COMPLIANCE STATUS
OF
ENVIRONMENTAL CLEARANCE
FOR
COASTAL REGULATION ZONE AREA

NTPC Limited
SIMHADRI SUPER THERMAL POWER STATION

ENVIRONMENT MANAGEMENT GROUP
NTPC-SIMHADRI (PO)
PIN: 531 020
Andhra Pradesh

March 2016

NTPC - SIMHADRI SUPER THERMAL POWER STATION

COMPLIANCE STATUS OF 'ENVIRONMENTAL CLEARANCE FOR INTAKE AND OUTFALL FACILITY IN THE COASTAL REGULATION ZONE AREA FOR SIMHADRI TPP (MOEF LETTER DATED 25TH June, 2008.

SL. NO.	CONDITIONS STIPULATED	Status of Implementation as on 31.03.2016
(A)	**Specific Conditions:**	
(i)	All the conditions stipulated by the Andhra Pradesh State Pollution Control Board vide Order No. 20/PCB/CFE/RO-VSP/HO/2007/1478 dated 1.10.2007 shall be strictly complied with.	Compliance to CFE-Stage-II is attached.
(ii)	The project shall be implemented in such a manner that there is no damage whatsoever to the mangroves / other sensitive coastal ecosystems. If any damage to mangroves is anticipated / envisaged as a result of project activities then the clearance shall stand cancelled and the proponents shall seek fresh approval from the Ministry.	Complied.
(iii)	The project proponent shall implement all the measures that have been proposed by them in the clarification letter dated 9.6.2008 provided to the Ministry.	The measures proposed for Stage-II of the project are implemented.
(iv)	The effluent to be disposed of shall meet the standards prescribed by Andhra Pradesh Pollution control Board.	The effluents of the Plant, mainly consisting of CW blow down are sent to CMB and disposed through Marin outfall. The effluent disposed is meeting the standards prescribed by APPCB. The reports are regularly submitted to Board.
(v)	The pipelines both intake and outlet shall not cause any hindrance to the movement of the local communities including the fishermen.	There is no hindrance to the movement of local community due to intake and discharge pipeline of the project as the pipelines are buried in the CRZ area.
(vi)	A continuous and comprehensive post-project marine quality monitoring programme shall be taken up. This shall include monitoring of water quality, sediment quality and biological characteristics covered in the EIA studies.	A study on Marine Ecology through National Institute of Oceanography was carried out. And the recommendations are being implemented.
(vii)	It shall be ensured that there is no displacement of people, houses or fishing activity as a result of the project.	There is no displacement of people, houses and any fishing activity due to project.
(viii)	It shall be ensured that due to the project, there is no adverse impact on the drainage of the area and recharge of groundwater. No groundwater shall be tapped in the project area falling in Coastal Regulation Zone.	There is no adverse impact on the drainage of the area. No ground water is being tapped in the project.
(ix)	The camps of labour shall be kept outside the Coastal Regulation Zone area. Proper	Complied.

	arrangements for cooking fuel shall be made for the labour during construction phase so as to ensure that mangroves are not cut / destroyed for this purpose.	
(x)	There shall be display boards at critical locations along the pipeline viz., road / rail / river crossings giving emergency instructions. This will ensure prompt information regarding location of accident during any emergency. Emergency Information Board shall contain emergency instructions in addition to contact details. Proper lighting shall be provided all along the road.	Complied.
xi.	The project activities shall not disturb the movement of fishing vessels or fishermen.	Complied.
xii.	It shall be ensured that during construction and post construction of the proposed jetty the movement of fishermen vessels of the local communities are not interfered with.	Complied.
xiii.	Relocation of the fishermen community, if any, shall be done strictly in accordance with the norms prescribed by the State Government. The relocated fishermen community shall be provided with all facilities including health care, education, sanitation and livelihood.	There is no displacement of fishermen community.
xiv.	Marine ecology monitoring shall be done regularly and report submitted every 6 month to Ministry's Regional Office at Bangalore.	Being complied.
xv.	Regular monitoring of air quality shall be done in the settlement areas around the project site and appropriate safeguard measures shall be taken to ensure that the population is not subjected to higher levels of air pollution.	Being complied.
xvi	Project proponent shall regularly update the Disaster Management Plan from time to time.	The Disaster Management Plan has been prepared for the project and is being updated at regular intervals
xviii.	Specific arrangements for rain water harvesting shall be made in the project design and the rain water so harvested shall be optimally utilized. Details in this regard shall be furnished to this Ministry's Regional Office at Bangalore within 3 months.	Rain Water Harvesting structures like recharge well, Contour Built Filters with check dams and Rain Water Harvesting Pond is created in Simhadri Plant and Township areas as suggested by Central Ground Water Board. They have suggested to monitoring ground water levels and quality at regular intervals which is being complied with religiously.
Xix	The facilities to be constructed in the CRZ area as part of this project shall be strictly in conformity with the provisions of the CRZ Notification, 1991 as amended subsequently.	Complied.
xx.	No land reclamation shall be carried out only to the extent that it is essential for this project.	No land has been reclaimed.

xxi	Green buffer zone shall be provided all around the project area in consultation with local forest department and the report submitted to this Ministry's Regional Office at Bangalore.	Complied. Green belt has been developed as per CFE order dated 01/10/2007 in 660 Acres against stipulated 292 Acres by planting about 6.7 lac trees. Besides, so far more than 3.2 lakh trees have been planted in and around Visakhapatnam under Green Visakha Program as a Parliamentary standing committed directive.
B.	**GENERAL CONDITIONS:**	
i.	Construction of the proposed structures shall be undertaken meticulously confirming to the existing Central / local rules and regulations. All the construction designs / drawings relating to the proposed construction activities must have approvals of the concerned State Government Department / Agencies.	Being complied.
ii.	The project authorities shall take appropriate community development and welfare measures for the villagers in the vicinity of the project site, including drinking water facilities. A separate fund shall be allocated for this purpose.	NTPC has undertaken community development activities in the surrounding villages. Facilities like approach road to villages, drinking water, school building, hospital etc for the people of the villagers have been undertaken. Separate fund has been allocated for Community Development Programme under Corporate Social Responsibility.
iii.	To meet any emergency situation, appropriate fire fighting system shall be installed. Appropriate arrangements for uninterrupted power supply to the environment protection equipment and continuous water supply for the fire fighting system shall be made.	Complied.
iv.	A separate Environment Management Cell with suitably qualified staff to carry out various environment related functions shall be set under the charge if a Senior Executive who will report directly to the Chief Executive of the Company.	An Environment Management Group (EMG) has been set up at Simhadri TPP. Additional General Manager heads this group. EMG has sufficient trained manpower for environmental monitoring and other environmental related activities to ensure compliance with statutory requirements. It interacts regularly with the State Pollution Control Board. The Environmental laboratory at Simhadri STPP is adequately equipped for monitoring of ambient air quality, stack emission water/effluent quality, etc.
v.	The funds earmarked for environment protection measures shall be maintained in a separate account and there shall be no diversion of these funds for any other purpose. A year-wise expenditure on environmental safeguards shall be reported to this Ministry's Regional Office at Bangalore.	The requisite funds (Rs.629crores) for environmental mitigation measures have been included in the project cost. Financial provision stipulated towards environmental mitigate measures is not diverted for other purposes.
vi.	Full support shall be extended to the officers of this Ministry's Regional Office at Bangalore and the officers of the Central and	Full cooperation is being extended to the Scientists / officers from the Ministry / Regional Office of the Ministry at

