एनटीपीसी NTPC

A Maharatna Company

एन टी पी सी लिमिटेड
(भारत सरकार का उद्यम)
NTPC Limited
(A Govt. of India Enterprise)
(Formerly National Thermal Power Corporation Ltd.)

Gadarwara

NTPC-Gadarwara-HYC-2018 **Dated: 18/12/2018**

The Additional Chief Conservator of forest
Ministry of Environment, forest & Climate Change
Regional Office, MoEF (Western Zone),
Kendriya Paryavaran Bhavan,
E-5Arera Colony Link Road No.3,
Ravishankar Nagar, Bhopal (M.P.) - 462 016

Sub: Half yearly Compliance report of NTPC-Gadarwara (2 x 800 MW)
Reference : Environment Clearance J-13012/ 125/ 2009- IA.II (T) dated 22/03/2013

Dear Sir,
Please find enclosed Half Yaerly Compliance (HYC) report of NTPC-Gadarwara (2 x 800 MW) for the period April'2018 to September'2018 in line with the guidelines as stipulated by MoEF&CC for kind perusal please.

Thanking you,

(D. Shrikhande)

(AGM) Environment Group

Inspected
21/12/2018

forest
(Regional)
Paryavaran Bhawan
Link Road No.3
Ravishankar Nagar

GADARWARA SUPER THERMAL POWER PROJECT
Project office: Teh Gadarwara Village Dongargaon, PO Gangai PS: Dongargaon Dist Narsinghpur-487551 (M.P.)
Telephone no :07790220030 fax : 07791-257103
Reg. office NTPC Bhavan, Scope Complex , 7. Institutional Area, Lodhi Road, New Delhi-110003

Scanned by CamScanner

GADARWARA SUPER THERMAL POWER PROJECT, STAGE-I (2X800 MW)

Compliance status of Environmental Clearance Vide Letter No: J-13012/125/2009-IA,II(T) Dt:22/03/13

Period of Compliance Report – (01.03.2018 to 30.09.2018)

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
A. Specific Conditions:		
i	The project proponent shall set up the power project as a model plant demonstrating that ecology and development can co-exists in harmony and set examples for others to emulate similar practice.	NTPC Gadarwara is setting up power project as a model plant demonstrating that ecology and development can co-exists in harmony. The details are attached as **Annexure-I**
ii	Sulphur and ash contents in the coal to be use 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.	Talaipalli Coal block(TLCMP) was earmarked for Gadarwara project at the time of granting of EC in March 2013. However TLCMP was subsequently de-allocated on 24.09.2014 by Hon'ble Supreme Court. Then Chandrabila coal block was allocated to NTPC which was again reallocated to Govt. of Taminadu. NTPC requested for change in coal source from TLCMP to Pakri Barwadih Coal Mine NTPC and use its coal during commissioning activities. There is proposal for FSA with NCL, WCL and with SECL. The 2 lakh Ton commissioning coal allocated to NTPC Gadarwara from above mines. Once the source of coal is finalized NTPC Gadarwara will comply with the said stipulation. The results of the coal so far received is attached as The 2 lakh Ton commissioning coal allocated to NTPC Gadarwara. **Annex. II**
iii	Bi-flue 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's for SO_x, NO_x and $PM_{2.5}$ & PM_{10}. Mercury emissions from stack may also be monitored on periodic basis.	A bi-flue stack of 275 meters height constructed and minimum flue gas velocity of 22 m/sec will be ensured during operation phase of the project. Continuous stack monitoring facility for online measurement of SO2, NOx, Particulate Matter (PM) and Mercury level has been provided. The photographs of the Stack and Technical Details of stack are enclosed as **Annex.-III**.
iv	No mine void filling or filling up of low lying	No mine void filling shall be done. If required

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
	areas with fly ash shall be undertaken.	in future at all, due permissions shall be taken from appropriate authority. No low lying area shall be filled, however ash may be used for engineered fills leveling, backfilling or reclaiming of low lying area and also for raising plant plinth levels. Till date no ash is disposed for filling of low lying.
v	COC of 5.0 shall be adopted	Closed cycle cooling system has been designed with COC of 5.0 for optimisation of water requirment, and shall demonstrate during regular plant operation.
vi	Continuous monitoring of Narmada River water quality in its upstream and downstream of water tapping point shall be undertaken regularly and records maintained.	Continuous monitoring of Narmada River water quality in its upstream and downstream of water tapping point shall be undertaken regularly during operation phase of the project.
vii	The project proponent shall explore possibility for storage of excess ~~monsoon water~~ for use during lean season. The same could be by construction of barrage at appropriate location which could be carried out in close consultation with the WRD, Govt. of Madhya Pradesh.	In order to meet the said stipulation, Gadarwara project has already constructed weir on Narmada River in consultation with WRD, Government of Madhya Pradesh. In addition to this, Hiran WRD, Jabalpur (MP) has been approached and requested to suggest water storage scheme for Shakkar River & Sita Reva River which are tributaries of Narmada.
viii	The ash pond design shall be such that no breach takes place even in the worst case of natural calamity. Since the geology of the area indicates sandy loam and loamy soil, the ash pond need to be appropriately lined with appropriate impermeable media.	The structure of ash dykes shall be designed, constructed and operated as per State of the Art engineering practices for the design and construction of earth dams with adequate factor of Safety. The design of ash dyke shall also take into consideration the seismic ~~parameters~~. Regular monitoring and inspection of ash dykes and an emergency response system will ensure that there are no risks of failure as apprehended. In addition ash pond shall be lined with **suitable impermeable material like Bentonite** blended clay. Moreover, the Fly Ash Disposal System for the project envisages the use of High Concentration Slurry Disposal (HCSD) System, which leads to solidification of the layers of

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
		ash slurry within 1-2 days. The solidified layers of ash shall be self-supporting and there will be no risk of ash flowing in the surrounding areas. For disposal of bottom ash, a conventional slurry disposal system with ash water recirculation has been envisaged.
ix	Ash pond for Stage-II (400 acres) can be considered only after the first ash pond is dispensed with by filling up of bottom ash and demonstration of 100% fly ash utilization established within four years of commissioning of the plant. The 2nd ash pond for Stage-II (400 acres) requirement should not arise and land earmarked can be converted for green belt and or water storage.	Noted and shall be complied. The said stipulation shall be complied during operation phase of the project.
x	Long term study shall be carried to assess impact on the ecology of the river Narmada downstream of the present project site at a different location especially at tapping points for drinking water supply and irrigation. The study shall be carried out by an institute of repute like IIT, Roorkee preferably within six months and report submitted to the Ministry. Thereafter the study shall be repeated after commissioning of both units of 2x800 MW and report subsequently submitted to the Ministry.	Study on impact of water intake and of effluent discharge for the project on ecology of River Narmada has been awarded to Centre of Advanced Study in Marine Biology, Annamalai University, Chennai vide LOA dated 17.03.2015. The copy of the final report is enclosed as **Annexure-IV.** Also, NTPC shall conduct the same study repeatedly as per the stipulations after commissioning of the project.
xi	The project proponent shall explore setting up of R.O System to treat cooling tower blow down discharge of about 5 cusecs and the R.O system shall be so designed so as to take care of drinking water supply for the nearest few villages.	Possibility shall be explored for setting up of RO System to treat cooling tower blow down discharge of about 5 cusecs to take care of drinking water supply for nearby villages.
xii	The village ponds / surface water bodies located within 5 kms radius of the project site shall be regenerated in the as part of its social welfare activities.	Under Various community CSR-CD works following initiatives were undertaken: 1. Five ponds in project affected villages (PAVs) have been identified for deepening. Two ponds deepening activity completed another three pond deepening work in progress. The completion works letters are enclosed as **Annexure-V.** 2. Two new ponds constructed in another two PAVs under Community

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
		Development works. Possibility shall be explored for setting up of RO System to treat cooling tower blow down discharge of about 5 cusecs to take care of drinking water supply for nearby villages.
xiii	An amount of Rs 45.60 Crores as one time investment shall be earmarked for activities to be taken up under CSR during construction phase of the Project. A detailed CSR Action Plan be furnished to the Ministry within 3 months. Recurring expenditure for CSR thereafter shall be Rs 9.2Crores per annum till the life of the plant. Social Audit by a reputed University or an Institute shall be carried out annually and details to be submitted to MOEF besides putting it on Company's website.	A requisite fund of Rs 45.60 Crore has been earmarked for Community Development works for Gadarwara project and out of which expenditure of Rs 21.24 crore has been already done regarding Community Development works in the neighboring villages. Detail and Status of CD-CSR work is enclosed as **Annexure-VI.** Thereafter, an amount of Rs. 9.2 Crores per annum will be earmarked as recurring expenditure for CSR activities till the life of the plant and its expense details will be submitted to the Ministry. In addition the social audit will be carried out as per the stipulations and its report will be submitted to MOEF&CC besides putting it on Company's website
B. General Conditions		
(i)	Vision document specifying prospective plan for the site shall be formulated and submitted to the Regional Office of the Ministry within **six months.**	NTPC vide letter dated 08.04.2013 has already submitted the Project Vision Document to the Regional Office (Western Zone) of the Ministry of Environment and Forest & Climate Change (MOEF&CC), Bhopal. Copy of vision document is once again enclosed at **Annexure-VII.**
(ii)	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 periodically to the Regional Office of the Ministry.	Projects as well as township are in construction phase. Scheme for harnessing solar power within the premises of the plant particularly at available roof tops has been formulated and incorporated in the engineering layout of the project and same shall be implemented after completion of building works at project.
(iii)	Provision for installation of FGD shall be provided for future use.	Adequate space has been kept in the general layout plan of the project for installation of FGD plant contract awarded for both the units. However, NTPC has already initiated an action for installing FGD Plant for controlling SOx

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
		concentration in flue gas in compliance to latest MOEF&CC emission norms for TPP dated 07.12.2015.
(iv)	Coal transportation to plant site shall be undertaken by rail and no road transportation shall be permitted.	As the MGR system for transportation of coal from Gadarwara Railway Station to the plant site is not ready and it will take some time for completion. Hence, initially it has been proposed to transport the coal through road route as an interim arrangement. The required amendment in Environment **Clearance (EC) condition for permitting the coal transportation by road for Gadarwara** has been accorded vide MOEF&CC letter **J-13012/125/2009-IA.II(T)** dated 01.09.2017.
(v)	A long term study of radio activity and heavy **metals contents on coal to be used shall be** carried out through a reputed institute. Thereafter mechanism for an in-built continuous monitoring for Radio activity and heavy metals in coal and fly ash (including bottom ash) be put in place.	**A detailed study on chemical composition of coal used, for particularly heavy metal and** radio activity contents, shall be carried out through a reputed institute once the project starts receiving the coal during operation phase. Meanwhile, Consultancy Work for undertaking long term study of radio activity was awarded to 'BARC' for analyzing natural background radiation monitoring at Gadarwara project. The radio activity study awarded to BARC and its Letter of Award (LOA) is enclosed as **Annexure-VIII.** 'BARC' has done all initial sampling and report is under preparation.
(vi)	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.	Expression of Interest was published, and efforts are being made for maximum **utilization of fly ash from this project.** ACC cement Kymore, Prism cement Satna, and MP Birla Corporation Maihar have shown their interest. The action plan prepared is enclosed as **Annexure-IX**
(vii)	High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm^3.	The High Efficiency Electrostatic Precipitators (ESP) are designed and installed for achieving guaranteed efficiency of 99.99 %. Details of ESP design parameters attached. **Annexure-X**

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
		However, NTPC has already initiated an action to ensure that particulate emission will be in compliance to latest MOEF&CC emission norms for TPP dated 07.12.2015.
(viii)	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.	Dust extraction system at Coal crusher house and adequate no. of dust suppression systems are being provided in coal handling area including coal stock yard area, ash handling points, transfer points and other vulnerable dusty areas for control of fugitive dust Emissions. Dry fog dust suppression system is being provided at coal conveyor transfer Points. Photos of the same are attached. Water sprinklers will also be installed at dust prone sites in order to attenuate fugitive dust emission.
(ix)	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.) shall be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. No ash shall be disposed off in low lying area.	An ash management scheme shall be implemented consisting of dry ash extraction system (DAES) for dry 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 area. The plant shall have two different systems for ash disposal– conventional wet slurry disposal with ash water re-circulation for bottom ash and 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 shall be done during the operation phase of the project. No ash shall be disposed off in low lying area.
(x)	Ash pond shall be lined with HDPE/LDPE 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. Ash pond water shall be re-	To avoid the ground water contamination from bottom ash slurry, one of the bottom ash lagoons is separated by a small temporary bund and the small area shall be lined with impervious liner of 300 MM thickness.

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
	circulated and utilized.	Ash pond is lined with suitable impermeable material like Bentonite blended clay or HCSD layer. The structure of ash dykes is designed, constructed and operated as per the State of the Art engineering practices for the design and construction of earth dams with adequate factor of Safety. The design of ash dyke shall also take into consideration the seismic parameters. AWRS system has been also envisaged.
(xi)	Fugitive emissions shall be controlled to prevent impact on such that no agricultural/non-agricultural land. Impact to any land shall be mitigated and suitable compensation provided in consultation with the local Panchayat.	Adequate no. of dust suppression and extraction system shall be provided in coal handling area including coal stock yard area, ash handling points, transfer areas and other vulnerable dusty areas for control of fugitive dust Emissions. Extensive plantation shall be undertaken in all available areas, selectively with Air Pollution Tolerant Index (APTI) plant species.
(xii)	Hydrogeology 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.	During operation phase of the project the Hydrogeology 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) and reports of water quality monitored shall be submitted to the Regional Office of the Ministry. Hydro-geological study for Gadarwara project has been carried out by National Institute of Hydrology (NIH) Roorkee. A copy of the report shall be submitted to the Regional Office of the Ministry. **Annexure-XI**
(xiii)	No ground water shall be extracted for use in operation of the power plant even in lean season.	As per the said stipulation, no ground water will be extracted for use during operation of the power plant.
(xiv)	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.	No water body including natural drainage system of the area has been disturbed due to activities associated with the setting up of the power plant. Moreover, the said stipulation will also be complied during the operation phase of the

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
		project.
(xv)	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.	Adequate nos. of piezometers will be installed for regular monitoring of ground water level in and around ash pond area as per stipulation and report will be submitted to Regional Office (Western Zone) of MOEF&CC at Bhopal at regular interval during operation phase of the project.
(xvi)	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 shall be carried out regularly as per stipulations and reports shall be submitted to Regional Office of MOEF&CC (Western Zone) at Bhopal. Monitoring for heavy metals in ground water will be also done and its record will be maintained during operation phase of the project. Further details are enclosed as **Annexure-XII**
(xvii)	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.	Noted.
(xviii)	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 project shall have an integrated scheme for treatment, re-cycle and re use of effluents. Provision is being kept to recirculate cooling water and ash pond effluent. The cooling tower blow down shall be used fully/partially for ash handling, service water system, coal handling & firefighting etc. Provision is being kept for treatment, recirculation & reuse of entire quantity of coal handling plant effluents & service water effluents. The effluent treatment system comprising of neutralization pit for DM plant regeneration waste, oil separator/skimmers for oily waste, coal slurry settling pond for coal handling plant effluents, lamella clarifier for service water effluents and cooling towers for hot water etc are being provided.

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
		The effluents shall be treated adequately conforming to the stipulated regulatory standards. An independent plant effluent drainage system shall be constructed to ensure that plant effluents do not mix with storm water drainage. Zero Liquid discharge Scheme implemented ensures plant effluent do not mix with storm water drainage.
(xix)	Waste water generated from the plant shall be treated before discharge to comply limits prescribed by the SPCB/CPCB.	It is submitted that during normal course of project operation Zero Liquid Discharge (ZLD) system shall be adopted based on maximum recycle/reuse of waste water for various plant usage thereby reducing and optimizing the quantities of water requirement and effluent generation to the extent feasible. However, NTPC has already revised its water requirement in order to comply with the latest emission notification by MOEF&CC for TPP dated 07.12.2015.
(xx)	A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising green belt/plantation.	All domestic sewage emanating from plant and township shall be treated in a sewage treatment plant. The treated sewage conforming to prescribed standards and shall be utilized for plantation & raising greenbelt to the extent possible.
(xxi)	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.	Rain water harvesting shall be practiced as per recommendation/stipulations of Central Groundwater Authority/Board. A study was conducted by NIH Roorkee for rain water harvesting at plant area and for township. Proposal for implementation plan has been submitted to CGWB-Bhopal for their approval.
(xxii)	Additional soil for leveling of the proposed site shall be generated within the sited (to the extent possible) so that natural drainage system of the area is protected and improved.	All additional soil leveling of the project site will be done from within the sites only with all necessary precautions will be taken to protect natural drainage system of the area.
(xxiii)	Common property resource falling in the vicinity of the project area shall be identified and if any common property resource (such as grazing land, pond etc.) is falling within the	There is no common property resource falling within the plant area.

