एनटीपीसी NTPC
एक महारत्न कम्पनी

एन टी पी सी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)
कुड़गी / Kudgi

Ref.: NTPC/Kudgi/EMG/2020/59 **Dated:** 21.05.2020

To,
The Addl. Principal Chief Conservator of Forest (Central)
Ministry of Environment, Forest and Climate Change (MoEF&CC)
Regional Office (Southern Zone),
Kendriya Sadan,
4th Floor, E & F Wing,
IInd Block, Koramangla,
Bengaluru – 560 034 (Karnataka)

Sub.: Submission of Half Yearly Compliance Report for Environmental Clearance of NTPC Ltd., Kudgi STPS, Stage-I (3 x 800 MW) – Reg.

Ref.: MoEF&CC Letter No. J 13012/06/2009-IA.II (T) dated 25.01.2012.

Dear Sir,

Please find enclosed herewith, the Half Yearly Compliance Status Report for the period from October, 2019 to March, 2020 in respect of the Environment Clearance conditions stipulated vide MoEF&CC letter no. J 13012/06/2009-IA.II (T) dated 25.01.2012 for NTPC Ltd., Kudgi Super Thermal Power Project, Stage-I (3 x 800 MW) located at village Kudgi, Tq. Basavana Bagewadi, Distt. Vijayapura, Karnataka.

Thanking you.

Yours sincerely,

(K Karthikeyan)
Dy. General Manager (EMG)

Encl.: as above.

Copy to:
1) The Member Secretary, KSPCB, Bengaluru.
2) The Regional Officer, KSPCB, Bijapur.

HALF YEARLY ENVIRONMENTAL MONITORING REPORT

(PERIOD: OCTOBER 2019 TO MARCH 2020)

COMPLIANCE STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS
Vide Letter No. J- 13012/06/2009-IA. II (T) Dated 25th January 2012

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i	Vision document specifying prospective plan for the site shall be formulated and submitted to the Regional Office of the Ministry within six months.	Vision document has been prepared and submitted to the Regional Office (Southern Zone) MOEF&CC at Bangalore vide letter dated 11.07.2012.
ii	Land and water requirement shall be restricted as per latest CEA norms issued.	Land and water requirement for the project has been optimized and restricted as per the CEA norms.
iii	Scheme for implementation for harnessing solar power within the premises of the plant particularly at available roof tops shall be formulated and status of implementation shall be submitted to Regional Office of the Ministry from time to time.	Solar panels having capacity of 1500KW have been installed at available rooftops of FWPH, Switchyard Building, Compressor House, O&M Store, TG Roof, Workshop Roof, Unit-1 IDCT, Railway Siding S&T Building, Fire Station Building in Plant and various Buildings in Township. In addition, 3.37 MW of Hybrid Plant comprising of Solar and Wind project installed and commissioned.
iv	A study shall be undertaken through a reputed Govt. Organization/ Agriculture University on the impact on vegetation within 10 Km radius of the plant due to fly ash generated and action taken shall be submitted to the Ministry. The study shall be completed within one year of operation of the proposed plant.	The scientific study for assessment of impact on vegetation within 10 Km radius of the plant due to fly ash generated has been awarded, the study is in progress and submission of report will be complied.
v	A wildlife conservation plan shall be formulated in consultation with the office of the Chief Wildlife Warden and duly vetted by the concerned Chief Wildlife Warden for immediate implementation. The plan shall have an in-built monitoring mechanism.	The Deputy Conservator of Forests, Karnataka Forest Department (KFD), Vijayapur Division vide letter no. B2/DCF/BIP/NTPC/W.L/2013-14 dated 03.02.2014 has communicated that there are no Wildlife Sanctuaries, National Parks or protected areas in and around 10 Km radius of Kudgi STPP. In view of the above, no separate wildlife conservation plan is envisaged.
vi	Provision for installation of FGD shall be provided for future use.	NTPC has awarded the contract for installation of FGD Plant for controlling SOx concentration in flue gas in compliance to

