File No: J-13012/11/2016-IA. I (T)
Government of India
Ministry of Environment, Forest and Climate Change

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

Dated: 29.10.2018

To

The Chief General Manager
Project & Business Development
M/s NLC India Ltd.
Corporate Office, Block-1,
Neyveli-607801.

Phone No. 04142-252286; E-mail: cgm.pbd@nlcindia.com

Sub: **Proposed expansion of 2x660 MW Super Critical Lignite based Thermal Power Project at Villges Mudanai, Kunakurichi, Uthangal, Tehsil Vridhachalam, District Cuddalore, Tamilnadu by M/s NLC India Ltd.- reg. Environment Clearance.**

Sir,

The undersigned is directed to refer your online application No. **IA/TN/THE/60765/2016** dated 13.8.2018 for grant of Environment Clearance.

2. It has been noted that the Terms of Reference for the above mentioned project has been issued vide Ministry's letter dated 23.3.2017. It is noted that the proposal is for setting up of 2x660 MW Lignite based Super Critical Power Project which will be set up adjacent to the existing 7x210 MW (TPS-II) and 2x250 MW (TPS-II 1st Expansion) power plants which are under operation.

3. The site is falling on topo sheet nos. 58 M/6, M/7 & M/10 and situated between the GPS coordinates of Latitude 11°32'39" N and Longitude 79°24'35" E at a distance of 1.5 km towards North away from the NH-532 connecting Cuddalore and Chinnasalem. There is no forest land involved for the proposed power project and additional facilities like transmission lines, pipelines, rail lines, etc. There are no national parks, wildlife sanctuaries, elephant/tiger reserves or any other wildlife protected areas within 10 km radius of the project site. The project site does not fall in the critically polluted area.

4. The land requirement for the proposed power project has been optimized to 608 Acres which is well within the land requirement stipulated in the CEA guidelines. The entire land of 608 Acres (245.78 Ha) required for the project is in possession of NLCIL. The land required for lignite transportation system, laying of pipeline, ROW, transmission lines etc., is in possession of NLCIL and there is no litigation pending against the company. The proposed project will share some common facilities such as emergency ash pond and water reservoir with TPS II plant (7x210 MW & 2x250 MW).

5. The primary fuel for the proposed project is Lignite which will be sourced from NLCIL's basket of mines including Mine – III allocated by Ministry of Coal. The Lignite requirement for 2x660 MW has been assessed as 8.09 Million Tons for 100% Lignite fuel every year at PLF 80 %. Lignite will be received and transported by suitable conveyor

system to the project site. The lignite quality is Average Calorific Value: 2689 Kcal/Kg, Avg. Moisture: 51.58% (Min: 45% & Max: 58%), Avg. Ash content: 4.83% (Min: 2.1% & Max: 9.9%) and Avg. Sulphur content: 0.67% (Min: 0.23% & Max: 1.06%).

6. The source of raw water for the proposed Thermal Power Plant is the water pumped out during mining operations from the lignite mines of NLCIL. Total water requirement is 4215 m^3/hr out of which fresh water 3299 m^3/hr and recycled water is 916 m^3/hr. The fresh water requirement of 3299 m^3/hr is worked out to be 2.49 m^3/MWh.

7. Baseline ambient air quality data has been collected during Pre-Monsoon (March - May, 2017). The measured baseline data indicates that all the stipulated pollutants are well within the limits suggested under National Ambient Air Quality Norms (NAAQs). The maximum ground level concentrations observed due to proposed expansion for PM, SO_2 and NOx by considering 150 m Stack height are 2.13 $\mu g/m^3$, 7.11 $\mu g/m^3$ and 7.13 $\mu g/m^3$.

8. Average day time and night time noise levels at residential areas in the study area were found to be varying from 44.9 to 54.9 dB (A) and 38.9 dB(A) to 49.6 dB(A) respectively. Significant interference from local community activities and also vehicular traffic was observed.

9. Surface Water sampling has been carried out at five locations in Cauvery-Coleroon river basin, Vellar river basin, Manimuthar river basin, Pennaiyar river basin & Gadilam river basin. The pH of surface water sample is found to be in the range of 7.84 to 8.61. TSS varies in the range of 500 mg/l to 999 mg/l. The Heavy metals concentrations are found to be below detectable levels. The pH of ground water sample is found to be in the range of 7.4 to 8.44, TDS varies in the range of 191 to 1747 mg/l. The chloride content in the ground water for study area is ranges between 42.8 mg/l – 325 mg/l and The Total hardness ranges is between 66 mg/l - 835 mg/l.