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
	plant area and is developed and handed over to the community.	
(xxiv)	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.	The entire fire system in NTPC Gadarwara plant is catered by - Hydrant pumps- 3 Motor driven + 1 Diesel driven Booster pumps in hydrant line- 1 Motor driven + 1 Diesel driven Spray pumps - 2 Motor driven + 1 Diesel driven Booster pumps in spray line- 1 Motor driven + 1 Diesel driven Following areas are covered by Hydrant and Spray Systems for fire protection 1) Hydrant system : Through piping network and valves covers entire main plant and offsite area 2) Hydrant Booster pumps : It is provided to supply adequate pressure in hydrant system of Boiler and elevated area like Bunker Transfer points 3) High Velocity Sprinkler system : It has been provided in areas where Oil is being used transformers, Turbine Driven BFPs, Boiler burner floors, Turbine lube oil system, Oil canal, Generator seal oil units. 4) Medium Velocity Sprinkler system: Coal conveyors and Transfer points, LDO Tanks, DG Sets, Cable galleries at various levels at TG Building
(xxv)	Well-designed acoustic enclosures for the DG sets and noise emitting equipment's to achieve the desirable insertion loss viz. 25 dB (A) should be provided.	Well-designed acoustic enclosures meeting the latest statutory norms for DG sets are provided. The Noise Monitoring report is enclosed as **Annexure-XIII.** Further, the compliance of latest norms on noise standard will be ensured.
(xxvi)	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 shall not exceed 0.5%. Disaster Management Plan	Storage facilities for auxiliary liquid fuel LDO/HFO are designed conforming to the safety standards and where risk is minimal. A detailed Disaster Management Plan & Risk

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
	shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.	assessment including fire and explosion issues prepared and finalized in consultation with Department of Explosives, Nagpur and regular mock drills are being conducted as per plan in order to address any eventuality in case of an accident. Displayed on Gadarwara intranet.
(xxvii)	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 workers during construction phase of the project have been kept under the scope of EPC contractor. However, NTPC shall ensure effective compliance of the said stipulations. 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 at various stages of project construction to the labor colonies housing the work force during construction phase of the project. The sanitary waste from these areas shall be accorded suitable treatment. • Safety equipment such as earplugs and earmuffs, helmets, face shields, safety goggles etc. is being provided to workers engaged in high risk areas. A first aid center & ambulance have been established to provide immediate medical aid to the workers and their Family members. An ambulance service is available at site to transport injured workers to nearby hospitals.
(xxviii)	Noise levels emanating from turbines shall be limited to 85 dB (A) from source. For people working in the high noise area, requisite PPEs 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.	Design specification for the equipment's has been made to comply with the stipulation. Personal protective equipment has been arranged through contractors during construction phase. Periodic examination of workers during operation phase shall be done as stipulated. The workers of generator halls and other high noise area shall be provided with appropriate ear protection devices.
xxix	Regular monitoring of ambient air ground level	Regular monitoring of AAQ shall be done

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
	concentration of SO_2, NOx, $PM_{2.5}$ & PM_{10} and Hg shall be carried out in the impact zone and record maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be provide 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.	during the operation of the plant. The four locations of AAQMS have been finalized in consultation with MPPCB. Four (4) no. of AAQMS equipment's shall be installed at site and the infra-structure requirements for the stations are being established. Data shall be submitted to the Regional Office (Western Zone) of the MOEF&CC at Bhopal. The data shall also be put up on the website of the company during the operation phase of the project.
xxx	Green Belt consisting of 3 tiers of plantations of native species around plant not less than 100m width shall be raised (except in areas not feasible). The density of trees shall not less than 2500per ha with survival rate not less than 80%.	• Green Belt around the Main Plant area except transmission corridor shall be planted. • Around 100 acres of land has been envisaged for the green belt development. • Green Belt around the Township area shall be planted. • Extensive afforestation has been undertaken at all available spaces in and around project. • Avenue Plantation along the Road is being done. • The density of trees shall not less than 2500 per ha with all efforts to maintain the survival rate not less than 80%. • Under development of green belt work 40,000 trees have been planted at project in 2018. • MoU is signed for green belt development for this mansoon season-2018 by MP Van Rajya Vikash Nigam limited (MPRVVN). Details attached in **Annexure- XIV**
xxxi	**An Environmental Cell comprising of at-least** one expert in environmental science / engineering, occupational health and a social scientist, shall be created preferably at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the Head of **the Cell shall directly report to the head of the** organization who would be accountable for implementation of environmental regulations and social impact improvement / mitigation	**An Environment Management Group (EMG)** has been set up at Gadarwara STPP. Chief General Manager Head of Project Additional General Manager (E8)

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
	measures.	Sr. Manager (E6) MSc. (Chemistry) | Sr. Manager (E6) MSc. (Environment) The EMG will be responsible for implementing and monitoring the stipulations/ issues / statutory norms. EMG will have sufficient trained manpower and equipment for environmental monitoring and other environmental related activities to ensure compliance with statutory requirements. It shall interact regularly with the State Pollution Control Board.
xxxii	The project proponent shall also adequately contribute in the development of the neighbouring villages. Special package with implementation schedule for providing potable drinking water supply in the nearby villages and schools shall be undertaken in a time bound manner.	Expenditure of Rs 21.24 crore has been done regarding Community Development works in the neighboring villages. List of CD works executed in PAVs enclosed as **Annexure-VI** Separate budget has been earmarked for implementing CSR-CD activities for the project and shall be utilized in accordance with the said stipulations.
xxxiii	CSR scheme 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 have been implemented and will be continued based on need based survey in and around the villages within 5 km of the site and in consultation with the village Panchayat and the District Administration. **Infrastructure works in Project Affected Villages (PAVs):** • CC road constructed in Village Dongargaon. • Road side plantation was done in all PAVs. • CC road construction in Village Chorbarheta. **Drinking water:** • Hand pumps installed in all 7 PAVs. • Payment disbursed for supply of water to each household in PAVs. **Sanitation:** • Ghat Pipariya is now open defecation free. • Payment disbursed for toilet construction in each house for Gangai

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
		& Umaria villages. • Toilets worth 29 lacs constructed in Village Chorbarheta. **Education:** • Boundary wall of schools under construction in all PAVs. • Scholarship distributed to meritorious students of Government schools of class V, VIII & X. **Health:** • 6 medical camps and one family planning camp organized for PAVs. • Upgradation of District hospital was done. • Upgradation of Red Cross hospital was done. **Other welfare measures:** • Contribution made towards 2 camps for upliftment of weaker sections and one cultural program. **Infrastructure works in Vicinities:** • Two CC road constructed in Narsinghpur. • Solar system installed in remotely located Village Badgaon. • Community Centers constructed in various villages, Gadarwara & villages, Gadarwara & Narsinghpur. Detail and Status of CD works is attached as **Annexure – VI**
xxxiv	**It shall be ensured that an in-built monitoring mechanism for the CSR schemes identified is in 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.**	**The said stipulation shall be complied during operation phase of the project.**
xxxv	Provision shall be made for the housing of construction labor (as applicable) within the site with all necessary infrastructures and facilities such as fuel for cooking ,mobile toilets, mobile STP, safe drinking water, medical health	All construction agencies working at NTPC Gadarwara Project are providing temporary accommodation for their workers near to work site. The engaged contractors are responsible for providing facilities for housing

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
	care , crèche etc. The housing may be in the form of temporary structure to be removed after the completion of the project.	of construction labor (as applicable) within the site with all necessary infrastructures and facilities such as fuel for cooking, mobile toilets, safe drinking water, medical health care etc.
xxxvi	The project proponent shall advertise in at least two local news papers 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 seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in.	The information of Environmental Clearance was published in Two newspapers widely circulated in the region; 1. Dainik Bhaskar on 27.03.2013 (Hindi) 2. Nayi Duniya on 23.03.2013 (Hindi)
xxxvii	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.	The copy Environmental Clearance has been submitted to the following concerned offices. (1) Collector, Narsinghpur. (2) General Manager, District Trade & Industries Centre, Narsinghpur. (3) CEO, Zila Panchayat (4) Secretary, Gram Panchayat Gangai. (5) Secretary, Gram Panchayat Kudari. (6) Secretary, Gram Panchayat Chor Barheta. The Environmental Clearance has also been uploaded on the NTPC website.
xxxviii	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 (PM2.5&PM10), SO2, NOx (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 HYC report of EC conditions is regularly being submitted to the Regional Office (Western Zone) of MOEF&CC at Bhopal and at the same time it is also uploaded on the NTPC website which is periodically being replaced with updated HYC report. Online continuous Stack Emission Monitoring System (CSEMS) for the parameters like particulate matter (PM) NO_x, SO_2, Mercury are commissioned. The Data shall be uploaded to the online emission to MPPCB and CPCB server during operation phase of the project.
xxxix	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	The environment statement for each financial year ending 31st March in Form-V shall be submitted once the plant becomes operational to Madhya Pradesh Pollution Control Board (MPPCB).

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
	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.	
xl	The project proponent shall submit six monthly reports on the status of the implementations 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 email to Regional office, Ministry of Environment and Forests.	Latest Six monthly reports on the status of the implementations of the stipulated environmental safeguards is regularly being submitted to the MOEF&CC/MPPCB/Regional Office (Western Zone, Bhopal) and at the same time and it is also uploaded on the NTPC website which is periodically being replaced with updated HYC report.
xli	Regional office of the Environment & Forests shall 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 shall 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.	A complete set of documents including Environmental Impact Assessment (EIA) Report and Environment Management Plan (EMP) along with the additional information / clarifications were forwarded on 10.03.2014 to the Regional Office (Western Region) of MOEF&CC at Bhopal.
(xlii)	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 purpose and year-wise expenditure should be reported to the ministry.	The requisite funds for environmental mitigation measures have been included in the project cost. Financial provision stipulated towards environmental mitigate measures shall not be diverted for other purposes.
(xliii)	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.	Shall be complied.

SL.NO.	MOEF STIPULATION	STATUS AS ON 30.09.2018
(xliv)	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.	Full cooperation shall be extended to the Scientists / officers from the Ministry / Regional Office of the Ministry at Bhopal (Western Region) / the CPCB / the MPPCB during monitoring of the project.
(xlv)	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 of modify the existing ones, if necessary.	Noted.
(xlvi)	The environmental clearance accorded shall be valid for a period of 5 years to start operations by the power plant	Noted.
(xlvii)	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.	Noted.
(xlviii)	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.	Noted.

Annex. I

Model plant description- NTPC- Gadarwara

In the present era of rapid urbanization, industrialization and modernization, the power industry has emerged as a masterworks that enable production of electrical energy which appeared as one of the basic & prime needs of life after water and food and also played a pivotal role in overall development. However, it is also known fact that the as every anthropogenic activity is associated with some externalities and therefore power generation through burning of fossil fuel is also having some consequences on environment which can be minimized/attenuated only through proper environmental management systems supported by state of art technologies so that balance between ecology and development can co-exists.

NTPC well accepts the facts of these externalities and likely impacts of power projects on environment. However, being a committed and socially responsible corporate citizen since its inception, sustainable power generation has always been the prime objectives of NTPC Limited since its inception. The proposed Gadarwara STPP, Stage-I (2x800 MW) has been planned as an example of the effort of NTPC towards achieving this objective for generating and providing reliable power at competitive prices in a sustainable manner by optimizing the use of multiple energy resource with innovative eco-friendly technologies thereby contributing to the economic development of the nation, social upliftment of the society and promoting a healthy environment.

In pursuance of above, NTPC Gadarwara Project is committed install the adequate mitigative measures for controlling the air emission/pollution from the project and maintain the ambient air quality in the surrounding area within latest NAAQ limit and also to comply with the latest emission standards for Thermal power plant dated 07.12.2015. Some mitigative measures proposed to be adopted for ensuring minimal degradation of the environment due to the operation of the proposed power project are as follows;

- ✓ The proposed project is designed with super-critical technology having higher efficiency compared to the conventional sub- critical technology based units. Adoption of higher cycle parameters will improve power plant efficiency and thereby reduce coal consumption per unit of electricity generation with consequent reduction in CO_2 emissions. The super critical technology is relatively new to the Indian Power sector; where till recently, plants were operating on sub-critical parameters. These super critical units have a cycle efficiency of around 4-5% more than conventional sub-critical technology and consume 5% less fuel for the same amount of energy generated. This results in consequent reduction in CO_2 foot print.

- ✓ Installation of high efficiency electrostatic precipitators (ESPs) to limit the particulate emission to 30 mg/Nm^3.
- ✓ Twin flue stack of 275 m height for wider dispersal of remaining particulates and gaseous pollutants resulting in lower ground level concentrations.

- ✓ Installation of Flue Gas De-sulphurization (FGD) system for removal of excess sulphur dioxide (SO_2).
- ✓ Suitable technology for controlled emission of NO_x.
- ✓ The project will be designed with zero Liquid Discharge (ZLD) concept in order to reduce the quantity of effluents generated from the plant
- ✓ About 150 acres of land has been envisaged for the development of thick green belt (within all available spaces of the project area & township which will attenuate the impact of air pollution and also play a vital role in offsetting the carbon footprint.
- ✓ The ash disposal scheme for fly ash envisages collection of fly ash by DAES (dry ash extraction system) to the storage silos and residual fly ash transported through HCSD (High Concentration Slurry Disposal system), which uses thick – viscous – high concentration slurry of ash for disposal which gets solidified within 1-2 days, thereby minimizing the possibility of fugitive emission. Under the above disposal system there is no risk of Ash flying in the wind due to its being cemented
- ✓ Dust suppression and extraction system shall be installed at coal handling plant area and ash handling plant to control fugitive dust emission.
- ✓ Water spraying shall be done at all dust generation areas viz., the coal and ash handling areas.
- ✓ Regular monitoring of ambient air quality parameters through three nos. fixed Continuous Automatic Ambient Air Quality Monitoring Stations (AAQMS) as well as portable Ambient Air Quality Monitoring equipment.
- ✓ Continuous emission monitoring system in stack for all the flues.

Hence, it can be concluded that implementation of above practices/technology at proposed Gadarwara project will enhance the power Generation Efficiency in eco-friendly manner.

Annex. II

सीएसआईआर-केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान
नागपुर अनुसंधान केन्द्र
(ईंधन विज्ञान)
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार

CSIR-CENTRAL INSTITUTE OF MINING & FUEL RESEARCH
Nagpur Research Centre
(Fuel Sciences)
(Council of Scientific & Industrial Research)
Ministry of Science & Tech, Govt. of India

C S I R : CIMFR - AN ISO - 9001 : 2008 INSTITUTION

Date: 05.10.2018

Analytical Results of samples drawn by CSIR-CIMFR (Third Party Sampling) during the 18.09.18 to 18.09.18

LOADING END ANALYSIS REPORT

Test Report No. : **TC564618000001001F**
Coal Company : **WESTERN COALFIELDS LIMITED**
Loading Area/Siding : **BALLARPUR AREA, NSS GDOCM**
Power Utility : **NTPC GADARWARA**

Sl. No.	Sample ID	Date of Collection	Date of Preparation	R.R. Quantity (Tonne)	Railway Rake		On equilibrated condition of 60% RH at 40°C Temp			TM %	Analysed Grade
					R. R. No.	Date	M %	Ash %	GCV (Kcal/kg)		
1	WCL/Ballarpur/ NSS GDOCM/ 2018-19/653	18.09.18	20.09.18	3799.22	172000004	18.09.18	6.9	38.2	3874	13.8	G12

Note: (i) Sample collected as per FSA (ii) Ash & Moisture as per IS 1350 (part 1), 1984 Reaffirmed:2013(iii) GCV as per IS 1350 (part 2)-2017
(iv) Equilibrated Moisture and Total Moisture as per IS 1350 (Part I), 1984 Reaffirmed:2013

5.10.18

(Authorised Signatory)
R K Acharya
Sr. Technical officer -3 &
Technical Manager

From
Scientist-in-Charge
I/C Telangkhedi Area,
Civil Lines, Nagpur - 440 001

Working days : Monday - Friday
Working Hrs. : 09.00 AM to 05.30 PM

Phone : 0712-2510390, 2512900 (Direct)
Fax : 0712-2510390
E-mail : cfrnagpurunit@yahoo.com
cimfrnagpurunit2@gmail.com
Web : cimfr.res.in

सीएसआईआर–केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान
नागपुर अनुसंधान केन्द्र
(ईंधन विज्ञान)
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार

CSIR-CENTRAL INSTITUTE OF MINING & FUEL RESEARCH
Nagpur Research Centre
(Fuel Sciences)
(Council of Scientific & Industrial Research)
Ministry of Science & Tech, Govt. of India

C S I R : CIMFR - AN ISO - 9001 : 2008 INSTITUTION

Date: 03.10.2018

Analytical Results of samples drawn by CSIR-CIMFR (Third Party Sampling) during the 16.09.18 to 16.09.18

LOADING END ANALYSIS REPORT

Test Report No. : **TC564618000000937F**
Coal Company : **WESTERN COALFIELDS LIMITED**
Loading Area/Siding : **BALLARPUR AREA, NSS GDOCM**
Power Utility : **NTPC GADARWARA**

Sl No.	Sample ID	Date of Collection	Date of Preparation	R.R. Quantity (Tonne)	Railway Rake		On equilibrated condition of 60% RH at 40°C Temp			TM %	Analysed Grade
					R. R. No.	Date	M %	Ash %	GCV (Kcal/kg)		
1	WCL/Ballarpur/ NSS GDOCM/ 2018-19/620	16.09.18	18.09.18	3791.25	172000003	15.09.18	7.7	39.5	3752	16.3	G12

Note: (i) Sample collected as per FSA (ii) Ash & Moisture as per IS 1350 (part 1), 1984 Reaffirmed:2013(iii) GCV as per IS 1350 (part 2)-2017
(iv) Equilibrated Moisture and Total Moisture as per IS 1350 (Part I), 1984 Reaffirmed:2013