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		the latest MOEF&CC emission norms dated 07.12.2015 for TPP. The installation of FGD is in progress.
vii	Coal transportation to plant site shall be undertaken by rail and no road transportation shall be permitted.	No coal is being transported by road. Coal transportation to plant site is being undertaken by dedicated railway line for the project.
viii	A detailed study on chemical composition of coal used, particularly heavy metal and radioactive contents shall be carried out through a reputed institute and report shall be submitted to Regional Office of the Ministry. Only after ascertaining its radioactive level shall fly ash be supplied to end user.	In compliance to the said stipulation, a study of heavy metal analysis and radioactivity analysis of coal was carried out through CSIR-NCL & BRIT, Department of Atomic Energy respectively and the reports are submitted along with EC compliance reports dated 13.05.2017 and 19.11.2019.
ix	Fly ash shall not be used for mine void filling or for agricultural purpose.	Fly ash is not being used for mine void filling or for agricultural purposes.
x	The project proponent shall carry out a long term R&D on Boiler efficiency vis-à-vis large variation on ash content of coal and submit its findings to the Ministry at a later stage.	The said stipulation will be complied.
xi	A stack of 275 m height with flue gas velocity not less than 22 m/s shall be installed and provided with continuous online monitoring equipment for SO_x, NO_x, PM_{10} and $PM_{2.5}$. Mercury emissions from stack may also be monitored on periodic basis.	• A single flue stack for Unit-1 and bi-flue stack for Unit-2 & 3 having height of 275m, is provided and the flue gas velocity of not less than 22m/s is maintained. • Continuous Emission Monitoring System for online measurement of SO_2, NO_x, and Particulate Matter (PM) has been provided and the emissions are being monitored. Mercury emissions from stack are also monitored on periodic basis.
xii	High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm^3.	High Efficiency Electrostatic Precipitators (ESP) designed for achieving guaranteed efficiency of 99.97% have been installed and it is ensured that the emission of Particulate Matter (PM) is in compliance to latest MoEF&CC emission norms dated 07.12.2015 for TPP.
xiii	Adequate dust extraction system such as cyclones/ bag filters and	Adequate no. of dust suppression and extraction systems for control of fugitive

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	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.	emission are being provided in coal handling area including coal stockyard area. Water spray system is provided at dust prone locations in order to attenuate the fugitive dust emission. Dry fog dust suppression system is provided at all the transfer points. Water sprinkling system has also been provided for enhancing the effectiveness of fugitive dust control measures.
xiv	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.	Ash Utilization Plan has been prepared and all efforts are being made to achieve the targets in compliance to fly ash Gazette Notification dated 03.11.2009 and its amendments issued thereafter. The status of implementation of Ash utilization plan is also being submitted to the Regional Office (SZ), MOEF&CC at Bangalore at regular intervals.
xv	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed-off in the ash pond in the form of slurry 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 will be disposed-off in low lying area.	Ash management scheme is being implemented consisting of Dry Ash Extraction System (DAES) for collection of fly ash with storage facility (silos), supply of ash to entrepreneurs for utilization and promoting ash utilization to maximum possible extent and safe disposal of unused ash in the ash pond. The plant is equipped with two ash disposal systems, [a] conventional wet slurry disposal with ash water re-circulation for bottom ash, and [b] High Concentration Slurry Disposal (HCSD) for disposal of unused fly ash. Periodic monitoring for mercury & heavy metals in the bottom ash and water emanating from ash pond is being carried out. No ash is being disposed-off in the low lying areas.
xvi	Ash pond water shall be re-circulated and utilized.	AWRS (Ash Water Recirculation System) is implemented for re-circulating the ash water from the ash pond area to the plant for its complete re-utilization in the ash handling system.
xvii	Ash pond shall be lined with HDPE/ LDPE lining or any other	The ash dyke lagoons where bottom ash slurry is being discharged, is designed and

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	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.	lined with suitable impermeable material like Bentonite blended clay. Overflow lagoon of ash dyke is also designed and lined with impervious thick liner of 300mm at the bottom. The structure of ash dykes is designed, constructed and operated as per state of the art engineering practices for the design and construction of earthen dams with adequate factor of Safety. Seismic parameters have also been taken into consideration while designing of the ash dyke. Regular monitoring and inspection of ash dykes and an emergency response system ensure that there are no risks of failure.
xviii	Sulphur and ash contents in the coal to be used in the project shall not exceed 0.5% and <34% respectively at any given time. In case of variation of coal quality at any point of time fresh reference shall be made to the Ministry for suitable amendments to environmental clearance condition wherever necessary.	Shall be complied.
xix	Hydro-geology of the area shall be reviewed annually from an institute/ organization of repute to assess impact of surface water and ground regime (especially around ash dyke). In case, any deterioration is observed, specific mitigation measures shall be undertaken and reports/ data of water quality monitored regularly and maintained shall be submitted to the Regional Office of the Ministry.	NTPC Kudgi has carried out a Hydrogeological study of the area through National Institute of Hydrogeology (NIH), Roorkee and the Final Report has been submitted to MoEF&CC vide HYC report dated 02.12.2017. The surface and ground water analysis is being carried out through MoEF&CC approved laboratory and the summary report is enclosed herewith as **Annexure-1**. Further, a Study for review of hydro-geology of the area has been awarded.
xx	No ground water shall be extracted for use in operation of the power plant even in lean season.	No ground water is being extracted for use in operation of the power plant even in lean season.
xxi	No water bodies (including natural drainage system) in the area shall be disturbed due to activities	No water body including natural drainage system of the area has been disturbed due to activities associated with the setting up of