	State Pollution Control Board by the project proponents during their inspection for monitoring purposes by furnishing full details and action plans including the action taken reports in respect of mitigate measure and other environmental protection activities.	Bangalore / the CPCB / the SPCB during monitoring of the project.
vii.	In case of deviation or alteration in the project including the implementing agency, a fresh reference shall be made to this Ministry for modification in the clearance conditions or imposition of new one for ensuring environmental protection. The project proponents shall be responsible for implementing the suggested safeguard measures.	Noted.
viii.	This Ministry reserves the right to revoke this clearance, if any of the conditions stipulated are not complied with to the satisfaction of this Ministry.	Noted.
ix.	This Ministry or any other Competent Authority may stipulate any other additional conditions subsequently, if deemed necessary, for environmental protection, which shall be complied with.	Noted.
x.	A copy of the clearance letter shall be marked to the concerned Panchayat / local NGO, if any, from whom any suggestion / representation has been received while processing the proposal.	Noted.
xi.	State Pollution Control Board / Committee shall display a copy of the clearance letter at the District Industries Center and collector's Office/Tehsildar's Office for 30 days.	Noted.
xii.	The project proponent shall advertise at least in two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned informing that the project has been accorded environmental clearance and copies of clearance letters are available with the Andhra Pradesh State Pollution Control Board and may also be seen at website of the Ministry of Environment & Forests at http://www.envfor.nic.in.	The information of Coastal Regulation Zone Clearance was published in three news papers on 17.07.2008. 1. PRAJA SHAKATI ON 17.07.2008. 2. ANDHRA BHOOMI ON 17.07.2008. 3. DECCAN CHRONICLE ON 17.07.2008.
xiii.	The project proponents shall inform Regional Office, Bangalore as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of work.	Investment approval for the project is March, 2007. The date of start of construction work is August, 2007.
xiv.	The project proponent will obtain the Forest	No forest land is involved.

	clearance for the land passing through the Reserved Forest area before commencement of the project activities in forest area.	
xv.	So as to maintain ecological features and avoid damage to the ecosystem, movement of vehicles in the Inter Tidal Zone shall be restricted to the minimum.	Being complied.
xvi.	Any appeal against this environmental clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under Section 11 of the National Environment Appellate Act, 1997.	Noted.

(END)

COMPLIANCE STATUS
OF
CONSENT FOR OPERATION
(4x500 MW)

NTPC Limited
SIMHADRI SUPER THERMAL POWER STATION

ENVIRONMENT MANAGEMENT GROUP
NTPC-SIMHADRI (PO)
PIN: 531 020
Andhra Pradesh

March, 2016

RED CATEGORY

RENEWAL OF CONSENT AUTHORISATION ORDER

(BY REGISTERED POST WITH ACKNOWLEDGEMENT DUE)

i) Outlets for discharge of effluents:

Stage-I (unit 1&2) -1000MW

Outlet no.	Outlet description	Max daily discharge (KLD)	Point of Disposal	Status
1	D.M. Plant regeneration effluent	3400	Reused for Ash slurry preparation	Complied. Reused for Ash slurry preparation
2	Boiler blow down and once through cooling after treatment	103,900	Into Sea	Complied. Discharged through a marine outfall designed by NIO Goa
3	Ash pond Effluent	9,600	Reused for ash pumping	Complied. Reused for Ash pumping.
4	Domestic	1,790	After treatment in STP, on land for Plantation/gardening	Complied.
	Total	118690		

Stage-II (unit 3&4) -1000 MW

Outlet no.	Outlet description	Max daily discharge (KLD)	Point of Disposal	Status
1	Filter Back wash	240	Recycled to clarifier inlet	Complied.
	CHP effluent	4800	Sedimentation, Treatment & Recycle	Complied. Well designed Coal slurry settling pond is in operation.
2	D.M. Plant regeneration waste	240	Neutralization and disposal through CMB and excess treated water effluent to sea	**In line with St- I DM regeneration system, St- II regeneration waste also is reused for Ash slurry preparation.**
	Cooling tower blow down	106,320	Partial use and disposal through CMB and excess treated effluent to sea	Complied. Discharged thro' a marine outfall designed by NIO Goa
	Boiler blow down	1,080	-do-	Complied. Discharged thro' a marine outfall designed by NIO Goa
	Ash water blow down	34,320	-do-	Complied.
3	Clarifier sludge	720	Disposed in ash pond	Complied.
4	Domestic	2,400	Biological treatment & on-land for Plantation / Gardening	Complied
	Total	150120		

ii) Emissions from Chimney:

Chimney No.	**Description of chimney**	Quantity of Emissions in m^3/hr per each Unit at peak flow	Compliance status
1	Attached to 2×1675 TPH Coal Fired Boilers (stage-I:1000 MW)	**2,851,560**	**Complied . Being maintained less than 23* Lac m3/hr/Unit in St-I units (*max of measured value in 2015-16)**
2	Attached to 2×1675 TPH Coal Fired Boilers (stage-II:1000 MW)	**2,899,800**	**Complied . Being maintained less than 23* Lac m3/Hr/unit in St-II Units (*max of measured value in 2015-16)**
3	Attached to 3×1500KVA D.G sets	-	DG sets kept for emergency purpose during complete blackout/grid failures. Not operated regularly

iii) Hazardous waste authorization (From-2)

SL	Name of Hazardous waste	stream	Quantity of Hazardous waste	Disposal option	Status
1	Used / Waste Lubricating oil	5.1 of schedule - I	28.5 KL/annum	Authorized Re-processors / Re-cycles	Complied 25 KL disposed through authorized recyclers in 2015-16

SL	Product	Quantity	Status
1	Electricity(coal with maximum Sulphur content of 0.6% and ash content of 45%	2000MW (Existing:stage-1(unit-1&2)-1000MW) (Existing:stage-2 (unit-3&4)1000MW)	Complied.

SHEDULE-A

S.No.		COMMENT
1	The applicant shall make applications through online for renewal of consent (under Water and Air acts) and authorization under HWM rules at least 120 days before the Date of expiry of this order, along with prescribed fee under water air acts for obtaining consent & HW authorization of Board along with detailed compliance to the conditions stipulated in the CFO and HWA order	Will be applied before expiry i.e., in 2017.
2	Any person aggrieved by an order made by the state board under section 25, section 26, section 27, of water act ,1974 or section 21 of Air act 1981 may within Thirty days from the date on which order is communicated to him prefer an appeal as per Andhra Pradesh Water rules, 1976 and air Rules 1982, to such authority(hereinafter referred to as the appellate Authority) constituted under section 28 of the water (prevention and control of pollution) Act,1974 and section 31 of Air (prevention and control of pollution) Act 1981	Noted
3	All other conditions stipulated in schedule - A of the earlier combined CFO & HWA order No: **APPCB/VSP/VSP/198/HO/2007-1148, DATED 24.08.2007** remains same. The industry shall ensure consistent compliance of each condition of Schedule-A.	Being Complied
4	The industry may explore the possibility of tapping the solar energy for their energy requirements	Solar water heaters and lighting has been installed in township

SCHEDULE-B

1.The effluent discharged shall not contain constituents in excess of the tolerance limits mentioned below.

