



J-13012/100/2011-IA.II (T)
Government of India
Ministry of Environment, Forest and Climate Change

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

Dated: 30.03.2017

To

M/s THDC India Limited
(A joint venture of Govt, of India & Govt. of U.P.)
Plot No.20, Sector-14, Kaushambi,
Ghaziabad-201010, Uttar Pradesh.

Tel No. 0120-2816800/2816900; Fax No. 0120-2776499;

Sub: 2x660 Coal based Khurja Super Thermal Power Project at Villages Dushhara Kherli, Jahanpur, Naiphall and Rukanpur in Khurja Taluk, Bulandshahar Distt. Uttar Pradesh by M/s THDC India Limited - reg. Environmental Clearance.

Sir,

This has reference to your online application dated 06.10.2015 and the additional documents submitted vide letter dated 30.08.2016, 16.12.2016, 30.01.2016 and 17.02.2017 w.r.t the aforesaid project.

2. It has been noted that Terms of Reference has been issued for the above mentioned project on 27.10.2011 for preparation of EIA/EMP studies and carrying out Public Consultation. The validity of ToR has been further extended till 26.10.2015 vide Ministry's letters of even no. dated 03.12.2013 and 15.01.2015. It has been inter-alia noted that the proposal is for setting up of 2x660 MW (1320 MW) Coal based Super critical Khurja Thermal Power Project at Villages Villages Dushhara Kherli, Jahanpur, Naiphall and Rukanpur in Khurja Taluk, Bulandshahar Distt. Uttar Pradesh.

3. A total land requirement for setting up of the above power project is 1400 acres including green belt, township, railway & raw water corridors and re-routing of NH-91 from the site, etc. 97% of the total land is agricultural area. Approximately an area of 1200.8 acres has already been acquired by Uttar Pradesh State Industrial Development Corporation Limited and handed over to M/s THDC India Ltd vide MoU dated 14.12.2013.

4. There are no National Parks, Wildlife Sanctuaries, any other protected areas and Eco-Sensitive Zones, etc within 10 km radius of the project. There are no Schedule-I flora and fauna species, rare, threatened, endangered or vulnerable species listed under IUCN Red book found in the project area as well as study area.

5. Coal requirement is 5.4 MTPA (16,280 TPD) which will be sourced from Amelia Coal block of M/s Madhya Pradesh State Mining Corporation Ltd., in Singrauli Coalfields, Singrauli Taluk and Dist., Madhya Pradesh. The said coal block has been allocated by MoC on 13.12.2016. As per the preliminary coal characteristics available, 42% of the coal reserve is Grade 'E' coal which will have ash content ranging from 34.1-40%. 24% of coal belongs to Grade "D" and 22% belongs to Grade "C" which has ash content below 34%. Suitable arrangement will be made at the pit head to ensure that coal transported and used in the proposed power plant contains ash less than 34% on quarterly basis. Calorific value and total Moisture content of the coal is >4200 kcal/kg and <13% respectively. Coal transportation is envisaged from the coal mines

to power plant by Indian Railways rakes. The rake shall be unloaded at the wagon tippler terminal. No road transportation is involved for Coal transportation from mine pit to the power plant. The power project is based on Super critical technology. Coal will be fired in a high pressure boiler to produce steam at about pressure of 256 kg/cm² and temperature of 568°C/596°C in the super heater outlet.

6. Water requirement is 3,265 m³/hr which will be sourced from Upper Ganga canal located at 8 km North-East of the project site. 53 cusecs of water has been allocated by U.P. Government vide their letter dated 12.06.2014. A raw water reservoir with a storage capacity of 25 days is envisaged.

7. Aligarh natural drain which is passing through the project site is proposed for re-alignment. The catchment area of the drain is 10.5 km². Hydrographic Area Drainage Study has been carried out by National Institute of Hydrology. Airports Authority of India has given NOC for construction of 275 m stack vide their letter dated 18.07.2011. National Highways Authority of India has given in-principle approval for re-routing NH-91 from the proposed site vide their letter dated 29.10.2013.