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	associated with the setting up/ operation of the power plant.	the power plant and also during the operation phase of the project.
xxii	Minimum required environmental flow suggested by the Competent Authority of the State Govt. shall be maintained in the Channel/ Rivers (as applicable) even in lean season.	Minimum environmental flow as prescribed by the Competent Authority of the State Govt. will be maintained throughout the year in the Channel/ Rivers.
xxiii	COC of 4.0 shall be adopted.	A closed cycle cooling system has been designed and implemented for achieving minimum Cycle of Concentration (COC) at NTPC Kudgi for conservation/ optimization of water requirement for the project.
xxiv	Regular monitoring of ground water level 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.	Monitoring around the ash pond area is being carried out through MoEF&CC approved laboratory, particularly for heavy metals and records are maintained and submitted to KSPCB and MoEF&CC regularly. Ground water level monitoring has been carried out in and around the main plant and ash pond area by establishing a network of existing wells during the Hydro-geological study carried through M/s National Institute of Hydrology (NIH), Roorkee. A study for reviewing the hydro-geology of the area has also been awarded.
xxv	Monitoring surface water quality in the area 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.	Monitoring of surface water quality in the area is being carried out through MoEF&CC approved laboratory and the reports are submitted to the Regional Office (SZ) of MOEF&CC and KSPCB. Monitoring for heavy metals in ground water are also being carried out and its record submitted to KSPCB regularly.

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xxvi	Waste water generated from the plant shall be treated before discharge to comply limits prescribed by the SPCB/ CPCB.	An effluent management scheme has been designed and is being implemented with the objective to treat the entire wastewater as per the prescribed statutory standards of KSPCB/ CPCB. It is submitted that during normal course of project operation the feasibility of zero discharge has been adopted based on maximum recycle/ reuse of wastewater for various plant usage thereby reducing and optimizing the quantities of water requirement and effluent generation to the extent feasible.
xxvii	The project proponent shall undertake rain water harvesting measures and shall develop water storage for use in operation of the plant. Rain water harvesting system shall be put in place which shall comprise of rain water collection from the built up and open area in the plant premises. Action plan for implementation shall be submitted to the Regional Office of the Ministry.	Rainwater harvesting measures are being undertaken as per the site conditions. Contract has been awarded for implementation of the same.
xxviii	Additional soil for levelling 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.	All levelling activity of the project site is being done from additional soil generated within the sites only with all necessary precautions to protect natural drainage system of the area.
xxix	At least three nearest village shall be adopted and basic amenities like development of roads, drinking water supply, primary health centre, primary school etc. shall be developed in co-ordination with the district administration.	Activities like road construction & development, providing bus shelters, development of sanitation facilities, drinking water facilities, providing medical equipment to Hospital, 24-hour ambulance facility, providing of tools and equipment to Government ITI, conducting health camps, providing additional infrastructure facilities in schools, distribution of books to students etc. have been carried out in villages near the project. Improvement of infrastructure of primary health centers of four villages & construction of additional class rooms in schools are in progress. All welfare activities under R&R scheme are being carried out in five surrounding

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		villages namely Kudgi, Telgi, Masuti, Golsangi and Muttagi. • In Golsangi village, new Primary Health Centre (PHC) building has been constructed and handed over to Dept. of Health & Family Welfare, Govt. of Karnataka. • Around 38 new classrooms have been constructed in above-mentioned five villages benefitting more than 20 Government Schools. • During 2019-20, NTPC Kudgi has distributed School Notebooks worth Rs. 12 Lakh to about 8000 students in the above-mentioned five villages.
xxx	A special scheme for upliftment of SC & ST population in the study area shall be formulated and implemented in a time bound manner. The project proponent shall also identify the rights of tribals under existing Laws and ensure its protection and implementation thereof.	Under CSR initiatives, special scheme for upliftment of SC & ST population in the study area is being formulated and implemented in a time bound manner. SC/ ST students from neighboring villages have been extended the special provision of NTPC Utkarsh Scholarship for School toppers of this community. Further, students of SC/ ST community of Govt. ITI, Bijapur also got benefitted by the sponsorship programme extended by NTPC Kudgi.
xxxi	A comprehensive R&R action plan with requisite details such as details of land losers and financial budget for compensation etc. shall be submitted to the Regional Office of Ministry within four months. The R&R action plan shall also include scheme for upliftment of marginalized section who are indirectly affected on account of dependence for their sustenance on the land not owned by them.	A comprehensive R&R action plan with requisite details such as details of land losers and financial budget for compensation etc. has already been prepared and approved in consultation with representatives of PAPs, VDAC and Government of Karnataka. The Final R&R Plan has been submitted to the Regional Office (SZ) of MOEF&CC, Bangalore vide letter dated 16.10.2012.
xxxii	The project proponent shall also adequately contribute in the development of the neighboring villages. Special package with implementation schedule for providing potable drinking water supply in the nearby villages and	Due to the setting up of Kudgi STPP, general facilities in the nearby areas have certainly developed. New opportunities for business and self-employment have been generated thereby increasing the cash flow in business. NTPC is making all its efforts for developing infrastructural facilities and implementing