Outlet	Parameter	Limiting Standards	Status
2	**pH**	6.50-8.50	**All the parameters are maintained within the limits. Regular monitoring is being carried out and reports are being submitted to APPCB.**
	Temperature not more than 5° C higher than intake water		
	Total suspended solids (at 103-105°C)	100mg/l	
	Oil and grease	20mg/l	
	free chlorine	0.5mg/l	
	Phosphate as PO4	20mg/l	
	Chromium(total)	0.2mg/l	
	Copper (total)	1mg/l	
	Iron	1mg/l	
	Zinc	1mg/l	
4	pH Total suspended solids (at 103-105°C) Bio chemical oxygen demand(BOD 3 AT 27°C)	5.5-9.0 200mg/l 100mg/l	
	Total dissolved solids	2100mg/l	

2. The industry shall take steps to reduce water consumption to the extent possible and consumption shall not exceed the quantities below:	Complied. Ash Water Recycling system, Closed cycle cooling water system and reuse of DM regeneration effluents etc., are incorporated in the design and being operated.

Stage-I(Unit-1&2)-1000MW

S.No	Purpose	Quantity in KLD	STATUS/COMPLIANCE
1	Industrial Cooling (Makeup) - sea water	216000	Complied; Report Sent to APPC on monthly basis. About 1.15 Lakh during 2015-16
2	DM plant	4320	Complied
3	Domestic (including gardening/irrigation)	4080	complied
	Total	224400	

Stage-II(Unit-3&4)-1000MW

S.No	Purpose	Quantity in KLD	STATUS/COMPLIANCE
1	Industrial Cooling (Makeup) - sea water	213240	Complied; About 1.15 Lakh KLD during 2015-16
2	DM plant	13200	Complied ;

3	Domestic (including gardening/irrigation)		
	Total	226440	

3.The industry shall fill the water cess returns in Form- as required under section (5) of water (prevention and control of pollution) cess act,1977 on or before the 5th of every calendar month, showing the quantity of water consumed in previous month along with water meter readings. The Industry shall Remit Water cess As per the assessment orders as and when issued By Board.	Complied. The water cess returns as per the format are being submitted to the board regularly as per the stipulated time and also the Water cess is being remitted to the Board as per the assessment orders issued by the Board from time to time.
4.The Emissions shall not contain Constituents in excess of the prescribed limits maintained below.	Complied. The emissions from stage I and Stage II units are within the limiting standards

Chimney No	Parameter	Emission Standards	STATUS/COMPLIANCE
1	Particulate Matter	115 mg/Nm3	Being maintained well below the stipulated limit
2	Particulate Matter	100 mg/Nm3	Being maintained well below the stipulated limit

5.The industry Shall comply with emission limits for DG sets of capacity upto 800KW as per the Notification G.S.R.520(E),01.07.2003 Under the Environment(protection) Amendment Rules, 2003 and G.S.R448 (E) , Dated 12.07.2004 under the Environment(protection) amendment Rules, 2004. In case of DG sets capacity more than 800KW comply with Emission limits as per the Notification G.s.r.489(E), Dated 09.07.2002 at serial No.96 Under the Environment (protection) Act, 1986	Complied. The DG sets are envisaged and installed in the Power station for emergency conditions like complete blackout/grid failure when no power is available and required only for keeping vital equipment of the power house in safe condition. These are operated very rare and practically no emissions from the DG set.
6.The industry Shall comply with Ambient Air Quality Standards of PM10(Particulate Matter size less than 10μm) -100μg/m3 ; PM2.5 (Particulate Matter size less than 2.5μm) - 60μg/m3; SO2 - 80μg/m3; Nox -80μg/m3 outside the factory premises at the periphery of the industry	Complied. The source apportionment study carried out by the station has indicated that NTPC Power Plant contributes to about 7-15% towards PM 10 in the near vicinity ambient atmosphere within 10 km radius.
Standards for other Parameters as mentioned in the National Ambient Air Quality standers CPCB Notification No.B-29016/20/90/PCI-I dated 18.11.2009 Noise Levels: Day Time (6am to 10pm) -75dB Night time(10pm to 6am) -70 dB (A)	Complied. The noise parameters are within the stipulated standards and reports are being submitted to PCB regularly.
7. The industry shall not increase the capacity beyond the permitted Capacity Mentioned in this	Complied. The generation of electricity in previous financial year 2015-16 is 39.6 MU per Day (Station

order without obtaining CFE & CFO of the Board	Generation) against the rated capacity of 48 MU per Day.
8. The industry shall submit detailed action plan within one month for fly ash utilization as per the Fly Ash Notification on MoEF to the Board to achieve 100% utilization of fly ash	Overall ash utilization country wide and even worldwide is about 50 to 55%. Around NTPC Simhadri no potential users of ash available in the near vicinity. Chairman NTPC has taken up the matter with concerned Ministries along with detailed status. NTPC Simhadri also has taken up the matter with District Collector and MS APPCB for helping in implementing the notification on use of fly ash which will enhance the ash utilization in the region. Action plan for 100% AU was submitted to the board
9. The industry shall maintain permanent mechanical sprinklers for suppression of dust on the roads in between the villages and report the compliance to RO-Visakhapatnam.	Complied. Sprinklers have been provided on the haul roads besides deploying water tankers
10. Refurbished Environment Management Team with dedicated man power shall be maintained for continuous monitoring of plant environment to ensure compliance of CFO conditions	Complied. Environment management team is manned with dedicated manpower for continuous monitoring of plant environment to ensure compliance of CFO conditions.
11. The industry shall maintain 3 CAAQM Stations connected to APPCB website and report the compliance to RO-Visakhapatnam	Complied. The CAAQM stations are connected to APPCB website.
12. The Industry shall maintain online Stack and ambient monitoring systems with connection to the Boards website	Complied. The Stack and CAAQM stations are connected to APPCB website.
13. The industry shall Maintain duly Compacted under soil cover of requisite thickness as per norms for the ash ponds to avoid dust pollution and report the compliance to RO-Visakhapatnam	Complied. Presently L1, L3 and L4 are under water cover. L2 dyke is under raising. Non borrow areas are covered with earth and other areas sprinklers are provided, besides deployed tankers on the haul roads.
14. The industry shall submit Isotopic study report of M/s NEERI on impacts on ground water due to ash ponds and report the compliance to RO-Visakhapatnam. Continuous monitoring of the ground water quality in all sides of the plant shall be carried out	Final report received and submitted to the board.
15. The Industry shall take necessary measures like ammonia dosing to maintain ESPs attached to the boilers so as to meet SPM standards all the time.	Complied. Ammonia dosing facility is available and operated as and when needed.
16. The industry maintain data logging facility provided for storing online stack emission data properly, for retrieval as and when necessary. Industry shall submit monthly report to the RO-Visakhapatnam	Complied. Data logging facility is available for stack emission data and the same can be retrieved as and when necessary.
17. The industry shall maintain water meters for recording consumption of Sea water / water from Yeleru canal and maintain proper records for daily	Complied. Water meters are provided for recording consumption of sea water and water from Yeleru canal and the records are maintained. Monthly