10. Soil sampling was carried out at Ten (10) locations in the study area. The pH of the soil samples ranged from 6.67 – 7.93, Conductivity of the soil samples ranged from 244 - 533 $\mu S/cm$. As the EC value is less than 2000 $\mu S/cm$, the soil is found to be non-saline in nature. The water holding capacity of the soil samples varied from 20.3 – 28.5 (%), Nitrogen content ranged from 213 kg/ha to 628 kg/Ha, The Organic content ranged from 0.37% to 1.46 %, Phosphorous content ranged from 36 kg/ha to 247kg/Ha, Potassium content ranged from 185 kg/ha to 504 kg/Ha. It has been observed that the texture of the soil is clay. The common color of soil varied from reddish brown/ Yellowish brown at most of the locations.

11. It has been proposed that Electrostatic precipitators (ESPs) will be installed to control the emission of ash particles. The precipitators will be designed to limit the particulate emission to less than 30 mg/Nm^3. One (1) no. twin flue stack of 150m height will be provided based on existing CPCB /MOEF&CC norms for wider dispersion.

12. The FGD system shall be provided to treat the flue gases so produced in the furnace in order to keep the SO_x value within the prescribed norms. The FGD system shall be having limestone scrubber of a proven design & shall be capable of meeting plant emission requirement to prevent a visible stack plume and MOEF requirement. DeNOx technology which is Selective Catalytic reduction technology will be installed in the boiler to meet latest NOx emission norm. Continuous Environmental Monitoring System shall be installed for each Unit as per guidelines of CPCB/SPCB.

13. The waste water generation is about 1379 m3/hr and wastewater treatment system shall be designed to collect wastewater from all sources in the power plant and provide treatment to enable it to be reused in the power plant to achieve Zero Liquid Discharge (ZLD). The treated water of with quantity of 916 m^3 /hr will be reused for cooling water makeup and 463 m^3/hr will be reused for ash handling systems.

14. Sewage generation from the power plant is about 60 KLD and the Sewage Treatment Plant will be set up for treating the sewage. The Sewage Treatment Plant will be modular type based on FAB/MBBR technology followed by disinfection by Hypo and necessary tertiary treatment prior to reuse in horticulture purpose. STP sludge with approx.5-10 kg/day will be generated which will be dried in the sludge drying beds and used for horticulture.

15. The ash generation is 0.405 Million TPA out of which fly ash is 0.32 Million TPA and bottom ash is 0.081 Million TPA. The proposed expansion project is located in the vicinity of many cement plants and ash bricks manufacturing units. The ash management scheme for the ash generated from power plant will involve dry collection of fly ash, supply of ash to entrepreneurs for utilization, promoting ash utilization and disposal of un-used ash. The unutilised ash will be disposed in the existing ash pond in the area of 28.32 ha (69.95 acres) in case of emergency.

16. NLCIL has obtained consent letter from cement manufactures namely Ramco cements Ariyalur, Dalmia Bharat Limited, Dalmiapuram & India Cements, Ariyalur for off take of the fly ash generated from the proposed project. Accordingly, 100 % utilization of fly ash is envisaged. The possibility of using bottom ash to replace river sand as a substitute will also tried. The existing ash dyke will be used for supply of fly ash during emergency.

17. Hazardous wastes such as Used Oil 175 Tons per Annum and ETP sludge of 0.3 Tons per Month will be generated. Used oil will be sold to the authorised recyclers and ETP sludge will be sent to approved TSDF site. Approximately 11.88 T/day of gypsum is expected to be generated per day from FGD. Based on the marketability, the gypsum generated will be marketed or disposed to cement plant or used for back filling in the mines. The municipal solid waste (organic waste from canteen & township) generation is 450 kg/day which will be composed for preparing manure for horticulture.

18. Hazard Identification and Risk Analysis including identification, screening of scenarios, and consequence analysis of the various risk scenarios. Risk Assessment has done with respect to the Raw materials, Processes, Solvent & neighbouring villages.

19. The Public Hearing has been conducted on 15.02.2018 at Community Hall, block-29, Neyveli Township, Virudhachalam Taluk, Cuddalore District by Tamil Nadu Pollution Control Board.

20. The proposed expansion project area is 245.78 Ha i.e 608 Acres and proposed green belt area is 160 Acres i.e. 26.34 % of total project area. (i.e 37% of main plant area). Over and above, NLCIL proposes to implement Green Belt as to the extent possible in all the available vacant spaces.

21. The project is expected to generate around ten million units of electricity per year which will meet the growing energy deficit in the state and will have a tremendous positive impact on enhancement in the economy of Tamil Nadu. There will be a probable increase in the infrastructure resources due to the project in the region by the way of transport, communication, health facilities and other basic facilities to be created.

