ईस्टर्न कोलफील्ड्स लिमिटेड

(कोल इंडिया लिमिटेड का एक अंग)

**EASTERN COALFIELDS LIMITED**

**(A subsidiary of Coal India Limited)**

**OFFICE OF THE AGENT, CLUSTER-3 MINES, SALANPUR AREA**

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# UNDERTAKING

Information provided in half yearly EC compliance report for the period Oct 2019 to March 2020 in respect of the following mines of Cluster no. 3 is true to the best of my knowledge:

| SL NO. | NAME OF MINES | NAME OF THE MANAGER | SIGNATURE OF THE MANAGER |
|---|---|---|---|
| 1 | Dabor Colliery | Prabhat Kr | |
| 2 | Bonjemehari Colliery | U. P. Chaudhary | |
| 3 | Sangramgarh Colliery | Prabhat Kr | |

5/5/20

Agent/ Project Proponent

Cluster-3 mines

(SIGNATURE WITH SEAL)

Dy. GM / AGENT
Bonjemehary Colliery
Salanpur Area
(ECL)

**EASTERN COALFIELDS LIMITED**
**HALF YEARLY EC COMPLIANCE REPORT**
**H/Y ENDING MARCH, 2020**
**CLUSTER NO.3, SALANPUR AREA**
**EC No. J-11015/13/2010-IA-II.(M) dt. 20-10-2014**

**Compliance of environment clearance conditions**

<table>
<tr><th>Sl no.</th><th>Specific Conditions</th><th>Compliance status</th></tr>
<tr><td>i.</td><td>The maximum production from the mine at any given time shall not exceed the limit as prescribed in the EC.</td><td>
<table>
<tr><td>Mine</td><td>Peak EC Capacity (MTY)</td><td>April'19-Mar'20 (MTY)</td></tr>
<tr><td>Dabor OC</td><td>2.30</td><td>1.02</td></tr>
<tr><td>Bonjemehari OC</td><td>1.47</td><td>0.41</td></tr>
<tr><td>Sangramgarh OC</td><td>0.20</td><td>0.00</td></tr>
<tr><td>Total</td><td>3.97</td><td>1.43</td></tr>
</table>
The maximum production from the mine has not exceeded the EC limit.
</td></tr>
<tr><td>ii.</td><td>No mining operations shall be undertaken of forestland prior clearance has been obtained under the provisions of FC Act,1980.</td><td>No forest land is present under cluster-3 lease area.</td></tr>
<tr><td>iii.</td><td>The validity of the EC is for the life of the Mine or as specified in the EIA Notification, 2006, whichever is earlier.</td><td>The EC will be valid for the life of the mine or as specified in EIA Notification, 2006, whichever is earlier.</td></tr>
<tr><td>iv.</td><td>External OB dumps shall be fully re-handled in internal dumps. There shall be no external dump after the mining.</td><td>Backfilling of OB dumps in phased out mining area is an ongoing process and external OB created after issuance of EC will be completely re-handled.</td></tr>
<tr><td>v.</td><td>Adequate numbers of peizometers to be installed at the aquifer level and the ground water table shall be monitored.</td><td>Peizometers have been installed in Cluster-3 mines.<br><br>Quarterly monitoring of ground water table is being done by CMPDI to check the water table level.</td></tr>
<tr><td>vi.</td><td>The proponent shall comply with stipulations in the Raniganj Master</td><td>It is being complied with.</td></tr>
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| | Plan. | |
| vii. | The proponent shall make efforts for revival of the existing railway line or a new railway line of coal transportation within a period of three years, during which the coal can be transported by mechanically covered trucks. The proponent shall also explore the possibility of constructing a railway siding at the active railway line. | Coal from all the mines under cluster-3 is transported through centralized railway siding present at Bonjemehari colliery.<br>As of now, the loaded trucks are made wet with water and covered with tarpaulin sheets before leaving the mines for railway siding.<br>Currently there is no agency available with the successful implementation records of mechanically covered trucks. It will be implemented in our company in phase wise manner once such company is available for the supply of these types of trucks. |
| viii. | The mine closure plan shall be synchronized with EC conditions. | The mine closure plan is in synchronization with EC conditions. |
| ix. | Water bodies/Nalla shall not be disturbed. | There is no disturbance from the mines to river/nallahs. However, Nallahs are cleared annually as a pre-monsoon activity in each mine of the cluster. |
| x. | Coal transportation: Underground mine:-Coal tubs at the faces shall be hauled by series of rope haulages to surface. Opencast mine:-Coal shall be loaded by shovels at the face and transported to the surface coal depot by colliery dumpers, Surface to Siding Road transportation by 15 tonne dumpers and siding to loading by pay loaders are used for loading of coal onto wagons. | There is no UG mine in the Cluster. However, for OC mines coal transportation is done in the same manner as given in this specific condition. |
| xi. | The production shall be within the same Mining Lease area. | The mining activities are carried out in the quarry area under the Mining Lease area as given in the EC letter. |
| xii. | The OB shall be completely re-handled at the end of the mining. | Backfilling of OB dumps in phased out mining area is an ongoing process and OB dumps will be fully re-handled done till the end of the mine. |
| xiii. | Final mine void depth not be more than 20 m. The | It will be complied as per the Mine Closure Plan (MCP). |