water consumption. They shall submit monthly reports to the RO, Visakhapatnam	reports are submitted regularly to RO.
18. The industry shall make proper arrangements for collection of seepage from ash pond and pumped back into the ash water system, so as to avoid ground water pollution in the surrounding area	Complied. Garland canal is constructed for collection of seepage from ash pond and same is pumped back to ash water system.
19. The industry shall maintain water cover in the ash pond area to prevent fly ash from getting air borne and causing air pollution in the surrounding area especially to the residents of Pittavanipalem	Complied. Water cover maintained to prevent fly ash from getting air borne.
20. Efforts shall be taken to dispose fly ash in dry form as much as possible instead of divert it to wet ash pond due to paucity of land available and due to lack of secured landfill arrangement in the ash pond. Dry ash collection systems of stage 1&2 shall be maintained properly	Complied. Dry ash extraction system provided in stage I units and maintained. Stage-II Dry ash extraction system erection completed and presently under commissioning.
21. The industry shall monitor all ground water peizo wells and submit report to RO-Visakhapatnam every three months indicating trends.	Complied. The reports are regularly submitted to RO.
22. Garland canal shall be maintained around the fly ash pond to collect water that is expected to leach out and monitoring of such leachates shall be carried out.	Complied. Garland canal constructed and maintained. Ash water is being monitored regularly.
23. After increase in the bund level and increase in the storage capacities due to the lateral pressures the aquifer may be influenced due to the leachates. The shall maintain sufficient fresh water in the borrow pits which act to counter the lateral pressures and contain the leachates if any percolate into strata.	The pits do not belong to NTPC.
24.The industry shall act on pollution problems that arise out of the ash pond and shall take any measures to contain by taking time to time action to dispel any apprehensions by the residents of the villagers. If it is required the industry shall take up the corrective measures like introducing geo-textiles vertically in the sub-surface levels in the detected areas of leaching.	No pollution attributed to leaching has been observed. The isotopic study conducted by NEERI concluded that there is no contamination of ground water due to ash pond
25. The industry shall not use any fuels other than those permitted in this order without prior consent from the Board. They shall maintain log registers on type of fuels & daily consumption, ash content, sulphur content etc., and shall furnish consolidated records to RO, Visakhapatnam for every three months	Complied.
26. The Industry shall maintain the Interlocking	Complied. Interlocking facility is provided for all the

facility between APC equipment (ESP) and fuel feeding system, so that the feeding of the fuel will be stopped automatically, in case, the ESP fails/ trippings are occurred.	units.
27. The industry shall maintain separate water meters to assess the quantity of water consumed at various sections. The industry shall provide separate water meters with necessary pipeline for assessing the quantity of water used for each of the purposes mentioned below: a. Industrial cooling, boiler feed. b. Domestic purposes. c. Processing, whereby water gets polluted and pollutants are easily biodegradable. d. Processing, whereby water gets polluted and pollutants are not easily biodegradable	Complied. Water meters are provided for assessing water consumption of various sections.
28. The industry shall maintain the following records and the same shall be made available to the Board Officials during the inspection: a. Daily power generation details. b. Quantity of Effluents generated and disposed c. Log Books for pollution control systems. d. Daily Fly ash generated and disposed	Complied. Records are being maintained as per the directions
29. Green belt adequate width and density shall be maintained along the boundary of the industry and around the ash ponds with minimum area of 33% of total area and as per CFE Order dated 01/10/2007 to protect surrounding village fugitive dust.	Complied. Green belt has been developed as per CFE order dated 01/10/2007 in 660 Acres against stipulated 292 Acres by planting about 6.7 lac trees. Besides, so far more than 3.2 lakh trees have been planted in and around Visakhapatnam under Green Visakha Program as a Parliamentary standing committed directive.
30. The Industry shall Comply with Directions issued by Board from time to time	Being complied.
31. The Industry Shall comply with the MoEF,GoI Notification dt.14.09.1999 and other Directions issued time to time with Regard Utilization of ash	As per Sl No 8 above.
32. The industry shall take measures Around The Ash Pond Area to avoid Entry of Animals in Order to Prevent accidents, breakage of Emergency ponds and protection of Green belt	Complied.
33. The industry shall comply with the conditions stipulated in the CFE order dt.01.07.2007	Complied.

every year as per Rule no.14 E(P) rules, 1986 & Amendments thereof	
35. The conditions stipulated are without prejudice to the rights and contentions of this board in any Hon'ble Court of Law	--

SCHEDULE-C

[SEE RULE 5{4}]

(CONDITIONS OF AUTHORISATION OF OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES)

[SEE RULE 5{4}]

1. The industry shall give top priority for waste minimization and cleaner production practices	**Complied.**
2. The industry shall not store hazardous waste for more than 90 Days as per the Hazardous wastes (management. Handling and transboundary Movement) Rules, 2008 and amendment thereof	**Complied. Being disposed to Authorised recyclers through MSTC.**
3. The industry shall store Used/waste oil and used Lead acid Batteries in a secured Way in the their Premises Till its Disposa	**Complied.**
4. The industry shall not Dispose Waste oil to the Traders and the same shall be Disposed to the Authorized Reprocesses/Recycle	**Complied. Being disposed to Authorized recyclers through MSTC.**
5. The industry shall Dispose Used Lead Acid Batteries To the Manufacturers/Dealers on Buy back basis	**Complied.**
6. The industry Shall take necessary practical steps for prevention of oil spillages and carryover of Oil from the premises	**Complied.**
7. The industry shall maintain 6 copy manifest system for Transportation of Waste Generated and a copy Shall be submitted to Board Office and concerned Regional Office	**Complied.**
8. The industry shall maintain Good Housekeeping & Maintain Records for Hazardous Wastes started in Authorization	**complied**
9. The industry shall maintain proper records for Hazardous waste started in Authorization in Form-3 i.e., quantity of incinerable waste, land Disposal waste, recyclable waste etc., and file annual Return in Form-4 as per Rule 22(2) of the Hazardous Waste (management , Handling & trans-boundary Movement) Rules,2008 and Amendment thereof	**Complied.**
10. The industry Shall submit the conditions wise compliance report of the conditions stipulated In Schedule A ,B & C of this Order on Half-Yearly Basis to Board office, Hyderabad and Concerned regional Office.	**Being complied.**
11. The industry shall dispose of E-waste to the Authorized Recyclers only.	**Complied.**

COMPLIANCE STATUS
OF
CONSENT FOR ESTABLISHMENT (CFE)
Stage-I (2x500 MW)

NTPC Limited
SIMHADRI SUPER THERMAL POWER STATION

ENVIRONMENT MANAGEMENT GROUP
NTPC-SIMHADRI (PO)
PIN: 531 020
Andhra Pradesh

March 30, 2016

NTPC - SIMHADRI THERMAL POWER STATION
[Stage – I (2x500 MW)]