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	schools shall be undertaken in a time bound manner.	various community development activities through; • Alternate employment opportunities to PAPs and local people, • Periodic health checkup program for the nearby villagers, • Opportunities to local people to enhance their businesses, • Development of infrastructure facilities viz. improvement in roads, bus shelters, public facilities, solar street lamps, sanitation, toilets, medical, schools, sport facilities etc. are being implemented.
xxxiii	CSR schemes shall be undertaken based on need based assessment in and around the villages within 5 Km of the site and in constant consultation with the village Panchayat and the District Administration. As part of CSR employment of local youth after imparting relevant training, as may be necessary shall be undertaken as committed.	Various CSR schemes are being implemented based on need based survey within 5Km and in consultation with the Village Panchayat and the District Administration; • Infrastructural development i.e. improvement in roads, electricity, supply of drinking water, sanitation, educational institutions, and transportation facilities etc. • Scholarships to students and facilitation for sports, training for self-employment (computer, welding, bar-bending, carpentry, stitching, embroidery) etc. • Training/ financing facilitation for development of rural small scale industries i.e. Bee-keeping, Poultry, Dairy Farming etc.
xxxiv	An amount of Rs 52.80 Crores shall be earmarked as one capital cost for CSR programme as committed by the project proponent. Subsequently a recurring expenditure of Rs. 10.60 Crores per annum till the life of the plant shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within six month along with road map for implementation.	Out of Rs. 52.80 Crore earmarked for R&R expenditure, an amount of Rs. 49.90 Crore have been spent for R&R activities and the remaining is committed by NTPC Kudgi towards activities such as Tools and Equipment to Govt. ITI, Bijapur, new classrooms for schools, improvement of infrastructure and medical equipment at nearby Primary Health Centers and construction of individual toilets etc. as decided in the Village Development Advisory Committee meeting chaired by Dy. Commissioner, Bijapur.
xxxv	It shall be ensured that an in-built monitoring mechanism for the CSR schemes identified is in	Need Assessment Survey and Social Audit for community development program for nearby areas of NTPC Kudgi has been

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	place and annual social audit shall be got done from the nearest Government institute of repute in the region. The project proponent shall also submit the status of implementation of the scheme from time to time. The achievements should be put on Company's website.	carried out through Department of Social Work, Karnataka State Akkamahadevi Women's University, Vijayapura. The said stipulation will be complied regarding implementation of an in-built monitoring mechanism for the CSR schemes and annual social audit from the reputed Government institute in the region.
xxxvi	Green Belt consisting of 3 tiers of plantations of native species around the plant and 100 m width shall be raised (except in areas not feasible). The density of trees shall not be less than 2500 per ha with survival rate not less than 80%.	• Greenbelt around the Main Plant area except transmission corridor is being planted. • Greenbelt around the Township area is being planted. • Extensive afforestation will be undertaken at all available spaces in and around project, after construction is complete. • Avenue Plantation along the Road is being done. • Shelterbelt Plantations along.the vicinity of ash storage/ disposal sites/ water reservoirs and along boundary walls is being planted. • Mostly, wherever feasible 100 m width of green belt shall be maintained. **Details of Plantation at Project Site:** • During the year 2014-15, 25,000 saplings were planted. • During the year 2015-16, 30,000 saplings were planted. • During the year 2016-17, 24,670 saplings were planted. • During the year 2017-18, 60,500 saplings were planted. • During the year 2018-19, 50,000 saplings were planted, • During the year 2019-20, 50,000 saplings were planted. The total tree plantation till date is around 2.5 lakh. • It is planned to carry out a plantation of 50,000 saplings during the year 2020-21 through Karnataka Forest Department. • MOU signed with Vijayapura Forest Division of Karnataka Forest Dept. for

