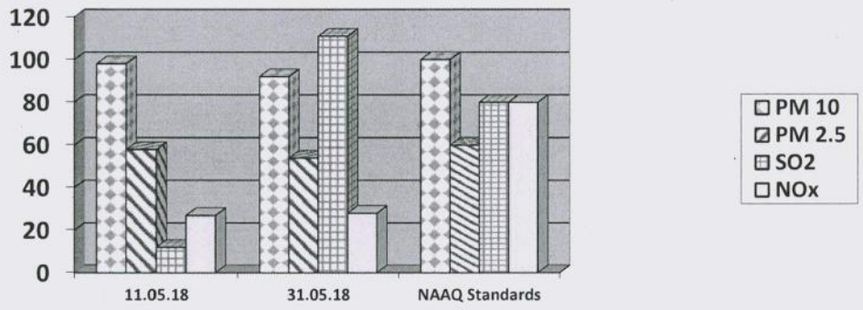



Analysed By
JSA/SA/SSA

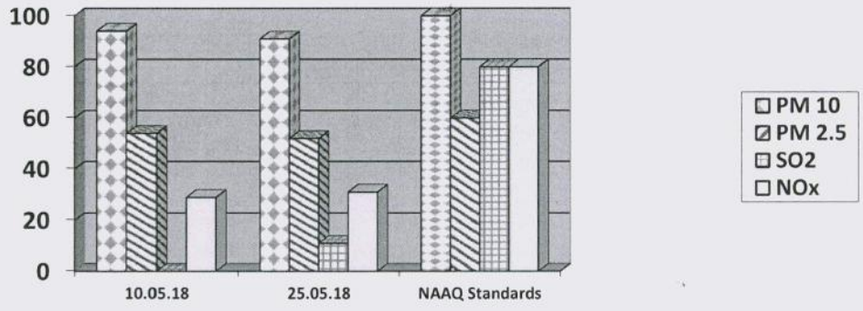
Checked By
Lab In Charge
RI-2, CMPDI, Dhanbad

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

| Station Name: Dobari UGP (A11) | | Zone: Buffer | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | SO2 | NOx |
| 1 | 11.05.18 | 98 | 58 | 12 | 27 |
| 2 | 31.05.18 | 92 | 54 | 111 | 28 |
| | NAAQ Standards | 100 | 60 | 80 | 80 |




| Station Name: Moonidih Washery (A29) | | Zone: Buffer | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | SO2 | NOx |
| 1 | 10.05.18 | 94 | 54 | <10 | 29 |
| 2 | 25.05.18 | 91 | 52 | 11 | 31 |
| | NAAQ Standards | 100 | 60 | 80 | 80 |




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

Analysed By
JSA/SA/SSA

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

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

## WATER QUALITY MONITORING

3.1 **Location of sampling sites**

(Refer **Plate No. – II**)

i) **Mine Discharge of 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.

3.2 **Methodology of sampling and analysis**

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

3.3 **Results & Interpretations**

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

## WATER QUALITY DATA

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

| Name of the Cluster: **Cluster -VII** | | Month: **MAY, 2018** | Name of the Station: **Mine Discharge of Dhansar UGP** | |
|---|---|---|---|---|
| **Sl. No.** | **Parameters** | **MW7** First Fortnight | **MW7** Second Fortnight | **As per MOEF General Standards for schedule VI** |
| | | 10-05-2018 | 30-05-2018 | |
| 1 | Total Suspended Solids | 28 | 36 | *100 (Max)* |
| 2 | pH | 7.35 | 7.42 | *5.5 - 9.0* |
| 3 | Oil & Grease | <2.0 | <2.0 | *10 (Max)* |
| 4 | COD | 36 | 28 | *250 (Max)* |

All values are expressed in mg/lit except pH.

Analysed By
JSA/SA/SSA

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

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

## NOISE LEVEL QUALITY MONITORING

**4.1 Location of sampling sites**

i) **Kusunda OCP (N10)**
ii) **Hurriladih UGP (N28)**
iii) **Dobari UGP (N11)**
iv) **Moonidih Washery (N29)**

**4.2 Methodology of sampling and analysis**

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

**4.3 Results & Interpretations**

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

## NOISE LEVEL DATA

| Name of the Project: **Cluster -VII** | | | Month: **MAY, 2018** | | |
|---|---|---|---|---|---|
| **Sl. No.** | **Station Name/Code** | **Category of area** | **Date** | **Noise level dB(A)LEQ** | ***Permissible Limit of Noise level in dB(A)*** |
| 1 | **Kusunda OCP (N10)** | **Industrial area** | 11.05.18 | 60.3 | *75* |
| 2 | **Kusunda OCP (N10)** | **Industrial area** | 30.05.18 | 60.5 | *75* |
| 3 | **Dobari UGP (N11)** | **Industrial area** | 11.05.18 | 58.7 | *75* |
| 4 | **Dobari UGP (N11** | **Industrial area** | 31.05.18 | 62.3 | *75* |
| 5 | **Hurriladih UGP (N28)** | **Industrial area** | 09.05.18 | 61.3 | *75* |
| 6 | **Hurriladih UGP (N28)** | **Industrial area** | 24.05.18 | 60.2 | *75* |
| 7 | **Moonidih Washery (N29)** | **Industrial area** | 10.05.18 | 58.9 | *75* |
| 8 | **Moonidih Washery (N29)** | **Industrial area** | 25.05.18 | 61.8 | *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,**

