



J-13012/69/2008-IA.I (T)
Government of India
Ministry of Environment, Forest and Climate Change

Indira Paryavaran Bhawan, Jor Bagh Road,
Aliganj, New Delhi-110003.

Dated: 28.02.2017

To

The Chief Executive Officer
M/s SJVN Thermal (P) Ltd.,
(A wholly owned subsidiary of SJVN Ltd,- A Mini Ratna &
Schedule 'A' PSU under GoI.)
Regd Office: Plot No.192, Circle No.06,
Ward No.02, Talpatra Lane, BudhMarg, Patna- 800001
Tel No. 0612-2219224; Fax No. 0612-2219370; E.mail: liaisonpatna@gmail.com

**Sub: 2x660 MW Coal Based Super Critical Buxar Thermal Power Project (BTTP)
at near Village Chausa, District Buxar, Bihar by M/s SJVN Thermal Pvt.
Ltd.- reg. Environmental Clearance**

Sir,

This has reference to your online application dated 25.10.2016 and the additional documents submitted vide letter dated 30.01.2017 w.r.t the aforesaid project. The Ministry has examined the proposal.

2. It has been noted that Terms of Reference has been issued for the above mentioned project on 07.06.2016 and EAC has agreed to utilise existing baseline collected during April-June, 2008 & March-June, 2015 and to supplement with one month fresh baseline data (non-monsoon).

3. It has been inter-alia noted that Coal based Super Critical Buxar Thermal Power Plant with a capacity of 2x660 MW has been proposed at Village Chausa, Dist. Buxar, Bihar. Land requirement for the proposed project is 1,065 acres. Additional land of 225 acres is required for laying Railway siding and water pipelines. About 95% of land has been acquired. No displacement is involved. No forest land is involved for the project activities including pipelines and associated facilities. There are no protected areas within 10 km radius of project.

4. Coal requirement is 6.7 MTPA (Indian Coal, Ash- 41% and S- 0.6%) which will be sourced from Deocha-Pachami Dewanganj-Harisingha coal block, Birbhum Dist., West Bengal and the allocation from Ministry of Coal has been made vide MoC Letter dated 06.09.2013. It is proposed to use Imported Coal (Ash-12% and S-0.8%) of 3.9 MTPA for initial 4 year and the MoU between M/s MMTCL and M/s SJVNL has been made vide MoU dated 24.02.2016. Imported coal will be received at Haldia Port. Both imported and domestic coal will be transported through rail. Eastern Central Railways provided in-principle approval for railway siding vide letter dated 29.09.2015.

5. The total water requirement is 3,265 m³/hr (32 cusec) and will be met from River (Ganges) through pipeline which is very near to the proposed project site. Necessary water allocation has been granted by Government of Bihar vide MoU dated 29th August, 2016. CWC also conveyed the approval for withdrawal in lean season vide letter dated 24.09.2010. The specific water consumption is 2.5 m³ per MWh as against 4 m³ per MWh.

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6. Baseline data for AAQ collected during May-June, 2016 and the values for PM₁₀, PM_{2.5}, SO₂ and NO_x range between 36.32-47.26 µg/m³, 18.35-27.01µg/m³, 11.13-16.68 µg/m³ and 13.22-18.70 µg/m³, respectively. Maximum predicted GLCs for PM, SO₂ and NO₂ are 0.37 µg/m³ at 1.4 km, 0.96 µg/m³ at 1.4 km and 0.99 µg/m³ at 6.8 km, respectively. Stack of 275 m height for effective dispersion of flue gas, FGD, ESPs, Low NO_x burners have been proposed. Bag filters and water sprinklers have been proposed at coal handling areas to control fugitive dust.

Wastewater of about 751 m³/hr will be generated from cooling tower blowdown, DM Plant and clarifiers. It will be reused within the plant after treatment. About 66 m³/hr treated water will be used for greenbelt/horticulture and no treated water will be discharged into surface water bodies. Zero discharge wastewater will be adopted.

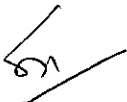
The flyash of about 2.7 MTPA will be generated from the use of Indian coal. It is estimated that flyash of 2.30 MTPA and Bottom Ash of 0.40 MTPA will be generated. The Fly ash generated will be utilized in cement production by the nearby Cement Industries. The Bottom ash and un-utilized Fly ash will be stored in the Ash pond having an area of about 282 acres. EOI/MoU has been signed with various users for utilization of fly ash viz., Rural works Dept., & Govt. of Bihar -0.48 MTPA, Road Construction Department -0.24 MTPA, M/s R.K Mishra Enterprises -0.5 MTPA, Lafarge Cement Plant -0.8 MTPA, Dalmiya Cement -0.7 MTPA and Global Infra Ltd - 0.5 MTPA.