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		mass Greenbelt development at NTPC Kudgi.
xxxvii	An Environmental Cell shall be created at the project site itself and shall be headed by an officer of appropriate seniority and qualification. It shall be ensured that the Head of the Cell shall directly report to the Head of the organization.	An Environment Management Group (EMG) with qualified team headed by Deputy General Manager (EMG) is functional at Kudgi STPP and is reporting to the Head of the Project.
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.	The zero discharge concept is being adopted at NTPC Kudgi based on maximum recycle/ reuse of treated wastewater without discharging outside the plant thereby reducing and optimizing the quantities of water requirement and subsequently the effluent generation. Provision has been made to re-circulate cooling water and ash pond effluent. Various effluent generated are being re-circulated and reused within the plant conforming to the prescribed standards. AWRS is implemented for re-circulation of entire decanted ash water. Also, the entire cooling tower blow-down is being re-used for firefighting, Coal Handling Plant (CHP) & Dust suppression system, Plant Service Water System and as makeup to Bottom Ash Handling Plant (BAHP). The effluent emanating from Main Plant is being treated adequately in LETP, conforming to relevant prescribed statutory standards. An independent plant effluent drainage system is being provided to ensure that plant effluents do not mix with storm water drainage.
ii.	A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt/ plantation.	All domestic sewage is treated in a sewage treatment plant. The treated sewage conforming to prescribed standards is utilized for plantation & raising greenbelt to the extent possible.
iii.	Adequate safety measures shall be provided in the plant area to check/ minimize spontaneous fires in coal yard, especially	Adequate number of fire spray & hydrant system for covering the entire power station including all the auxiliaries and buildings in the plant area have been designed and

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	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.	being implemented. The system includes piping system, hydrants, valves, instrumentation, hoses, nozzles, hose boxes/ stations etc. Copy of fire safety measures details for CHP area and fire hydrant system has been submitted to Regional Office (SZ) of MOEF&CC at Bangalore vide HYC report dated 02.12.2017.
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.	Storage facilities for auxiliary liquid fuel LDO/ HFO are designed conforming to safety standards and where risk is minimal. A detailed Disaster Management Plan is prepared and finalized in consultation with Department of Factories, Boilers, Industrial Safety and Health, Govt. of Karnataka and regular mock drills are being conducted as per plan in order to address any eventuality in case of an accident.
v.	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	All arrangements related to first aid, health & safety and sanitation for contract workers during construction phase of the project are kept under the EPC contract and compliance is ensured by NTPC. Various measures implemented during construction phase through contractor are: • Adequate infrastructure facilities, such as sanitation, fuel, restroom, medical facilities, safety, and suitable water supply are being provided to the labor colonies housing the work force during construction phase of the project. • Safety equipment such as earplugs and earmuffs, helmets, face shields, safety goggles etc. is being provided to personnel engaged in high risk areas. • A First Aid Centre is established to provide immediate medical aid to the workers and their family members. A 24x7 hour ambulance is in service at site to transport injured workers to nearby hospitals.
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	Design specification for the equipment have been prepared to comply with the stipulation. However, Personal Protective

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	in high noise area, protective requisite personal protective equipment like ear plugs/ 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.	Equipment are also being provided to personnel working in high noise areas. Examination of workers engaged in noisy areas has been conducted as stipulated. The workers of generator halls and other high noise areas are being provided with appropriate ear protection devices.
vii	Regular monitoring of ambient air ground level concentration of SO_2, NO_x, $PM_{2.5}$ & 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.	Four numbers of CAAQM Stations have been provided and the locations of AAQMS were finalized in consultation with KSPCB. Regular monitoring of ambient air quality ground level concentration of SO_2, NOx and $PM_{2.5}$ & PM_{10} is being carried out through MoEF&CC approved laboratory and records are being maintained. Online data connectivity arrangements for CAAQMS data to CPCB/ KSPCB have been provided. Periodic report along with the monitored AAQ data is being submitted at regular interval to the Regional Office (SZ) of MOEF&CC at Bangalore and the compliance report is being updated on the website of the company.
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.	NTPC Kudgi is in its operation stage and therefore necessary facilities such as Sanitation facilities, Mobile Toilets, First Aid Center, provision of drinking water, Canteen etc. have been made for the labour force working within the Plant.
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 letters informing	The information of Environmental Clearance was published in Two newspapers. 1. "Deccan Herald" on 31.01.2012 in English. 2. "Vijaya Karnataka" on 31.01.2012 in vernacular (Kannada) language.

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	that the project has been accorded environmental clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letters 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:/www.envfor.nic.in.	
x	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/ 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.	NTPC vide letter dated 30.01.2012 has forwarded the copy of Environmental Clearance to the Tahsildar, Basavan Bagewadi Taluka. The Environmental Clearance is also uploaded on the NTPC website.
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 pollutants 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.	The latest and updated Half Yearly Compliance (HYC) report of EC conditions is regularly being submitted to the Regional Office (SZ) of MOEF&CC at Bangalore and at the same time also uploaded on the NTPC website as per stipulations The pollutant levels are also being displayed near the Main Gate of NTPC Kudgi.
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	The Environment Statement for financial year ending 31st March, 2019 in prescribed Form-V has been submitted to KSPCB vide letter dated 16.09.2019 for FY 2018-2019. Submission of Environment Statement for FY 2019-20 will also be complied as per regulation.

