



J-13011/5912008 -IA.II (T)
Government of India
Ministry of Environment & Forests

BY SPEED POST

Paryavaran Bhawan
CGO Complex, Lodi Road
New Delhi-110 003

Dated: 04/02/2010

To

M/s Orissa Power Generation Corporation Ltd.
Zone-A, 7th Floor, Fortune Towers **Bhubaneswar-**
751 023.

Sub: Expansion of existing Coal Based Thermal Power Plant by addition of 2x660 MW (Unit 3 & 4) at village Banaharpalli, in Jharsuguda Distt., in Orissa - reg. Environmental Clearance.

Sir,

The undersigned is directed to refer to letter dated 26.10.2009 on the subject mentioned above. The Ministry of Environment & Forests has examined the application.

2. It is noted that the proposal is for expansion of existing Coal Based Thermal Power Plant by addition of 2x660 MW (Unit 3 & 4) at Village Banaharpalli, in Jharsuguda Distt., in Orissa. Unit 1&2 is under operation. No additional land is required for the expansion. Additional land is however proposed to be acquired for new ash pond keeping the required distance criteria of 500 m from HFL of Hirakud Reservoir. Coal requirement will be met from two Coal Blocks viz. Manoharpur and Dip-side of Manoharpur) in Ib valley area with total reserve of 531 MT. Coal requirement will be 6.73 MTPA at 80% PLF. Ash content in coal will be 40% and Sulphur content 0.4 % (maximum). Water requirement 4100 m³/hr and will be sourced from Hirakud Reservoir, which has been accorded by the state government. No diversion of forest land will be involved. COC 5.0 will be adopted. Fly ash will be used for filling Manoharpur mines. A twin flue stack of 275 m height with flue gas velocity of 22 m/s will be installed. No ground water will be tapped for the project activity. There are no wildlife sanctuaries, national parks, biosphere, tiger, elephant reserves; heritage sites etc within 10 km of the plant. Public hearing was conducted on 24.06.2008. Cost of the project will be Rs. 6091.0 Crores.

3. The project has been considered in accordance with the provisions of the EIA notification issued by the Ministry of Environment & Forests vide S.O. 1533 (E), dated September 14, 2006.

4. Based on the information submitted by you, as at Para 2 above and others, the Ministry of Environment and Forests hereby accords environmental clearance to the above project under the provisions of EIA notification dated September 14, 2006, subject to the compliance of the following conditions:

- (i) It shall be ensured that natural drainage in the area is not disturbed due to any activity associated with operation or development of the power plant.
- (ii) The height of the existing ash pond shall not be increased to accommodate fresh disposal of ash slurry.

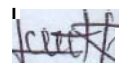
- (iii) Wildlife conservation plan prepared in consultation with the office of the concerned Chief Wildlife Warden shall be implemented before any expansion activity is undertaken. The status of implementation shall be submitted to the Regional Office of the Ministry within six months and from time to time.
- (iv) Hydro-geological study of the area shall be **reviewed annually** and results submitted to the Ministry and concerned agency in the State Govt. In case adverse impact on ground water quantity and quality is observed, immediate mitigating steps to contain any adverse impact on ground water shall be undertaken.
- (v) A twin flue stack of 275 m height shall be Provided with continuous online monitoring equipments for SO_x, NO_x and RSPM (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.
- (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) Utilization of 100% Fly Ash generated shall be made from 4th year of operation of the plant. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.
- (ix) Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed of in the ash pond in the form of slurry form. 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 in low lying area.
- (x) Ash pond shall be lined with HDP/LDP 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.
- (xi) For disposal of Bottom Ash in abandoned Manohar mines it shall be ensured that **the bottom and sides of the mined out areas are adequately lined with clay before Bottom Ash is filled up**. The project proponent shall inform the State Pollution Control Board well in advance before undertaking the activity.
- (xii) Closed cycle cooling system with natural draft cooling towers shall be provided. The Effluents shall be treated as per the prescribed norms.
- (xiii) COC 5.0 will be adopted.
- (xiv) The treated effluents conforming to the prescribed standards only shall be recirculated and reused within the plant. There shall be no discharge outside the plant boundary except during monsoon. Arrangements shall be made that effluents and storm water do not get mixed.
- (xv) A sewage treatment plant shall be provided and the treated sewage shall be used for raising greenbelt plantation.