Analysed By
JSA/SA/SSA

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

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

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

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

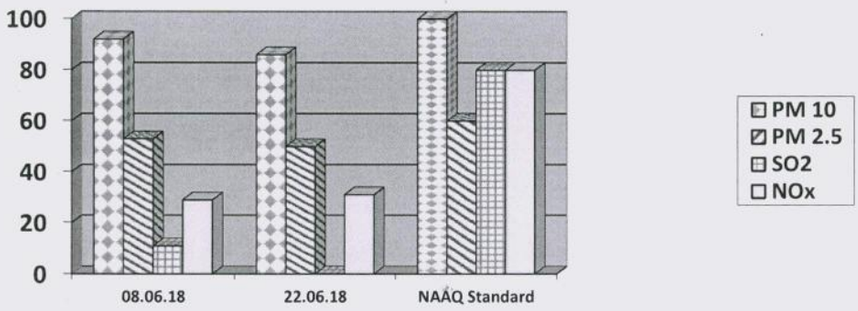
**E. C. no. J-11015/93/2009-IA.II (M) dated 06.02.2013.**

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

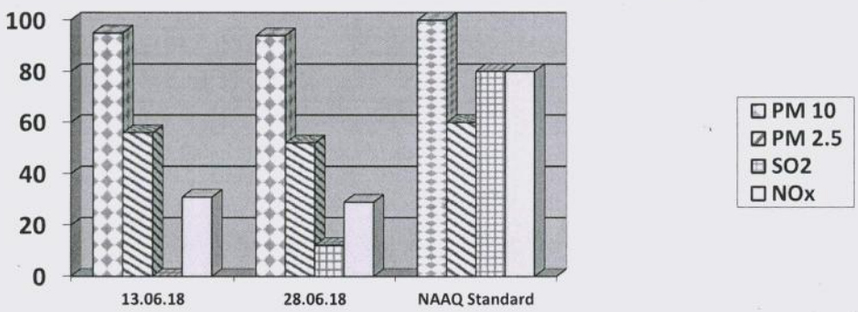
## AMBIENT AIR QUALITY DATA

**Cluster –VII, Bharat Coking Coal limited** Month: **JUNE ,2018** Year: **2018-19.**

| Station Name: Kusunda OCP (A10) | | Zone: Core | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | $SO_2$ | $NO_x$ |
| 1 | 08.06.18 | 92 | 53 | 11 | 29 |
| 2 | 22.06.18 | 86 | 50 | <10 | 31 |
| | NAAQ Standard | 100 | 60 | 80 | 80 |




| Station Name: Hurriladih UGP (A28) | | Zone: Core | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | $SO_2$ | $NO_x$ |
| 1 | 13.06.18 | 95 | 56 | <10 | 31 |
| 2 | 28.06.18 | 94 | 52 | 12 | 29 |
| | NAAQ Standard | 100 | 60 | 80 | 80 |

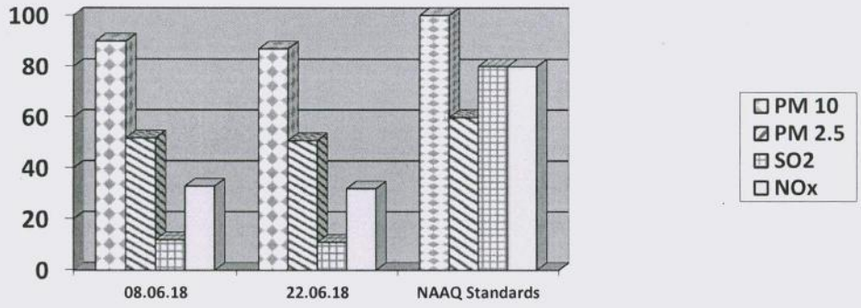



Analysed By
JSA/SA/SSA

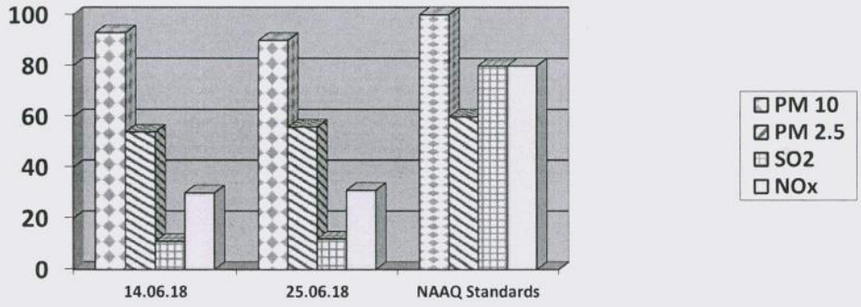
Checked By
Lab In Charge
RI-2, CMPDI, Dhanbad