3.10.18

(Authorised Signatory)
R K Acharya
Sr. Technical officer -3 &
Technical Manager

From :
Scientist-in Charge
I.T.C. Telangkhedi Area,
Civil Lines, Nagpur - 440 001

Working days : Monday - Friday
Working Hrs. : 09.00 AM to 05.30 PM

Phone : 0712-2510390, 2512900 (Direct)
Fax : 0172-2510390
E-mail : cimfrnagpurunit@yahoo.com
cimfrnagpurunit2@gmail.com
Web : cimfr.res.in

सीएसआईआर-केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान
नागपुर अनुसंधान केन्द्र
(ईंधन विज्ञान)
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार

CSIR-CENTRAL INSTITUTE OF MINING & FUEL RESEARCH
Nagpur Research Centre
(Fuel Sciences)
(Council of Scientific & Industrial Research)
Ministry of Science & Tech, Govt. of India

C S I R : CIMFR - AN ISO - 9001 : 2008 INSTITUTION

Date: 24.09.2018

Analytical Results of samples drawn by CSIR-CIMFR (Third Party Sampling) during the 05.09.18 to 05.09.18

LOADING END ANALYSIS REPORT

Test Report No. : **TC564618000000671F**
Coal Company : **WESTERN COALFIELDS LIMITED**
Loading Area/Siding : **WANI NORTH AREA, UKNI**
Power Utility : **NTPC GADARWARA**

Sl No.	Sample ID	Date of Collection	Date of Preparation	R.R. Quantity (Tonne)	Railway Rake		On equilibrated condition of 60% RH at 40°C Temp			TM %	Analysed Grade
					R. R. No.	Date	M %	Ash %	GCV (Kcal/kg)		
1	WCL/WANI NORTH/UKNI/ 2018-19/634	05.09.18	06.09.18	3897.33	172000055	05.09.18	6.7	40.0	3915	13.9	G12

Note: (i) Sample collected as per FSA (ii) Ash & Moisture as per IS 1350 (part 1), 1984 Reaffirmed:2013(iii) GCV as per IS 1350 (part 2)-2017

(iv) Equilibrated Moisture and Total Moisture as per IS 1350 (Part I), 1984 Reaffirmed:2013

24/09/18

(Authorised Signatory)
Dr. S. P. Singh
Sr. Principal Scientist &
Scientist In-charge

From :
Scientist-in-Charge
17/C, Telangkhedi Area,
Civil Lines, Nagpur - 440 001

Working days : Monday - Friday
Working Hrs. : 09.00 AM to 05.30 PM

Phone : 0712-2510390, 2512900 (Direct)
Fax : 0172-2510390
E-mail : cfrinagpurunit@yahoo.com
cimfrnagpurunit2@gmail.com
Web : cimfr res in

Annex. II

सीएसआईआर-केन्द्रीय खनन एवं ईंधन अनुसंधान संस्थान
नागपुर अनुसंधान केन्द्र
(ईंधन विज्ञान)
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद)
विज्ञान और प्रौद्योगिकी मंत्रालय, भारत सरकार

CSIR-CENTRAL INSTITUTE OF MINING & FUEL RESEARCH
Nagpur Research Centre
(Fuel Sciences)
(Council of Scientific & Industrial Research)
Ministry of Science & Tech, Govt. of India

C S I R : CIMFR - AN ISO - 9001 : 2008 INSTITUTION

Date: 13.10.2018

Analytical Results of samples drawn by CSIR-CIMFR (Third Party Sampling) during the 27.09.18 to 27.09.18

LOADING END ANALYSIS REPORT

Test Report No. : **TC564618000001227F**
Coal Company : **WESTERN COALFIELDS LIMITED**
Loading Area/Siding : **BALLARPUR AREA, NSS GDOCM**
Power Utility : **NTPC GADARWARA**

Sl No.	Sample ID	Date of Collection	Date of Preparation	R.R. Quantity (Tonne)	Railway Rake		On equilibrated condition of 60% RH at 40°C Temp			TM %	Analysed Grade
					R. R. No.	Date	M %	Ash %	GCV (Kcal/kg)		
1	WCL/Ballarpur/ NSS GDOCM/ 2018-19/698	27.09.18	27.09.18	3963.78	472000003		7.8	28.5	4714	15.5	G9

Note: (i) Sample collected as per FSA (ii) Ash & Moisture as per IS 1350 (part 1), 1984 Reaffirmed:2013(iii) GCV as per IS 1350 (part 2)-2017
(iv) Equilibrated Moisture and Total Moisture as per IS 1350 (Part I), 1984 Reaffirmed:2013

Chayande 13/10/18

(Authorised Signatory)
Dr. (Mrs.) Pragya K. Chayande
Technical Officer
Deputy Technical Manager

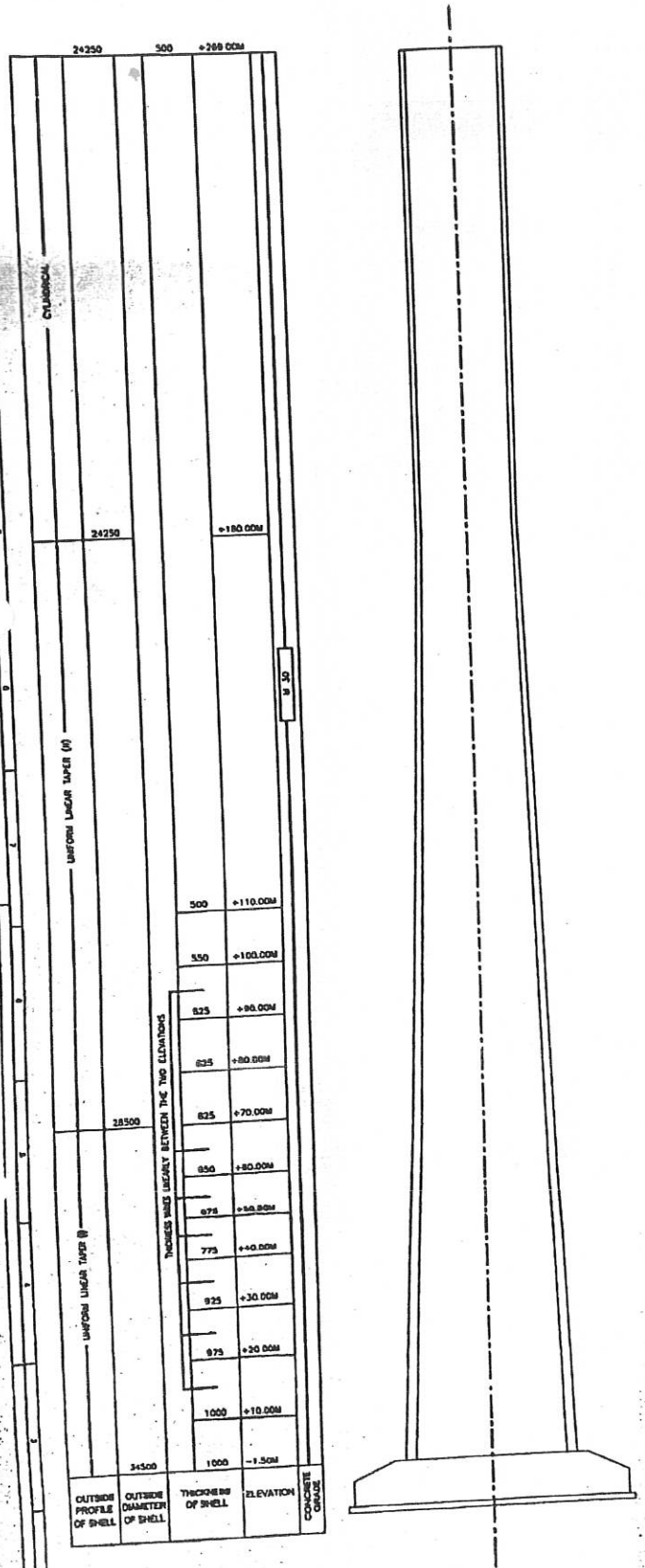
From :
Scientist-in-Charge
17/C, Telangkhedi Area
Civil Lines, Nagpur - 440 001

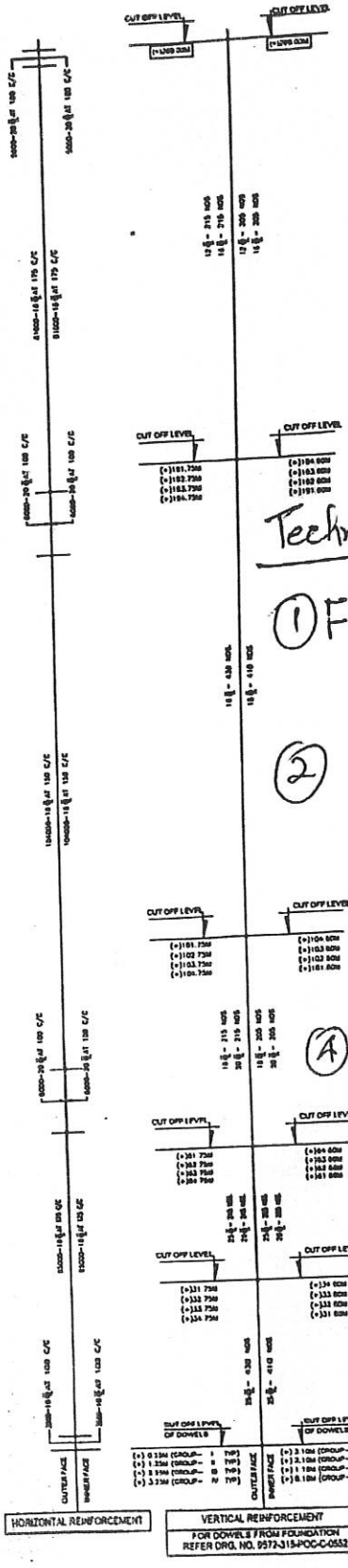
Working days : Monday - Friday
Working Hrs. : 09.00 AM to 05.30 PM

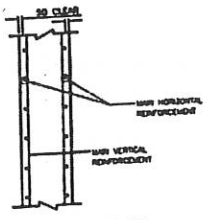
Phone 0712-2510390, 2512900 (Dir-t)
Fax 0712-2510390
E-mail cimfrnagpurunit@yahoo.com
cimfrnagpurunit2@gmail.com
Web cimfr.res.in

Annex – III

This document is the property of NTPC Limited. No part of this document will be reproduced by any means without the written permission







SHELL REINFORCING ARRANGEMENT

Technical Specification

(1) Flue Diameter 32.5 Meter.

(2) SO_2 & NO_x analysers provided at 34 Meter height

(3) Opacity Meter provided at 90 Meter

(4) Flowmeter at 34 Meter

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES AND LEVELS ARE IN METRES.
2. EL. (±) 0.00M CORRESPONDS TO RL (+)358.50M.
3. CONCRETE FOR CHIMNEY SHELL SHALL BE OF GRADE M-30 CONFORMING TO IS 456 WITH MAXIMUM SIZE OF GRADED COARSE AGGREGATE NOT EXCEEDING 20 MM.
4. ALL REINFORCEMENT STEEL SHALL BE THERMO MECHANICALLY TREATED (TMT) HIGH YIELD STRENGTH BARS WITH MINIMUM PERCENTAGE ELONGATION 14.5% CONFORMING TO IS:1786.
5. LAP LENGTH IN REINFORCEMENT BARS (REBARS) SHALL NOT BE LESS THAN 40 TIMES THE DIAMETER OF BAR.
6. HORIZONTAL REBARS SHALL BE IN MANAGEABLE LENGTHS AND THE LAPS IN ANY BAR SHALL BE STAGGERED FROM THE LAPS OF BARS BELOW AND ABOVE IT.
7. THE REBAR CUT OFF LEVELS HAVE BEEN INDICATED TO SHOW THE LAP STAGGER IN THE VERTICAL REBARS. MINOR ADJUSTMENTS IN THESE LEVELS MAY BE MADE TO SUIT THE REBAR LENGTHS AVAILABLE AT SITE. MINOR LEVEL DIFFERENCES AMONGST THE BARS OF ANY STAGGER GROUP IS ALSO ACCEPTABLE.
8. MAIN REBARS SHALL BE SUITABLY CURTAILED AROUND SHELL OPENINGS AND RECESSES.
9. ALL MATERIAL, QUALITY, TESTING, STORAGE, FORM WORK, CONCRETE MIX DESIGN, REINFORCEMENT DETAILING, CONCRETE MIXING, PLACEMENT OF REINFORCEMENT AND CONCRETE, WORKMANSHIP, SAFETY ETC. SHALL CONFORM TO IS 456 AND THE TECHNICAL SPECIFICATIONS.

CONSTRUCTION REFERENCE DRAWINGS:

1. REFER DRG. No. 9572-315-POC-C-0553 FOR DOWELS FROM FOUNDATION.
2. REFER DRG. No. 9572-315-POC-C-0553 THROUGH 0563 FOR EXTRA REINFORCEMENT AROUND OPENINGS AND RECESSES IN THE CHIMNEY SHELL.
3. REFER DRG. No. 9572-315-POC-C-0564 FOR DETAILS OF EXTERNAL PLATFORMS.
4. REFER DRG. No. 9572-315-POC-C-0565 FOR DETAILS OF EXPANSION JOINT BETWEEN TOP INTERNAL GALLERY AT EL(+)143.50M.
5. REFER DRG. No. 9572-315-POC-C-0563 & 0564 FOR LAYOUT & DETAILS OF STAIRCASE ENCLOSURE.
6. REFER DRG. No. 9572-315-POC-C-0566 FOR LAYOUT & DETAILS OF STAIRCASE/STAIRS ENCLOSURE

SK Bansal

SPECIAL NOTE:-
STRAKE ENCLOSURES AND STRAKES SHALL BE INSTALLED SIMULTANEOUSLY
STRAKE ENCLOSURES OF ADJACENT PANELS ARE TO BE INSTALLED
THE STRAKES AS THE CASTING PROGRESSES. FOR LAYOUT & DETAILS OF STRAKES & STRAKE ENCLOSURES, REFER DRG. NO. 9572-315-POC-C-0538

ARUN A THACHIL

RELEASED FOR CONSTRUCTION

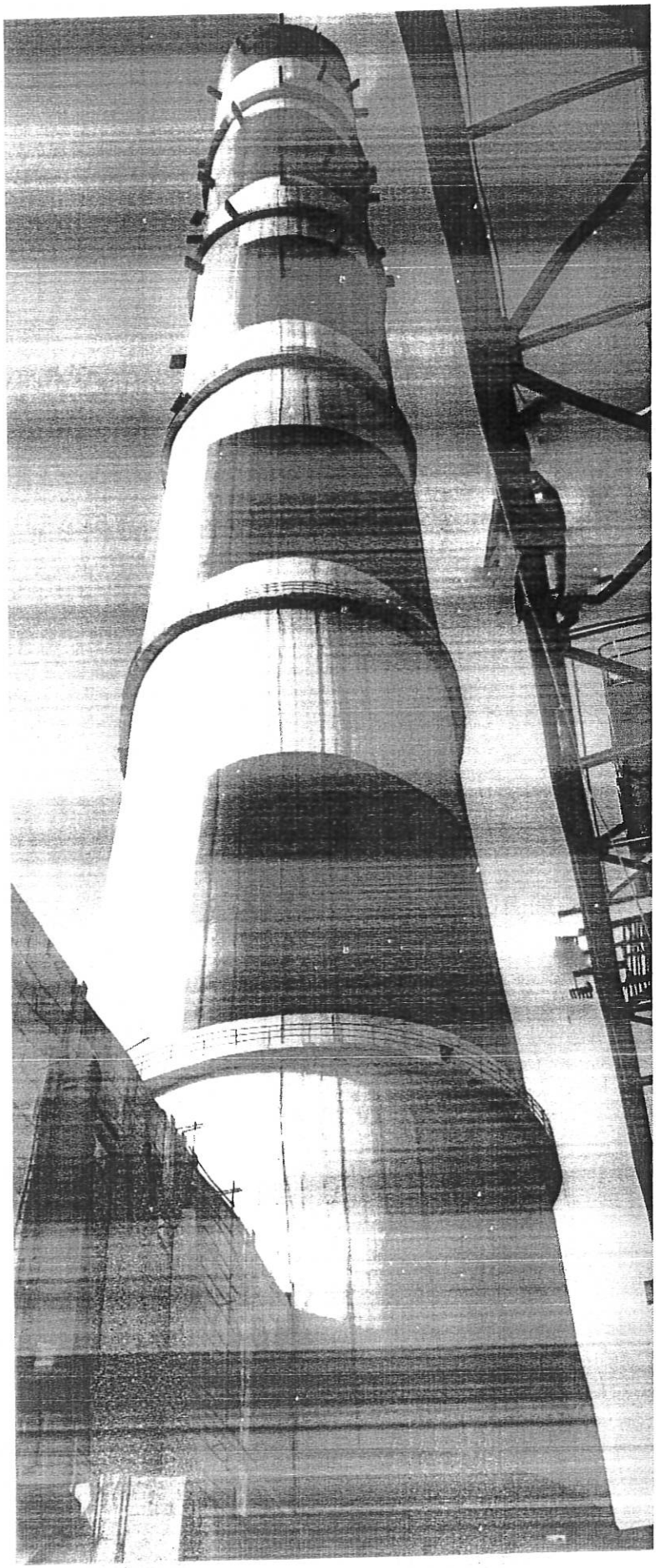
REV. NO.	DESCRIPTION	DRWN	DES	CHKD	APPD	DATE
0	RELEASED FOR CONSTRUCTION					

NTPC Limited
A GOVERNMENT OF INDIA ENTERPRISE

PROJECT: GADARWARA SUPER THERMAL POWER PROJECT
STAGE-II (2×800 MW)

