

**Status of conditions stipulated in Environment Clearance for Maithon Power Project**

Ref. : 1) Environment clearance granted to us vide letter dated letter No. J-13011/6/2002.IA-II (T) dated 22<sup>nd</sup> June, 2004

2) Amendment in EC dated 18<sup>th</sup> September 2007 bearing no. J-13011/6/2002--IA.II (T).

| <b>Sr. No.</b> | <b>Conditions</b>  | <b>Compliance Status as on 31<sup>st</sup> Mar'2022</b>   |
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| 1.1            | All the conditions stipulated by the Jharkhand Pollution Control Board vide their letter No. N-24 dated 03.07.2008 should be strictly implemented.     | Status of compliance of conditions by JSPCB is attached as Annexure – 1.  |
| 1.2            | Land requirement should not exceed 1112.18 acres including 436.41 acres of forest land.  | Complied.   |
| 1.3            | Coal requirement estimated at 4.864 MTPA having 33% Ash and 0.41% Sulphur.   | <p>The coal requirement is within 4.577 MTPA for FY 22. We are getting coal from different mines allocated having ash content in the range of 38.95% to 40.92 % and average sulphur content for the period Oct'21 to Mar'22 was within 0.41%. We have FSA (fuel supply agreement) with CCL and BCCL and presently getting coal from 20-25 different mines of BCCL and CCL. We have a FSA for supply of Grade G7 - G-12 and of washery grade coal (WIII to WVI). Coal transportation has also been started through rail mode.</p> <p>As per the MoEF &amp; Cc notification of dated: 21st May 2020; The maximum distance from where we are sourcing Indian coal is about 284 km which is less than 500 km.</p> |
| 1.4            | A bi-flue stack of 275m height will be provided with continuous online monitoring equipment. Exist velocity of 23m/s should be maintained.             | A bi-flue stack of 275 m height is provided. Online monitoring equipment is provided for measurement of Particulate matter, SOx, NOx. Exit velocity is being maintained.  |
| 1.5            | High efficiency Electrostatic Precipitator (ESP) having efficiency of 99.8% should be installed to limit outlet SPM emission to 100 mg/Nm <sup>3</sup> | Complied. ESP installed. Particulate matter emission is within the stipulated limit. Average Particulate matter concentration is 34.1 and 29.2 mg/Nm <sup>3</sup> for Unit I and Unit II respectively. Stack monitoring report is attached as Annexure – 2.   |

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| 1.6  | Ash generation will be 1.56 MTPA. Ash shall be utilized in cement production, brick manufacturing and the remaining for filling up of abandoned mines. Ash generated should be used in a phased manner as per provisions of the notification on fly ash utilization issued by the Ministry in September, 1999 and its amendment. By the end of 9 <sup>th</sup> year full fly ash utilization should be ensured | Ash generation from Oct'21 to Mar'22. –794533.65 MT.<br><br>Ash utilization from Oct'21 to Mar'22. –874766 MT.<br><br>Ash is utilized in cement and brick manufacturing. Ash is also utilized in backfilling of abandoned mine voids of ECL. Ash transportation has also been started to rail mode.   |
| 1.7  | Water requirement will decrease from 4,800 m <sup>3</sup> /hr to 4688 m <sup>3</sup> /hr. Waste water should be recycled and used in the plant.  | Average water consumption from Oct'21 to Mar'22 is 1864.68.62 m <sup>3</sup> /hr. Specific raw water consumption for the period from Oct'21 to Mar'22 is 1.97 m <sup>3</sup> /MWh which is less than the prescribed standard of 3.5 m <sup>3</sup> /MWh.<br><br>Waste water treatment facility like neutralization pit, central monitoring basin installed and high efficiency reverse osmosis system also has been put in operation. |
| 1.8  | Central Ground Water Authority/Board shall be consulted for finalization of appropriate water harvesting technology within a period of 2 months from the date of clearance.  | The rain water harvesting report has been approved by CGWB, Ranchi dated 12.06.2012. Copy of approval has already been submitted to MoEF.<br><br>We have implemented Rain water harvesting system at site by adopting Roof top rain water harvesting system and by construction of storage cum percolation pond.  |
| 1.9  | Regular monitoring of water quality including heavy metals should be undertaken around ash dyke and the project area to ascertain the change in the water quality, if any, due to leaching of contaminants from the ash disposal area  | Being Complied.<br>Monitoring of water quality is being carried out regularly. Water quality monitoring report is attached as Annexure – 3.   |
| 1.10 | Noise level should be limited to 75 Leq and regular maintenance of equipment will be undertaken. For people working in the area of Generator and other high noise areas, earplug should be provided  | Being Complied.<br>Noise monitoring is being carried out regularly and report being submitted periodically. Noise level during day time within factory premises varies between 53.4 dB to 59.2 dB and during night time it varies between 43.2 dB to 50.3 dB from Oct'21 to Mar'22. Noise monitoring report is attached as Annexure - 4.<br>Earplug has been provided for the people working in generator and other high noise area.  |