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

| Station Name: Dobari UGP (A11) | | Zone: Buffer | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | SO2 | NOx |
| 1 | 08.06.18 | 90 | 52 | 12 | 33 |
| 2 | 22.06.18 | 87 | 51 | 11 | 32 |
| | NAAQ Standards | 100 | 60 | 80 | 80 |




| Station Name: Moonidih Washery (A29) | | Zone: Buffer | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | SO2 | NOx |
| 1 | 14.06.18 | 93 | 54 | 11 | 30 |
| 2 | 25.06.18 | 90 | 56 | 12 | 31 |
| | NAAQ Standards | 100 | 60 | 80 | 80 |




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

Analysed By
JSA/SA/SSA

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

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

## WATER QUALITY MONITORING

3.1 **Location of sampling sites**

(Refer **Plate No. – II**)

i) **Mine Discharge of 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.

3.2 **Methodology of sampling and analysis**

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

3.3 **Results & Interpretations**

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

## WATER QUALITY DATA

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

| Name of the Cluster: **Cluster -VII** | | Month: **JUNE, 2018** | Name of the Station: **Mine Discharge of Dhansar UGP** | |
|---|---|---|---|---|
| **Sl. No.** | **Parameters** | **MW7** First Fortnight 07-06-2018 | **MW7** Second Fortnight 23-06-2018 | **As per MOEF General Standards for schedule VI** |
| 1 | Total Suspended Solids | 44 | 44 | *100 (Max)* |
| 2 | pH | 7.42 | 7.22 | *5.5 - 9.0* |
| 3 | Oil & Grease | <2.0 | <2.0 | *10 (Max)* |
| 4 | COD | 52 | 48 | *250 (Max)* |

All values are expressed in mg/lit except pH.

Analysed By
JSA/SA/SSA

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

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

## NOISE LEVEL QUALITY MONITORING

**4.1 Location of sampling sites**

i) **Kusunda OCP (N10)**
ii) **Hurriladih UGP (N28)**
iii) **Dobari UGP (N11)**
iv) **Moonidih Washery (N29)**

**4.2 Methodology of sampling and analysis**

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

**4.3 Results & Interpretations**

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

## NOISE LEVEL DATA

| Name of the Project: **Cluster -VII** | | | Month: **JUNE, 2018** | | |
|---|---|---|---|---|---|
| **Sl. No.** | **Station Name/Code** | **Category of area** | **Date** | **Noise level dB(A)LEQ** | ***Permissible Limit of Noise level in dB(A)*** |
| 1 | **Kusunda OCP (N10)** | **Industrial area** | 08.06.18 | 62.3 | *75* |
| 2 | **Kusunda OCP (N10)** | **Industrial area** | 22.06.18 | 61.4 | *75* |
| 3 | **Dobari UGP (N11)** | **Industrial area** | 08.06.18 | 55.9 | *75* |
| 4 | **Dobari UGP (N11** | **Industrial area** | 22.06.18 | 61.4 | *75* |
| 5 | **Hurriladih UGP (N28)** | **Industrial area** | 13.06.18 | 58.6 | *75* |
| 6 | **Hurriladih UGP (N28)** | **Industrial area** | 28.06.18 | 62.1 | *75* |
| 7 | **Moonidih Washery (N29)** | **Industrial area** | 14.06.18 | 59.2 | *75* |
| 8 | **Moonidih Washery (N29)** | **Industrial area** | 25.06.18 | 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,**

Analysed By
JSA/SA/SSA

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

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

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

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

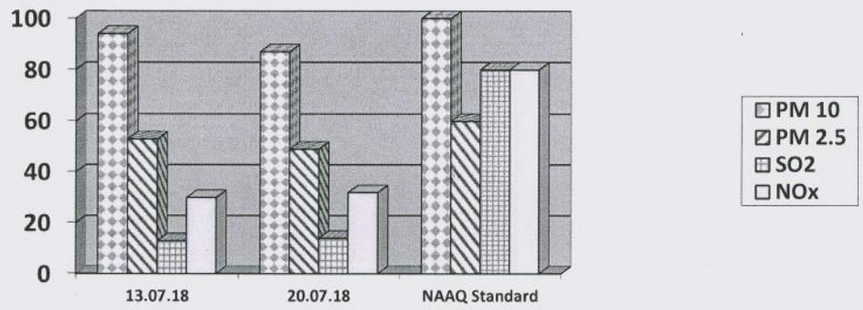
**E. C. no. J-11015/93/2009-IA.II (M) dated 06.02.2013.**