7. Public Consultation was carried out by Bihar State Pollution Control Board on 04.10.2016 at Buxar Town. Time bound action plan along with financial allocation has been prepared for addressing the issued raised in the Public Hearing. Estimated project cost is Rs. 10,520 Crores and Budget allocated for EMP is Rs.1,311.32 Crores. CSR budget of Rs.61 Crores has been allocated which shall be spent in 10 years.

8. Based on the information, clarifications, documents submitted and presentations made by you before the *Expert Appraisal Committee (Thermal Power)* in its 1st Meeting held on 28th December, 2016, the Ministry hereby accords environmental clearance to the above project under the provisions of EIA Notification dated September 14, 2006 and subsequent amendments therein subject to compliance of the following Specific and General conditions:

A. Specific Conditions:

- (i) Land of 33% of the total project area would be earmarked for greenbelt development. 100 m wide greenbelt with 3 tiers around the plant boundary with plant density of 2,500 trees per hectare with local native species shall be developed.
- (ii) Recommendations of Water Resource Department, Patna vide their letter dated 21.1.2017 shall be implemented for diverting the Buda nalla. Recommendations of IIT Roorke shall also be implemented in this regard. Re-alignment has been proposed so as not to disturb the natural course of the drainage. Banks of the nalla to be strengthened near outfall locations. Solid waste disposal shall not be disposed in to nallah to maintain flow capacity of the nalla.
- (iii) Site-specific Seismicity Study recommendations by IIT Roorkee shall be implemented in design of all structures and equipment. The design of the structures shall also be in accordance with the provisions of IS:1893 (Part 1):2002 and IS:1893 (Part 4): 2005.
- (iv) Flue Gas Desulphurization (FGD) and Selective Catalytic Reduction (SCR) shall be installed in the proposed Thermal Power Plant.
- (v) Sulphur and ash content in the imported coal shall not exceed 0.8% and 12% respectively. The Sulphur and ash content of domestic coal shall not exceed



- 0.6% and 34% respectively. In case of variation of quality at any point of time, fresh reference shall be made to the Ministry for suitable amendments to the environmental clearance.
- (vi) The PP shall explore feasibility of Air Cooled Condensers based on the guidelines of CEA. As proposed, Capital cost of Rs.1,311.32 Crores shall be earmarked for implementation of Environment Management Plan. CSR budget of Rs.61 Crores has been allocated which shall be spent in 10 years. The CSR budget during operational phase shall be earmarked as per the CSR policy of GoI. Provision for water supply to be made for construction toilets under Swachh Bharat Abhiyan.
 - (vii) MoEF&CC Notification S.O. 3305(E) dated 7.12.2015 shall be implemented with respect to specific water consumption, zero liquid discharge and revised emission standards. The PM, SO₂, NO_x and Hg emissions shall not exceed 30 mg/Nm³, 100 mg/Nm³, 100 mg/Nm³ and 0.03 mg/Nm³ respectively. The specific water consumption shall not exceed 2.5 m³/MWh and zero waste water discharge shall be achieved.
 - (viii) MoEF&CC Notification G.S.R 02(E) dated 2.1.2014 regarding use of raw or blended or beneficiated or washed coal with ash content not exceeding 34% shall be complied with.
 - (ix) MoEF&CC Notifications on flyash utilization S.O. 763(E) dated 14.09.1999, S.O. 979(E) dated 27.08.2003, S.O. 2804(E) dated 3.11.2009, S.O. 254(E) dated 25.01.2016 and subsequent amendments shall be complied with.
 - (x) Separate Environmental Clearance may be obtained for the proposed Township in an area of 95 acres with total built-up area of 1,21,178 sq. m as applicable under EIA Notification 2006. Sewage Treatment Plant (STP) shall be set up in the township for treating wastewater of 900 m³/day.
 - (xi) An estimate of 5.9 million cubic meters (9 million tons) of Soil would be required for leveling the site. Earth material will be sourced from land/borrow pits from the nearby areas within 15 km radius from the site. Necessary permits and approvals shall be obtained from the concerned authorities for excavation of earth material.
 - (xii) As proposed, separate Environmental Cell with Environmental Engineers, Environmental Scientists, Occupational Health Specialist, Horticulture Specialist, and Social Scientist headed by Environment Head shall function and implement environmental management plan and monitoring activities. Company shall implement Environmental Management Systems, ISO 14001:2015 at the proposed project. Sustainability Reporting shall be done as per environment management plan.
 - (xiii) The compliance of EC conditions shall be reviewed on quarterly basis. In this regard, a compliance mechanism shall be set up through Plant Head who is responsible for implementing the conditions stipulated in the Environmental Clearance, non-compliances and violations. Budget to implement various environmental pollution control measures as proposed in the EMP shall be kept in a separate account and shall not be diverted for any other purposes.
 - (xiv) Vision document specifying prospective plan for the site shall be formulated and submitted to the Regional Office of the Ministry within **six months**.
 - (xv) Harnessing solar power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation including actual generation of solar power shall be submitted along with half yearly monitoring report.
 - (xvi) 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.