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| 1.11 | Green belt should be developed covering an area of 95 ha and as per the recommendations of Institute of Forest Productivity, ICFRE, Ranchi. An undertaking to abide by the recommendations of the consultant i.e. IFP, Ranchi and any direction issued by MoEF be submitted immediately | <p>We have planted saplings in identified land in and around plant premises. The species which have been planted are – Arjun, Karanj, Neem, Sisam, Acacia, Minjuri, Mahuguni, Saal, Alstonia, Pipal, Banyan, , Kaner, Gulmohar, Siris, Jamun and Bamboo, Peltoforum, Mango, Guava etc. We have planted approx. 3.25 Lacs sapling. Additional plantation is also being done. Approximately, 98-100 Ha of land in main plant has been converted into green belt.</p> <p>We have planted appx 15500 saplings from Apr'21 to Mar'22 in this monsoon season within the plant premises.</p> |
| 1.12 | A self contained note on list of abandoned mines, distance, mode of transport, fugitive dust suppression measures, order of filling along with MoU from the mine authorities should be submitted to the Ministry within three months  | <p>We have submitted the document vide letter no- MPL/Dec/2011/282, dated 23.12.2011.</p> <p>Ash transportation has also been started through rail mode.</p> <p>Detailed note on Ash backfilling process (including mode of transport, fugitive dust suppression measures etc) from MPL to abandoned mines and Cement industries is attached as Annexure- 5.</p>  |
| 1.13 | Mitigation measures as approved by the Chief Wildlife Warden, Jharkhand must be taken for migratory birds in Maithon reservoir and a report on the measures taken be submitted to the Ministry within six months.   | Migratory bird study has been completed by M/s Ela foundation. Final report submitted to DFO, Dhanbad. We are yet to receive recommendation from DFO/CWW, Jharkhand.  |
| 1.14 | Regular monitoring of air quality should be carried out in and around the power plant and records be maintained. Periodic six monthly report be submitted to the Ministry   | <p>Being Complied. Regular monitoring of ambient air quality is being carried out within factory premises and outside the premises. Inside the factory premises the concentration of PM10, PM2.5, SO<sub>2</sub> and NO<sub>2</sub> varies between 46.8 to 88.6, 24.4 to 52.6, 6.3 to 11.9 and 14.6 to 43.8 (all in µg/m<sup>3</sup>) respectively.</p> <p>Outside the factory premises the concentration of PM10, PM2.5, SO<sub>2</sub> and NO<sub>2</sub> varies between 48.2 to 88.8, 17.8 to 54.6, 6.4 to 12.8 and 16.2 to 47.6 (all in</p>                                       |

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|      |  | <p>µg/m<sup>3</sup>) respectively.</p> <p>Last report submitted on 26<sup>th</sup> Nov'21.</p> <p>Monitoring report of ambient air quality is attached as Annexure – 6</p>  |
| 1.15 | For controlling fugitive dust, regular sprinkling of water in vulnerable areas of the plant should be ensured. | <p>Being Complied. We have installed dust suppression system and also regular water sprinkling is being done to control fugitive dust emission. Fly ash transportation is being done through bulker/covered hywa. Ash and coal transportation has also been started through rail mode.</p> <p>In track Hopper (CHP) we have installed fine water/fog type mobile dust suppression system. Rain guns have also been installed in track hopper. In coal yard area, we have installed rain guns to control fugitive emission. In stacker area, we have installed fixed type water sprinkling system. Water sprinkling is also being done through water tankers in coal yard area and on transportation road within plant premises.</p> <p>In ash pond area water sprinkling is being done through water tankers and grass matting done on the inner bund of ash pond.</p> <p>We have installed dust suppression system in ash pond to control fugitive emission.</p> <p>On internal transportation road, water sprinkling is being done through dedicated water tankers.</p> <p>We have planted saplings of bamboo, sisam, sagwaan, gamhar, neem, acacia, karanj, plantation all around the CHP and ash pond area.</p> |
| 1.16 | All other mitigative measures shall be taken as enumerated in Chapter VII of EIA report                        | Noted.  |