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

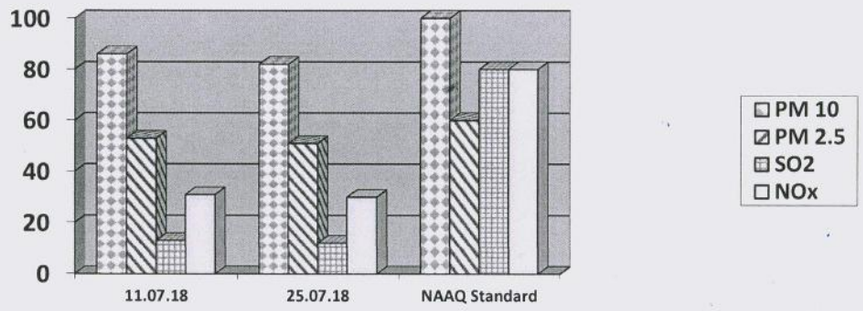
## AMBIENT AIR QUALITY DATA

**Cluster –VII, Bharat Coking Coal limited** Month: **JULY ,2018** Year: **2018-19.**

| Station Name: Kusunda OCP (A10) | | Zone: Core | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | $SO_2$ | $NO_x$ |
| 1 | 13.07.18 | 94 | 53 | 13 | 30 |
| 2 | 20.07.18 | 87 | 49 | 14 | 32 |
| | NAAQ Standard | 100 | 60 | 80 | 80 |




| Station Name: Hurriladih UGP (A28) | | Zone: Core | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | $SO_2$ | $NO_x$ |
| 1 | 11.07.18 | 86 | 53 | 13 | 31 |
| 2 | 25.07.18 | 82 | 51 | 12 | 30 |
| | NAAQ Standard | 100 | 60 | 80 | 80 |



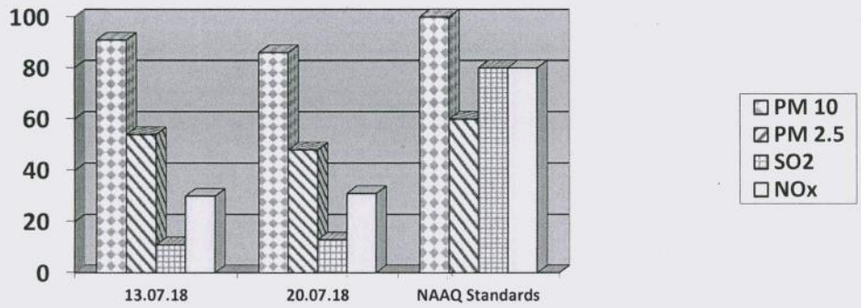

Analysed By
JSA/SA/SSA

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

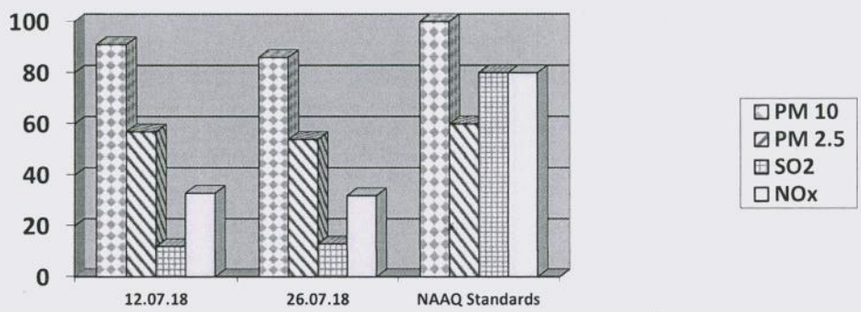
21/7/18

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

| Station Name: Dobari UGP (A11) | | Zone: Buffer | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | SO2 | NOx |
| 1 | 13.07.18 | 91 | 54 | 11 | 30 |
| 2 | 20.07.18 | 86 | 48 | 13 | 31 |
| | NAAQ Standards | 100 | 60 | 80 | 80 |




| Station Name: Moonidih Washery (A29) | | Zone: Buffer | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | SO2 | NOx |
| 1 | 12.07.18 | 91 | 57 | 12 | 33 |
| 2 | 26.07.18 | 86 | 54 | 13 | 32 |
| | NAAQ Standards | 100 | 60 | 80 | 80 |




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

Analysed By
JSA/SA/SSA

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

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

## WATER QUALITY MONITORING

### 3.1 Location of sampling sites

(Refer **Plate No. – II**)

i) **Mine Discharge of 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.

### 3.2 Methodology of sampling and analysis

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

### 3.3 Results & Interpretations

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

## WATER QUALITY DATA

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

| Name of the Cluster: **Cluster -VII** | | Month: **JULY, 2018** | Name of the Station: **Mine Discharge of Dhansar UGP** | |
|---|---|---|---|---|
| **Sl. No.** | **Parameters** | **MW7** First Fortnight | **MW7** Second Fortnight | **As per MOEF General Standards for schedule VI** |
| | | 14-07-2018 | 21-07-2018 | |
| 1 | Total Suspended Solids | 34 | 36 | *100 (Max)* |
| 2 | pH | 7.25 | 7.31 | *5.5 - 9.0* |
| 3 | Oil & Grease | <2.0 | <2.0 | *10 (Max)* |
| 4 | COD | 16 | 24 | *250 (Max)* |

All values are expressed in mg/lit except pH.