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| | void area will be converted into water body. The rest of the area will be backfilled upto the ground level and covered with about a meter thick top soil and put to use. | |
| xiv. | Coal Extraction shall also be optimized in areas where agricultural production is continuing. Some pillars shall be left below the agricultural land. No depillaring & coal extraction should be carried out below habitation, H.T. Lines & beneath road, water bodies. | No UG mine is operational in this Cluster. Hence, this condition is not applicable.<br>Dabor OC, Bonjemehari OC & Sangramgarh OC are opencast patches. |
| xv. | Subsidence shall be monitored closely and if subsidence is found exceeding the permitted limits, then the landowners shall be adequately compensated with mutual agreement with the landowners. | No subsidence has been observed from the older UG mines and there is no UG mine operational in this cluster. Hence this condition is not applicable. At present mining is done only in opencast patches. |
| xvi. | Garland drains(size, gradient and length) around the safety areas such as mine shaft and low lying areas and sump capacity shall be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. Sump capacity shall also provide adequate retention period to allow proper settling of silt material. | Garland drains have been designed to evacuate maximum single day rainfall as recorded for the area.<br>Sump of sufficient capacity has been provided. |
| xvii. | Water sprinkling system shall be provided to check | Fixed type rotating water sprinklers (28 nos.) are in operation at Centralized railway siding at |

<table>
<tr><td></td><td>fugitive emissions from loading operations, conveyor system, haulage roads, transfer points, etc. Major approach roads shall be black topped and properly maintained.</td><td>Bonjemehari and water tankers for sprinkling are also provided to check fugitive emissions on haul roads, transfer points, loading-unloading operations, etc</td></tr>
<tr><td>xviii.</td><td>Mining shall be carried out as per statuette at a safe distance from the river/nallah flowing adjacent to the lease boundary.</td><td>It is being complied with.</td></tr>
<tr><td>xix.</td><td>The land after mining shall be brought back for agriculture purpose.</td><td>The land excavated after mining are being backfilled concurrently, which will be suitably reclaimed at later stage as per provisions of Mine Closure Plan(MCP).</td></tr>
<tr><td>xx.</td><td>Mine water should be treated for discharge in to the lagoon. The quality of lagoon water shall be regularly monitored and mitigation measures taken</td><td>Monitoring of mine water is being done regularly by CMPDIL and found to be well within prescribed limits of MoEF Schedule VI.</td></tr>
<tr><td>xxi.</td><td>High root density trees shall be selected and planted over areas likely to be affected by subsidence.</td><td>No subsidence has been observed from the older UG mines and presently there is no UG mine in this cluster. Mining is done in Opencast patches only. Hence this condition is not applicable.</td></tr>
<tr><td>xxii.</td><td>The CSR cost should be Rs 5 per Tonnes of Coal produced which should be adjusted as per annual inflation.</td><td>As per the revised CSR policy of Coal India Ltd, 2% of the average profit of preceding 3 years is the norms for CSR expenditure in the entire ECL command areas.Year wise CSR expenditure of Salanpur Area:-
<table>
<tr><th>Year</th><th>Expenditure of CSR activities(in Lakhs)</th></tr>
<tr><td>2014-15</td><td>14.25</td></tr>
<tr><td>2015-16</td><td>0.36</td></tr>
<tr><td>2016-17</td><td>59.00</td></tr>
<tr><td>2017-18</td><td>85.94</td></tr>
<tr><td>2018-19</td><td>73.10</td></tr>
<tr><td>2019-20</td><td>72.60</td></tr>
</table></td></tr>
<tr><td>xxiii.</td><td>The mining in the existing mines should be phased out after expiry of the current mining lease and after reclamation of</td><td>It shall be complied as per the Mine Closure Plan(MCP)</td></tr>
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| | mined over area. The operating mines may be analysed and monitored for compliance of conditions, bearing with movement of wildlife and until such time they are closed/phased out. | |
| xxiv. | Everybody in the core should be provided with mask for protection against fugitive dust emissions. | Dust masks, shoes, etc have been provided to the personnel in the mining areas. |
| xxv. | The supervisory staff should be held personally responsible for ensuring compulsory regarding wearing of dust mask in the core area. | The supervisory staff ensures compulsory wearing of dust mask in the area. |
| xxvi. | People working in the core area should be periodically tested for the lung diseases and the burden of cost on account of working in the coal mine area. | Regular PME tests were conducted by Area Medical Officer. |
| xxvii. | The mining area should be surrounded by green belt having thick closed canopy of the tree cover. | Tree cover is present in the surroundings of the mining area and measures will be taken to increase the tree cover with thick closed canopy. |
| xxviii. | The embankment constructed along the river boundary shall be of suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side and stabilized with plantation so as to withstand the peak water flow and prevent mine inundation. | No nearby river is present. Hence, this condition is not applicable. |
| xxix. | There shall be no overflow of OB into the river and into the agricultural fields and | No nearby river is present. Backfilling of OB is an ongoing process and external OB is stabilized which minimizes the risk of its overflow.<br>Tree cover is also present on external stabilized OB |