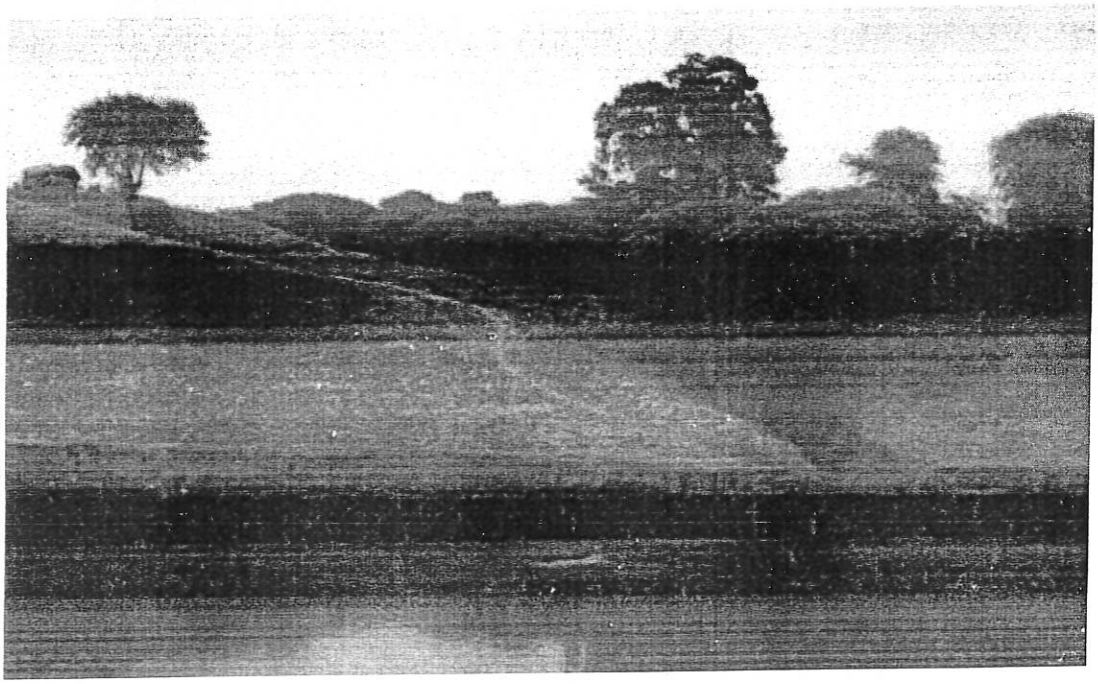
TITLE: MAIN PLANT AND OFFSITE CIVIL WORKS PACKAGE
CHIMNEY-SHELL PROFILE AND DETAILS OF MAIN REINFORCEMENT

SIZE	SCALE	DRG. NO.	REV. NO.
A1	NTS	9572-315-POC-C-0554	0



Annex. IV

STUDY ON IMPACT OF WATER INTAKE FOR GADARWARA STPP ON ECOLOGY OF NARMADA RIVER (MADHYA PRADESH)



Submitted to:

NTPC Ltd.

Engineering Office Complex
Sector-24
Noida (Uttar Pradesh)
PIN- 201301

ANNAMALAI UNIVERSITY

CENTRE OF ADVANCE STUDY (CAS) IN MARINE BIOLOGY

PARANGIPETTAI- 608502 (TAMIL NADU)

August, 2017.

STUDY ON IMPACT OF WATER INTAKE FOR GADARWARA STPP ON ECOLOGY OF NARMADA RIVER (MADHYA PRADESH)

Submitted to:

NTPC Ltd.

Engineering Office Complex
Sector-24
Noida (Uttar Pradesh)
PIN- 201301

ANNAMALAI UNIVERSITY
CENTRE OF ADVANCE STUDY (CAS) IN MARINE BIOLOGY
PARANGIPETTAI- 608502 (TAMIL NADU)

Annexo IV

EXECUTIVE SUMMARY

The present ecological survey was carried out to ascertain the feasibility of setting up of a power plant (1980 MW coal based plant namely Gadarwara Super Thermal Power Plant (STPP) based on supercritical technology) in Gadarwara, Madhya Pradesh. The power plant has planned to draw fresh water for condenser cooling from Narmada River. The sampling station were fixed taking into account the intake and outlet point of power plant besides the proximity of water in the above said two regions and also control point, which would be a referral point where the impact can be assessed. Out of 5 stations, four stations (A2, A3, A4 & A5) fall in Narmada River and one station (A1) at confluence point Sita River and Shakkkar River. In the proposed project area, the baseline information's was generated as per the norms stipulated by the by the Ministry of Environment and Forest and Climate Change (MOEF&CC), Govt. of India. To accomplish this task, a research team consisting of five Assistant Professors with their chosen field of interest and four Research Scholars from Centre of Advanced Study (CAS) in Marine Biology of Annamalai University carried two surveys during October, 2015 (post monsoon) and May, 2016 (pre monsoon). During survey water samples from 5 different stations were collected across two different depths (surface and subsurface), sediment and biological samples were also collected from all the stations.

The present ecological survey, which lasted for two surveys revealed the following facts: The physico-chemical parameters, did not exhibit wide variations. However, TSS and Turbidity showed an elevated range due to the dynamic nature of the environment. The surface water temperature varied from 24^0 to 29^0 C, which might due to the typical seasonal, geographical location and sampling time. The distribution of pH in surface waters remained alkaline invariably in all stations. Likewise, the observations made on the prime physical factors such as the turbidly also registered maximum with 30.6 NTU in station A4. This abnormality in this parameter is might be due to

constant dynamism in the water flow with turnover of nutrients from bottom to surface layer.

Further, the ecologically sensitive chemical parameters such as Dissolved Oxygen and water nutrients were also at the optimal concentration, which very well corresponding to the seasonal variation. The oxygen level in the water varied between 4.4 (A3) and 5.6 mg/l (A5). As observed in other parameters the water nutrients such as ammonia, nitrite, nitrate, inorganic phosphate and silicate were also found to be permissible range. Similarly, soil textural composition indicated that the sand and silt were higher in most of the stations which might be due to sediment transportation. Similarly, the metal concentrations recorded in the present study are comparatively less than the levels reported in rivers waters elsewhere.

Regarding plankton diversity, only a total 44 species phytoplankton belonging to three groups Chlorophyceae, fourteen to Bacillariophyc eae and ten to Cyanophyceae and 27 species of zooplankton belongings to the rotifers had 10 species, followed by Cledoceran with 07 species, and Copepod with 5 species and protozoan with 05 species in all the stations collected.

The potential environmental impacts due to project activities expected to be temporary and reversible. The proposed mitigation measures for the impacting activities are sufficient. All negative impacts during and post construction, including those deemed "significant" can be properly mitigated and no comprehensive or irreversible adverse impacts have been identified.

Annex V

मैं सरपंच ग्राम पंचायत मनकवारा यह सत्यापित करता हूँ कि मेरे द्वारा ग्राम घाटपिपरिया में तालाब का गहरीकरण कार्य पूर्ण किया गया ।

सरपंच

ग्राम पंचायत मनकवारा

दिनांक -०५/१०/२०१८

सरपंच
ग्राम पंचायत मनकवार
जन.पंचा. चॉवरपाठा

Scanned by CamScanner

Annex. V

मै अध्यक्ष जय बंजारी श्रम ठेका समिति चोरबरहटा यह प्रमाणित करता हूँ कि मेरे द्वारा ग्राम चोरबरहटा में तालाब का निर्माण किया था जो कि पूर्ण हो चुका है।

अध्यक्ष

जय बंजारी श्रम ठेका समिति चोरबरहटा

स्थान – चोरबरहटा

दिनांक - 12/10/18

Annex V

मैं अध्यक्ष वसुंधरा ग्राम श्रम ठेका समिति गांगई यह प्रमाणित करता हूँ कि मेरे द्वारा ग्राम गांगई में तालाब का निर्माण किया गया था जो कि कार्य पूर्ण हो चुका है |

अध्यक्ष

वसुंधरा ग्राम श्रम ठेका समीति गांगई

अध्यक्ष
बसुंधरा ग्राम श्रम ठेका
सहकारी समिति मर्या. गांगई

स्थान -

दिनांक -

मैं सरपंच ग्राम पंचायत चोरबरहटा यह सत्यापित करता हूँ कि मेरी पंचायत में तालाब निर्माण कार्य पूर्ण हुआ |

ग्राम पंचायत गांगई
सरपंच

ग्राम पंचायत चोरबरहटा

दिनांक -

Scanned by CamScanner

Annex. VI

Activities are under taken in Project Affected Villages

- Construction of cement concrete (CC) roads & drainage, community halls, Panchayat bhawan, weekly market places (02), passenger shelter, welcome gates, playgrounds, river bank ghat, public orchard, tree plantation, solar lights, etc
- **Overhead tanks & pipelines, hand-pumps, deepening of pond.**
- **Individual toilets in all households, common urinal, public garbage dumping place.**
- Construction of Anganwadi, additional rooms in schools, kitchen sheds, study material, computers, books, sports item, etc
- Providing Ambulance, medical camps, additional room in Govt dispensary
- Providing water tanker, utensils, support to Indira Awas Scheme of Govt. for BPL's, Rural Sports, PAPs ID card, Cooperative societies formation, Empowerment, etc.

Activities are under taken in Project Vicinity Villages

- CD in vicinity villages/Tehsil town/District
- Construction of CC roads & drainage, community halls, public orchard, facilities at railway station , solar lights, Indoor stadium with **Auditorium^** & swimming pool at Narshingpur, Outdoor stadium with **Auditorium** at Gadarwara, etc
- Drinking Water
- Amount can be utilized for **Auditoriums^/** activities to be taken up in future as per consensus in VDAC/ directed by GoI/ GoMP.
- Construction of Anganwadi, additional rooms in schools, sheds, study material, computers, books, sports item, etc
- Ambulance, health center up-gradation, medical camps, awareness camps, etc.

Details available on Annexure VI

Annex- VI

DETAILS REGARDING R&R PALN EXECUTION

CUMULATIVE EXPENSES ON APPROVED CD WORK FOR GADARWARA SUPER THERMAL POWER PROJECT As on 3.08.2018

B	COMMUNITY										
B.1	CD works in PAVs										
Head	Su-Head	Area	Description	Activities	Name of village	Subject	RAP (in Lacs)	Approved (in Lacs)	Disbursed (in Lacs)	Balance (in Lacs)	Agency
B.1	B.1.1	Infrastructure works **	Construction of cement concrete (CC) roads & drainage, community halls, Panchayat bhawan, weekly market places (02), passenger shelter, welcome gates, playgrounds, river bank ghat, public orchard, tree plantation, solar lights, etc	CC ROAD	Chorbarheta	Construction of CC road		10.00	10.00	-	NTPC
					Chorbarheta	Construction of CC road		5.53	5.53	-	CEO JP
					Chorbarheta	Construction of CC road		17.35	17.35	-	NTPC
					Chorbarheta	Construction of Cement Concrete Road /Pathway in Chorbarehta village		19.34	19.34	-	NTPC
					Chorbarheta	Raising of Road Chowk at Chorbarehta		1.91	1.91	-	NTPC
					Dongargaon	Construction of CC road		13.50	13.50	-	CEO JP
					Dongargaon	Construction of CC road		0.51	0.51	-	NTPC
					Dongargaon	Construction of CC pathway in Dongargaon		6.30	6.30	-	NTPC
					Dongargaon	Construction of Cement Concrete Road / Pathway in Dongargaon Village		23.13	23.13	-	CEOJP
					Gangai	Construction of CC road and drain at Gangai		10.00	10.00	-	CEO JP
					Ghat pipariya	Construction of CC road		10.00	10.00	-	CEO JP
					Kudari	Construction of CC road and drain at Kudari		10.00	10.00	-	CEO JP
					Kudari	Construction of CC road in Mehrakheda,Chorbarheta,Kudari(2017)		6.30	6.30	-	CEO JP
					Mehrakheda	Construction of CC road in Mehrakheda,Chorbarheta,Kudari		10.00	10.00	-	NTPC
					Mehrakheda	Construction of CC road in Mehrakheda,		13.12	13.12	-	NTPC
					Mehrakheda	Construction of CC road/pathway Mehrakheda		4.00	4.00	-	RES
					Mehrakheda	Construction of Repair of Road Chorbarheta to Mehrakheda		2.45	2.45	-	NTPC
					Mehrakheda	Construction of Road- Plant Boundary to Mehrakheda		60.64	60.64	-	RES
					Mehrakheda	Construction of Temporary road across Shakkar		0.37	0.37	-	NTPC
					Umariya	Construction of CC road and drain at Umaria		10.00	10.00	-	CEO JP
					Dongargaon	Construction of CC road		12.37	12.37	-	CEO JP
					Chorbarheta	Construction of CC drain		2.28	2.28	-	CEO JP
					Gangai	Construction of CC drain		2.28	2.28	-	CEO JP
					Chorbarheta	Construction of shanti dham		3.40	3.40	-	CEO JP
					Kudari	Construction of shanti dham(26.06.18)		2.86	2.86	-	CEO JP

Head	Su-Head	Area	Description	Activities	Name of village	Subject	RAP (in Lacs)	Approved (in Lacs)	Disbursed (in Lacs)	Balance (in Lacs)	Agency
					Gangai	Construction of shanti dham		3.40	3.40	-	CEO JP
					Kudari	cons of gravel road form JMC mode to kudari(26.06.18)				-	CEO JP
					Gangai	Construction of Govt Hospital		26.51	-	26.51	CEO JP
					Ghat pipariya	pitchiching work in nala		11.24	11.24	-	CEO JP
					Kudari	Construction of CC road form main road to shanti dham(26.06.18)		8.81	-	8.81	CEO JP
					Mehrakheda	Construction of Ghat /Steps,			-	-	CEO JP
					Chorbarheta	Construction of Aganvadi bhavn		12.76	-	12.76	CEO JP
					Gangai	Construction of Aganwadi bhavwan kendr 03		12.76	-	12.76	CEO JP
					Umariya	Construction of Road from NTPC link Road to Umaria		104.51	104.51	-	RES
					Gangai	Cons. Of CC pathway toward post office for main road and other pathway at vill gangai		5.32	-	5.32	NTPC
					Mehrakheda	cons of cc for vill entrance gate to govt school at vill mehrakheda		9.76	-	9.76	NTPC
					Gangai	renovation work chopal shed premises &pri school ground at village gangai		7.21	-	7.21	NTPC
					Gangai	cns of badminton court and devolopment work of girls hostel at gangai		5.24	-	5.24	NTPC
					Kudari	CONST. of connecting road form approch road (NTPC)to PMGSY road Vill kudari(350m)(26.06.18)		6.73936	0	6.74	CEO JP
						Sub Total		**471.88**	**376.78**	**95.10**	
B.1	B.1.1	**Infrastructure works ****	**Construction of cement concrete (CC)** roads & drainage, **community** halls, Panchayat bhawan, weekly **market** places (02), passenger shelter, welcome **gates**, **playgrounds**, river bank ghat, public **orchard**, tree plantation, solar lights, etc	**Construction of Community hall**	Chorbarheta	Construction of Community Halls		24.84	12.42	12.42	RES
					Dongargaon	Construction of Community Halls		24.84	24.84	-	RES
					Ghat Pipariya	Construction of Community Halls		24.84	24.84	-	RES
					Kudari	Construction of Community Halls		24.84	24.84	-	RES
					Mehrakheda	Construction of Community Halls		24.84	24.84	-	RES
					Umariya	Construction of Community Halls		24.84	24.84	-	RES
					Gangai	Construction of Community Halls			-	-	NTPC
						Sub Total		**149.04**	**136.62**	**12.42**	

Head	Su-Head	Area	Description	Activities	Name of village	Subject	RAP (in Lacs)	Approved (in Lacs)	Disbursed (in Lacs)	Balance (in Lacs)	Agency
				Entrance Gate	Chorbarheta	Construction of Entrance gate		2.60	2.60	-	CEOJP
					Dongargaon	Construction of Entrance gate		2.60	2.60	-	CEOJP
					Ghat Pipariya	Entrance gate at Ghat pipariya		2.60	2.60	-	CEOJP
					Gangai	Entrance gate in Gangai villages		2.60	2.60	-	CEOJP
					Kudari	Entrance gate in Kudari villages		2.60	2.60	-	CEOJP
					Mehrakheda	Construction of Entrance gate		2.60	2.60	-	CEOJP
					Umariya	Entrance gate in 3 villages		2.60	2.60	-	CEOJP
						Sub Total		**18.20**	**18.20**	-	
				Passenger shed	Dongargaon	Passenger shed		2.00	2.00	-	CEOJP
					Kudari	Construction of passenger shed		2.00	2.00	-	CEOJP
					Ghat Pipariya	Construction of Ghat /Steps,Passenger Shed & Pond		12.00	12.00	-	CEOJP
						Sub Total		**16.00**	**16.00**	-	
				Cemetry	Ghat Pipariya	cemetery at villages Ghat Pipariya		4.44	4.44	-	CEOJP
					Kudari	Cemetery in villages Kudari		1.71	1.71	-	CEOJP
					Dongargaon	Cemetery villages Dongargaon		4.85	4.85	-	CEO JP
					Gangai	Cemetery villages Gangai		4.85	4.85	-	CEO JP
						Sub Total		**15.84**	**15.84**	-	
				Prantation	Chorbarheta	Tree Plantation		3.15	3.15	-	CEO JP
					Dongargaon	Tree Plantation		1.97	1.97	-	CEO JP
					Gangai	Tree Plantation		4.72	4.72	-	CEO JP
					Umariya	Tree Plantation		1.18	1.18	-	CEO JP
					Ghat Pipariya	Tree Plantation		1.97	1.97	-	CEO JP
					Mehrakheda	Tree Plantation		2.75	2.75	-	CEO JP
					Kudari	Tree Plantation		1.97	1.97	-	CEOJP
						Sub Total		**17.71**	**17.71**	-	
				Panchayat Bhawan	Chorbarheta	Panchayat Bhawan		15.35	7.78	7.57	RES
					Gangai	Panchayat Bhawan		15.35	7.78	7.57	RES
						Sub Total		**30.70**	**15.56**	**15.14**	
				Ghat/Step	All PAPs	cons of various room at various school/public building at various village		182.25	-	182.25	NTPC
					All PAPs	CON OF COMPOUND WALL AT VARIOUS SCHOOL/PUBLIC AT VARIOS/ VILL		44.00		44.00	NTPC
					All PAPs	renovation of toilet/buil at varios school/public		45.00		45.00	NTPC
					Kudari	Construction of ghat /steps		5.00	5.00	-	