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	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 the Ministry of Environment & 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 & Forests.	The half yearly compliance report is being regularly submitted to the concerned statutory authority. The latest six monthly progress report for the period of October, 2019 to March, 2020 is submitted herewith.
xiv	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 upload the compliance status in their website and update the same from time to time at least six monthly basis. Criteria pollutants levels including NOx (from stack and ambient air) shall be displayed at the main gate of the power plant.	A complete set of documents including Environmental impact Assessment Report and Environment Management Plan along with the additional information/ clarifications as submitted to MOEF&CC have been forwarded on 13.02.2012 to the Regional Office (SZ) of MOEF&CC at Bangalore.
xv	Separate funds should be allocated for implementation of environmental protection	The requisite funds for environmental mitigation measures have been included in the project cost. Financial provision

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	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 should not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	stipulated towards environmental mitigation measures shall not be diverted for other purposes.
xvi	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 the plant.	The Regional Office, KSPCB has been informed regarding commercial power production from Unit-I, II and III vide letters dated 01.08.2017, 30.12.2017 and 14.09.2018 respectively.
xvii	Full cooperation should 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.	Full cooperation shall be extended to the Scientists/ Officers from the MOEF&CC/ Regional Office of MOEF&CC at Bangalore / the CPCB / the KSPCB during monitoring of the project.
5	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.	Noted.
6	The environmental clearance accorded shall be valid for a period of 5 years to start of operations by the power plant.	Noted.
7	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 under the provisions of Environmental (Protection) Act, 1986.	Noted.
8	In case of any deviation or alteration in the project proposed	Noted.

S. NO.	STIPULATION	STATUS AS ON 31.03.2020
	including coal transportation system from those submitted to this Ministry for clearance, a afresh 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.	
9	The above stipulations would be enforced among others under the Water (Prevention and Control Pollution) Act, 1947, the Air (Prevention and Control of Pollution) Act. 1981, the Environment (Protection) Act, 1986 and rules there under, Hazardous Wastes (Management, Handling & Trans boundary Movement) Rules, 2008 and its amendments, the Public Liability Insurance Act, 1991 and its amendments.	Noted

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ANNEXURE-1

Parameters	Unit	Station AAQM Values (Period Oct-2019 - Mar-2020)			NAAQM Limits
		Minimum	Maximum	Average	
PM_{10}	µg/m3	43	95	68	100
$PM_{2.5}$	µg/m3	19	56	33	60
Sulphur Dioxide (SO_2)	µg/m3	6	19	12	80
Oxides of Nitrogen (NO_x)	µg/m3	13	26	18	80
Ozone (O_3)	µg/m3	5	27	12	100
Carbon Monoxide (CO)	mg/m3	0.25	0.62	0.41	2
Lead (Pb)	µg/m3	<0.01	<0.1	<0.1	1
Ammonia (NH_3)	µg/m3	5.3	21	15	400
Benzene (C_6H_6)	µg/m3	BDL (<0.1)	<0.5	<0.5	5
Benzo(a) Pyrene [B(a)P]	ng/m3	BDL (<0.1)	<0.5	<0.5	1
Arsenic (As)	ng/m3	BDL (<1)	<5.0	<5.0	6
Nickel (Ni)	ng/m3	BDL (<1)	<5.0	<5.0	20

Parameters	Unit	Station Stack Emission Values (Period Oct-2019 - Mar-2020)			CPCB Standards
		Minimum	Maximum	Average	
Particulate Matter (PM)	mg/Nm3	24.8	28.9	26.8	30*
Sulphur Dioxide (SO_2)	mg/Nm3	682	1673	1001	100*
Oxides of Nitrogen (NO_x)	mg/Nm3	170	387	253	100*

Note: ** Standards are applicable from 2022 as per CPCB Directions.*

Parameters	Unit	Station Ambient Noise Levels (Period Oct-2019 - Mar-2020)			Standards [dB(A)]
		Minimum	Maximum	Average	
Industrial					
Day	[dB(A)]	59.3	72.6	66.7	75
Night	[dB(A)]	54.6	68.2	63.0	70
Residential					
Day	[dB(A)]	51.8	54.3	52.7	55
Night	[dB(A)]	41.6	44.3	43.5	45
Silence					
Day	[dB(A)]	47.1	49.6	48.3	50
Night	[dB(A)]	37.4	39.4	38.4	40

ANNEXURE-1 (Contd..)