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| | massive plantation of native species shall be taken up in the area between the river and the project. | dump. |
| xxx. | Catch drains and siltation ponds of appropriate size shall be constructed to arrest silt and sediment flows from soil, OB and mineral dumps. The water so collected shall be utilized for watering the mine area, roads, green belt development, etc. The drains shall be regularly desilted and maintained properly. Garland drains (size, gradient and length) and sump capacity shall be designed keeping 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine site. Sump capacity shall also provide adequate retention period to allow proper settling of silt material. | Catch drains within the cluster are desilted as a pre-monsoon activity. Silt ponds are constructed. Surface sumps are present where mine water is allowed to settle before being discharged. |
| xxxi. | Dimension of the retaining wall at the toe of the dumps and OB benches within the mine to check run-off and siltation shall be based on the rainfall data. | Temporary drains are present alongside of active OB dumps to check the run-off. Toe wall will be constructed after complete stabilization of OB dump. |
| xxxii. | Crushers at the CHP of adequate capacity for the expansion project shall be operated with high efficiency bag filters, water sprinkling system shall be provided to check | There is no CHP in the cluster. |

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| | fugitive emissions from crushing operations, conveyor system, haulage roads, transfer points, etc. | |
| xxxiii. | Acid Water Treatment Plant, volume of water to be treated and disposal of brine should be provided. | Monitoring of mine water is being done regularly by CMPDIL and found to be well within prescribed limits of MoEF Schedule VI. |
| xxxiv. | Mine discharge water outside the ML shall be monitored, particularly for TDS and treated to conform to prescribed levels before discharge into the natural environment. | Mine water discharge regularly monitored for TDS and found to be well within the prescribed limit. |
| xxxv. | Drills shall be wet operated. | Drills are attached with water sprinkling arrangement for wet operation. |
| xxxvi. | The project authorities shall undertake regular repairing and tarring of roads used for mineral transportation. A 3-tier green belt comprising of a mix of native species shall be developed all along the major approach roads. | Repairing of transportation roads is being done as and when required. |
| xxxvii. | Controlled blasting shall be practiced with use of delay detonators and only during daytime. The mitigative measures for control of ground vibrations and to arrest the fly rocks and boulders shall be implemented. | Blasting is done in controlled manner with proper delay detonators. The siren alert system is also practiced for safety purposes. Control of ground vibration and to arrest the fly rocks and boulders is ensured by controlled blasting. Vibration study is conducted by CMPDI as per requirement from time to time. |
| xxxviii. | A progressive afforestation plan shall be implemented covering an area of 255.62 ha at the end of mining, which includes reclaimed external OB dump area (15.52 ha), internal OB dump area (270.93 ha), | Plantation is a regular process over stabilized OB dumps. 10 Ha plantation is done in FY 2018-19 by West Bengal Wasteland Development Corporation Limited. |

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| | and in township located outside the lease by planting native species in consultation with local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. Massive plantation shall be carried out in open spaces in and around the mine and a 3-tier avenue plantation along the main approach roads to the mine. | |
| xxxix. | An estimated total 49.53 Mm3 of OB will be generated during the entire life of the mine. There will be one external OB dump with quantity of 3.5 Mm3 in covering area 15.52 Ha. 46.03Mm3 of will be three internal OB dump covering an area of 416 Ha. The maximum height of external Ob dump for hard OB will not exceed 90 m. The maximum slope of the dump shall not exceed 28 degrees. Monitoring and management of reclaimed dump sites shall continue till the vegetation becomes self-sustaining and compliance status shall be submitted to MoEF & CC and its Regional Office on yearly basis. | It is being complied as per MCP. |
| xl. | The proponent should prepare restoration and reclamation plan for the degraded area. The land be used in a productive | It is being complied as per MCP. |

