



J-13012/77/2011-I.A.II (T)
Government of India
Ministry of Environment, Forests and Climate Change

3rd Floor, Vayu Block,
Indira Paryavaran Bhawan, Jor Bagh Road,
Aliganj, New Delhi-110003

Dated: 12th February, 2015.

To

M/s Bhushan Steel Ltd.,
Bhushan Centre, Ground Floor,
Hyatt Regency Complex,
Bhikaji Cama Place
New Delhi – 110066.

Tel: 011-39194000; Fax: 011-26478750; Email: bsl@bhushansteel.com.

Sub: Expansion of existing 155 MW CPP by installation of (175+3x27) 256 MW Imported Coal based Thermal Power Plant at Meramandali, Distt. Dhenkanal, in Orissa by M/s Bhushan Steel Ltd. – reg. Environmental Clearance.

Sir,

This has reference to your letters dated 16.10.2014, 04.11.2014, 01.12.2014 and 04.12.2014 on the above subject. The Ministry has examined the application. The ToR for preparation of EIA/EMP report was accorded by the Ministry on 31.10.2012. Public Hearing for the project was held on 23.08.2013. The Ministry has taken action as per O.Ms dated 12.12.2012 and 27.06.2013 for consideration of proposals for EC involving violation of the Environment (Protection) Act, 1986/EIA Notification, 2006.

2. It is noted that the proposed TPP will be installed within the existing 5.6 MTPA integrated steel plant premises. EC for expansion of the steel plant from 3.1 MTPA to 5.6 MTPA was accorded on 20.07.2012. The fuel proposed to be used is either 100 % Imported coal or 50 % Imported coal & 50% mix gas (BFG+ COG). The imported coal (max. 1.28 MTPA) will be sourced from Indonesia and the mix gas (3,00,000 Nm³/h) will be sourced from the steel plant. The Sulphur and ash contents in the imported coal will be 0.3 % and 6.0 % respectively. The water requirement is 695 m³/h and will be sourced from the existing reservoir of steel plant which is connected to Brahmani River. No fresh permission is required. Induced draft cooling towers will be used. The project cost is Rs. 950 crores and the cost of Pollution control systems is Rs. 67.55 crores.

3. It is proposed to install 3 nos. 275 TPH CFBC imported coal fired boiler (Dual fired-imported coal/Coal tar/Mixed waste gases from (a) Coke Oven (b) Blast Furnace (c) BOF) to produce steam to run the 256 MW (1x175 MW + 3x27 MW) turbo-generators. The surplus steam generated from various boilers already installed e.g. CFBC, WHRB, CDQ boilers will also be used in 256 MW TPP.

4. The cumulative impacts of the AAQ have been assessed for 15 km radius. Base line data of AAQ monitored at twelve locations indicates that concentrations of PM₁₀, SO₂ and NO_x are varying from 37.1 µg/m³ to 62.4 µg/m³, 17.7 µg/m³ to 31.9 µg/m³ and 16.1 µg/m³ to 27.3 µg/m³ respectively. The predicted maximum incremental GLCs due to the proposed unit would be 35.15 µg/m³, 31.74 µg/m³ and 15.16 µg/m³ with respect to PM₁₀, SO₂ and NO_x respectively. The resultant

concentrations are within the NAAQS. The PP has committed for installation of 220 m height of stack since the overall capacity is more than 350 MW.

5. Entire wastewater from plant will be treated and recycled. Existing ETP will be used to treat wastewater from cooling tower, boiler blow down and DM plant. Fly Ash – 0.072 MTPA and Bottom Ash – 0.038 MTPA will be generated with 100% imported coal. The ash from the existing Unit is being filled in the mine void of Jagannath colliery no. 4 of MCL. Bulklers are used for transporting the Fly Ash from plant to Jagannath mine Void and it is proposed to lay ash slurry pipeline from the plant to Jagannath mine void. Permission from Department of Water Resources, Govt. of Odisha and Consent to establish from SPCB, Odisha has been received. Fly Ash is being exported to neighboring countries like Bhutan, used for cement plants and road development. Fly ash brick making units of 4000 bricks per hour capacity have already been installed for producing bricks. The same method of ash disposal is envisaged for 100 % fly ash utilization of the proposed TPP, which was recommended in the fly ash utilization Notification.