8. Baseline environment studies have been carried out during October-December, 2012. Additional baseline data has been collected during March-May, 2016 and supplemented to EIA report. Air Quality monitoring carried out at 4 locations. Maximum SPM recorded is 198 µg/m³ at Jawal village. Average values of PM₁₀, PM_{2.5}, SO₂, NO_x, O₃, Hg are in the range of 68.5-70.9 µg/m³, 34.3-35.6 µg/m³, 11.5-12.71 µg/m³, 24.3-26.8 µg/m³, 25.8-26.7 µg/m³ and BDL, respectively. Maximum Predicted Incremental concentrations for PM₁₀, SO₂, NO_x are 1.51 µg/m³, 5.06 µg/m³ and 5.06 µg/m³, respectively. Pre-dominant wind direction during study period is West. Noise quality has been monitored in the study area and found within the prescribed limits of Noise standards for residential, commercial and sensitive areas. Proposed Air pollution control facilities shall include High efficiency ESPs, FGD system for control of SO₂, Low NO_x Burner (LNB) and Selective Catalytic Reduction (SCR) System for NO_x control, de-dusting system in Coal Handling Plant and twin flue stack of 275 m height. Zero discharge will be implemented with RO treatment with the capacity of 240 m³/hr.

9. Total ash generation from the proposed project is 1.836 MTPA which consists of 1.469 MTPA flyash and 0.367 MTPA bottom ash. The bottom ash and coarse ash slurry shall be transported through High Concentration Slurry Disposal System and will be disposed in ash pond. Ash water recirculation system shall be set up. Decanted water of 1150 m³/hr shall be led to the plant area to reuse it in the ash handling system. Flyash shall be utilized for cement manufacturing and brick manufacturing. Various cement manufactures and brick manufacturing industries working nearby project have given expression of interest to lift the flyash.

10. Risk assessment and failure scenarios of leaks and catastrophic rupture of LDO, Transformer Oil Storage Tank, Hydrogen Cylinder and compressor, Chlorine tonner and Ammonia storage Tank have been predicted. Individual risk levels are in the range of 8.274x10⁻⁶/year and societal risk is in the range of 1.234x10⁻⁵/year which are in the acceptable region as per HSE UK Criteria. Risk mitigation measures have been proposed.

11. Public Hearing was conducted at Khurja in District Bulandshahar on 01.08.2015. Public Hearing issues raised by people are related to fertility of agricultural land due to emissions from plant, pollution due to flyash and coal handling, non-payment of suitable compensation, adopting villages, effluent treatment, greenbelt, rehabilitation of affected people of Rukanpur and Nagla Villages etc. Action plan along with financial allocation has been prepared to address the issues raised during public hearing.



12. A total population of 4,171 will be affected from five villages due to project activities. 88 families will directly get affected comprising 452 people involving displacement. 88 families of Nagla village are not authorized land owners. Employment generation during construction phase is 2000 and operation phase is 900.

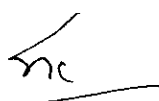
13. Greenbelt will be developed in 170 acres in width of 50-100 m around the plant except switch yard. Local and native species will be planted with a density of 2500 trees per hectare. Capital expenditure of Rs. 2.55 Crores and annual expenditure of Rs. 2.45 Crores will be utilized for greenbelt development and maintenance.

14. Estimated Project Cost is Rs.9,747.5 Crores, cost of EMP is Rs.1783.5 Crores. Cost of CSR Budget of Rs.33.2 Crores has been earmarked for various CSR activities viz., Education, Health, Veterinary Care, Sanitation, Rural/Slum Development, Livelihood generation, environment protection initiatives, etc.