Head	Su-Head	Area	Description	Activities	Name of village	Subject	RAP (in Lacs)	Approved (in Lacs)	Disbursed (in Lacs)	Balance (in Lacs)	Agency
						Sub Total		**276.25**	**5.00**	271.25	
B.1	B.1.1	**Infrastructure works ****	**Construction of cement concrete (CC)** roads & drainage, community halls, Panchayat bhawan, weekly market places (02), passenger shelter, welcome gates, playgrounds, river bank ghat, public orchard, tree plantation, solar lights, etc	**Public chabutra in Villages**	Chorbarheta	Construction of public chabutra in Villages		0.35	0.35	-	CEO JP
					Dongargaon	Construction of public chabutra in Villages		0.35	0.35	-	CEO JP
					Gangai	Construction of public chabutra in Villages(out of 1.4lacs)		0.35	0.35	-	CEOJP
					Umariya	Construction of public chabutra in Villages(out of 1.4lacs)		0.35	0.35	-	CEOJP
					Ghat Pipariya	Construction of public chabutra in Villages(out of 1.4lacs)		0.35	0.35	-	CEOJP
					Mehrakheda	Construction of public chabutra in Villages		0.35	0.35	-	CEOJP
					Kudari	Construction of public chabutra in Villages(out of 1.4lacs)		0.35	0.35	-	CEOJP
						Sub Total		**2.45**	**2.45**	-	
				Deepening and widening of existing pond	Chorbarheta	Deepening and widening of existing pond		5.00	5.00	-	NTPC
					Gangai	Deepening and widening of existing pond		5.00	5.00	-	NTPC
					Dongargaon	Deepening and widening of existing pond		5.00	5.00	-	NTPC
					Kudari	Construction of ghat /steps		5.00	5.00	-	CEO JP
					Gangai	Deepening and widening of existing pond		5.00	5.00	-	NTPC
					Mehrakheda	Ripta Survey		5.59	5.59	-	PWD
						Sub Total		**30.59**	**30.59**	-	
				Electrical works in PAVs	Dongargaon	Electrical works in PAVs (out of 40 lacs)		8.00	8.00	-	NTPC
					Kudari	Electrical works in PAVs (out of 40 lacs)		8.00	8.00	-	NTPC
					Mehrakheda	Electrical works in PAVs (out of 40 lacs)		8.00	8.00	-	NTPC
					Chorbarheta	Electrical works in PAVs (out of 40 lacs)		8.00	8.00	-	NTPC
					Umariya	Electrical works in PAVs (out of 40 lacs)		8.00	8.00	-	NTPC
					Gangai	app. For electricity bill for cons. Of water ATM		0.28	0.28	-	NTPC
						Sub Total		**40.28**	**40.28**	-	
				Uchit Mulya Dukan	Gangai	Construction of shed for		4.19	4.19	-	RES
					Gangai	Construction of shed for Uchit Mulya Dukan Gangai		3.40	3.40	-	RES
						Sub Total		**7.59**	**7.59**	-	
						TOTAL B1.1(Infrastructure)	1,080.75	1,076.53	682.62	393.91	4.22
B.1	B.1.2	Drinking water	Overhead tanks & pipelines, hand-pumps, deepening of pond.	**Installation of**	Chorbarheta	Installation of Hand pumps in PAVs		2.52	2.52	-	PHE

Annex - VI

Head	Su-Head	Area	Description	Activities	Name of village	Subject	RAP (in Lacs)	Approved (in Lacs)	Disbursed (in Lacs)	Balance (in Lacs)	Agency
				Hand pumps	Dongargaon	Installation of Hand pumps in PAVs		2.52	2.52	-	PHE
					Gangai	Installation of Hand pumps in PAVs		2.52	2.52	-	PHE
					Ghat pipariya	Installation of Hand pumps in PAVs		2.52	2.52	-	PHE
					Kudari	Installation of Hand pumps in PAVs		2.52	2.52	-	PHE
					Mehrakheda	Installation of Hand pumps in PAVs		2.52	2.52	-	PHE
					Umariya	Installation of Hand pumps in PAVs		1.02	1.02	-	PHE
					All PAPs	Installation of 12nos of Hand pump in PAPs		9.69		9.69	NTPC
						Sub Total		**25.83**	**16.14**	**9.69**	
				Water supply pipeline	Chorbarheta	Water supply pipeline		20.00	20.00	-	PHE
					Dongargaon	Water supply pipeline		18.55	18.55	-	PHE
					Gangai	Water supply pipeline		20.00	20.00	-	PHE
					Ghat pipariya	Water supply pipeline		9.62	9.62	-	PHE
					Kudari	Water supply pipeline		19.62	19.62	-	PHE
					Mehrakheda	Water supply pipeline		16.20	16.20	-	PHE
					Umariya	Water supply pipeline		15.62	15.62	-	PHE
				Water ATM	Gangai	Water ATM purchase &Installation		4.50	4.50	-	NTPC
				PORTABLE							
					Chorbarheta	Installation of 06 no portable water arrengment for lab through PAP(SAMITY)2017		0.29	0.29	-	NTPC
					Dongargaon	Installation of 06 no portable water arrengment for lab through PAP(SAMITY)2017		0.29	0.29	-	NTPC
					Gangai	Installation of 06 no portable water arrengment for lab through PAP(SAMITY)2017		0.29	0.29	-	NTPC
					Ghat pipariya	Installation of 06 no portable water arrengment for lab through PAP(SAMITY)2017		0.29	0.29	-	NTPC
					Kudari	Installation of 06 no portable water arrengment for lab through PAP(SAMITY)2017		0.29	0.29	-	NTPC
					Mehrakheda	Installation of 06 no portable		0.29	0.29	-	NTPC
					Umariya	Installation of 06 no portable water arrengment for lab through PAP(SAMITY)2017		0.29	0.29	-	NTPC
					Chorbarheta	Installation of portable water arrengment for lab through PAP(SAMITY) 2018		0.33	0.33	-	NTPC
					Dongargaon	Installation of portable water arrengment for lab through PAP(SAMITY)2018		0.33	0.33	-	NTPC

Head	Sub-Head	Area	Description	Activities	Name of village	Subject	RAP (in Lacs)	Approved (in Lacs)	Disbursed (in Lacs)	Balance (in Lacs)	Agency
					Gangai	Installation of portable water arrengment for lab through PAP(SAMITY)2018		0.33	0.33	-	NTPC
					Ghat pipariya	Installation of portable water arrengment for lab through PAP(SAMITY) 2018		0.33	0.33	-	NTPC
					Kudari	Installation of portable water arrengment for lab through PAP(SAMITY) 2018		0.33	0.33	-	NTPC
					Mehrakheda	Installation of portable water arrengment for lab through PAP(SAMITY) 2018		0.33	0.33	-	NTPC
					Umariya	Installation of portable water arrengment for lab through PAP(SAMITY)2018		0.33	0.33	-	NTPC
						Sub Total		**128.44**	**128.44**	-	
						TOTAL B1.2 (Drinking Water)	**303.30**	**154.27**	**144.58**	**9.69**	**149.03**
B.1	B.1.3	Sanitation	Individual toilets in all households, common urinal, public garbage dumping place.	**Toilts**	Dongargaon	Toilets in each house		15.30	15.30	-	CEOJP
					Gangai	Toilets in Every house hold in PAVs		80.69	80.69	-	CEOJP
					Ghat Pipariya	Toilets in Every house hold in PAVs		44.31	44.31	- 0.00	CEOJP
					Kudari	Toilet construction in each house in Kudari		28.05	28.05	-	CEOJP
					Umariya	Toilet in each house Umaria		4.68	4.68	-	CEOJP
					Mehrakheda	Toilet construction in each house		10.32	10.32	-	CEOJP
					Gangai	Toilet block in govt high school		2.45	2.45	-	CEOJP
					Chorbarheta	Toilets in Every house hold in PAVs		28.34	28.34	-	RES
						Sub Total		**214.14**	**214.14**	- **0.00**	
						TOTAL B1.2(Sanitation)	**294.35**	**214.14**	**214.14**	- **0.00**	**80.21**
B.1	B.1.4	Education	Construction of Anganwadi, additional rooms in schools, kitchen sheds, study material, computers, books, sports item, etc	**Boundary Walls**	Dongargaon	Boundary Walls in PAV Schools		4.06	4.06	-	CEOJP
						Boundary Walls in PAV Schools		2.44	2.44	-	CEOJP
					Gangai	Entrance gate of middle school Gangai		0.76	0.76	-	CEOJP
					Gangai	Toilet construction in high school		2.45	2.45	-	CEOJP
					Ghat Pipariya	Boundary wall at Ghat Pipariya		2.03	2.03	-	CEOJP
					Kudari	Boundary Walls in PAV Schools(out of 18.65lacs)		8.09	8.09	-	CEOJP
					Umariya	Boundary Walls in PAV Schools(out of 18.65lacs)		4.06	4.06	-	CEOJP
					Umariya	Addl school Boundary wall (55m)		2.23	2.23	-	NTPC
					Chorbarheta	dev work of govt primary school play ground of		4.17	-	4.17	NTPC

Head	Su-Head	Area	Description	Activities	Name of village	Subject	RAP (in Lacs)	Approved (in Lacs)	Disbursed (in Lacs)	Balance (in Lacs)	Agency
						Sub Total		**30.29**	**26.12**	**4.17**	
B.1	B.1.4	Education	Construction of Anganwadi, additional rooms in schools, kitchen sheds, study material, computers, books, sports item, etc	Sports kit	Chorbarheta	Sports kit(0.49815 lacs) (2016)		0.07	0.07	-	NTPC
					Dongargaon	Sports kit(0.49815 lacs)(2016)		0.07	0.07	-	NTPC
					Gangai	Sports kit(0.49815 lacs)(2016)		0.07	0.07	-	NTPC
					Ghat pipariya	Sports kit(0.49815 lacs)(2016)		0.07	0.07	-	NTPC
					Kudari	Sports kit(0.49815 lacs)(2016)		0.07	0.07	-	NTPC
					Mehrakheda	Sports kit(0.49815		0.07	0.07	-	NTPC
					Umariya	Sports kit(0.49815 lacs)(2016)		0.07	0.07	-	NTPC
					Chorbarheta	Sport kit (84049)Lacs(2017)		0.14	0.14	-	NTPC
					Dongargaon	Sport kit (84049)Lacs(2017)		0.14	0.14	-	NTPC
					Gangai	Sport kit (84049)Lacs(2017)		0.14	0.14	-	NTPC
					Ghat pipariya	Sport kit (84049)Lacs(2017)		0.14	0.14	-	NTPC
					Kudari	Sport kit (84049)Lacs(2017)		0.14	0.14	-	NTPC
					Mehrakheda	Sport kit (84049)Lacs(2017)		0.14	0.14	-	NTPC
					Umariya	Sport kit (84049)Lacs(2017)		0.14	0.14	-	NTPC
					All PAPs	Providing sports kit in school of PAPs(2018)		0.9104	0	0.9104	NTPC
						Sub Total		**2.39**	**1.48**	**0.91**	
				Stationery to students	Kudari	Stationery to students		0.14	0.14	-	NTPC
					Chorbarheta	Stationery to students		0.14	0.14	-	NTPC
					Dongargaon	Stationery to students		0.14	0.14	-	NTPC
					Gangai	Stationery to students		0.14	0.14	-	NTPC
					Chorbarheta	Scholarship to Students in PAVs		0.27	0.27	-	NTPC
					Dongargaon	Scholarship to Students in PAVs		0.27	0.27	-	NTPC
					Gangai	Scholarship to Students in PAVs		0.27	0.27	-	NTPC
					Ghat pipariya	Scholarship to Students in PAVs		0.27	0.27	-	NTPC
					Kudari	Scholarship to Students in PAVs		0.27	0.27	-	NTPC
					Mehrakheda	Scholarship to Students in PAVs		0.27	0.27	-	NTPC
					Umariya	Scholarship to Students in PAVs		0.27	0.27	-	NTPC
					Ghat pipariya	Scholarship to Students in PAVs		0.14	0.14	-	NTPC
					Mehrakheda	Scholarship to Students in PAVs		0.14	0.14	-	NTPC
					Umariya	Scholarship to Students in PAVs		0.14	0.14	-	NTPC

Head	Su-Head	Area	Description	Activities	Name of village	Subject	RAP (in Lacs)	Approved (in Lacs)	Disbursed (in Lacs)	Balance (in Lacs)	Agency
					All PAPs	Procurement of single line exercise book under R&R-CD to schools of project affected villages(2016-17)		1.49	0	1.49	NTPC
					All PAPs	procurment of fan,water cooler, water purifier		11.76	0	11.76	NTPC
					All PAPs	Procurment of furniture for PAVs schools		10.2	0	10.20	NTPC
					All PAPs	procurment of school mat for pav school(note book,bag,bottle)(2017-18)		6.12285	0	6.12	NTPC
						Sub Total		**32.47**	**2.90**	**29.57**	
B.1	B.1.4	Education	Construction of Anganwadi, additional rooms in schools, kitchen sheds, study material, computers, books, sports item, etc	Merit scholarship to students	Chorbarheta	Merit scholarship to students		0.29	0.29	-	NTPC
					Dongargaon	Merit scholarship to students		0.29	0.29	-	NTPC
					Gangai	Merit scholarship to students		0.29	0.29	-	NTPC
					Ghat pipariya	Merit scholarship to students		0.29	0.29	-	NTPC
					Kudari	Merit scholarship to students		0.29	0.29	-	NTPC
					Mehrakheda	Merit scholarship to students		0.29	0.29	-	NTPC
					Umariya	Merit scholarship to students		0.29	0.29	-	NTPC
					All PAPs	prov stationary items in schools		7.59	-	7.59	NTPC
					All PAPs	Merit scholarship to students		2.20	2.20	-	NTPC
						Sub Total		**11.84**	**4.25**	**7.59**	
				Skill Development	Driving Training	**Driving Training to 55 beneficiaires PAV's**		**2.35**	**2.35**	-	NTPC
					All PAPs	Sewing machine to woman and girls		3.24		3.24	NTPC
				LED bulbs	Mehrakheda	LED bulbs in Mehrakheda		**5.59**	**2.35**	**3.24**	
						Sub Total		0.52	0.52	-	CEO JP
						TOTAL B1.4(EDucation)	**367.00**	**0.52**	**0.52**	-	
B.1	B.1.5	Health	Providing Ambulance, medical camps, additional room in Govt dispensary	Family planning	Chorbarheta	Family planning incentive to PAPs		**B3.10**	**37.61**	**45.49**	
					Dongargaon	Family planning incentive to PAPs		0.04	0.04	-	NTPC
					Gangai	Family planning incentive to PAPs		0.04	0.04	-	NTPC
					Ghat pipariya	Family planning incentive to		0.04	0.04	-	NTPC
					Kudari	Family planning incentive to PAPs		0.04	0.04	-	NTPC
					Mehrakheda	Family planning incentive to PAPs		0.04	0.04	-	NTPC
					Umariya	Family planning incentive to PAPs		0.04	0.04	-	NTPC
						Sub Total		**0.28**	**0.28**	-	
				Medical Camps	Chorbarheta	Medical Camps in Pav's		0.43	0.43	-	NTPC
					Ghat Pipariya	Medical Camps in Pav's		0.43	0.43	-	NTPC