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| 1.17 | The project proponent should advertise at least in two local newspapers widely circulated in the region around the project, one of which should be in the vernacular language of the locality concerned, informing that the project has been accorded environmental clearance and copies of clearance letters are available with State Pollution Control Board/Committee and may also be seen at Website of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a> | Complied.<br><br>The advertisement was published in – Dainik Jagran - 03.07.2004, Hindustan times – 06.07.2004.  |
| 1.18 | A separate environment monitoring cell with suitable qualified staff should be set up for implementation of the stipulated environmental safeguards.   | Complied.  |
| 1.19 | Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards should be submitted to this Ministry/Regional Office/CPCB/SPCB  | Complied.<br>Half yearly reports on status of implementation of the stipulated conditions are regularly being sent to Regional Office MoEF, and SPCB. Last report submitted on 30 <sup>th</sup> Nov'20.  |
| 1.20 | Regional Office of the Ministry of Environment and Forests located at Bhubaneswar will monitor the implementation of the stipulated conditions. Complete set of Environmental Impact Assessment Report and Management Plan should be forwarded to the Regional office for their use during monitoring.   | Complied.  |
| 1.21 | Separate funds should be allocated for implementation of environmental protection measures along with item wise break up. These costs should be included as a part of the project cost. The funds earmarked for the environmental protection measures should not be diverted for other purposes and year wise expenditure should be reported to the Ministry   | Separate fund has been allocated for environmental protection measures.<br><br>Total expenditure incurred for environmental protection measures was Rs. 217.87 Cr. which includes – ESP, Bag filter, Online stack monitoring and data transfer system, Continuous ambient air quality monitoring system, Chimney, Dust suppression system, Neutralization pit, CMB and STP.<br><br>Expenditure incurred for the period Oct'21 to Mar'22 in green belt was Rs. 1.04 Crore (approx.), for environment monitoring was approx Rs. 11.00 Lakh, for maintenance of Environment monitoring instrument was Rs. 16.5 Lakh (appx) and for waste disposal was Rs. 1.39 Lakh (appx)<br><br>Expenditure incurred for the period Apr'21 to Sep'21 for ash management was |

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|      |   | Rs. 17.19 Cr (appx).      |
| 1.22 | Full cooperation should be extended to the Scientists/Officers from the Ministry/Regional Office of the Ministry at Bhubaneswar/the CPCB/the SPCB who would be monitoring the compliance of environmental status  | Noted and being followed. |
| 1.23 | The Ministry reserves the right to revoke the clearance, if conditions stipulated are not implemented to the satisfaction of Ministry   | Noted.                    |
| 1.24 | The environmental clearance accorded shall be valid for a period of five years for construction/operation of the power plant. In case, if the project authorities fails to do so within this stipulated period, this environmental clearance shall stand lapsed automatically   | Noted.                    |
| 1.25 | In case of any deviation or alteration in the project proposed from those submitted to the Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the condition(s) imposed and to add additional environmental protection measures required, if any.  | Noted.                    |
| 1.26 | The above stipulations would be enforced among others under the Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1986, the Environment (Protection) Act, 1986, Hazardous Wastes (Management and Handling) Rules, 1989, the Public Liability Insurance Act, 1991, the Environment Impact Assessment Notification of January 1994 and its amendments | Noted.                    |