COMPLIANCE STATUS OF CONSENT FOR ESTABLISHMENT

Sl.No.	CONDITIONS STIPULATED	Status of Implementation as on 31.03.2016
01.	Trees shall be planted and maintained in the vacant spaces of the premises, at-least in an area of 4 times the build-up area of the industry. Tree plantation shall be the first item to be taken up before starting construction. Area of plantation shall be such that if replenishes the amount of oxygen consumed by the process operations and consequent release of pollutants into atmosphere.	Complied. Green belt has been developed in 660 Acres against stipulated 292 Acres by planting about 6.7 lac trees. Besides, so far more than 3.2 lakh trees have been planted in and around Visakhapatnam under Green Visakha Program as a Parliamentary standing committed directive. Main species planted include Pongamia (Bio diesel), Neem, Kala Jamun, Peltophorum, Coconut, Eucalyptus, Guava, Tamarind etc.,
02.	The industry shall recycle the ash pond and DM Plant effluents.	Ash pond effluents are being recycled and being used for Ash slurry makeup. Treated DM Plant effluent is being used for Ash Slurry make up
03.	The industry shall treat the cooling waste water through the marine coastal standard and domestic waste water on land for irrigation standards stipulated under Environmental (Protection) Rules, 1986 as amended upto date, notified under Environment Protection Act, 1986 by Ministry of Environment & Forests, Government of India.	a) A closed cycle cooling system using Natural Draft Cooling Tower (NDCT) has been provided for treating cooling water. There are two cooling towers each of 165 m height. The cooling tower blow down is partly re-utilized and balance is brought to Central Monitoring Basin (CMB). The effluent treatment system has been designed so that the treated waste water confirm to marine coastal standards. b) Sewage Treatment Plant :– Separate Sewage treatment plant for Township and project area are provided. The treated water is used for the horticulture purpose.
04.	The run-off water from coal yard shall be treated to on land for irrigation standards before final disposal.	Coal dust settling pond has been provided to treat run off water from coal stock yard. The clear supernatant water is being brought to Central Monitoring Basin (CMB) for further dilution and discharge. The discharged effluent from CMB is as per standards.
05.	The Industry shall discharge the cooling water into the sea through a suitable drain/submarine pipeline.	Closed cycle cooling water system has been provided for this project. Cooling tower blow down is partly re-utilized. Balance blow down is being brought to Central Monitoring Basin from where it is discharged into the sea through a suitable drain/submarine pipeline. The marine outfall consists of 6 port diffuser of 0.4 m diameter each, 25m apart. Vertical inclination ports directed towards the shore and away from the intake.
06.	The industry shall treat domestic effluents by adopting suitable technology such as oxidation ponds, aerated lagoons etc. and discharge the treated effluents etc. on land for irrigation by gardening.	The domestic effluents are treated in aerated tanks to conform to the standards. The capacity of the plant is 1700 m^3/day. The plant comprised of following units: a) Raw sewage pump house along with coarse screen. b) Grit chamber, parshall flume along with

		medium screen. c) Aeration Tank. d) Secondary clarifier along with Return sludge pump. e) Fish pond. f) Sludge drying bed. The BOD level of the treated effluent is less than 20 mg/l and TSS is 30 mg/l. The effluent is being disinfected with bleaching powder dosing. The treated sewage is used for the horticulture.
07.	The cooling water used in the once through system if treated with Biocide will effect the biota of the sea and fishing also, in the proximity of the discharge point. It should be controlled by properly designed outfall into the sea.	Closed cycle cooling system has been adopted. However, the blow discharged through a marine outfall designed by NIO Goa.
08.	The industry shall install and commission appropriate control equipment for control the stack emission to meet the following emission standards :- a) Particulate matter – 115 mg/NM3. b) The industry shall install a stack of 275 mts. Height.	• The Electro Static Precipitators (ESP) having 64 fields with efficiency of >99.93% installed to ensure Particulate matter of less than 115 mg/NM3. • Bi-flue stack of 275 mt. has been provided.
09.	The industry shall install suitable control equipment facilities in the coal handling plant and dust suppression in all coal & material handling area should be achieved through appropriate measures.	Dust suppression systems have been provided in coal handling area including coal stock yard area for control of coal dust.
10.	The Industry shall submit the detailed proposals on Effluent Treatment and Air Pollution Control Equipment for Board" perusal within 2 months from the date of issue of this letter.	A detailed write-up on air pollution control equipment and effluent treatment was submitted to APPCB on 03.06.1997.
11.	The industry shall construct and commission the effluent treatment plant and install air pollution control equipment along with the commissioning of the industry. All the units of the ETP shall be impervious to prevent ground water pollution.	The effluent treatment system equipments construction started along with main plant units and had been commissioned. EDP area has been made impervious.
12.	The industry shall plan for complete utilization of the fly ash right from the date of commissioning of the plant.	An ash utilization plan has been prepared in line with the Gazette notification on ash utilization. The plan has been submitted to APPCB/MOEF.
13.	The Industry shall either procure washed coal or set up a coal washery for the thermal power plant.	MOEF has permitted for use of raw coal.
14.	The industry shall provide adequate space for installing flue gas desulphurization system (FGD system) in their layout, so that the same can be installed as and when prescribed by AP Pollution Control Board.	Adequate space has been provided for installing the FGD in the layout.
15.	The industry shall make arrangements to prevent fly ash from being air borne from the fly ash dumps.	A water cover is maintained in ash disposal area and water sprinkling/earth cover is provided in dry portions of ash pond.
16.	The temp rise shall minimal at the cooling water discharge point and shall meet the standards prescribed under the E (P) Act.	The closed cycle cooling towers have been provided for condenser cooling water. Thus there would be no hot water discharge. The CT blow down is partly

		re-utilized and balance is brought to Central Monitoring Basin (CMB). The effluent from CMB meets the temperature standard.
17.	Fire protection measures to control spontaneous combustion within the coal yard shall be adopted.	As per established industrial practice, hydrant system comprising of piping, valve, hoses, nozzles etc. have been provided around the coal yard to control all types of fire including spontaneous combustion fire. In addition, mobile fire extinguisher systems have also been provided.
18.	The SO2 and SPM discharge into the atmosphere from their area will be high, in view of the congregation of the large number of other industries such as M/s Visakhapatnam Steel Plant, two proposed refineries and a Thermal Power Plant (M/s Hinduja National Power Corporation Ltd.,). In view of this, the industry shall use low sulphur Indian coal.	Mainly Coal from Mahanadi Coalfields, Talcher is utilized for this plant.
19.	The industry shall take all steps to see that the end products of burning of the fuel do not create any pollution problem in the environment. The ambient air quality standards for industrial area shall be satisfied. Three air quality stations shall be installed at appropriate locations in consultation with AP Pollution Board.	Air Pollution control equipments have been installed to mitigate air pollution. Ambient Air Quality is being monitored manually at Three (3) APPCB specified locations around the plant. In addition to the above, online Continuous Ambient Quality Monitoring stations have been set up at three locations for monitoring PM10, PM2.5, SO2 and NOx. Besides three more stations have been set up in the villages adjacent to ash pond for monitoring of PM10 as per the directives of APPCB. All stations are connected to APPCB website and readings are available online.
20.	The Industry shall be dispose off the solid wastes to the satisfaction of the Board after obtaining prior approval.	Ash is the main solid waste generated from the power plant which is disposed off in a well designed ash disposal area. This has already been submitted to APPCB/MOEF.
21.	There shall not be any perceptual odour outside the Industry's premises, creating nuisance to public and other environment. The industry shall adopt control measures at all stages where odour is likely to be generated.	Power plant does not create any odour problem. However, extensive plantation has been taken up to improve the environment in and around the plant.
22.	Suitable automatic flow measuring devices and monitoring equipments shall be installed. Continuous monitoring and recording devices shall be installed to measure SPM and SO_2 concentrations in the Power Plant stacks.	Suitable flow measuring devices are in operation. Continuous stack monitoring facility for measurement of Particulate, SO_2 and NO_X are in operation.
23.	The industry shall provide a sampling port for all the stacks with removable dummy of not less than 15 cm diameter in the stack at a distance of 8 times the diameter of the stack from the nearest constraint such as bends etc., and should provide a platform with suitable ladder below 1 meter of sampling port to accommodate three persons with instruments. The industry shall also provide a 5 Amp. 250 V plug point on the platform.	Complied. All the systems required for the sampling for Stack Emission Monitoring is provided for manual monitoring of stack emission.
24.	The industry shall provide inter-locking arrangements between the process and pollution control equipments in such a way that, whenever the tolerance limits prescribed by the Board are exceeded, the process comes to	The required inter-locking arrangements are being provided in phased manner to each unit during unit overhauls. Unit-1,2,3 and 4 completed.