Annex. VI

Head	Su-Head	Area	Description	Activities	Name of village	Subject	RAP (in Lacs)	Approved (in Lacs)	Disbursed (in Lacs)	Balance (in Lacs)	Agency
					Kudari	Medical clamp Kudari		0.63	0.63	-	NTPC
					Chorbarheta	Deferantlly Able PPL Camp		0.03	0.03	-	NTPC
					Gangai	Medical clamp		0.43	0.43	-	NTPC
					Dongargaon	Medical Camps		0.43	0.43	-	NTPC
					Umariya	Medical Camps		0.43	0.43	-	NTPC
					Kudari	Medical clamp Kudari		0.43	0.43	-	
				Medical Camps	Chorbarheta	Tricycle and hearing aid distribution		0.87	0.87	-	NTPC
					Mehrakheda	Deferantlly Able PPL Camp		0.03	0.03	-	
					Umariya	Deferantlly Able PPL Camp		0.03	0.03	-	
					Ghat Pipariya	Deferantlly Able PPL Camp		0.03	0.03	-	
					Kudari	Deferantlly Able PPL Camp		0.03	0.03	-	
					Chorbarheta	Deferantlly Able PPL Camp		0.03	0.03	-	
					Gangai	Deferantlly Able PPL Camp		0.03	0.03	-	
					Dongargaon	Deferantlly Able PPL Camp		0.03	0.03	-	
					Kudari	Medical camps organised at kudari on 31.05.18		0.74		0.74	NTPC
						Sub Total		**5.62**	**4.87**	**0.74**	
						TOTAL B1.5(Health)	**88.02**	**5.89**	**5.15**	**0.74**	
B.1	B.1.6	Other Welfare measures	Providing water tanker, utensils, support to Indira Awaas Scheme of Govt for BPL's, Rural Sports, PAPs ID card, Cooperative societies formation, Empowerment, etc.	Legal awareness camp (Upliftment of weaker section)	Chorbarheta	Legal awareness camp,Chorbarhata		4.00	4.00	-	CEO JP
					Chorbarheta	Legal awareness camp at Chichli		0.51	0.51	-	CEO JP
					Dongargaon	Legal awareness camp at Chichli		0.51	0.51	-	CEO JP
					Gangai	Legal awareness camp at Chichli		0.51	0.51	-	CEO JP
					Ghat Pipariya	Legal awareness camp at Chichli		0.51	0.51	-	CEO JP
					Kudari	Legal awareness camp at Chichli		0.51	0.51	-	CEO JP
					Mehrakheda	Legal awareness camp at Chichli		0.51	0.51	-	CEO JP
					Umariya	Legal awareness camp at Chichli		0.51	0.51	-	
					All PAPs	Provding utensils to community hall of pav		5.35	-	5.35	NTPC
						Sub Total		**12.89**	**7.54**	**5.35**	
B.1	B.1.6	Other Welfare measures	Providing water tanker, utensils, support to Indira Awaas Scheme of Govt for BPL's, Rural Sports, PAPs ID card, Cooperative societies formation, Empowerment, etc.	Differanly Able Camp screening Camp & Aids	Chorbarheta	Medical screening Camp screening Camp		0.23	0.23	-	
					Dongargaon	Medical screening Camp screening Camp		0.23	0.23	-	
					Gangai	Medical screening Camp screening Camp		0.23	0.23	-	
					Ghat Pipariya	Medical screening Camp screening Camp		0.23	0.23	-	
					Kudari	Medical screening Camp screening Camp		0.23	0.23	-	

Head	Su-Head	Area	Description	Activities	Name of village	Subject	RAP (in Lacs)	Approved (in Lacs)	Disbursed (in Lacs)	Balance (in Lacs)	Agency
					Mehrakheda	Medical screening Camp screening Camp		0.23	0.23	-	
					Umariya	Medical screening Camp screening Camp		0.23	0.23	-	
				Blanket dist,	Gadarwara	Blanket distribution		0.50	0.50	-	Dist REO
						Sub Total		**2.10**	**2.10**	-	
				Cultural Program	Chorbarheta	Cultural Program Chorbarehta		0.51	0.51	-	NTPC
					Mehrakheda	Contribution towards cultural program		0.25	0.25	-	NTPC
					Kudari	org kabaddi tour for projet for pap(aug18)		1.33	0	1.33	NTPC
						Sub Total		**2.09**	**0.76**	**1.33**	
				Water tanker And water ATM	Mehrakheda	Water tanker		0.78	0.78	-	NTPC
					Dongargaon	Water tanker		0.78	0.78	-	NTPC
					Gangai	Water ATM shed and Elec.conection		1.41	1.41	-	CEO JP
					Chorbarheta	Water tanker		0.92	0.92	-	NTPC
					Kudari	Water tanker		0.92	0.92	-	NTPC
					Ghat Pipariya	Water tanker		0.92	0.92	-	NTPC
					Gangai	Water tanker		0.92	0.92	-	NTPC
					Umariya	Water tanker		0.92	0.92	-	NTPC
						Sub Total		**7.57**	**7.57**	-	
		SUM B.1				**TOTAL B1.6 (Other Welfare)**	**255.00**	**24.64**	**17.96**	**6.68**	
						CUMMULATIVE B.1	**2,388.42**	**1,558.57**	**1,102.06**	**456.51**	
B.2	CD in vicinity		**Vill.Tehsil,town/Dist.**							-	
B.2	B.2.1	Infrastructure works*	**Construction** of CC roads & drainage, community halls, public orchard, facilities at railway station , solarlights, Indoor stadium with Auditorium^ & swimming pool at Narsinghpur, Outdoor stadium with Auditorium at Gadarwara, etc	CC roads Narsinghpur	Narsinghpur	Paver blocks in Collector Office		7.09	7.09	-	PWD
					Narsinghpur	Petrol engine for fibre boat		3.75	3.75	-	Collector
					Narsinghpur	Renovation works at Govt quarters at Narsinghpur-fencing		2.45	2.45	-	
					Gadarwara	Construction of CC Road, Drain and Levelling in New Tahsil office complex		15.91	15.91	-	RES
					Barman	Fair at Barman Ghat		1.50	1.50	-	
					Bhatera	Construction of Road gram Bhatera to Narmada River		52.00	26.35	25.66	RES
					Khakariya	Construction of Ghat at Kakraghat		70.00	35.00	35.00	RES
										-	
					Kakraghat	Visarjan kund at Kakraghat		70.00	35.00	35.00	
					Gadarwara	Solar system in Badagaon tah		2.50	2.50	-	NTPC
					Gadarwara	Construction of SDM Court Building at Gadarwara		26.05	26.05	-	RES
					Gadarwara	Contribution to ODF in Villages(cooker)		2.00	2.00	-	NTPC

Head	Su-Head	Area	Description	Activities	Name of village	Subject	RAP (in Lacs)	Approved (in Lacs)	Disbursed (in Lacs)	Balance (in Lacs)	Agency
					Lolri	CC leveling inking and Road at Pond in Lolri		27.23	13.50	13.73	RES
					Deori	Construction of Ghat at Deori		31.46	15.73	15.73	RES
					Barman	Construction of Ghat at Surajkundh		34.00	17.00	17.00	RES
					Kathotiya	Construction of Ghat at Kathotiya		41.70	20.85	20.85	RES
					Barman	Renovation Barman old age home		3.00	3.00	-	RES
					Shukhanala	Construction of FCW at Shukhanala		33.40	16.70	16.70	RES
					Narsinghpur	Fixing Of Pavar Block at Collector Office.		7.89	7.89	-	RES
					Narsinghpur	Stop Dam cum Ripta At River Pondajhhir		37.15	18.58	18.57	RES
					Gadarwara	Construction of Ghat And Changing Room At Khaharaghat		70.00	35.00	35.00	RES
					Chichli Block	Gravel road from Raipur village to bridge & Bridge to Kalyanpur		90.50	45.25	45.25	RES
					Narsinghpur	Sulabh toilet in Court Narsinghpur		7.85	7.85	-	CollectorRES
						Sub Total		637.43	358.95	278.49	
B.2	B.2.1	Infrastructure works*	Amount can be utilized for Auditoriums/ activities to be taken up in future as per consensus in VDAC/ directed by GoI/ GoMP.	Auditorium	Lolri	Commynity Hall At Village Lolri		25.00	12.50	12.50	RES
					Kodia	Commynity Hall At Village Kodia.		25.00	12.50	12.50	RES
					Chichli	Cont.Auditorium of chichli		45.33	-	45.33	NTPC
					Gadarwara	Cont. Auditorium at Gadarwara		120.06	40.00	80.06	NTPC
					Gadarwara	Foundation stone laying ceremony, Auditorium		0.50	0.50	-	RES
					Gadarwara	Construction of Town Hall near Ambedkar Bhawan		25.00	25.00	-	RES
					Chichli Block	Construction of Managl bhavan (Dharmashala) Manegaon		5.00	5.00	-	RES
					Chichli Block	Ambedkar Bhavan Sahawan		3.00	3.00	-	RES
					Chichli Block	Ambedkar Bhavan Shinhpur Chhota		10.00	10.00	-	RES
					Chichli Block	Construction of Managl bhavan SC Maholla Amada Village		3.00	3.00	-	RES
					Chichli Block	Construction of Ghat Ranidahar		4.00	4.00	-	RES
					Saikheda	Construction of Ghat Sokalpur		10.00	10.00	-	RES
					Chichli	02 Nos of Passanger Shed		6.16	6.16	-	RES
					Gadarwara	supply of tree guard at ntpc gadarwara		3.62		3.62	

Head	Su-Head	Area	Description	Activities	Name of village	Subject	RAP (in Lacs)	Approved (in Lacs)	Disbursed (in Lacs)	Balance (in Lacs)	Agency
					Chichli	repairing of chichli road thana mohalla to sita reva bridge		1.80		1.80	
					Narsinghpur	Renovation of badminton Court Officers Club		2.29	2.29	-	PWD
						Sub Total		289.76	133.95	155.81	
						TOTAL B.2.1 (Infrastructure)	1,312.62	927.19	492.90	434.30	
B.2	B.2.2	Drinking Water	Hand pump	Hand-pumps	Chichli Block	Hand Pumps insttalation Raipur, Chandankheda, Heerarapur		4.23	4.23	-	NTPC
					gadarwara	Inst. of ind water coolar for rly station		0.42		0.42	NTPC
					BAMAN	inst of refrigeration in old age home at barman		0.1495		0.15	NTPC
					baranj	shifting of tube well in baranj (MGR)		3.00	3.00		NTPC
					BARANJ	INSTALATION OF 7.5 kw motor pump in baranj vill (mgr)		0.60	0.60	-	NTPC
						Sub Total		8.40	7.83	0.57	
						TOTAL B.2.2 (Drinking water)	25.00	8.40	7.83	0.57	
B.2	B.2.2	Sanitation	Toilet	Public toilets	Narsinghpur	Construction of Public toilets in various villages in Narsinghpur		115.25	115.25	-	jp
					Narsinghpur	Construction of Public toilets in various villages in Narsinghpur		144.75	144.75	-	jp
					Narsinghpur	Diff material in tah gadarwara				-	
						TOTAL B.2.2 (Sanitation)	260.00	260.00	260.00	-	
B.2	B.2.3	Education	Construction of aanganwadis, additional rooms in schools, sheds, study material, computers, books, sports item, etc	School ctiivites	Narsinghpur	Furnitures in Auditorium at PG college , Narsinghpur		20.00	20.00	-	NTPC
					Narsinghpur	Govt coachinng centre UDAAN		16.54	16.54	-	UDAAN coching samit nar
					Narsinghpur	Construction of C. C Road in front of Auditorium at PG College Narsinghpur		2.50	2.50	-	RES
					Narsinghpur	Construction of Cement concrete road in PG College, Narsinghpur		0.62	0.62	-	RES
					Narsinghpur	False ceiling in Govt Excellent School, Narsinghpur		1.18	1.18	-	RES
					Narsinghpur	False ceiling in Govt PG College, Narsinghpur		3.81	3.81	-	RES
					Narsinghpur	Fixing of Paver block in Govt Excellent School, Narsinghpur		7.98	7.98	-	RES
					Narsinghpur	Renovation in Govt Hospital Narsingpur		27.88	27.88	-	RES

Head	Su-Head	Area	Description	Activities	Name of village	Subject	RAP (in Lacs)	Approved (in Lacs)	Disbursed (in Lacs)	Balance (in Lacs)	Agency
					Narsinghpur	Construction of Community Mess in Govt. MLB School Narsinghpur		10.00	10.00	-	RES
					Gadarwara	School Chalo Abhiyan		1.88	1.88	-	RES
					Kathotiya	Boundary wall in High school		18.83	9.15	9.69	RES
					Gadarwara	CC road and Pavers fixing at BTI		15.91	15.91	-	RES
					Gadarwara	Construction of Community Hall, Dining Hall in BTI, Gadarwara		10.00	10.00	-	RES
					Chichli Block	Construction of toilet in GHS Raipur		2.45	2.45	-	jp
					Chichli Block	Boundry wall In Govt. School Raipur (SMDC HIGH SCHOOL)		5.00	5.00	-	JP
					Chichli Block	Boundry wall In Govt. School Shinhpur Chhota (SMDC HIGH SCHOOL)		5.00	5.00	-	JP
					Chichli Block	Boundry wall In Govt. School Kahargoan (SMDC HIGH SCHOOL)		4.00	4.00	-	JP
					Chichli Block	Boundry wall In Govt. School Khairua (SMDC HIGH SCHOOL)		4.00	4.00	-	JP
					Chichli Block	Boundry wall In Govt. School Kathotiya (SMDC HIGH SCHOOL)		4.00	4.00	-	JP
					Chichli Block	Boundry wall In Govt. School Shiregaon (SMDC HIGH SCHOOL)		4.00	4.00	-	JP
					Chichli Block	Boundry wall In Govt. School Pachama (SMDC HIGH SCHOOL)		5.00	5.00	-	JP
					Saikheda Block	Boundry wall In Govt. School Bhidwani (SMDC HIGH SCHOOL)		3.00	3.00	-	JP
					Saikheda Block	Boundry wall In Govt. School Piparpani (SMDC HIGH SCHOOL)		4.00	4.00	-	JP
					Saikheda Block	Boundry wall In Govt. School Adegaon kala (SMDC HIGH SCHOOL)		3.00	3.00	-	JP
					Saikheda Block	Boundry wall In Govt. School Dungariya (SMDC HIGH SCHOOL)		4.00	4.00	-	JP
					Saikheda Block	Boundry wall In Govt. School Surshipar (SMDC HIGH SCHOOL)		4.00	4.00	-	JP
					Saikheda Block	Boundry wall In Govt. School Saikheda (SMDC HIGH SCHOOL)		5.00	5.00	-	JP
					Saikheda Block	Boundry wall In High School Kathotiya.		18.83	9.42	9.42	JP

Annex- VI

Head	Su-Head	Area	Description	Activities	Name of village	Subject	RAP (in Lacs)	Approved (in Lacs)	Disbursed (in Lacs)	Balance (in Lacs)	Agency
					Saikheda Block	payment of 2 lakh rs on humanitrarion basis to late abhishek kourav (kenkra)		2.00		2.00	Ntpc
					Gadarwara & PAV's	Books Distributiomn		1.88	1.88	0.00	NTPC
					Gadarwara	kabaddi in sokalpur		0.409	0.409	-	NTPC
					Chichli	Sponsership of state level kabaddi tournament		1.45	1.45	-	Nagar. Pa
										-	
						Sub Total		218.15	197.05	21.10	
						TOTAL B.2.3 (Education)	267.50	218.15	197.05	21.10	
B.2	B.2.4	Health	Ambulance, health centre up-gradation, medical camps, awareness camps, etc.	Health Facilities	Narsinghpur	Financial assisstance to Sh Vivek Kaurav for kidney transplant		1.50	1.50	-	Collector
					Narsinghpur	Providing Health Facilities at Narsinghpur		14.90	14.90	-	NTPC
					Gadarwara	Providing Multi para monitor at Gadarwara Hosp		2.10	2.10	-	NTPC
					Gadarwara	Medical clamp		0.50	0.50	-	NTPC
					Gadarwara	Addl wards in Hospital at gadarwara(m/s HIAB)		32.00	26.00	6.00	NTPC
					Gadarwara	cons of lawn dev paving and shed at gad		14.26		14.26	
					Gadarwara	Construction of drain in Govt Hospital at Gadarwara		18.60	18.60	-	RES
					Gadarwara	AC To Govt Hospital		0.56	0.56	-	NTPC
					Gadarwara	audit for toilets constructed by ntpc under swachchha vidhyalay abhiyan		1.60		1.60	NTPC
						Sub Total		86.02	64.16	21.86	
		SUM B.2				TOTAL B.2.1 (Health)	306.25	86.02	64.16	21.86	
						CUMMULATIVE B2	2,171.37	1,499.77	1,021.93	477.83	
						CUMMULATIVE B1+B2	4,559.79	3,058.34	2,123.99	934.35	-

Annexure – VII

Project Vision Document
Gadarwara STPP, Stage-I (2x800 MW)

The vision of Gadarwara STPP originates from the vision of the parent company, i.e. NTPC Limited,

"To be the world's largest and best power producer, powering India's growth."

In order to realize the above, the company has developed the following mission:

"Develop and provide reliable power, related products and services at competitive prices, integrating multiple energy sources with innovative and eco-friendly technologies and contribute to society."

Established in 1975, NTPC is India's largest power company today and establishment of Gadarwara STPP is another step towards achieving the mission of NTPC. NTPC ranked 317th in the 2009, Forbes Global 2000' ranking of the World's biggest companies. NTPC became a Maharatna company in May, 2010, one of the only four companies to be awarded this status.

The total installed capacity of the company is 41, 174 MW (including JVs) with 15 coal based and 7 gas based stations, located across the country. The company has set a target to have an installed power generating capacity of 1,28,000 MW by the year 2032, with a diversified fuel mix comprising 56% coal, 16% Gas, 11% Nuclear and 17% Renewable Energy Sources (RES) including hydro. By 2032, non-fossil fuel based generation capacity shall make up nearly 28% of NTPC's portfolio.