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| | and sustainable manner. | |
| xli. | Compensatory Ecological & Restoration of waste land, other degraded land and OB dumps in lieu of breaking open the land be carried out. | It is being complied as per MCP. |
| xlii. | The mining should be phased out in sustainable manner. No extra over burden dumps are permitted. | It is being complied as per MCP. |
| xliii. | No groundwater shall be used for mining operations. | No ground water is being used for mining operations. |
| xliv. | Of the total quarry area 257.61 ha the backfilled quarry area of 35.51 shall be reclaimed with plantation and a void of 65 ha at a depth of 20 m which is proposed to be converted into a water body shall be gently sloped and the upper benches shall be terraced and stabilized with plantation/afforestation by planting native species in consultation with local DFO/Agriculture Department. The density of the trees shall be around 2500 plants per ha. | It is being complied as per MCP. |
| xlv. | Regular monitoring of groundwater level and quality shall be carried out by establishing a network of existing wells and construction of new peizometers. The monitoring for quantity shall be done four times a year in pre-monsoon (May), monsoon | Regular monitoring of ground water quality and ground water level is being done by CMPDIL, Asansol. |

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| | (August), post-monsoon (November) and winter (January) seasons and for quality in May. Data thus collected shall be submitted to the Ministry of Environment, Forests & Climate Change and to the Central Pollution Control Board quarterly within one month of monitoring. | |
| xlvi. | 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. | No subsidence has been observed from the older UG mines and there is no UG mine operational in this cluster.<br>At present mining is done only in opencast patches. |
| xlvii. | If subsidence is found exceeding the permitted limits, then the landowners shall be adequately compensated with mutual agreement of the landowners. | Noted. |
| xlviii. | The company shall put up artificial groundwater recharge measures for augmentation of groundwater resource in case monitoring indicates | No artificial Ground water recharge measure is present in the cluster at present. However rainwater harvesting has been done at Salanpur area, ECL under which this cluster is present. It will be further done in collieries.<br>Also during summer season, drinking water is |

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| | a decline in water table. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine. | supplied to nearby villages in the morning and evening. |
| xlix. | Sewage treatment plant shall be installed in the existing colony. ETP shall also be provided for workshop and CHP wastewater. | In old collieries septic tank followed by soak pits is present. In case of new colonies in the future integrated STP will be constructed.<br>No CHP is present in the cluster.<br>Oil & grease trap is provided for HEMM washing platform of workshop. |
| l. | Besides carrying out regular periodic health check-up of their workers, 10% of the workers identified from workforce engaged in active mining operations shall be subjected to health check-up from occupational diseases and hearing impairment, if any, through an specialized agency /institution within the District/State and the results reported to this Ministry and to DGMS. | Periodic Medical Examination (PME) tests which includes PFT were conducted by Area Medical Officer and Initial Medical Examination(IME) is being done for new recruits.<br>As per the reports of the Area Medical Officer no occupational diseases have been reported.<br>If any occupational diseases found then they will be sent for health check up at Central Hospital Kalla/ which may refer to specialized agency/institutuion within the District/State. |
| li. | Land oustees shall be compensated as per the norms laid out R&R Policy of CIL or the National R&R Policy or R&R Policy of the State Government whichever is higher. | It is being complied as per R&R Policy of CIL/National R&R Policy. |
| lii. | For monitoring land use pattern and for post mining land use, a time series of land use maps, based on satellite imagery (on a scale of 1:5000) of the core zone and buffer zone, from the start of the | Changes in the land use pattern is tracked by carrying out satellite imagery at every three years' interval.<br>This is being done by CMPDI, Ranchi. |

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| | 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&CC and its concerned Regional office. | |
| liii. | A detailed Final Mine Closure Plan along with details of Corpus Fund shall be submitted to the Ministry of Environment, Forest & Climate Change within 6 months of grant of Environment Clearance. | Mine closure plan as per the guidelines of Ministry of Coal has been prepared and approved by the ECL board in the 264th Board meeting on 24th Sept.2013. |
| liv. | The project authorities shall in consultation with the Panchayats of the local villages and administration identify socio-economic and welfare measures under CSR to be carried out over the balance life of the mine. | CSR works are carried out by Welfare and CSR department. Nodal officer of CSR is present at Salanpur area under which this Cluster comes. Nodal officer in consultation with BDO and local bodies undertakes the CSR activities.<br>A number of hand pumps have been installed in nearby villages.<br>Apart from this skill development courses like electrician, refrigeration and air conditioning, etc are also being carried out at VTC, Salanpur area. |
| lv. | Corporate Environment Responsibility: | It is being complied with.<br>a)Environment Policy of CIL:<br>Coal India Limited (CIL) is committed to protect the environment through prevention, mitigation of pollution, proper disposal and recycling of wastes, conservation of biodiversity and bringing awareness among all its stakeholders for continual improvement in environmental performances following best practices.<br><br>b)The environment policy ensures compliance of EC conditions and other statuary conditions issued by regulatory agencies.<br><br>c)The Environment Department is headed by HoD(Env) at HQ level and Environment Management Cell(EMC) has been established at each area of ECL which is responsible for looking |
| | a) The Company shall have a well laid down Environment Policy approved by the Board of Directors. | |
| | 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. | |
| | c)The hierarchical system or Administrative order of | |