- (xvi) Rainwater harvesting should be adopted. Central Groundwater Authority/ Board shall be consulted for finalization of appropriate rainwater harvesting technology within a **period of three months** from the date of clearance and details shall be furnished.
- (xvii) 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.
- (xviii) Storage facilities for auxiliary liquid fuel such as LDO and 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.
- (xix) Regular monitoring of ground water (especially around ash pond and plant areas) shall be carried out by establishing a network of existing wells and constructing new piezometers. Monitoring around the ash pond area shall be carried out particularly for heavy metals (Hg,Cr,As,Pb) and records maintained and submitted to the Regional Office of this Ministry. The data so obtained should be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the project.
- (xx) Monitoring 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 be undertaken.
- xx Green Belt consisting of 3 tiers of plantations of native species around plant and at least 100 m width shall be raised. Wherever 100 m width is not feasible a 50 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not less than 2500 per ha with survival rate not less than 70 %.
- (xxii) First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.
- (xxiii) Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75 dBA. 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.
- (xxiv) Regular monitoring of ground level concentration of SO₂, NO_x, RSPM (,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.

- (xxv) A good action plan for R&R (if applicable) with package for the project affected persons be submitted and implemented as per prevalent R&R policy **within three** months from the date of issue of this letter.
- (xxvi) An amount of Rs 24.36 Crores shall be earmarked as one time capital cost for CSR programme. Subsequently a recurring expenditure of Rs 4.87 Crore per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within one month along with road map for implementation.
- (xxvii) As part of CSR programme the company shall conduct need based assessment for the nearby villages to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people besides development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. This will be in addition to vocational training for individuals imparted to take up self employment and jobs.
- (xxviii) The project proponent shall also adequately contribute in the development of the neighbouring villages. Special package with implementation schedule for providing fluoride free potable drinking water supply in the near by villages and schools shall be undertaken in a time bound manner
- (xxix) Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
- (xxx)e The project 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>.
- (xxxi) 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, received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.
- (xxxii) A separate Environment Management Cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.
- (xxxiii) The proponent shall upload the status of compliance of the stipulated EC 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, RSPM, 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.

- (xxxiv) The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well by e- mail) to the respective Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB.
- (xxxv) 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 EC conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail.
- (xxxvi) **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 environment 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.**
- (xxxvii) 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 NOx (from stack & ambient air) shall be displayed at the main gate of the power plant.**
- (xxxviii) 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.
- (xxxix) 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.
- (xi) Full cooperation shall be extended to the Scientists/Officers from the Ministry / Regional Office of the Ministry at Bangalore / CPCB/ SPCB who would be monitoring the compliance of environmental status.
4. 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.
5. The environmental clearance accorded **shall be valid for a period of 5 years** to start operations by the power plant.

6. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above -ay result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.
7. 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.
8. 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 and Handling) Rules, 1989 and its amendments, the Public Liability Insurance Act. 1991 and its amendments.
9. Any appeal against this environmental clearance shall lie with the National Environment Appellate Authority, if preferred. .within 30 days as prescribed under Section 11 of the National Environment Appellate Act. 1997.



(LALIT KAPUR)
DIRECTOR

Copy to:

1. The Secretary, Ministry of Power, Seam Shakti Bhawan, Rafi Marg, New Delhi 110001.
2. The Secretary (Environment), Environment Department, Government of Orissa, Bhubaneswar.
3. The Chairman,. Central Electricity Authority, Sewa Bhawan. R. K. Puram, New Delhi 110066
4. The Chairman, Orissa State Pollution Control Board, A-118, Nilkanta Nagar, Unit - VIII, Bhubaneswar- 751 012.
5. The Chairman, Central Pollution Control Board. Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi- 110032.
6. The Chief Conservator of Forests, Regional Office (EZ), Ministry of Environment & Forests, A/3, Chandesekhapur, Bhubaneswar - 751023.
7. The District Collector, Jharsuguda District. Orissa.
8. The Director (EI), MOEF.
9. Guard file.
10. Monitoring file.

(LALIT KAPUR)
DIRECTOR