Analysed By
JSA/SA/SSA

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

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

## NOISE LEVEL QUALITY MONITORING

**4.1 Location of sampling sites**

i) **Kusunda OCP (N10)**
ii) **Hurriladih UGP (N28)**
iii) **Dobari UGP (N11)**
iv) **Moonidih Washery (N29)**

**4.2 Methodology of sampling and analysis**

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

**4.3 Results & Interpretations**

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

## NOISE LEVEL DATA

| Name of the Project: **Cluster -VII** | | | Month: **JULY, 2018** | | |
|---|---|---|---|---|---|
| **Sl. No.** | **Station Name/Code** | **Category of area** | **Date** | **Noise level dB(A)LEQ** | ***Permissible Limit of Noise level in dB(A)*** |
| 1 | **Kusunda OCP (N10)** | **Industrial area** | 13.07.18 | 58.4 | *75* |
| 2 | **Kusunda OCP (N10)** | **Industrial area** | 20.07.18 | 59.2 | *75* |
| 3 | **Dobari UGP (N11)** | **Industrial area** | 13.07.18 | 62.7 | *75* |
| 4 | **Dobari UGP (N11** | **Industrial area** | 20.07.18 | 61.7 | *75* |
| 5 | **Hurriladih UGP (N28)** | **Industrial area** | 11.07.18 | 55.2 | *75* |
| 6 | **Hurriladih UGP (N28)** | **Industrial area** | 25.07.18 | 56.2 | *75* |
| 7 | **Moonidih Washery (N29)** | **Industrial area** | 12.07.18 | 61.6 | *75* |
| 8 | **Moonidih Washery (N29)** | **Industrial area** | 26.07.18 | 62.3 | *75* |

***Permissible limits of Noise Level as per MOEF Gazette Notification No. GSR 742(E) dt. 25.09.2000 Standards for Coal Mines and Noise Pollution (Regulation and Control) Rules, 2000.***
*** Day Time: 6.00 AM to 10.00 PM,**

Analysed By
JSA/SA/SSA

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

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

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

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

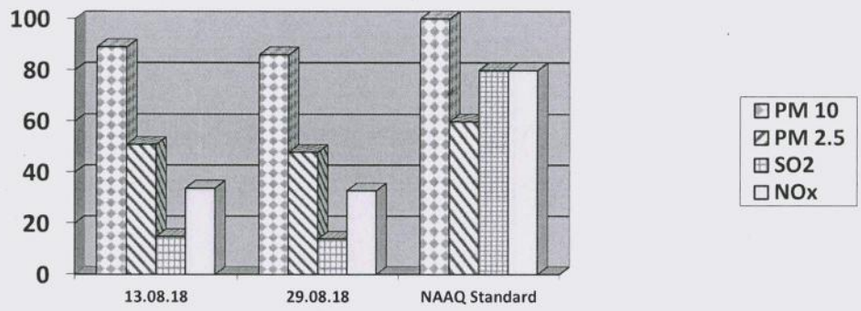
**E. C. no. J-11015/93/2009-IA.II (M) dated 06.02.2013.**

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

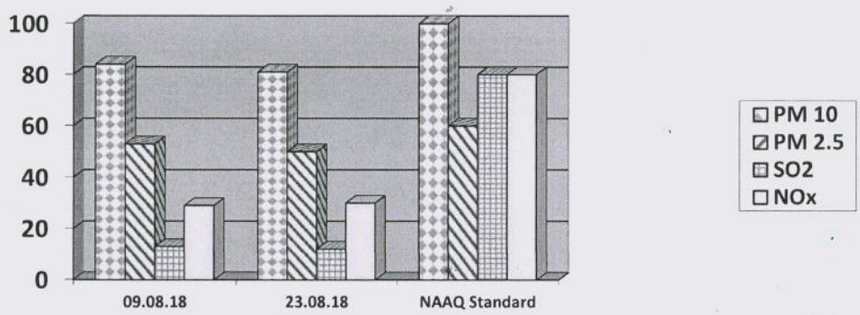
## AMBIENT AIR QUALITY DATA

**Cluster –VII, Bharat Coking Coal limited** Month: **AUGUST 2018** Year: **2018-19.**

| Station Name: Kusunda OCP (A10) | | Zone: Core | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | $SO_2$ | $NO_x$ |
| 1 | 13.08.18 | 89 | 51 | 15 | 34 |
| 2 | 29.08.18 | 86 | 48 | 14 | 33 |
| | NAAQ Standard | 100 | 60 | 80 | 80 |




| Station Name: Hurriladih UGP (A28) | | Zone: Core | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | $SO_2$ | $NO_x$ |
| 1 | 09.08.18 | 84 | 53 | 13 | 29 |
| 2 | 23.08.18 | 81 | 50 | 12 | 30 |
| | NAAQ Standard | 100 | 60 | 80 | 80 |