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| | the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished. | after the compliances of the EC conditions of all the Clusters present in that area. The head of this EMC reports directly to the GM of the area.<br><br>d)The Environment Audit Cell(EAC) has been established at area level for periodic audit of the Clusters for compliance of the EC conditions and other regulatory compliances. The non-compliances are being reported to the agents of the concerned cluster and also to the GM of the area. A copy of the audit report also being sent to the HoD(Env), HQ. If the compliance is not done in the time bound manner then it is further reported to the higher authorities by HoD(Env), HQ. |
| | d)To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliance/violations pf environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large | |
| **B.** | **General Conditions** | **Compliance status** |
| i. | No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment, Forests & Climate Change. | Shovel dumper combination is under use for the mining in OC mines.<br>No change in mining technology will be done without prior approval of the MoEF&CC. |
| ii. | No change in the calendar plan of production for quantum of mineral coal shall be made. | Production is being done according to the prior approved calendar plan and under the limit of EC as given in the Specific Condition no.(i). |
| iii. | Four ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for $PM_{10}$ ,$PM_{2.5}$ ,$SO_2$ and $NO_x$ monitoring. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board.<br>Monitoring of heavy | Regular Environmental monitoring is being carried out on quarterly basis by CMPDI, Asansol.<br>Monitoring stations have been located in consultation with officials of SPCB in accordance with the direction of the wind. Location of station changes in summer and winter season according to the direction of wind and monitoring is done as per the condition meeting the norms at upstream and downwind direction. |

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| | 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 concerned Regional Office and to the State Pollution Control Board and Central Pollution Control Board once in six months. Random verification of samples through analysis from independent laboratories recognised under the EPA rules, 1986 shall be furnished as part of compliance report. | Regular Environmental monitoring is being carried out on quarterly basis by CMPDI, Asansol.<br>Same as per General Condition no.(iii) |
| 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. | Workers on pertinent activity are always being equipped with particular ear plugs. |
| 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 | Mine discharge water is collected in a lagoon present which after settling overflows in the low lying areas under the jurisdiction of ECL.<br>Most of the mine water is used for industrial purposes like HEMM washing, Fixed water sprinklers, Haul road sprinkling, etc. we are aiming to attain zero water discharge by using all the water for internal purposes and not discharging outside.<br>Samples from the mines is collected and tested in laboratory at CMPDI,RI-I, Asansol on quarterly basis. Mine water quality conform to the standards |

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| | discharge. Oil and grease trap shall be installed before discharge of workshop effluents. | prescribed under GSR 422 (E) dated 19th May 1993 and 31st December 1993. |
| 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. | Vehicles will be checked for PUC certificates. Vehicles used for transporting coal are covered with tarpaulins and optimally loaded. |
| viii. | Monitoring of environmental quality parameters shall be carried out through establishment of adequate number and type of pollution monitoring analysis equipment in consultation with the State Pollution Control Board and data got analysed through a laboratory recognised under EPA Rules, 1986. | Environmental Laboratory with latest equipment has been established at CMPDI, RI – I, Asansol. This lab is equipped with Atomic Absorption Spectrophotometer, weather monitoring system, BOD incubator, Photometer and other necessary equipment's. Quarterly monitoring report of Air, Water, and Noise& Groundwater level is prepared at above laboratory and sent to West Bengal pollution control Board with Environmental Statement (Form-V) & by Six monthly compliance reports to the MoEF regional office Bhubaneswar. |
| ix. | Personnel working in dusty areas shall wear protective respiratory devices and they shall also be provided with adequate training information on safety and health aspects. | Training and awareness programmes are carried out for the personnel working in dusty areas. All personnel working in such areas are provided dust mask to protect themselves.<br>PME tests are also carried out for checking any occupational diseases. |
| 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 | Occupational health surveillance i. e. Periodic Medical Examination (PME) is being done as per norms at Regional Hospital Salanpur. |

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| | health and safety issues of the outsourced manpower should be addressed by the company while outsourcing. | |
| 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 separate Environment Management Cell with qualified personnel has been established at Salanpur area which looks after all the clusters under the area. The head of this cell reports to the General manager, Salanpur area. |
| xii. | The funds embarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its concerned Regional Office. | Funds for environmental protection as kept in budget each year is not diverted for other purposes. |
| xiii. | The project authorities shall advertise at least in two local newspapers widely circulated around the project, one of which shall be in 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 & Climate Change at http://envfor.nic.in | Complied. |

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| xiv. | A copy of the environment clearance letter shall be marked to concern Panchayat/Zila Parishad, Municipal Corporation or Urban local body and local NGO, if any, from whom any suggestion/representation has been received while processing the proposal. A copy of the clearance letter shall also be displayed on company's website. | Complied.<br><br>EC letter displayed on company's website: http://easterncoal.gov.in/notices/env_clrn05112014.pdf |
| xv. | A copy of the environment clearance letter 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 $PM_{10}$ | EC letter displayed on company's website: http://easterncoal.gov.in/notices/env_clrn05112014.pdf<br><br>Compliance letter uploaded on company's website: http://easterncoal.gov.in/notices/environment.html |