	halt.	
25.	Separate power connection with energy meter shall be provided for the pollution control equipments and record of power consumption and chemicals consumption for the operation of pollution control equipment shall be maintained separately.	Separate power connections with energy meters are provided for major pollution control equipments. Proper power chemical consumption records are maintained.
26.	The progress of construction of the main process unit shall be in proportion to the installation of pollution control measures and the plantation.	This has been followed largely.
27.	Main process unit should be located at the centre of site as far as possible and the entire site should be enclosed by tall growing green plantation, preferably of species having broad leaf area.	Green belt has been developed as per CFE order dated 01/10/2007 in 660 Acres against stipulated 292 Acres by planting about 6.7 lac trees
28.	All the rules and regulations notified by the MoEF, Govt. of India in respect of noise pollution control measures shall be followed to avoid nuisance to public. The ambient Noise level shall not exceed 75 dBA at a distance of 5 mtrs. from source.	All the equipments have been designed with noise prevention enclosures. The ambient noise level conforms to the day and night prescribed standards.
29.	The generator shall be installed in a closed area with a silencer and suitable noise absorption system so as to comply with the following ambient noise level standards : 75 dBA at a distance of 5 M from source.	Complied.
30.	The industry shall install minimum stack height to the DG Set as per CPCB guidelines. The minimum of stack shall be calculated based on the following formula : H=h+0.2 KVA H: Height of stack in mts. H: Height of the building in mts. where the DG set is installed. KVA – Total Generator Capacity in KVA.	Complied. The DG sets are envisaged and installed in the Power station for emergency conditions like complete blackout/grid failure when no power is available and required only for keeping vital equipment of the power house in safe condition. These are operated very rare and practically no emissions from the DG set.
31.	All the rules and regulations notified by MoEF, Govt. of India in respect of manufacture, storage and import of hazardous chemicals promulgated under Environment (Protection) Act, 1986 shall be followed.	Complied with.
32.	All the rules and regulations notified by MoEF, Govt. of India in respect of management and handling of hazardous wastes promulgated under Environment (Protection) Act, 1986 shall be followed.	Complied with.
33.	All the rules and regulations notified by Ministry of Law and Justice, Govt of India regarding the Public Liability Insurance Act, 1991 shall be followed.	Complied with.
34.	The Industry shall establish Environment Cell, headed by an Environmental Engineer, for environmental management in the industry.	An Environment Cell headed by AGM level executive supported by 3 executives with engineering and chemistry background has been

24.	The industry shall provide inter-locking arrangements between the process and pollution control equipments in such a way that, whenever the tolerance limits prescribed by the Board are exceeded, the process comes to halt.	The required inter-locking arrangements are being provided in phased manner to each unit during unit overhauls. Unit-1,2,3and4 completed.
25.	Separate power connection with energy meter shall be provided for the pollution control equipments and record of power consumption and chemicals consumption for the operation of pollution control equipment shall be maintained separately.	Separate power connections with energy meters are provided for major pollution control equipments. Proper power chemical consumption records are maintained.
26.	The progress of construction of the main process unit shall be in proportion to the installation of pollution control measures and the plantation.	This has been followed largely.
27.	Main process unit should be located at the centre of site as far as possible and the entire site should be enclosed by tall growing green plantation, preferably of species having broad leaf area.	A green belt around the plant boundary is developed as stipulated.
28.	All the rules and regulations notified by the MoEF, Govt. of India in respect of noise pollution control measures shall be followed to avoid nuisance to public. The ambient Noise level shall not exceed 75 dBA at a distance of 5 mtrs. from source.	All the equipments have been designed with noise prevention enclosures. The ambient noise level conforms to the day and night prescribed standards.
29.	The generator shall be installed in a closed area with a silencer and suitable noise absorption system so as to comply with the following ambient noise level standards : 75 dBA at a distance of 5 M from source.	Complied.
30.	The industry shall install minimum stack height to the DG Set as per CPCB guidelines. The minimum of stack shall be calculated based on the following formula : H=h+0.2 KVA H: Height of stack in mts. H: Height of the building in mts. where the DG set is installed. KVA – Total Generator Capacity in KVA.	Complied.
31.	All the rules and regulations notified by MoEF, Govt. of India in respect of manufacture, storage and import of hazardous chemicals promulgated under Environment (Protection) Act, 1986 shall be followed.	Complied with.

32.	All the rules and regulations notified by MoEF, Govt. of India in respect of management and handling of hazardous wastes promulgated under Environment (Protection) Act, 1986 shall be followed.	Complied with.
33.	All the rules and regulations notified by Ministry of Law and Justice, Govt of India regarding the Public Liability Insurance Act, 1991 shall be followed.	Complied with.
34.	The Industry shall establish Environment Cell, headed by an Environmental Engineer, for environmental management in the industry.	An Environment Cell headed by AGM level executive supported by 3 executives with engineering and chemistry background has been established for environment management.
35.	The industry shall appoint a Horticulturist for looking after tree plantation work and further maintenance.	A qualified horticulturist had been appointed.
36.	The industry is liable to pay compensation for any environmental damage by it, as fixed by Collector and District Magistrate, as Civil liability.	Noted.
37.	If at any time during inspection of Pollution Control Board officers or officials of licensing/servicing departments if it is found that the industry is not complying with any of the above conditions, this NOC is liable for cancellation without notice and all the services rendered and license issued shall be liable for cancellation without further notice.	Noted.
38.	The industry shall report progress on implementation of the project to this office, Regional Office, A.P.Pollution Control Board, Visakhapatnam regularly.	complied with
39.	The applicant shall obtain consent for trial production before the factory goes into trial production.	The Consent for Operation (CFO) is obtained.
40.	Regular consent of the Board shall be obtained as required under Section 25/26 of the Water (Prevention and Control of Pollution) Act, 1974 and under Section 21/22 of the Air (Protection and Control of Pollution) Act, 1981.	Consent orders are being renewed regularly and the present consent orders are valid up to 31/08/2017.
41.	The applicant shall comply with and carry out conditions issued by the Board in this consent order scrupulously. The applicant is liable for legal section as per the provisions of the relevant Acts in case of non-compliance of any conditions of the	Noted

	consent order.	
42.	Not withstanding anything contained in this conditional letter or consent, the Board hereby reserves its right and power under Section 27(2) of Water (Prevention and Control of Pollution) Act, 1974 and under Section 21(4) of Air (Prevention and Control of Pollution) Act, 1981 to review any or all the conditions imposed herein and to make such alteration as deemed fit and stipulate any additional conditions for the purpose of the Act by the Board.	Noted.
43.	The applicant shall exhibit the consent of the Board in the factory premises as a conspicuous place for the information of the inspecting officers of different departments.	Complied.