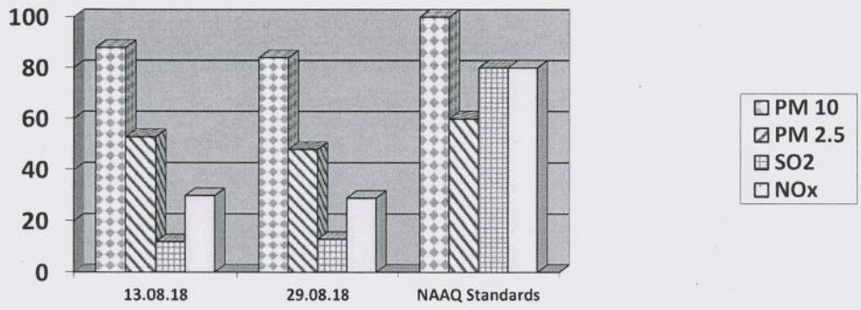



Analysed By
JSA/SA/SSA

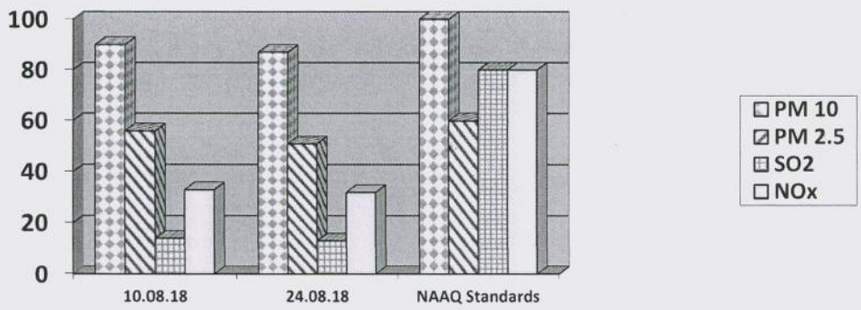
Checked By
Lab In Charge
RI-2, CMPDI, Dhanbad

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

| Station Name: Dobari UGP (A11) | | Zone: Buffer | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | SO2 | NOx |
| 1 | 13.08.18 | 88 | 53 | 12 | 30 |
| 2 | 29.08.18 | 84 | 48 | 13 | 29 |
| | NAAQ Standards | 100 | 60 | 80 | 80 |




| Station Name: Moonidih Washery (A29) | | Zone: Buffer | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | SO2 | NOx |
| 1 | 10.08.18 | 90 | 56 | 14 | 33 |
| 2 | 24.08.18 | 87 | 51 | 13 | 32 |
| | NAAQ Standards | 100 | 60 | 80 | 80 |




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

Analysed By
JSA/SA/SSA

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

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

# WATER QUALITY MONITORING

## 3.1 Location of sampling sites

(Refer **Plate No. – II**)

i) **Mine Discharge of 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.

## 3.2 Methodology of sampling and analysis

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

## 3.3 Results & Interpretations

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

# WATER QUALITY DATA

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

| Name of the Cluster: **Cluster -VII** | | Month: **AUGUST, 2018** | Name of the Station: **Mine Discharge of Dhansar UGP** | |
|---|---|---|---|---|
| **Sl. No.** | **Parameters** | **MW7** First Fortnight | **MW7** Second Fortnight | **As per MOEF General Standards for schedule VI** |
| | | 13-08-2018 | 31-08-2018 | |
| 1 | Total Suspended Solids | 38 | 42 | *100 (Max)* |
| 2 | pH | 7.32 | 7.23 | *5.5 - 9.0* |
| 3 | Oil & Grease | <2.0 | <2.0 | *10 (Max)* |
| 4 | COD | 20 | 28 | *250 (Max)* |

All values are expressed in mg/lit except pH.

Analysed By
JSA/SA/SSA

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

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

## NOISE LEVEL QUALITY MONITORING

### 4.1 Location of sampling sites

i) **Kusunda OCP (N10)**
ii) **Hurriladih UGP (N28)**
iii) **Dobari UGP (N11)**
iv) **Moonidih Washery (N29)**

### 4.2 Methodology of sampling and analysis

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

### 4.3 Results & Interpretations

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

## NOISE LEVEL DATA

| Name of the Project: **Cluster -VII** | | | Month: **AUGUST, 2018** | | |
|---|---|---|---|---|---|
| **Sl. No.** | **Station Name/Code** | **Category of area** | **Date** | **Noise level dB(A)LEQ** | ***Permissible Limit of Noise level in dB(A)*** |
| 1 | **Kusunda OCP (N10)** | **Industrial area** | 13.08.18 | 58.3 | *75* |
| 2 | **Kusunda OCP (N10)** | **Industrial area** | 29.08.18 | 57.6 | *75* |
| 3 | **Dobari UGP (N11)** | **Industrial area** | 13.08.18 | 63.9 | *75* |
| 4 | **Dobari UGP (N11** | **Industrial area** | 29.08.18 | 63.2 | *75* |
| 5 | **Hurriladih UGP (N28)** | **Industrial area** | 09.08.18 | 58.9 | *75* |
| 6 | **Hurriladih UGP (N28)** | **Industrial area** | 23.08.18 | 57.1 | *75* |
| 7 | **Moonidih Washery (N29)** | **Industrial area** | 10.08.18 | 61.1 | *75* |
| 8 | **Moonidih Washery (N29)** | **Industrial area** | 24.08.18 | 60.8 | *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,**