6. Based on the information submitted and presentations made by you and your consultant, M/s Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar before the Expert Appraisal Committee (Thermal Power) in its 6th, 16th and 24th Meetings held during December 5-6, 2013, 31st July and 1st August, 2014 and October 30-31, 2014, the Ministry hereby accords environmental clearance to the above project under the provisions of EIA Notification dated September 14, 2006 and amendments therein subject to the compliance of the following Specific and General conditions:

A. Specific Conditions:

- i) Vision document specifying prospective plan for the site shall be formulated and submitted to the Regional Office of the Ministry within **six months**.
- ii) Harnessing solar power within the premises of the plant particularly at available rooftops shall be carried out and status of implementation including actual generation of solar power shall be submitted along with half-yearly monitoring report.
- iii) *Sulphur and ash contents in the imported coal to be used in the project shall not exceed 0.3 % and 6.0 % respectively at any given time. In case of variation of coal quality at any point of time, fresh reference shall be made to the Ministry for suitable amendments to environmental clearance condition wherever necessary.*
- iv) A long term study of radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute and results thereof analyzed every two year and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.
- v) A stack of 220 m height shall be provided with continuous online monitoring equipments for SO_x, NO_x and PM_{2.5} & PM₁₀. Exit velocity of flue gases shall not be less than 22 m/sec. Mercury emissions from stack shall also be monitored on periodic basis.
- vi) High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm³. Adequate dust

extraction system such as cyclones/bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.

- vii) Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.
- viii) COC of atleast 5.0 shall be adopted.
- ix) Monitoring of surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall also be undertaken and results/findings submitted along with half yearly monitoring report.
- x) A well designed rain water harvesting system shall be put in place within six months, which shall comprise of rain water collection from the built up and open area in the plant premises and detailed record kept of the quantity of water harvested every year and its use.
- xi) No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up / operation of the power plant.
- xii) Hydrogeology of the area shall be reviewed annually from an institute/ organization of repute to assess impact of surface water and ground regime (especially around ash dyke). In case any deterioration is observed, specific mitigation measures shall be undertaken and reports/ data of water quality monitored regularly and maintained shall be submitted to the Regional Office of the Ministry.
- xiii) Wastewater generated from the plant shall be treated before discharge to comply limits prescribed by the SPCB/CPCB.
- xiv) Additional soil for leveling of the proposed site shall be generated within the sites (to the extent possible) so that natural drainage system of the area is protected and improved.
- xv) *Prior approval of the Ministry shall be obtained for mine void and stone abandoned quarry filling of fly ash based on the outcome of the pilot study for which permission was accorded to the existing Units by the Ministry on 05.09.2013 subject to Hon'ble NGT's Order.*
- xvi) Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed off in the ash pond in the form of slurry. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. No ash shall be disposed off in low-lying area.
- xvii) Fugitive emission of fly ash (dry or wet) shall be controlled such that no agricultural or non-agricultural land is affected. Damage to any land shall be mitigated and suitable compensation provided in consultation with the local Panchayat.