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| | ,$PM_{2.5}$ ,$SO_2$ and $NO_x$ (ambient) and critical sectoral parameters shall also be displayed t the entrance of the project premises and mine office and in corporate office and on company's website | |
| xvii. | The project proponent shall submit six monthly compliance reports on status of compliance of the stipulated environmental clearance conditions (both in hard copy and in e-mail) to the respective Regional Office of the Ministry, respective Zonal Offices of CPCB and SPCB. | This is the six monthly compliance report for the period October 2019- March 2020 and will be sent in email also. |
| xviii. | The Regional Office of this Ministry located in the Region 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. | The Project authorities will extend full cooperation to the office(s) of the Regional Office by furnishing the requisite data/ information/monitoring reports. |
| xix. | The Environmental statement for each financial year ending 31 march in Form-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 | It is being complied with. |

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| | 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&CC by e-mail. | |

# ENVIRONMENTAL MONITORING REPORT OF CLUSTER NO. 3

**(FOR THE MONTH OF FEBRUARY, 2020)**

## (SALANPUR AREA)

# Eastern Coalfields Limited


**Regional Institute-1**
**Asansol (WB)**

# ENVIRONMENT MONITORING REPORT
# FOR
# CLUSTER NO. 3

**(For the Month of February, 2020)**

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# CHAPTER - I

# INTRODUCTION

1.0 The environmental monitoring has been carried out as per conditions laid down by MOEF&CC while granting environmental clearance to different projects. CMPDIL has trained manpower and well equipped laboratory to carry out monitoring, analysis and R&D work in the field of environment.

Reports have been prepared for submission to MoEF&CC, SPCB and other statutory authorities.

# CHAPTER-II

# AMBIENT AIR QUALITY MONITORING

## 2.1 Location of sampling station and their rationale:

### 2.1.1 Ambient Air Quality Sampling Locations

**I. Industrial Area Monitoring Location**

**i) Agent office, Bonjemehehari colliery (3A1): Industrial Area**

The sampler was placed at Bonjemehari agent office. This station was selected to assess the ambient air quality of Industrial area in the core zone of Bonjemehari OCP where mining activities are in progress.

**ii) Bonjemehari workshop near railway siding (3A8): Industrial Area**

The sampler was placed at Bonjemehari workshop near railway siding. This station was selected to assess the ambient air quality in industrial area in the core zone where coal transporting is in progress.

**II. Residential Area Monitoring Location**

**iii) Melekola village (3A2)**: **Residential Area**.

The sampler was placed at Melekola Village. This site was selected to assess the present ambient air quality status in residential area of buffer zone of Bonjemahari OCP.

**iv) Fulberia village (3A3)**: **Residential Area**.

The sampler was placed at Fulberia village. This site was selected to assess the present ambient air quality status in residential area of buffer zone Muktaichandi OCP.

**v) Salanpur Area Office (3A4)**: **Residential Area**.

The sampler was placed at Salanpur area office. This site was selected to assess the present ambient air quality status in residential area of buffer zone Sangramgarh OCP.

## 2.2 Methodology of sampling and analysis

Parameters chosen for assessment of ambient air quality were Particulate Matter ($PM_{10}$), Fine Particulate Matter ($PM_{2.5}$), Sulphur Di-oxide ($SO_2$) and Nitrogen Oxides ($NO_x$). Respirable Dust Sampler (RDS) & Fine Dust Sampler (FDS) were used for sampling of $PM_{10}$ & gaseous pollutants and $PM_{2.5}$ respectively. The samples were analysed in Environmental Laboratory of CMPDI, RI-I, Asansol.

## 2.3 Results & Interpretations

The results of ambient air quality are presented in tabular form along with for each monitoring station. Sampling stations have been chosen keeping in view predominant wind direction and have been classified as permanent, pre monsoon (April – September) & post monsoon (October – March) air sampling stations. The interpretations of different parameters are given below

### 2.3.1 Ambient air quality

**Particulate Matter ($PM_{10}$)**

In industrial area varies from 217.2 to 244.5 µg/$m^3$ & in residential area from 115.2 to 125.3 µg/$m^3$.

**Fine Particulate Matter ($PM_{2.5}$)**

In industrial area from 12.0 to 90.3 µg/$m^3$ & in residential area from 41.6 to 44.2 µg/$m^3$

**Sulphur Dioxide ($SO_2$):**

In industrial area below 10 µg/$m^3$ & in residential area below 10 µg/$m^3$.

**Oxides of Nitrogen ($NO_x$):**

In industrial area varies from 17.8 to 21.7 µg/$m^3$ & in residential area from 15.3 to 16.7µg/$m^3$.