Parameters	Unit	Treated Effluent (Main Plant) (Period Oct-2019 - Mar-2020)			Standards
		Minimum	Maximum	Average	
Temperature	oC	25.3	29.8	27.8	-
Colour	Hazen	Nil	2.02	1.99	-
Odour	-	Agreeable	Agreeable	Agreeable	-
pH at 25°C	-	7.1	7.3	7.2	5.5 - 9
Conductivity at 25°C	µS/cm	910	2156	1634	-
Total Dissolved Solids	mg/l	501	1360	1011	2100
Total Suspended Solids	mg/l	10	24	17	200
Chloride as Cl-	mg/l	99	276	196	1000
Sulphate as SO_4	mg/l	33	504	301	1000
Biochemical Oxygen Demand at 27°C for 3 days	mg/l	8.6	28.6	19.7	100
Chemical Oxygen demand	mg/l	48	112	76	-
Fluoride as F	mg/l	0.3	0.9	0.6	2
Copper as Cu	mg/l	BDL (<0.03)	0.41	0.39	-
Phenolic Compound as as C_6H_5OH	mg/l	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	-
Oil & Grease	mg/l	<1.0	4	3	10
Dissolved Phosphate as P	mg/l	0.05	0.31	0.19	-
Sodium Absorption ratio	mg/l	0.2	2.3	1.4	-
Residual Sodium Bicarbonate	mg/l	Nil	Nil	Nil	5
Iron as Fe	mg/l	0.1	0.3	0.2	-
Cadmium as Cd	mg/l	BDL(<0.01)	0.06	0.05	-
Lead as Pb	mg/l	<0.01	0.02	0.01	-
Chromium as Cr	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	-
Arsenic as As	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	0.2
Mercury as Hg	mg/l	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	-
Zinc as Zn	mg/l	0.11	0.18	0.14	-
Total Residual Chlorine	mg/l	<0.01	<0.01	<0.01	-
Dissolved Oxygen as O_2	mg/l	<1	6.9	6.8	-
Bio Assay test	-	> 90% survival after 96 hours	> 90% survival after 96 hours	> 90% survival after 96 hours	90% survival of fish after 96 hours in 100% effluent

ANNEXURE-1 (Contd..)

Parameters	Unit	Ash Pond Effluent (Period Oct-2019 - Mar-2020)			Standards
		Minimum	Maximum	Average	
Temperature	°C	26.1	29.0	27.4	-
pH at 25°C	-	7.2	8.4	7.9	6.5 - 8.5
Conductivity at 25°C	µS/cm	1295	1844	1510	-
Total Dissolved Solids	mg/l	810	996	907	-
Total Suspended Solids	mg/l	8.0	20.0	13.7	100
Dissolved Phosphate as P	mg/l	0.1	1.32	0.56	-
Chloride as Cl-	mg/l	168	194	181	-
Sulphate as SO_4	mg/l	38	402	267	-
Oil & Grease	mg/l	<1.0	4	3	20
Mercury	mg/l	<0.01	<0.01	<0.01	-
Arsenic	mg/l	<0.01	<0.01	<0.01	-
Chromium	mg/l	<0.01	<0.01	<0.01	-
Lead	mg/l	<0.01	<0.01	<0.01	-

Parameters	Unit	STP Effluent (Period Oct-2019 - Mar-2020)			Standards
		Minimum	Maximum	Average	
Temperature	°C	25.5	28.0	26.9	-
pH at 25°C	-	6.9	7.3	7.1	6.5 - 9.0
Conductivity at 25°C	µS/cm	774	988	905	-
Total Dissolved Solids	mg/l	449	640	551	-
Total Suspended Solids	mg/l	3	10	7	<20
Phosphate as P	mg/l	0.25	1.86	1.06	-
Chloride as Cl-	mg/l	94	135	117	-
Sulphate as SO_4	mg/l	32	115	73	-
Biochemical Oxygen Demand at 27°C for 3 days	mg/l	4.0	8.9	6.3	<10
Chemical Oxygen demand	mg/l	20.0	46.8	34.0	50
Oil & Grease	mg/l	<1	4	3	-
Phenolic Compound as C_6H_5OH	mg/l	BDL(<0.001)	BDL(<0.001)	BDL(<0.001)	-
Sulphide as S_{2-}	mg/l	BDL(<0.01)	BDL(<0.01)	BDL(<0.01)	-
Ammonical Nitrogen as N	mg/l	0.04	3.8	1.4	5
Total Nitrogen as N	mg/l	2.24	17.6	10.4	-
Faecal Coliform	MPN/100ml	68	86	75	<100

ANNEXURE-1 (Contd..)