Analysed By
JSA/SA/SSA

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

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

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

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

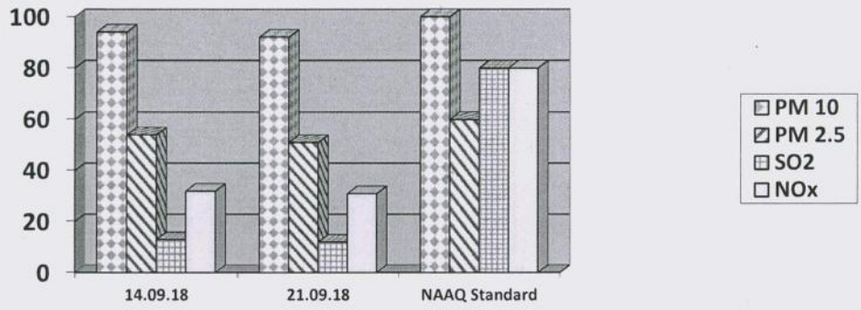
**E. C. no. J-11015/93/2009-IA.II (M) dated 06.02.2013.**

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

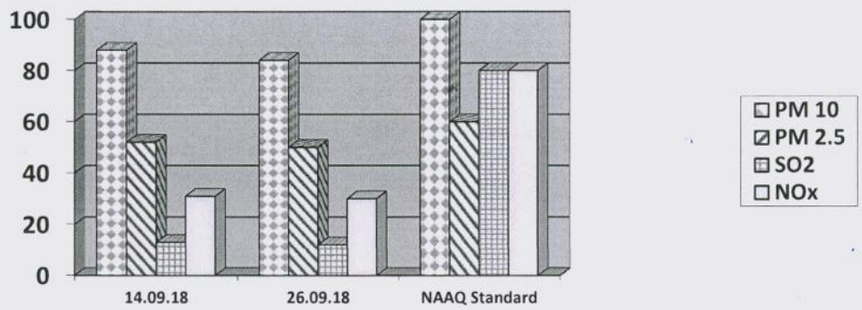
**AMBIENT AIR QUALITY DATA**

**Cluster –VII, Bharat Coking Coal limited** Month: **SEP. 2018** Year: **2018-19.**

| Station Name: Kusunda OCP (A10) | | Zone: Core | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | $SO_2$ | $NO_x$ |
| 1 | 14.09.18 | 94 | 54 | 13 | 32 |
| 2 | 21.09.18 | 92 | 51 | 12 | 31 |
| | NAAQ Standard | 100 | 60 | 80 | 80 |




| Station Name: Hurriladih UGP (A28) | | Zone: Core | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | $SO_2$ | $NO_x$ |
| 1 | 14.09.18 | 88 | 52 | 13 | 31 |
| 2 | 26.09.18 | 84 | 50 | 12 | 30 |
| | NAAQ Standard | 100 | 60 | 80 | 80 |

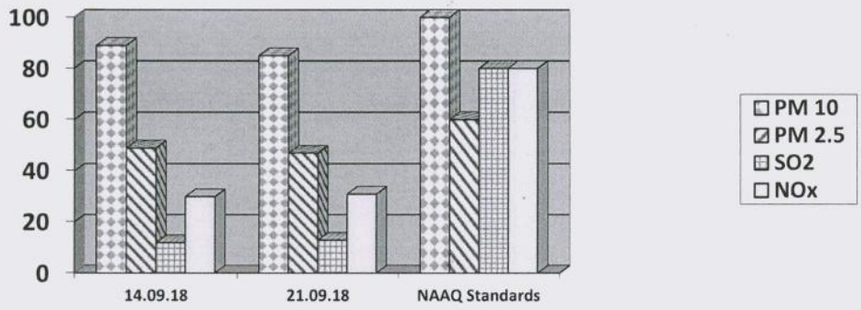



Analysed By
JSA/SA/SSA

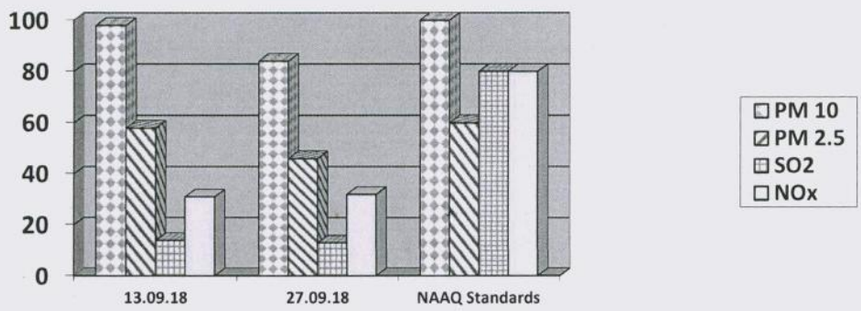
Checked By
Lab In Charge
RI-2, CMPDI, Dhanbad