# AMBIENT AIR QUALITY DATA

Name of the Company: **Eastern Coalfield Limited** Month: **February.** Year: **2020**

Name of the Project : **Mines of Cluster No. 3**

## Industrial Area

**1st fortnight**

| Station Code | Station Name | Date of Sampling | Parameters | | | |
|---|---|---|---|---|---|---|
| | | | $PM_{10}$ ($\mu g/m^3$) | $PM_{2.5}$ ($\mu g/m^3$) | $SO_2$ ($\mu g/m^3$) | $NO_x$ ($\mu g/m^3$) |
| 3A1 | Agent office, Bonjemehari colliery | 5-Feb-20 | 217.2 | 65.0 | <10.0 | 17.8 |
| 3A8 | Bonjemehari workshop near railway siding | 5-Feb-20 | 242.3 | 89.8 | <10.0 | 21.4 |

**2nd fortnight**

| Station Code | Station Name | Date of Sampling | Parameters | | | |
|---|---|---|---|---|---|---|
| | | | $PM_{10}$ ($\mu g/m^3$) | $PM_{2.5}$ ($\mu g/m^3$) | $SO_2$ ($\mu g/m^3$) | $NO_x$ ($\mu g/m^3$) |
| 3A1 | Agent office, Bonjemehari colliery | 20-Feb-20 | 238.6 | 12.0 | <10.0 | 17.9 |
| 3A8 | Bonjemehari workshop near railway siding | 21-Feb-20 | 244.5 | 90.3 | <10.0 | 21.7 |

## Residential Area

**1st fortnight**

| Station Code | Station Name | Date of Sampling | Parameters | | | |
|---|---|---|---|---|---|---|
| | | | $PM_{10}$ ($\mu g/m^3$) | $PM_{2.5}$ ($\mu g/m^3$) | $SO_2$ ($\mu g/m^3$) | $NO_x$ ($\mu g/m^3$) |
| 3A2 | Melekola village | 5-Feb-20 | 115.2 | 41.6 | <10.0 | 15.3 |
| 3A3 | Fulberia village | 5-Feb-20 | 122.6 | 42.9 | <10.0 | 16.2 |
| 3A4 | Salanpur area office | 5-Feb-20 | 124.8 | 43.8 | <10.0 | 16.5 |

**2nd fortnight**

| Station Code | Station Name | Date of Sampling | Parameters | | | |
|---|---|---|---|---|---|---|
| | | | $PM_{10}$ ($\mu g/m^3$) | $PM_{2.5}$ ($\mu g/m^3$) | $SO_2$ ($\mu g/m^3$) | $NO_x$ ($\mu g/m^3$) |
| 3A2 | Melekola village | 20-Feb-20 | 116.4 | 41.7 | <10.0 | 15.4 |
| 3A3 | Fulberia village | 20-Feb-20 | 123.5 | 42.8 | <10.0 | 16.3 |
| 3A4 | Salanpur area office | 28-Feb-20 | 125.3 | 44.2 | <10.0 | 16.7 |

Environmental Standards for Ambient Air Quality (AAQ):

| Station Category | *Environmental standard for Raniganj Coalfield vide MoEF, Govt. of India, Gazette Notification No. GSR 742 (E) dated 25.09.2000 for 24 hourly samples at 500 meters from dust generating point* | | | *National Ambient Air Quality Standards (NAAQS), 2009 for industrial, residential and rural areas for 24 hours samples* |
|---|---|---|---|---|
| | **Pollutant Concentration (µg/m$^3$)** | | | |
| | **$PM_{10}$** | **$SO_2$** | **$NO_x$** | **$PM_{2.5}$** |
| Industrial | 300.0 | 120.0 | 120.0 | 60.0 |
| Residential | 100.0 | 80.0 | 80.0 | |

# CHAPTER – III

# WATER QUALITY MONITORING

## 3.1 Location of sampling sites and their rationale

i) **Bonjemehari OC Mine (3MW1)**
This location has been selected to monitor the discharge quality of mine effluent to natural surface streams.

ii) **Sangramgarh Extension – OC Mine (3MW2)**
This location has been selected to monitor the discharge quality of mine effluent after sedimentation pond.

iii) **Dalmia OCP (3MW3)**
This location has been selected to monitor the discharge quality of mine effluent.

iv) **Muktaichandi OCP (3MW4)**
This location has been selected to monitor the discharge quality of mine effluent to natural surface streams.

## 3.2 Methodology of sampling and analysis

Water samples were collected as per standard practice. The effluent samples were collected and analysed for five parameters on fortnightly basis and all parameters on Half-yearly basis. The ground water samples were collected and analysed for all parameters on annually basis. Parameters like pH and Free Residual Chlorine were analysed on-site while collecting the samples. Thereafter the samples were preserved and analysed at the field laboratory located at RI-I Office campus.

## 3.3 Results & Interpretations

The results are given in tabular form along with the applicable standards. Results are compared with General Standards for Discharge of Effluent (Schedule VI) in case of effluent/mine water sample and compared with IS.10500: 2012 in case of drinking water sample. Results show that most of the parameters are within the permissible limits.