NTPC has been operating its plants at high efficiency levels. Although the company has 18.10% of the total national capacity, it contributes 28.60% of total power generation due to its focus on high efficiency.

Gadarwara STPP was conceived as a coal fired base load power project, Stage-I of the project comprising of 2x800 MW units is under the feasibility stage. The project will have an ultimate capacity of 4x800 MW with planning of Stage-II comprising of 2x800 MW.

Apart from generating cheap, reliable, quality power essential for the development of national economy, establishment of Gadarwara STPP shall also help in the growth of the region. The vision statements of Gadarwara STPP may be derived as:

	NTPC's Vision Statement	Gadarwara STPP's Vision Statement
1.	Develop and provide reliable power, related products and services at competitive prices, integrating multiple energy	Sustainable power generation maintaining high standards of efficiency and financial strength, over the design life (25 years) and extended life of the project through

	sources	suitable Renovation and Modernisation Programmes from Time to Time
2.	Implement innovative and eco-friendly technologies and	Use of super critical technology for power generation, compliance with environmental norms and conservation of natural resources like land, water, fuel. Large scale afforestation with local species in and around the project.
3.	Contribution to society	Community Development & Corporate Social Responsibility

At NTPC, People before Plant Load Factor is the mantra that guides all policies. The same is reflected through the three parts of the vision statements of NTPC (as a whole) as well as Gadarwara STPP – Economy, Environment for Everyone. The concept of Corporate Social Responsibility is deeply ingrained in NTPC's culture. Through its expansive CSR initiatives, NTPC strives to develop mutual trust with the communities that surround its power stations.

Gadarwara STPP is committed to supply quality power keeping in view of a cleaner and healthier environment around the project. The project will adopt the vision of conservation of pure drinking water sources, clean and calm surroundings, sustainable economic development and natural resource conservation. A continuous surveillance program on all important environmental parameters is being framed from the pre-feasibility stage with particular reference to the prevailing national standards.

In order to translate the visions of NTPC and Gadarwara STPP into reality, following specific programmes are envisaged:

	Gadarwara STPP's Vision Statement	**Gadarwara STPP's Specific Programmes**
1.	Sustainable power generation maintaining high standards of efficiency and financial strength, over the design life (25 years) and extended life of the project through suitable Renovation and Modernization Programmes from Time to Time	1. Timely commissioning of the project. 2. Operation at high PLF 3. Continual improvement in efficiency and PLF through efficient operation and maintenance and Renovation and Modernisation Programmes from Time to Time gaining extended life of the project 4. Certification of Project with ISO: 9001, OSHAS-16601, & 5S.
2.	Use of super critical technology for power generation, compliance with environmental norms and conservation of natural resources like land, water and fuel.	1. Commissioning of all pollution control systems (for air pollution control, water pollution control and noise pollution control) along with

Annex VII

		- the commissioning of plant. 2. Implementation of Ash Utilization Plan. 3. Compliance with Environmental Norms and Standards. 4. Certification of Project with ISO: 14001. 5. Surveillance of all important environmental parameters on a continuous basis and apply corrective measures. 6. Large scale afforestation in and around the project as an effective mitigatory mechanism.
3.	**Community Development & Corporate Social Responsibility**	1. **Implementation of R&R Plan for PAPs as per details agreed with the State Govt. and other stakeholders.** 2. Community Development Activities in the surrounding areas. 3. Activities under Corporate Social Responsibility for improving health care, employability, education etc. with special focus on women empowerment, physically challenged & economically weaker section of the Society. 4. Provision of electricity within 5 km. as per MOP circular. 5. Certification of Project with SA-6600.

Annex VIII

NTPC Limited

(A Government of India Enterprise)
Gadarwara STPP
Tehsil- Gadarwara Village-Dongargaon, P.O. Gangai
Gadarwara Dist. NARSINGHPUR (MADHYA PRADESH)
Madhya Pradesh- 487770, India
Telephone No. : 07790-220030 Fax No. :

Service Purchase Order

CIN No. : L40101DL1975GOI007966
GST No. : 23AAACN0255D4Z3

Purchase Order No. : 8200185544-037-1049 **Date :** 23.12.2016 **(version : 1 Date : 05.12.2017)**

To
ACCOUNTS OFFICER,BARC
TROMBAY BOMBAY
MUMBAI
Maharashtra
India - 400085

Vendor Code : 1012250

Kind Attention : Shri Girish CHoudhary (Senior Manager-EMG)
Mb no: 9425222250
Email: girishchoudahry@ntpc.co.in

Subject: : Service contract for conducting natural background radiation monitoring at NTPC Gadarwara Project.

PO amended to change account asignment category from k to p.

NIT NO. : Dated
Your Offer No. :
Your Reference :

Dear Sir,

This has reference to our above mentioned NIT, Your offer and subsequent discussions. We are pleased to accept your offer opened on and confirm having awarded on you the work of Service contract for conducting natural background radiation monitoring at NTPC Gadarwara Project. PO amended to change account asignment category from k to p. of total value INR 337,600.00 (Rupee THREE LAKH THIRTY-SEVEN THOUSAND SIX HUNDRED ONLY) mentioned in the scope of works, special terms & conditions, Bill of quantities etc.

The duration of the service period shall be from 20.12.2016 to 19.05.2017. Though the duration of contract shall remain same, the actual date of commencement of the contract shall be as per the direction of EIC. Shri Girish CHoudhary (Sr Manager-EMG) shall be EIC for this work.

This service purchase order along with its annexure is being issued to you in duplicate .We request you to return the duplicate copy of this service purchase order, duly signed on each page by your authorised signatory in token of your unequivocal acknowledgment of the same within 15 days from the date of this service purchase order. If no communication is received within 15 days of receipt of Purchase Order, it will be treated that order has been accepted in entirety.

We thank you for the interest shown by you in our project and the cooperation extended to us. We expect to receive your continued cooperation in future also.

Thanking You,
For & on behalf of NTPC Limited.

Enclosures :

Name of Work:	**(Bill of Quantity)** Service contract for conducting natural background radiation monitoring at NTPC Gadarwara Project. PO amended to change account asignment category from k to p.

Ash Utilization Strategy

- 2 Nos of Expression of Interests (EOI) were published in leading news papers (Both English and Hindi) as well as published on NTPC website for long term agreement.

- Interest shown by following cement industries:
  - M/s Prism Cement, Satna
  - M/s MP Birla Cement, Maihar
  - M/s ACC Cement, Kymore,
  - M/s Mycem Cement, Damoh
  - M/s India Cement Damoh.
  - M/s Maihar Cement

  MoU with them under finalisation

- Traders for transportation of Fly Ash to End users in Bulkers have submitted their Expression.
- Fly Ash is transported to Brick manufacturers free of cost.
- GATX India Private Limited transports Ash from point to point in specially designed wagons through Railway,

  have been contacted .

Ash Utilization Plan : Immediate

Low lying area filling with pond ash**	NTPC own land	Use as landfill to reclaim low lying areas
	Private land	In consultation with revehue officer (SDM) / Mining officer.
	Govt. Land	
Brick Manufacturing and other fly ash based products		Free sale to brick manufacturers / RMC / LWA.
Road embankment		MoU signed between NTPC and NHAI for lifting pond ash from near by projects.

Ash Utilization Plan 2018-19 & 2019-20

Utilization of Fly ash	Means of transport	2018-2019	2019-20	Remarks
		Expected Quantity		
Ash dyke	Through Pipe line	@ 3000 MT/day		First, Ash Dyke pond shall be lined by formation of 300 mm layer to develop impervious layer along with Bantonite *(4 Months period)*
Cement Industries	Through bulker / closed containers.		3000 MT / Day	April' 2019 onward
	Through Rail wagon		4000 MT / Day	Dec.-2019 onward
Setting up of ash Brick unit			Inside the plant premises	*May' 2019*

Ash Utilization Plan : Future Initiative

Jumbo Bag (1 tonne) & Small bag (50 Kg) filling facility	August'2019 Ash Management Corporate Centre initiated for Jumbo Bag facility development for all the projects,
Geo-polymer unit installation	August'2019 EoI published for making of roads and embankment utilising Geo-polymer mortar in and around NTPC projects.
Development of Ash parks	Project has been taken for possibilities for development of Ash parks, from where the fly ash shall be disposed to buyers directly.

Annex. X

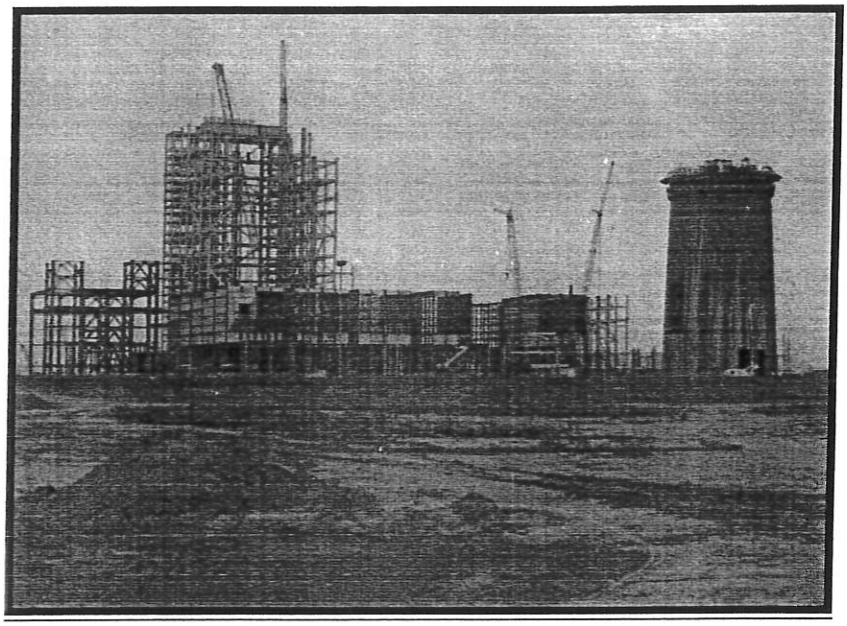
NTPC Gadarwara

Sl No	ESP Design Parameters	Unit	ESP Guarantee Point	ESP Design Point
1.	Gas Flow	m3/s	1354	1465
2.	Gas Temperature	Deg C	127	145
3.	Inlet Dust Concentration	gm/Nm3	60.64	73.07
4.	No of fields out of operation	--	Nil	One
5.	Required outlet concentration	mg/Nm3	18	51
6.	ESP Collection Efficiency	%	99.97	99.93

Scanned by CamScanner

Annex. XI

HYDRO-GEOLOGICAL STUDY FOR GADARWARA SUPER THERMAL POWER PROJECT, MADHYA PRADESH



Submitted to

NTPC Ltd.

GADARWARA

By

NATIONAL INSTITUTE OF HYDROLOGY

(An ISO 9001:2008 Institute under MoWR, RD and GR, Govt. of India)

ROORKEE – 247667 (UTTARAKHAND)

JANUARY 2018

13 SUMMARY

NTPC is setting up a Super Thermal Power Project, of capacity 1600 MW (2X800MW), in Gadarwara Tehsil in Narsinghpur district of Madhya Pradesh, for meeting the power demand of Western Region. It is one of the modernized super critical and environment friendly thermal power projects to be set up by NTPC Ltd. For this purpose NTPC has awarded a consultancy study to NIH on "*Hydro-geological Study for Gadarwara Super Thermal Power Project*" with the main objectives to (i) To study the source water availability from Omkeshwar Dam, (ii) To study the hydro-geology and groundwater characteristics, (iii) To assess the water quality of surface and groundwater, (iv) To study the quantitative and qualitative impact of construction and operation of power project on the hydrology of the study area, (v) To prepare a water harvesting plan for the project area and (vi) To develop a plan for monitoring of surface water systems and groundwater in the study area.

The geographical extent of the study area consists of an area within 10 km from the periphery of the project site. Under the present investigations, various maps such as location map, drainage map, DEM, etc. have been prepared. The drainage pattern in the study area is in general dendrite in nature. Narmada is the largest river flowing on the Northern side of the project. The smaller streams are ephemeral in nature and flow for few months in a year. The elevation in the study area is observed to range from 255 m to 402 m above mean sea level with a general slope from south east to North West direction.

The climate of Narsinghpur district is generally dry except for the South-West monsoon season. The year can be divided into four seasons. The district receives maximum rainfall during South-West monsoon period i.e. June to September. About 91.3% of the annual rainfall takes place during monsoon season. Only 8.7% of the annual rainfall takes place between October to May period. The Gadarwara town receives an average annual rainfall of 1295 mm. The normal maximum temperature during the month of May is 42.5 ^{0}C and minimum during

the month of January is 8.2 ^{0}C. The relative humidity generally exceeds 90% in the month of August while rest of year is drier. The wind velocity is highest in June at around 8.0 km/hr and is lowest at about 2.0 km/hr in November. Gridded (0.250 x 0.250) rainfall data for Gadarwara for the period of 2000 to 2013 indicates that the average minimum temperature ranged from 17.6 to 19.0 ^{0}C. The average maximum temperature ranged from 30.8 to 32.7 ^{0}C. The average mean temperature varied from 24.4 to 25.8 ^{0}C. Precipitation ranged from a low of 568.9 mm in 2006 to 1749.1 mm in 2013.

A number of field visits were undertaken to the field site and a number of field investigations have been carried out including reconnaissance survey, pre-monsoon and post monsoon water quality sampling, sampling for isotopic investigations, infiltration tests, determination of RL's of sampling location, measurement of ground water level data and its conversion to above mean sea level, drilling of pumping well and pumping test, etc.

There are numerous small/mid-size ponds/tanks, varying in size from 0.3 to 11.2 ha, spread over the entire 10 km buffer zone of the thermal power plant. Most of the ponds are manmade and are located around the villages and are degenerated. Thirty-four ponds are larger than 0.5 ha, out of which 03 ponds are degenerated and have growth of weeds. The weeds are caused by the inflow of nutrients into the ponds from the villages. If the nutrients, such as nitrogen, phosphorus and fertilisers are stopped from entering into these ponds, the health of these ponds can be improved.

The Gadarwara STPP requires water for meeting the various demands. The total water requirement for the Project is estimated to be 5,980 m^3/hr. Water requirement for the project will be sourced from Narmada River by a pipeline at a distance of 30 km (north) from the project site. A pick up weir is being constructed at Kakra Ghat (23.046480 ^{0}N latitude and 78.787798 ^{0}E longitude) to draw the make-up water for the Gadarwara STPP. The M.P. Government has committed a water supply of 125 cusecs for the ultimate stage of the project.

Dependable flow analysis has been carried out based on the observed daily data being monitored at Barman Ghat. It is observed that sufficient amount of the water flows through the stream throughout the year. The 95% and 99% dependable flows have been computed as 45.52 m^3/s and 18.68 m^3/s respectively. Therefore, 18.68 m^3/s of water is always available at Narmada River at the Barman gauging site. Therefore, it shall be possible to divert the assured supply of 3.54 m^3/s from the Weir being constructed at Kakra Ghat for meeting the requirements of NTPC Project, which is at present limited only to 1.66 m^3/s. Therefore, diversion of 3.54 m^3/s of water from the river will not have any considerable impacts of the streamflow in the river system downstream of the intake point. Thus, the source of water for the power plant and the allocated amount of water is sustainable. However, as the intake structure is to be constructed on the bank of the river, it may cause erosion of the bank. Therefore, for protection of the bank from erosion after construction of the in-take structure, bank protection works should be taken up to retain the present configuration of the bank on the left bank of the river Narmada.

Hydrogeologically, District Narsinghpur is covered by the Narmada alluvium, the thickness of which varies depending on the sub-surface configuration of the basin of deposition. Silicate rock and slate were have been reported at depths of 261.81 and 292.5 meters respectively at Gadarwara. Water occurs in this alluvium both under water table and confined conditions. According to the CGWB report (2013), the transmissivity of the alluvial aquifers tapped by dug wells ranges from 57 to 400 m^2/day while the hard rock aquifers have very low transmissivity of the order of 19 m^2/day. The Transmissivity of the confined to semi-confined aquifers ranges from 23 to 2400 m^2/day. Storativity values (storage coefficient) ranges from 2.01 x 10^{-6} to 1.15 x10^{-3} indicating confined to semi confined nature of deep aquifers.

Dynamic ground water resources of the district have been estimated for the base year -2008/09 on block-wise basis. The net ground water availability in the district is 1,22,600 ham and Ground Water Draft for all uses is 94,590 ham,

making stage of ground water development 77 % (63 % in 2003/04) as a whole for district. About 93% of the geographical area of the district is ground water recharge worthy area. Chanwarpatha, Chichli, Gotegaon and Kareli (safe in 2003/04) blocks of the district are categorized as semi critical and Narsinghpur (safe in 2003/04) as Critical. The highest stage of ground water development is computed as 94% in Narsinghpur block.

Long term variation in some selected wells of the districts which are located within the same tehsil and within (or very near to the boundary of) the study area, has been analyzed. Water levels of ground water sources have been monitored and analyses of groundwater level variation has been carried out.