(End)

COMPLIANCE STATUS
OF
CONSENT FOR ESTABLISHMENT STAGE II
(2x500 MW)

NTPC Limited
SIMHADRI SUPER THERMAL POWER STATION

ENVIRONMENT MANAGEMENT GROUP
NTPC-SIMHADRI (PO)
PIN: 531 020
Andhra Pradesh

March, 2016

NTPC - SIMHADRI SUPER THERMAL POWER STATION
[Stage – II (2x500 MW)]
COMPLIANCE STATUS OF CONSENT FOR ESTABLISHMENT
(APPCB Letter dated 01.10.2007)

Schedule: 'A'

Sl. No.	CONDITIONS STIPULATED	Status of Implementation as on 31.03.2016
01.	Progress on implementation of the project shall be reported to the Regional Office, AP Pollution Control Board, and Visakhapatnam once in six months.	Complied.
02	Separate energy meters shall be provided for Effluent Treatment Plant and Air Pollution Equipment to record energy consumed	Separate Energy Meters are provided for the Pollution Control Equipments like ESP, EDP Pump House, Sewage Treatment Plant etc.,
03.	The proponent shall obtain Consents for operation from APPCB, as required Under Sec. 25/26 of the Water (P&C of P) Act 1974 and under sec. 21/22 of the Air (P&C of P) Act 1981, before commencement of the activity.	The Consents for operation from APPCB have been obtained and valid upto 31.08.2017.
04.	Notwithstanding anything contained in this conditional letter or consent, the Board hereby reserves its right and power Under Sec. 27(2) of Water (Prevention and Control of Pollution) Act 1974 and Under Sec. 21(4) of Air (Prevention and Control of Pollution) Act, 1981 to review any or all the conditions imposed herein and to make such alternation as deemed fit and stipulate any additional conditions by the Board.	Noted.
05.	The consent of the Board shall be exhibited in the factory premises at a conspicuous place for the information of the inspecting officers of different departments.	Noted
06.	Compensation is to be paid for any environmental damage caused by it, as fixed by the Collector and District Magistrate as civil liability.	Noted.
07.	Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas. The industry shall maintain a good housekeeping. All pipe valves, sewers, drains shall be leak proof. Dyke walls shall be constructed around storage of chemicals.	Being complied.

08.	Rain Water Harvesting (RWH) structure(s) shall be established on the plant site. The proponent shall ensure that effluent shall not enter the Rain Water harvesting structure.	Rain Water Harvesting structures like recharge well, Contour Built Filters with check dams and Rain Water Harvesting Pond is created in Simhadri Plant and Township areas as suggested by Central Ground Water Board. They have suggested to monitoring ground water levels and quality at regular intervals which is being complied with religiously.
09.	The rules and regulations notified by Ministry of Law and Justice, GOI, regarding the Public Liability Insurance Act 1991 shall be followed.	Public Liability Insurance (PLI) is available with validity.
10.	The order is valid for a period of **5 years** from the date of issue	Noted.

Schedule: 'B'

01.	The source of water is Sea water(8885 M3/Hr) from Bay of Bengal and Sweet water from Yeluru left bank canal (550 M3/Hr) and the maximum permitted water consumption after expansion is 4,66,920 KLD.	Complied with.
02.	The Effluent Treatment Plant (ETP) shall be constructed and commissioned and Air Pollution control equipment shall be installed along with the commissioning of the activity. All the units of the ETP shall be impervious to prevent ground water pollution.	Complied
03.	The trade effluents shall be treated to the marine water standards, stipulated under Environment (Protection) Rules, 1986 notified and published by Ministry of Environment and Forests, Government of India as specified in schedule VI vide G.S.R. 422 (E) dt. 19.05.1993 and its amendments thereof.	Being complied
04.	The maximum waste water generation (m3/hr) shall not exceed the following as mentioned at table no.2.4.1 in the EIA report	Being complied

Effluent stream	Quantity M^3/Hr	Treatment/ disposal
Clarifier sludge	30	Disposal in ash pond
Filter back wash	10	Recycled to clarifier inlet
DM plant regene-ration waste	10	Neutralization and disposal through CMB
CT Blow down	4430	Partial use and disposal through CMB
Boiler Blow down	45	Disposal through CMB
CHP effluent	200	Sedimentation treatment and recycle
Ash water blow down	1430	Disposal through CMB
Sanitary waste	100	Biological treatment and disposal

Source effluent	Proposed treatment	Mode of disposal
Thermal discharges from condenser and auxiliary cooling, coal	ETP	Collected into Central Monitoring Basin CMB and excess treated

<table>
<tr><td></td><td>
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<tr><td>handling plant waste, oily waste water, DM waste water etc. ash pond effluent</td><td></td><td>effluent sent to sea through existing facility</td></tr>
<tr><td>Sanitary waste from plant and township</td><td>STP</td><td>Shall be utilized on land for green belt after confirming to on land for irrigation standards</td></tr>
</table>
</td><td>Being complied</td></tr>
<tr><td>05.</td><td>Separate meters with necessary pipe line shall be provided for assessing the quantity of water used for each of the purposes mentioned below:
a. Industrial cooling, and boiler feed
b. Domestic purposes
c. Processing, whereby water gets polluted and Pollutants are easily biodegradable.
d. Processing, whereby water gets polluted and the pollutants are not easily bio-degradable.</td><td>Being complied. Water meters are in place.</td></tr>
<tr><td>06.</td><td>The proponent shall comply with the following for controlling air pollution.
Proposed:-
<table>
<tr><th>S. No</th><th>Details of Stack</th><th></th></tr>
<tr><td>a.</td><td>Attached to</td><td>Boiler</td></tr>
<tr><td>b.</td><td>Capacity</td><td>Assisted circulated drum type super heated boiler -1675 MT/Hr each (2 Nos.)</td></tr>
<tr><td>c.</td><td>Fuel form</td><td>Solid (pulverized coal)</td></tr>
<tr><td>d.</td><td>Quantity</td><td>Coal-8901 MT per day</td></tr>
<tr><td>e.</td><td>Stack height</td><td>1 x 275 mtr. with twin flue</td></tr>
<tr><td>f.</td><td>Control equipment</td><td>ESP</td></tr>
<tr><td>g.</td><td>Standard</td><td>SPM 100 mg/NM^3 as stipulated in EC dated 01.08.07</td></tr>
</table>
<table>
<tr><th>Details of fugitive emissions</th><th>Control equipment</th></tr>
<tr><td>Coal handling section</td><td>Dust suppression system</td></tr>
</table>
</td><td>• The electrostatic precipitators are designed for an efficiency of more than 99.93 % to limit the particulate emission to 100 mg/Nm3. These ESP's have 10 stages of fields (8 fields per stage) with total collection area of 224640m^2.
• Bi-flue stack of 275m have been provided.</td></tr>
<tr><td>07.</td><td>A sampling port with removable dummy of not less than 15 cm diameter shall be provided in the stack at a distance of 8 times the diameter of the stack from the nearest constraint such as bends etc. A platform with suitable ladder shall be provided below 1 meter of sampling port to accommodate three persons with instruments. A 15Amp. 250V plug point shall be provided on the platform.</td><td>All the systems required for the sampling are provided for manual monitoring of stack emission.</td></tr>
<tr><td>08.</td><td>Space provision shall be made for installation of FGD of requisite efficiency of removal of SO_2, if required at a latter stage.</td><td>Adequate space has been provided in the layout for installation of FGD plant in future for control of sulfur dioxide, if necessary.</td></tr>
</table>