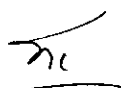
15. The proposal was considered in the 1st and 3rd Re-constituted EAC meetings held on 28.12.2016 and 14.02.2017. Based on the information, clarifications, documents submitted and presentations made by you before the Re-constituted EAC meetings and the recommendations of Re-constituted Expert Appraisal Committee (Thermal Power) in its 3rd Meeting held on 14.02.2017, **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) *As per the Revised Tariff Policy notified by Ministry of Power vide dated 28.01.2016, project proponent shall explore the use of treated sewage water from the Sewage Treatment Plant of Municipality/ local bodies/ similar organization located within 50 km radius of the proposed power project to minimize the water drawl from the River Ganga.*
- (ii) *Compliance of EC Conditions, E(P) Act, 1986, MoEF&CC Notifications, Rules, Regulations and Guidelines issued time to time shall be done by an Environment Compliance Officer to be nominated by Head of the Company who shall be responsible for compliance and implementations of EC Conditions.*
- (iii) *Greenbelt development shall be developed in 400 acres with native and indigenous species to maintain 33% of the land green. Greenbelt plan shall be formulated in consultation with local Forest Department and submitted to the Ministry and its Regional Office for monitoring. The budget of Rs.5 Crores for greenbelt shall be accordingly revised in consultation with Forest Department. No herbs and shrubs shall be planned. Only tall seedlings shall be planted. Greenbelt development shall start during construction period.*
- (iv) *Hydrogen plant shall be shifted away from Uncha Gaon. Minimum of 500 m distance shall be maintained from the village. The layout indicating relocation of Hydrogen plant shall be submitted to the Ministry and its Regional Office.*
- (v) *Need based assessment study shall be conducted for implementing CSR activities. Company shall provide Guest teachers to the surrounding Govt. schools.*
- (vi) *Alternate technologies for Flyash utilisation such as road making using geo-polymers shall be explored in consultation with Director AMPRI, Bhopal/DG-CSIR. Use of ash dyke shall be minimised.*
- (vii) *Separate environmental clearance may be obtained for township construction under EIA Notification, 2006 and its amendments, as applicable.*
- (viii) *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 wastewater discharge shall be achieved.*



- (ix) *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, as applicable.*
- (x) *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.*
- (xi) *Necessary permission from Water Resource Department shall be obtained for diversion of diverting the Aligarh natural drain from the project site.*
- (xii) Vision document specifying prospective plan for the site shall be formulated and submitted to the Regional Office of the Ministry within **six months**.
- (xiii) 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.
- (xiv) 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.
- (xv) Online continuous monitoring system for stack emission, ambient air and effluent shall be installed.
- (xvi) 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 stringent. 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.
- (xvii) 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.
- (xviii) 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.
- (xix) 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.
- (xx) 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 the Aligarh drain passing through ash pond proposed for diversion without affecting the natural drainage.*
- (xxi) 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.
- (xxii) 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.
- (xxiii) 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.
- (xxiv) 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.
 - (xxv) 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 %.
 - (xxvi) Green belt shall also be developed around the Ash Pond over and above the Green Belt around the plant boundary.
 - (xxvii) 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.
 - (xxviii) 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.
 - (xxix) 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.

16. 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.

17. 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.

18. 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.

19. 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.

20. 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.


21. 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 (Central Zone), Kendriya Bhawan, 5th Floor, Sector – H, Aliganj, Lucknow-226020.
5. The Principal Secretary, Environment, Govt. of Uttar Pradesh, 601, Babu Bhawan, Secretariat, Vidhan Sabha Marg, Lucknow-226001,
6. The Chairman, U.P. Pollution Control Board, PICUP Bhawan, 3rd Floor, B-Block, Vibhuti Khand, Gomti Nagar, Lucknow-226010.
7. The District Collector, Bulandshahar District, Govt. of U.P.
8. Guard file/Monitoring file.
9. Website of MoEF&CC.


(Dr. S. Kerketta)
Director