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

| Station Name: Dobari UGP (A11) | | Zone: Buffer | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | SO2 | NOx |
| 1 | 14.09.18 | 89 | 49 | 12 | 30 |
| 2 | 21.09.18 | 85 | 47 | 13 | 31 |
| | NAAQ Standards | 100 | 60 | 80 | 80 |




| Station Name: Moonidih Washery (A29) | | Zone: Buffer | | Category: Industrial | |
|---|---|---|---|---|---|
| Sl. No. | Dates of sampling | PM 10 | PM 2.5 | SO2 | NOx |
| 1 | 13.09.18 | 98 | 58 | 14 | 31 |
| 2 | 27.09.18 | 84 | 46 | 13 | 32 |
| | NAAQ Standards | 100 | 60 | 80 | 80 |




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

Analysed By
JSA/SA/SSA

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

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

# WATER QUALITY MONITORING

## 3.1 Location of sampling sites

(Refer **Plate No. – II**)

i) **Mine Discharge of 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.

## 3.2 Methodology of sampling and analysis

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

## 3.3 Results & Interpretations

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

# WATER QUALITY DATA

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

| Name of the Cluster: **Cluster -VII** | | Month: **SEP. 2018** | Name of the Station: **Mine Discharge of Dhansar UGP** | |
|---|---|---|---|---|
| **Sl. No.** | **Parameters** | **MW7** First Fortnight | **MW7** Second Fortnight | **As per MOEF General Standards for schedule VI** |
| | | 14/09/2018 | 21/09/2018 | |
| 1 | Total Suspended Solids | 20 | 18 | *100 (Max)* |
| 2 | pH | 7.31 | 7.26 | *5.5 - 9.0* |
| 3 | Oil & Grease | <2.0 | <2.0 | *10 (Max)* |
| 4 | COD | 48 | 56 | *250 (Max)* |

All values are expressed in mg/lit except pH.

Analysed By
JSA/SA/SSA

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

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

# NOISE LEVEL QUALITY MONITORING

## 4.1 Location of sampling sites

i) **Kusunda OCP (N10)**
ii) **Hurriladih UGP (N28)**
iii) **Dobari UGP (N11)**
iv) **Moonidih Washery (N29)**

## 4.2 Methodology of sampling and analysis

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

## 4.3 Results & Interpretations

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

# NOISE LEVEL DATA

| Name of the Project: **Cluster -VII** | | | Month: **SEP. 2018** | | |
|---|---|---|---|---|---|
| **Sl. No.** | **Station Name/Code** | **Category of area** | **Date** | **Noise level dB(A)LEQ** | ***Permissible Limit of Noise level in dB(A)*** |
| 1 | **Kusunda OCP (N10)** | **Industrial area** | 14.09.18 | 59.9 | *75* |
| 2 | **Kusunda OCP (N10)** | **Industrial area** | 21.09.18 | 58.8 | *75* |
| 3 | **Dobari UGP (N11)** | **Industrial area** | 14.09.18 | 58.2 | *75* |
| 4 | **Dobari UGP (N11** | **Industrial area** | 21.09.18 | 56.8 | *75* |
| 5 | **Hurriladih UGP (N28)** | **Industrial area** | 14.09.18 | 47.1 | *75* |
| 6 | **Hurriladih UGP (N28)** | **Industrial area** | 26.09.18 | 48.6 | *75* |
| 7 | **Moonidih Washery (N29)** | **Industrial area** | 13.09.18 | 68.1 | *75* |
| 8 | **Moonidih Washery (N29)** | **Industrial area** | 27.09.18 | 69.2 | *75* |

***Permissible limits of Noise Level as per MOEF Gazette Notification No. GSR 742(E) dt. 25.09.2000 Standards for Coal Mines and Noise Pollution (Regulation and Control) Rules, 2000.***
*** Day Time: 6.00 AM to 10.00 PM,**

Analysed By
JSA/SA/SSA

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

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

# ANNEXURE-J

## Status of Periodical Medical Examination & Training

| Mines under Cluster-VII | Total PME done for the period April'18 to Sept'18 | Total Vocational Training done for the period April'18 to Sept'18 |
|---|---|---|
| Dhansar(UG, VOCP, Industry Colliery), Kusunda OC, Ena OC, Alkusa UG, Burragarh UG, Hurriladih UG, Kustore UG and Rajapur OC | 553 | 351 |