Regional Office, Chennai vide letter dated 19.7.2018 submitted the certified compliance report.

22. Estimated Project Cost Rs. 8,733.49 Crore including IDC. Proposed capital and Recurring cost for Environmental Protection Measures is Rs.1123.71 Crores and Rs.140.46 Crores respectively. The estimated manpower shall be about 850 nos. during construction phase and about 1000 nos. during the operation stage including contract workmen.

23. The proposal has been considered by the Re-constituted EAC (Thermal Power) in its 20th meeting held on 30.8.2018. Based on the recommendations of the Re-constituted EAC (Thermal Power) in its meeting held on 30.8.2018 and the information/clarifications and documents submitted by you with regard to the above-mentioned project proposal, **the Ministry hereby accords the Environmental Clearance to the Proposed expansion of *2x660 MW Super Critical Lignite based Thermal Power Project*** as per the Project Activity listed at Sl.No.1(d) of the Schedule 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) *The average Ash content and Sulphur content in the Lignite shall be restricted to 4.83% and 0.67%, respectively.*

(ii) *Environmental Monitoring Cell shall be strengthened having various specialisations such as Environmental Engineering/Science, Social Scientist, Chemist and Horticulturist for the proposed power plant.*

(iii) *Overburden dump has to be fully stabilised with vegetation along with engineering and biological measures within one year.*

(iv) *Capital cost of Rs.43.66 Crores (0.5% of the project cost) shall be utilised for Corporate Environment Responsibility (CER) inline with the of Ministry's guidelines dated 01.05.2018.*

(v) *Transportation of the Lignite shall be by combination of closed and open conveyor system from the Lignite Mines.*

(vi) *Water Transportation pipeline system and the coal conveyor system shall be laid in the same corridor.*

(vii) *Revised emission standards as per the Ministry's notification dated 07.12.2015 and subsequent amendments notified from time to time shall be complied. In case, plant is ready for commissioning and not meeting revised emission norms, operations shall be stopped unless there is an extension given through a specific direction by MoEFCC/CPCB or amendment in notification issued.*

(viii) *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 surface water bodies.*

(ix) *Phasing out of existing units, if any shall be done in accordance with the Construction and Demolition Waste Management Rules, 2016.*

(x) Vision document specifying prospective plan for the site shall be formulated and submitted to the Regional Office of the Ministry within **six months**.

(xi) 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.

(xii) Online continuous monitoring system for stack emission, ambient air and effluent shall be installed.

(xiii) High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm^3 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.

(xiv) 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.

(xv) 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.

(xvi) 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.

(xvii) 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.

(xviii) 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.

(xix) 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.

(xx) 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.

(xxi) 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.

(xxii) 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 %.

(xxiii) 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.

(xxiv) CER 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 CER 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.

(xxv) CER activities will be carried out as per OM No. 22-65/2017-IA.II dated 01.05.2018 or as proposed by the PP in reference to Public Hearing or as earmarked in the EIA/EMP report along with the detailed scheduled of implementation with appropriate budgeting.

(xxvi) 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) 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.

(iv) First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.

(v) 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.

(vi) Regular monitoring of ambient air ground level concentration of SO_2, NOx, $PM_{2.5}$ & PM_{10} 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.

(vii) 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.

(viii) 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.

(ix) 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 Delhi Pollution Control Committee and may also be seen at the Website of MoEF&CC at http://envfor.nic.in.

(x) 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.

(xi) 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 ($PM_{2.5}$ & PM_{10}), SO_2, 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.

(xii) 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.

(xiii) **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.**

(xiv) The progress of the project shall be submitted to CEA on six monthly basis.

(xv) 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.**

(xvi) 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.

(xvii) 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.

(xviii) 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.

24. 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.

25. 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.

26. 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.

27. 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.

28. 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.

29. 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.

This issues with the approval of the Competent Authority.

Yours faithfully,

(Dr. S. Kerketta)
Director, IA. I

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 (SEZ), Ist and IInd Floor, Handloom Export Promotion Council, 34, Cathedral Garden Road, Nungambakkam, Chennai – 34.
5. The Principal Secretary, Environment and Forest Department, Government of Tamil Nadu, Fort St, George, Secretariat, Chennai-600009.
6. The Chairman, Tamil Nadu Pollution Control Board, No. 76, Mount Road, Mount Salai, Guindy, Chennai - 600 032
7. The District Collector, Cuddalore District, Govt. of Tamil Nadu, Pennaiyar Road, Cuddalore-607001.
8. Guard file/Monitoring file.
9. Website of MoEF&CC.

(Dr. S. Kerketta)
Director, IA. I