For the two open wells at monitored at Kaudiya and Manakwada, the ground water is very near to surface during the post monsoon period (November, 2015) and shows a significant decline during the pre-monsoon season (May, 2016). The variations were as high as almost 12 m, which is much higher than the rest of the locations. This probably indicates perched condition of aquifer for these two sources not having connectivity to the aquifers of the other sites. In the other handpumps and tube wells monitored during the study, the water level was observed to vary from 13.87 m to 31.7 m during November 2015, 14.87 m to 34.46 m during March, 2016 and 16.04 to 38.65 m during May, 2016. In general, it has been observed that ground water level was higher in areas near to the rivers Shakkar, Seta Rewa and after their confluence, obviously because of the recharging effect. In general, at sites located near the rivers the variation was observed to be less than 4 meters while for those away from the recharge sources/rivers the fall in water level during the pre-monsoon period (May, 2016) was much higher (6 m to 7.85 m). Further, it has been observed that the water levels observed during the post monsoon and pre-monsoon period were higher during the study period when compared to the available data of the past years.

Ground water level contour maps have been prepared to determine the flow direction of ground water. The general direction of flow of water in the study area

follows the same pattern as the surface water flow. It flows from South-East to the North West direction following the general topography of the area.

Pump test has been conducted within the ash pond area for which pumping well and observations wells were drilled. Transmissivity of the aquifer has been determined using Theis method. The average Transmissivity of the aquifer is 447 m^2/d. The storage coefficient could not be ascertained due to no-drawdown in the observation wells.

Infiltration characteristics of the study area have been studied in details at 9 locations and the results of the tests have been provided. The sandy soil at Chichli showed the highest infiltration capacity of 16.89 mm/hr clay soil at Sihora showed lowest rate of 0.69 mm/hr.

Water quality has been studied for about 30 locations for ground water and surface water including hand pumps, tube wells, lakes, pond, open well etc. and baseline data have been generated including data on trace metals. Variation in water quality has been analyzed and discussed. Various physico-chemical parameters, anions and cations and trace metals have been analysed both for pre and post monsoon. No toxic metal contamination has been observed in the study area. To assess the accuracy of water quality parameter determination, ionic balance was calculated. The overall error of ionic balance during both pre and post monsoon was found to be below 5%.

The water quality pf the source water has also been monitored at Kakra ghat and historical water quality data for the source water has been provided. No significant change in water quality of the source water has been observed.

Based on the water quality characteristics of the study area, a water quality monitoring plan has been suggested for the study area. For the monitoring of surface water bodies, it is proposed that water quality of surface water bodies be monitored at 10 locations; 5 locations on the streams (SW-1 to SW-5) and 5 locations on ponds (SW-6-SW-10) that are used for domestic purposes. Water

quality of groundwater is good in the buffer zone of Gadarwara STPP. The Flow direction of groundwater in the area is from South-East to North-West. Therefore, it is proposed to monitor the groundwater quality more in the in the northern side of the thermal plant area. The suggested sampling frequency is once in three months.

Isotopic characteristics of the water from different surface and ground water sources have been studied and its significance has been discussed.

A rainwater harvesting plan for the plant area has been developed and provided. Total rainwater harvesting potential from the Plant Area shall be $13.2*10^5$ m^3/yr or 1.32 MCM/yr, from township area shall be $2.7*10^5$ m^3/yr or 0.27 MCM/yr and from green belt area $1.5*10^5$ m^3/yr or 0.15 MCM/yr. More than 90% rainfall occurs during the months of June to September. Therefore, the rainwater harvesting shall take place only during these months. Considering 5 fillings of the reservoir and an average depth of 5 meters, the size of the rainwater harvesting structures have been determined. Eight rainwater-harvesting structures, 5 in main plant area, two in township area and one in green belt area have been suggested.

In addition, the rainwater may be harvested from the stream passing through the township area by constructing checkdams across the stream.

Annex XII

Mahabal Enviro Engineers Pvt. Ltd.

Engineers, Consultants, Environmental Monitoring Laboratory & Contractors
Plot Nos. 13,14,17,18, Grampanchayat Bokhara, 8 km from Nagpur City,
Opp. Patel Petrol Pump, Chhindwara Road, Koradi, Dist.Nagapur-441111
Phone : 91-712-2612162 **T/Fax:** 91-712-2612212 **Email:** nagpur@mahabal.com

Water Sample Analysis Report

Copy 2

Report No.: ME-CH4050-181006-SA-NTPC-NARSINGHPUR			**Date:**06.10.2018
Name and Address of Customer	**NTPC LIMITED GADARWARA STPP** Tehsil- Gadarwara, Village- Dongargaon, P.O. Gangai, Dist.- Narsinghpur, Madhya Pradesh – 487770, India.		**Order Reference:** PO.No.5500028099-057-1049 Dtd.03.11.2017 (version: 0)
Sample Description/Type	Surface Water	**Sample Collected by**	Laboratory
Sampling Location	Sita Reva River	**Sample Quantity/Packing**	5 L X 1 No. PVC Can 500mL X 1 No. PVC Can 1 L X 1 No. Glass Bottle 500mL X 1 No. Sterilized Glass Bottle
Date of Sampling	30.09.2018	**Date of Receipt of Sample**	01.10.2018
Sampling Procedure	IS:3025(Part I):1987 RA 2003; IS 1622:1981 RA 1996 Ed 2.4 (2003); APHA 23rd Ed. 2017, 1060-B, 1-40; 9060 A, 9-36		
Date of Start of Analysis	02.10.2018	**Date of Completion of Analysis**	06.10.2018

Sr. No.	Parameter	Unit	Result	Method Reference
1.	Temperature	°C	29	APHA 23rd Ed. 2017, 2550-B, 2-74
2.	pH	-	7.5	APHA 23rd Ed. 2017, 4500-H^+-B, 4-95
3.	Electrical Conductivity	µS/cm	235	APHA 23rd Ed. 2017, 2510- B, 2-58
4.	Total Dissolved Solids	mg/L	138	IS 3025 (Part 16):1984 Reaffirmed 2006, Ed.2.1(1999-12)
5.	Total Suspended Solids	mg/L	22	APHA 23rd Ed. 2017, 2540-D, 2-70
6.	Ca-Hardness (as $CaCO_3$)	mg/L	76	APHA 23rd Ed. 2017, 3500-Ca-B, 3-69
7.	Mg-Hardness (as $CaCO_3$)	mg/L	22	APHA 23rd Ed. 2017, 3500-Mg- B, 3-86
8.	Biochemical Oxygen Demand (3 days 27rdC)	mg/L	4.6	IS 3025 (Part 44): 1993, Reaffirmed 2009
9.	Chemical Oxygen Demand	mg/L	16	APHA 23rd Ed. 2017, 5220-B, 5-18
10.	Fluoride (as F)	mg/L	0.604	APHA 23rd Ed. 2017, 4500-F, D, 4-90
11.	Boron (as B)	mg/L	<0.1	APHA 23rd Ed. 2017, 4500-B B, 4-27
12.	Iron (as Fe)	mg/L	0.318	APHA 23rd Ed. 2017, 3111-B, 3-20

Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra
(600 m from Hotel Rukmini Palace Turn Opp Toyota Show Room. Next to Ashida Electrical - near J B Sawant Bus Stop)
Phone: 2582 0658/ 3139/ 1663/ 3154 Fax: 91-22-25823543 thane@mahabal.com

Annex XII

Continuation Sheet

Report No. 4050 cont...

Sr. No.	Parameter	Unit	Result	Method Reference
13.	Cadmium (as Cd)	mg/L	<0.05	APHA 23rd Ed. 2017, 3111-B, 3-20
14.	Chromium Hexa (as Cr^{6+})	mg/L	N.D.	APHA 23rd Ed. 2017, 3500- Cr-B, 3-71
15.	Chromium Total (as Cr)	mg/L	<0.1	APHA 23rd Ed. 2017, 3111-B, 3-20
16.	Copper (as Cu)	mg/L	<0.04	APHA 23rd Ed. 2017, 3111-B, 3-20
17.	Lead (as Pb)	mg/L	<0.1	APHA 23rd Ed. 2017, 3111-B, 3-20
18.	Zinc (as Zn)	mg/L	0.042	APHA 23rd Ed. 2017, 3111-B, 3-20
19.	Arsenic (as As)	mg/L	<0.01	APHA 23rd Ed. 2017, 3114-C, 3-40
20.	Mercury (as Hg)	mg/L	N.D.	APHA 23rd Ed. 2017, 3112-B, 3-25
Microbiological Analysis				
21.	Total Colliforms	MPN/ 100mL	210	APHA 23rd Ed. 2017, 9221-B & C, 9-69, 9-72
22.	E-Coli	MPN/ 100mL	21	APHA 23rd Ed. 2017, 9221-B, C & G, 9-69, 9-72 & 9-80
Remark: N.D.: Not Detected.				

----------END----------

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Harish Mendhi
TECHNICAL MANAGER
(Chemical Testing)

Pranali Kurve
TECHNICAL MANAGER
(Biological Testing)

Note:
1. The result listed refers only to the tested sample(s) and applicable parameter(s).
2. This report is not to be reproduced except in full, without written approval of the laboratory.

Mahabal Enviro Engineers Pvt. Ltd.

Engineers, Consultants, Environmental Monitoring Laboratory & Contractors
Plot Nos. 13,14,17,18, Grampanchayat Bokhara, 8 km from Nagpur City,
Opp. Patel Petrol Pump, Chhindwara Road, Koradi, Dist.Nagapur-441111
Phone : 91-712-2612162 **T/Fax:** 91-712-2612212 **Email:** nagpur@mahabal.com

Annex. XI

Water Sample Analysis Report

Copy 2

Report No.: ME-CH4051-181006-SA-NTPC-NARSINGHPUR			**Date:**06.10.2018
			Order Reference:
Name and Address of Customer	**NTPC LIMITED GADARWARA STPP** Tehsil- Gadarwara, Village- Dongargaon, P.O. Gangai, Dist.- Narsinghpur, Madhya Pradesh – 487770, India.		PO.No.5500028099-057-1049 Dtd.03.11.2017 (version: 0)
Sample Description/Type	Surface Water	**Sample Collected by**	Laboratory
Sampling Location	Shakkar River	**Sample Quantity/Packing**	5 L X 1 No. PVC Can 500mL X 1 No. PVC Can 1 L X 1 No. Glass Bottle 500mL X 1 No. Sterilized Glass Bottle
Date of Sampling	30.09.2018	**Date of Receipt of Sample**	01.10.2018
Sampling Procedure	IS:3025(Part I):1987 RA 2003; IS 1622:1981 RA 1996 Ed 2.4 (2003); APHA 23rd Ed. 2017, 1060-B, 1-40; 9060 A, 9-36		
Date of Start of Analysis	02.10.2018	**Date of Completion of Analysis**	06.10.2018

Sr. No.	Parameter	Unit	Result	Method Reference
1.	Temperature	°C	30	APHA 23rd Ed. 2017, 2550-B, 2-74
2.	pH	-	7.8	APHA 23rd Ed. 2017, 4500-H^+-B, 4-95
3.	Electrical Conductivity	µS/cm	242	APHA 23rd Ed. 2017, 2510- B, 2-58
4.	Total Dissolved Solids	mg/L	145	IS 3025 (Part 16):1984 Reaffirmed 2006, Ed.2.1(1999-12)
5.	Total Suspended Solids	mg/L	29	APHA 23rd Ed. 2017, 2540-D, 2-70
6.	Ca-Hardness (as $CaCO_3$)	mg/L	80	APHA 23rd Ed. 2017, 3500-Ca-B, 3-69
7.	Mg-Hardness (as $CaCO_3$)	mg/L	26	APHA 23rd Ed. 2017, 3500-Mg- B, 3-86
8.	Biochemical Oxygen Demand (3 days 27rdC)	mg/L	5.2	IS 3025 (Part 44): 1993, Reaffirmed 2009
9.	Chemical Oxygen Demand	mg/L	18	APHA 23rd Ed. 2017, 5220-B, 5-18
10.	Fluoride (as F)	mg/L	0.563	APHA 23rd Ed. 2017, 4500-F, D, 4-90
11.	Boron (as B)	mg/L	<0.1	APHA 23rd Ed. 2017, 4500-B B, 4-27
12.	Iron (as Fe)	mg/L	0.284	APHA 23rd Ed. 2017, 3111-B, 3-20

Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra
(600 m from Hotel Rukhmini Palace Turn Opp Toyota Show Room. Next to Ashida Electrical - near J B Sawant Bus Stop)
Phone: 2582 0658/ 3139/ 1663/ 3154 Fax: 91-22-25823543 thane@mahabal.com

Annex. XII

Continuation Sheet

Report No. 4051 cont...

Sr. No.	Parameter	Unit	Result	Method Reference
13.	Cadmium (as Cd)	mg/L	N.D.	APHA 23rd Ed. 2017, 3111-B, 3-20
14.	Chromium Hexa (as Cr^{6+})	mg/L	N.D.	APHA 23rd Ed. 2017, 3500- Cr-B, 3-71
15.	Chromium Total (as Cr)	mg/L	<0.1	APHA 23rd Ed. 2017, 3111-B, 3-20
16.	Copper (as Cu)	mg/L	N.D.	APHA 23rd Ed. 2017, 3111-B, 3-20
17.	Lead (as Pb)	mg/L	<0.1	APHA 23rd Ed. 2017, 3111-B, 3-20
18.	Zinc (as Zn)	mg/L	0.029	APHA 23rd Ed. 2017, 3111-B, 3-20
19.	Arsenic (as As)	mg/L	<0.01	APHA 23rd Ed. 2017, 3114-C, 3-40
20.	Mercury (as Hg)	mg/L	N.D.	APHA 23rd Ed. 2017, 3112-B, 3-25
Microbiological Analysis				
21.	Total Colliforms	MPN/ 100mL	130	APHA 23rd Ed. 2017, 9221-B & C, 9-69, 9-72
22.	E-Coli	MPN/ 100mL	13	APHA 23rd Ed. 2017, 9221-B, C & G, 9-69, 9-72 & 9-80

Remark: N.D.: Not Detected.

----------END----------

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Harish Mendhi
TECHNICAL MANAGER
(Chemical Testing)

Pranali Kurve
TECHNICAL MANAGER
(Biological Testing)

Note:
1. The result listed refers only to the tested sample(s) and applicable parameter(s).
2. This report is not to be reproduced except in full, without written approval of the laboratory.

Mahabal Enviro Engineers Pvt. Ltd.

Engineers, Consultants, Environmental Monitoring Laboratory & Contractors
Plot Nos. 13,14,17,18, Grampanchayat Bokhara, 8 km from Nagpur City,
Opp. Patel Petrol Pump, Chhindwara Road, Koradi, Dist.Nagpur-441111
Phone : 91-712-2612162 **T/Fax:** 91-712-2612212 **Email:** nagpur@mahabal.com

Annex. XIII

Noise Level Monitoring Report

Report No.: ME-NG3316-181019-SA-NTPC-NARSINGHPUR		**Date:**19.10.2018
Name and Address of Customer	**NTPC LIMITED GADARWARA STPP** Tehsil- Gadarwara, Village- Dongargaon, P.O. Gangai, Dist.- Narsinghpur, Madhya Pradesh – 487770, India.	**Order Reference:** PO.No.5500028099-057-1049 Dtd.03.11.2017 (version: 0)
Sample Description/Type	Noise Level Monitoring	
Date of Sampling	13.10.2018	
Sampling Procedure	IS 9876:1981 & manufacturer Manual	

Location	Time (h)	Unit	Result	Limit (For Industrial Zone)	
				Day Time	Night Time
Material Gate	11:00	dB(A)	67.3	75	70
CHP Area	13:00	dB(A)	61.5		
CCR Unit No.1	14:00	dB(A)	68.6		
Gate No. 2	15:45	dB(A)	65.6		

----------END----------

FOR MAHABAL ENVIRO ENGINEERS PVT. LTD.

Harish Mendhi
TECHNICAL MANAGER

Mahabal Enviro Engineers Pvt. Ltd.

Note:
1. The result listed refers only to the tested sample(s) and applicable parameter(s).
2. This report is not to be reproduced except in full, without written approval of the laboratory.

P T O

Plot No. F-7, Road No. 21, MIDC Wagle Estate, Thane West - 400604, Maharashtra
(600 m from Hotel Rukhmini Palace Turn Opp Toyota Show Room. Next to Ashida Electrical - near J B Sawant Bus Stop)
Phone: 2582 0658/ 3139/ 1663/ 3154 Fax: 91-22-25823543 thane@mahabal.com

ULR-TC748718000782F

Annex XIV

Annexure-~~III~~ XIV

Tree Plantation Status:-

	Tree Plantation Scheme	Plantation area	No. of Trees Planted	Status
1	Under Accelerated afforestation drive with the State Forest Departments of Madhya Pradesh, Bihar, Assam, Karnataka, Andhra Pradesh, Telengana and Maharashtra to plant 10 million trees..	In seven divisions of M.P. – 2016-17 (One time program)	Total 1 crore tree planted. Out of which 50 Lakhs tree plantation in MP. (Rest in other states)	Completed
2	Under the scheme Intended Nationally Determined Contribution (INDC-2030) creating additional Carbon Sink (10 years program)	MOU for 50 thousand tree plantation per year, through MPRVVNL in Seoni District -2016 and 2017 target completed	1 lakh tree planted	For 2018 proposed to be planted near by plant gram Chichli
3	Mass tree plantation under – Namami Devi Narmade program driven by honorable CM of MP On 2nd July'2017	Near Project	30000 trees	Completed
4	Environment day 5th June 2017 Environment day 5th June 2018	Tree planted by employees and villagers	1000 trees	Completed
		Saplings distributed to project affected villagers	10000 trees	Completed
5	Green Belt Development	Near Project	20000 trees	Completed
		Inside Project	10500 trees	Completed