- xviii) Ash pond shall be lined with HDPE/LDPE lining or any other suitable impermeable media such that no leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.
- xix) Green Belt consisting of three tiers of plantations of native species around plant and at least 50 m width shall be raised. Wherever 50 m width is not feasible a 20 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not be less than 2500 per ha with survival rate not less than 80 %. *Only native species shall be planted and the green belt development shall be expedited.*
- xx) CSR schemes identified based on Public Hearing issues and need based assessment shall be implemented in consultation with the village Panchayat and the District Administration starting from the development of project itself. As part of CSR prior identification of local employable youth and eventual employment in the project after imparting relevant training shall be also undertaken. Company shall provide separate budget for community development activities and income generating programmes.
- xxi) As committed, a minimum amount of Rs 40.0 Crores shall be earmarked for CSR activities for the next five years. For proper and periodic monitoring of CSR activities, a CSR committee or a Social Audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final.
- xxii) For proper and periodic monitoring of CSR activities, a CSR committee or a Social Audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final.
- xxiii) An Environmental Cell comprising of at least one expert in environmental science/ engineering, ecology, occupational health and social science, shall be created preferably at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the Head of the Cell shall directly report to the Head of the Plant who would be accountable for implementation of environmental regulations and social impact improvement/mitigation measures.

B. General Conditions:

- (i) Space for FGD shall be provided for future installation as may be required.
- (ii) The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant. Arrangements shall be made that effluents and storm water do not get mixed.
- (iii) A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt/plantation.
- (iv) Adequate safety measures shall be provided in the plant area to check/minimize spontaneous fires in coal yard, especially during summer season. Copy of these measures with full details along with location plant

layout shall be submitted to the Ministry as well as to the Regional Office of the Ministry.

- (v) Storage facilities for auxiliary liquid fuel such as LDO/ HFO/LSHS shall be made in the plant area in consultation with Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5%. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.
- (vi) First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.
- (vii) Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 85 dB(A) from source. For people working in the high noise area, requisite personal protective equipment like earplugs/ear muffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non noisy/less noisy areas.
- (viii) Regular monitoring of ambient air ground level concentration of SO₂, NO_x, PM_{2.5} & PM₁₀ and Hg shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry. The data shall also be put on the website of the company.
- (ix) Utilization of 100% Fly Ash generated shall be made from 4th year of operation. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.
- (x) Provision shall be made for the housing of construction labour (as applicable) within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- (xi) The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at Website of the Ministry of Environment and Forests at <http://envfor.nic.in>.
- (xii) A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad / Municipal Corporation, urban local Body and the Local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.
- (xiii) The proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously

be sent to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM (PM_{2.5} & PM₁₀), SO₂, NO_x (ambient levels as well as stack emissions) shall be displayed at a convenient location near the main gate of the company in the public domain.

- (xiv) The environment statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.
- (xv) **The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests.**
- (xvi) Regional Office of the Ministry of Environment & Forests will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will up-load the compliance status in their website and up-date the same from time to time at least six monthly basis. **Criteria pollutants levels including NO_x (from stack & ambient air) shall be displayed at the main gate of the power plant.**
- (xvii) Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.
- (xviii) The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of plant.
- (xix) Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office of the Ministry / CPCB/ SPCB who would be monitoring the compliance of environmental status.

7. The Ministry of Environment and Forests reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry. The Ministry may also impose additional environmental conditions or modify the existing ones, if necessary.

8. The environmental clearance accorded **shall be valid for a period of 5 years** from the date of issue of this letter to start operations by the power plant.

9. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

10. In case of any deviation or alteration in the project proposed including coal transportation system from those submitted to this 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.

11. The above stipulations would be enforced among others under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and rules there under, Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008 and its amendments, the Public Liability Insurance Act, 1991 and its amendments.

12. Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Yours faithfully,

(Dr. Saroj)
Scientist 'F'

Copy to:

1. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi-110001.
2. The Chairman, Central Electricity Authority, Sewa Bhawan, R.K.Puram, New Delhi-66.
3. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-office Complex, East Arjun Nagar, Delhi-32.
4. The Director (Env.) cum Special Secretary, Department of Forest & Environment, Government of Odisha, Bhubaneswar The Chairman, Orissa State Pollution Control Board, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar -751012.
5. The Chief Conservator of Forests, Ministry of Environment and Forests, Regional Office (EZ), A/3, Chandersekhapur, Bhubaneswar - 751023.
6. Monitoring Cell, MoEF
7. Website of MoEF
8. Guard File.

(Dr. Saroj)
Scientist 'F'