# WATER QUALITY DATA

**(Effluent Water)**

Name of the Company: **Eastern Coalfield Limited** Month: **February.** Year: **2020.**

Name of the Project : **Mines of Cluster No. 3**

Name of the Stations & Code: **1. 3MW1- Bonjemehari OC 2. 3MW2- Sangramgarh Extension OC. 3. 3MW3- Dalmia OCP. 4. 3MW4- Muktaichandi OCP.**

**First Fortnight data**

| Sl. No. | Parameters / Station Code / Date of sampling | Analytical Results 3MW1 | 3MW2 | 3MW3 | 3MW4 | General Standards for Discharge of Effluent (Schedule VI) | Method of Detection | Detection Limit |
|---|---|---|---|---|---|---|---|---|
| | Date of sampling | 6-Feb-20 | 6-Feb-20 | 6-Feb-20 | 6-Feb-20 | | | |
| 1 | pH | 8.07 | 8.10 | 7.59 | 7.51 | *5.5 - 9.0* | Electrometric | 0.01 |
| 2 | TSS | 32 | 36 | 32 | 32 | *100 (Max)* | Gravimetric Method | 10.0 |
| 3 | TDS | 781 | 225 | 314 | 372 | *Not specified* | Gravimetric Method | 25.0 |
| 4 | Oil & Grease | <2.0 | <2.0 | <2.0 | <2.0 | *10 (Max)* | Partition Gravimetric | 2.0 |
| 5 | COD | 20 | 28 | 24 | 16 | *250 (Max)* | Closed Reflux | 4.0 |

**Second Fortnight data**

| Sl. No. | Parameters / Station Code / Date of sampling | Analytical Results 3MW1 | 3MW2 | 3MW3 | 3MW4 | General Standards for Discharge of Effluent (Schedule VI) | Method of Detection | Detection Limit |
|---|---|---|---|---|---|---|---|---|
| | Date of sampling | 24-Feb-20 | 24-Feb-20 | 20-Feb-20 | 24-Feb-20 | | | |
| 1 | pH | 7.61 | 8.04 | 7.78 | 8.10 | *5.5 - 9.0* | Electrometric | 0.01 |
| 2 | TSS | 40 | 28 | 28 | 32 | *100 (Max)* | Gravimetric Method | 10.0 |
| 3 | TDS | 739 | 244 | 214 | 337 | *Not specified* | Gravimetric Method | 25.0 |
| 4 | Oil & Grease | <2.0 | <2.0 | <2.0 | <2.0 | *10 (Max)* | Partition Gravimetric | 2.0 |
| 5 | COD | 24 | 36 | 20 | 24 | *250 (Max)* | Closed Reflux | 4.0 |

All values are expressed in mg/L unless specified.

# CHAPTER - IV

# NOISE LEVEL QUALITY MONITORING

## 4.1 Location of sampling sites and their rationale

i) **Bonjemehari Workshop (3N1)**
Noise level meter placed at Bonjemehari Workshop to assess the noise level at workplace.

ii) **Dabor OC (3N2)**
Noise level meter placed at Dabor Workshop to assess the noise level at workplace.

## 4.2 Methodology of sampling and analysis

Noise level monitoring is being carried out on quarterly basis. Noise level measurements were taken in form of 'Leq' using Integrated Data Logging Sound Level Meter (Make: RION, Model: NL-52). Noise levels were measured for about one hour. 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 only. The observed values were compared with standards prescribed in NAAQS, 2009 in respect of noise for Industrial, Commercial and residential areas. The observed values at all the monitoring locations are found to be within permissible limits.
The monitored values are presented in tabular form along with the applicable standard permissible limits.

# NOISE LEVEL DATA

Name of the Company: **Eastern Coalfield Limited**. Month: **February.** Year: **2020.**

Name of the Project: **Salanpur Area**

| Sl. No. | Station Code | Station Name | Measurement Details | | | Permissible Limit of Noise level in dB(A) |
|---|---|---|---|---|---|---|
| | | | Date | Duration (In Hrs.) | Noise level dB(A) Leq | |
| 1 | 3N1 | Bonjemehari OC Workshop | 13-Nov-19 | 9.00 to 10.00 | 63.4 | *75* |
| 2 | 3N2 | Dabor OC | 13-Nov-19 | 10.30 to 11.30 | 64.8 | *75* |

National Ambient Air Quality Standards (NAAQS) in respect of noise for industrial, commercial and residential areas:

| Station Category | Limits for noise (Leq dB (A)) | |
|---|---|---|
| | Day Time: 6.00 AM to 10.00 PM | Night Time: 10.00 PM to 6.00 AM. |
| Industrial | 75.0 | 70.0 |
| Commercial | 65.0 | 55.0 |
| Residential | 55.0 | 45.0 |