| SNo. | Conditions   | Compliance Status as on 31 <sup>st</sup> Mar'2022  |
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| 2.0  | <b>Charter on Corporate Responsibility for Environmental Protection (CREP)</b>   |  |
| 2.1  | Implementation of Environmental Standards (Emission and Effluent) in non-compliant Power Plants (31 and 27)<br>- Submission of action plan: 30.06. 2003<br>- Placement of order for pollution control equipment: September, 2003.<br>- Installation and commission: 31.12.2005.  | Not applicable.  |
| 2.2  | For existing thermal power plants, a feasibility study shall be carried out by Central Electricity authority (CEA) to examine possibility to reduce the particulate matter emissions to 100 mg/Nm <sup>3</sup> . The studies shall also suggest the road map to meet 100 mg/Nm <sup>3</sup> wherever found feasible. CEA shall submit report by March, 2004. | Not applicable.  |
| 2.3  | New/expansion power projects to be accorded environmental clearance on or after 1.4.2003 shall meet the limit of 100 mg/Nm <sup>3</sup> for particulate matter.  | Complied.<br>Particulate matter emission is within the stipulated limit. Average Particulate matter concentration is 34.1 and 29.2 mg/Nm <sup>3</sup> for Unit I and Unit II respectively. |
| 2.4  | Development of SO <sub>2</sub> and NO <sub>x</sub> emission standards for coal based plants by December, 2003.<br>New/expansion power projects shall meet the limit of SO <sub>2</sub> and NO <sub>x</sub> wef 1.1.2005.<br>Existing power plants shall meet the limit of SO <sub>2</sub> and NO <sub>x</sub> wef 1.1.2006.                                  | We have to install FGD to comply with SO <sub>2</sub> standard and to comply NO <sub>x</sub> emission limit by the year 2024.  |
| 2.5  | Install/activate opacity meters/ continuous monitoring system in all the units by 31st. Dec'2004 with proper calibration system.   | Complied.<br>The power station is equipped with opacity meters/ continuous monitoring systems.   |
| 2.6  | Development of guidelines/ standards for mercury and other toxic heavy metals emissions by December, 2003.   | Noted.   |

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| 2.7       | Review of stack height requirement and guidelines for power plants based on micro meteorological data by June, 2003.   | A bi-flue stack of 275 m height is provided as per EC condition.  |
| 2.8       | Implementation of use of beneficiated coal as per GOI notification Power plants will sign fuel supply agreement (FSA) as per the matrix prepared by CEA for compliance of the notification as short term measure.<br>Options/ mechanism for setting up of coal washeries as a long term measure. Coal India will set up its own washery. State Electricity Board to set up its own washery. Coal India to ask private entrepreneurs to set up washeries for CIL and taking washing charges. SEBs to select a private entrepreneur to set up a washery near pit head installation of coal beneficiation plants. | Noted.  |
| 2.9       | Power plants will indicate their requirement of abandoned coal mines for ash disposal and Coal India/ MOC shall provide the list of abandoned mines by June 2003 to CEA.   | As a part of fly ash utilization, ECL has allocated abandoned open cast coal mine voids.  |
| 2.10      | Power plants will provide dry ash to the users outside the premises or uninterrupted access to the users within six months.  | Noted. Being provided.  |
| 2.11      | Power plants should provide dry fly ash free of cost to the users.   | MPL is providing pond ash as well as dry fly ash free of cost to brick manufacturing unit, cement manufacturing unit and stowing in abandoned open cast coal mines. |
| 2.12      | State PWDs/construction and development agencies shall also adhere to the specifications/schedules of CPWD for ash/ ash based products utilization. MoEF will take up the matter with State Governments.   | Not applicable.   |
| 2.13 (i)  | New plants to be accorded environmental clearance on or after 1.04.2003 shall adopt dry fly ash extraction or dry disposal system or medium (35-40%) ash concentration slurry disposal system or lean phase with 100% ash water recirculation system depending upon site specific environmental situation.   | Complied.<br>It has been installed as part of the ash handling package.   |
| 2.13 (ii) | Existing plants shall adopt any of the systems mentioned in 2.13 (i) by December, 2004.  | Complied.   |
| 2.14      | Fly ash mission shall prepare guidelines/ manuals for fly ash utilization by March 2004.   | Noted.  |
| 2.15      | New, plants shall promote adoption of clean coal and clean power generation technologies.  | Noted.  |