Parameters	Unit	Surface Water (Period Oct-2019 - Mar-2020)			Standards
		Minimum	Maximum	Average	
Temperature	°C	25.3	29.1	27.4	-
Colour	Hazen	2	3	2.5	Max 300
Odour	-	Agreeable	Agreeable	Agreeable	-
Turbidity	NTU	BDL(<0.5)	5.6	2.9	-
pH at 25°C	-	7.12	8.16	7.88	6.5-8.5
Conductivity at 25°C	µS/cm	290	869	644	-
Total Dissolved Solids	mg/l	169	578	385	Max 1500
Bicarbonate Alkalinity as $CaCO_3$	mg/l	70	158	113	-
Carbonate Alkalinity as $CaCO_3$	mg/l	Nil	34.1	32.9	-
Calcium as Ca	mg/l	20.0	68.5	49.6	-
Magnesium as Mg	mg/l	7.2	35.1	25.4	-
Chloride as Cl-	mg/l	30	125	82	Max 600
Sulphate as SO_4	mg/l	16.0	99.4	65.7	Max 400
Iron as Fe	mg/l	0.06	0.61	0.23	Max 50
Fluoride as F	mg/l	0.21	0.36	0.29	Max 1.5
Nickel as Ni	mg/l	BDL (<0.02)	BDL (<0.02)	BDL (<0.02)	-
Boron as B	mg/l	<0.01	0.21	0.18	-
Total Phosphate as P	mg/l	0.16	0.42	0.28	-
Sodium as Na	mg/l	21.0	70.5	48.9	-
Potassium as K	mg/l	2	8	4	-
Chemical Oxygen Demand	mg/l	8.8	16.0	11.2	-
Biochemical Oxygen Demand at 27°C for 3 days	mg/l	<1.0	2	1.5	Max 3
Cadmium as Cd	mg/l	<0.001	<0.001	<0.001	Max 0.01
Lead as Pb	mg/l	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	Max 0.1
Chromium as Cr	mg/l	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	Max 0.05
Arsenic as As	mg/l	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	Max 0.2
Mercury as Hg	mg/l	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	-
Zinc as Zn	mg/l	0.04	0.26	0.08	Max 15
Ammonical Nitrogen as N	mg/l	<0.01	0.18	0.15	
Dissolved Oxygen as O_2	mg/l	5.2	7.2	6.2	Min 4
Total Coliform	MPN/100 ml	21	221	125	Max 5000
Faecal Coliform	MPN/100 ml	ND	<2	<2	-
Nitrate Nitrogen	mg/l	21.6	29.5	26.3	50
Nitrite Nitrogen	mg/l	0.05	0.08	0.07	-
Total Copper	mg/l	<0.01	<0.01	<0.01	3.0

ANNEXURE-1 (Contd..)

Parameters	Unit	Ground Water (Period Oct-2019 - Mar-2020)			Standards
		Minimum	Maximum	Average	
Temperature	°C	25.8	29.6	27.4	-
Colour	Hazen	<0.01	2	1	Max 5
Odour	-	Agreeable	Agreeable	Agreeable	Agreeable
pH at 25°C	-	7.1	8.0	7.7	6.5-8.5
Conductivity at 25°C	µS/cm	82	1247	812	Not specified
Total Dissolved Solids	mg/l	310	485	421	Max 500
Bicarbonate Alkalinity as $CaCO_3$	mg/l	114	320	217	Not specified
Carbonate Alkalinity as $CaCO_3$	mg/l	Nil	Nil	Nil	Not specified
Calcium as Ca	mg/l	31	74	49	Max 75
Magnesium as Mg	mg/l	8	25	15	Max 30
Chloride as Cl-	mg/l	108	194	154	Max 250
Sulphate as SO_4	mg/l	38.6	186.0	78.4	Max 200
Fluoride as F	mg/l	0.17	0.91	0.42	Max 1
Boron as B	mg/l	0.10	0.41	0.22	Max 0.5
Orthophosphate as P	mg/l	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	Not specified
Sodium as Na	mg/l	26.4	118.0	60.4	Not specified
Potassium as K	mg/l	1.2	28.0	6.1	Not specified
Chemical Oxygen demand	mg/l	4	40	15	Not specified
Sodium Absorption ratio	mg/l	1.5	8.5	5.3	Not specified
Percent Sodium	mg/l	32.3	45.5	39.5	Not specified
Cadmium as Cd	mg/l	<0.001	<0.001	<0.001	Max 0.003
Lead as Pb	mg/l	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	Max 0.01
Chromium as Cr	mg/l	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	Max 0.05
Arsenic as As	mg/l	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	Max 0.01
Mercury as Hg	mg/l	BDL (<0.001)	BDL (<0.001)	BDL (<0.001)	Max 0.001
Zinc as Zn	mg/l	0.03	0.31	0.10	Max 5
Nickel as Ni	mg/l	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	Max 0.02
Iron as Fe	mg/l	BDL (<0.01)	BDL (<0.01)	BDL (<0.01)	Max 0.3
Total Coliform	MPN/100ml	<2	<2	<2	-
Faecal Coliform	MPN/100ml	<2	<2	<2	-
Nitrate Nitrogen	mg/l	7.9	32.9	17.2	45
Nitrite Nitrogen	mg/l	Nil	Nil	Nil	-