- (xvii) Online continuous monitoring system for stack emission, ambient air and effluent shall be installed.
- (xviii) High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 30 mg/Nm³ or as would be notified by the Ministry, whichever is lesser. 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 along with an environment friendly sludge disposal system.
- (xix) 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.
- (xx) COC of atleast 5.0 shall be adopted.
- (xxi) 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.
- (xxii) 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.
- (xxiii) 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 except Buda nalla as proposed for re-alignment without affecting natural drainage.
- (xxiv) 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.
- (xxv) Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) shall be monitored in the bottom ash. No ash shall be disposed off in low lying area.
- (xxvi) No mine void filling will be undertaken as an option for ash utilization without adequate lining of mine with suitable media such that no leachate shall take place at any point of time. In case, the option of mine void filling is to be adopted, prior detailed study of soil characteristics of the mine area shall be undertaken from an institute of repute and adequate clay lining shall be ascertained by the State Pollution Control Board and implementation done in close co-ordination with the State Pollution Control Board.
- (xxvii) 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.
- (xxviii) Green Belt consisting of three tiers of plantations of native species all 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 %.
- (xxix) Green belt shall also be developed around the Ash Pond over and above the Green Belt around the plant boundary.
- (xxx) The project proponent shall formulate a well laid Corporate Environment Policy and identify and designate responsible officers at all levels of its hierarchy for ensuring adherence to the policy and compliance with the

conditions stipulated in this clearance letter and other applicable environmental laws and regulations.

- (xxxi) CSR schemes identified based on 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.
- (xxxii) 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.

B) General Conditions:

- (i) 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.
- (ii) A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt/plantation.
- (iii) 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.
- (iv) 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.
- (v) First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.
- (vi) 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.
- (vii) 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.
- (viii) 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.
- (ix) 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.

- (x) 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 the Website of MoEF&CC at <http://envfor.nic.in>.
- (xi) 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.
- (xii) 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.
- (xiii) 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.
- (xiv) **The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to MoEF&CC, 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, MoEF&CC.**
- (xv) The progress of the project shall be submitted to CEA on six monthly basis.
- (xvi) Regional Office of the MoEF&CC 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.

C) An as built or as completed report on EMP to be submitted stating the scope/extent of work envisaged in the EIA along with estimated cost vis-à-vis the actual completed works and cost incurred. A certificate/completion certificate accordingly, shall have to be submitted before commissioning of the TPP.

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

10. The environmental clearance accorded **shall be valid for a period of 7 years** from the date of issue of this letter to start operations by the power plant.

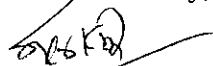
11. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

12. 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.

13. 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.

14. 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. S. Kerketta)
Director

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-110066.
3. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
4. The Additional Principal Chief Conservator of Forests (C), Ministry of Environment Forest and Climate Change, Regional Office (Eastern-Central Zone Region), Bungalow No.A-2, Shyamali Colony, Ranchi-834002.
5. The Secretary, Department of Environment, Govt. of Bihar, Patna.
6. The Chairman, Bihar State Pollution Control Board, Parivesh Bhawan, Patliputra Industrial Area, Patna-10.
7. The District Collector, Buxar District, Govt. of Bihar.
8. Guard file/Monitoring file.
9. Website of MoEF&CC.


(Dr. S. Kerketta)
Director