<table>
<tr><td>09.</td><td>The proponent shall comply with the following;<table><tr><td>Sl. No.</td><td>Solid waste generated from</td><td>Quantity MT/day</td><td>Method of disposal</td></tr><tr><td>1.</td><td>Boiler</td><td>7380 TPD</td><td>Ash shall be utilized for laying of roads, increasing of ash and dyke heights and cement and brick manufacturing units</td></tr></table></td><td>Being complied.</td></tr>
<tr><td>10.</td><td>Fly ash shall be collected in dry form and its 100% utilization shall be achieved within 9 years as stipulated by MOEF in EC dated. 10.08.07</td><td>Provision is being made for 100 % collection of fly ash in dry form; Stage-II DAES is commissioned.</td></tr>
<tr><td>11.</td><td>The following rules and regulations notified MOEF, GOI shall be implemented
Hazardous waste (Management and Handling), Rules 1989.</td><td>Being complied.</td></tr>
<tr><td>12.</td><td>As stipulated in the EC dated. 01.08.07, in lieu of the 25 acres of green belt area to be utilized for the project, green belt shall be developed in an area of 10 acres between coal handling plant and cooling tower of stage II. Additionally, afforestation shall be carried out in an area of 75 acres outside the plant premises in consultation with the State Forest Department. Green Belt development shall be started along with the construction activity of the expansion project.</td><td>Green belt is being developed in an area of 10 acres between coal handling plant and cooling towers of Stage-II.
Afforestation is completed in 75 acres of land outside the plant at Thotlakonda.</td></tr>
<tr><td>13.</td><td>A water cover shall be maintained in the entire ash pond area to check fugitive emissions.</td><td>A water cover/ water sprinkling arrangement is being maintained in the ash disposal area to prevent fly ash from getting air borne during operation of the station.</td></tr>
<tr><td>14.</td><td>The project shall have a closed cycle cooling system with cooling towers.</td><td>A closed cycle cooling system using natural draft cooling towers is being provided for treating cooling water. There are two cooling towers each of 165m height.</td></tr>
<tr><td>15.</td><td>The recommendations/commitments made during the Public Hearing held on 9.1.2007 at Zilla Parishad Girls High School, Parawada, Visakhapatnam Distt shall explicitly be followed from pollution control point of view.</td><td>Being complied.</td></tr>
<tr><td>16.</td><td>The proponent shall submit water balance in KLD indicating quantity of water consumed losses, waste water generated, treatment, quantity of waste water recycled/reused and point of final disposal for each purpose/stream in a tabular formal with in 15 days.</td><td>The proposed water balance diagram has been incorporated in EIA study report prepared for the project.</td></tr>
</table>

(END)

COMPLIANCE STATUS
OF
ENVIRONMENTAL CLEARANCE
Stage-I (2x500 MW)

NTPC Limited
SIMHADRI SUPER THERMAL POWER STATION

ENVIRONMENT MANAGEMENT GROUP
NTPC-SIMHADRI (PO)
PIN: 531 020
Andhra Pradesh

March, 2016

NTPC-SIMHADRI SUPER THERMAL POWER STATION

ENVIRONMENTAL CLEARENCE

Stage – I (2X500 MW)

Sl. No.	Conditions Stipulation	Status of Implementation as on 31.03.2016
1.	The Consent Order no. 20/PCB/C.Estt./RO-VSP/AEE-VIII/95 dated 13th November, 1995 of Andhra Pradesh Pollution Control Board for establishment of Simhadri Thermal Power Project should be got transferred in favour of NTPC Limited, the executing agency.	The consent orders for establishment of Simhadri TPP has been transferred vide order no. 20/PCB/C.Estt/RO-VSP/AEE-N/96-3828 dtd. 06.09.96 in the name of NTPC Limited by APPCB.
2.	A bi-flue of height 275 metres with continuous stack monitoring facility should be installed.	A bi-flue stack of height 275 meters has been constructed.
3.	The Electro Static Precipitators(ESP) having efficiency of not less than 99.8% shall be installed and it should be ensured that particulate emission would not exceed prescribed limit of 150 mg/Nm3.	The Electro Static Precipitators (ESP) having 64 fields with efficiency of >99.93% installed to ensure Particulate matter of less than 115 mg/NM3
4.	A closed circuit cooling device should be provided. The water requirement should be limited to 600 cum/hr from the Yeleru Canal and 9100cum/hr from the sea. The proposed pipeline of 6.0 km. for Seawater intake should conform to the regulation of the Coastal Zone Notification of February 1991.	A closed circuit type Circulating Cooling Water System using Natural Draft Cooling Towers have been provided. There are two cooling towers each of 165m height. The water requirement is limited to $600m^3$/hr. which is drawn from Yeleru canal. The sea water pumps are rated for $9000m^3$/hr. Make-up water to CW system is drawn from the sea through underground pipelines.
5.	Adequate space should be provided for installation of FGD plant in future for control of sulphur dioxide.	Adequate space has been provided in the layout for installation of FGD plant in future for control of Sulphur dioxide, if necessary.
6.	Acquisition of land should be restricted to 2381.00 acres including the area of 630 acres for ash disposal.	Although the land required for plant, including ash disposal area is 2381 acres, additional land of about 1063 acres was acquired for diversion nalla, railway corridors etc.
7.	Only beneficiated coal to the tune of 14,844 tonnes/day should be used. Fly ash generated to the tune of 33.5 million CUM should be collected in dry form in silos and fully utilized in a phased manner. Presently, plan has been drawn for utilization of 20% ash. A detailed scheme for full utilization should be submitted to the ministry by 31st December 1996. For avoiding	NTPC approached MOEF vide letter dated 16.12.1997 and 16.01.1998 regarding the permission to use raw coal. MOEF vide letter dated 06.02.1998 has given no objection in using the raw coal. Dry Ash Extraction and Collection Systems have been provided for supply of quality ash to entrepreneurs. Initially an ash utilization plan was submitted to MOEF vide letter dated 09.06.1997 and is

	contamination of ground water, ash pond should be suitably lined and dyked.	being revised as per the directions of MOEF. MOEF vide letter dated 20.05.2002 has waived the ash pond lining.
8.	Noise level should be limited to 85 dB(A) and regular maintenance of equipment be undertaken. For people working in the area of generator halls and other high noise areas, earplugs should be provided.	Individual equipments have been designed with 85 dB (A) noise limits. Regular maintenance of equipments are undertaken to keep noise levels within limits. For people working in of generator halls and other high noise area are provided with appropriate ear protection devices at the site.
9.	A Rehabilitation Master Plan covering details of the provision made for rehabilitation of 150 families, compensation package, training facilities etc., should be submitted within four months i.e., by November 1996. The plan should specifically indicate the schedule and implementation.	District Collector, Visakhapatnam during a meeting held on 12.10.1998 on R&R opined that, in view of the negotiated compensation, there is no need for a RAP as per R&R policy of NTPC for Simhadri TPP. Accordingly, NTPC vide letter dated 10.12.98 has communicated MoEF the decision of District Collector, Visakhapatnam enclosing the MOM held on 12.10.1998. NTPC has undertaken community development activities in the nearby villages. Facilities like approach road to villages, drinking water, school building, hospital etc for the people of the villagers have been undertaken.
10.	For controlling fugitive dust, regular sprinkling of water in coal handling and other vulnerable areas of the plant should be ensured.	Dust Suppression System has been provided in coal handling area including coal stock yard area for control of coal dust. For Track Hopper and Coal Stockyard water spray system is being used which comprises of fine spray nozzles.
11.	Afforestation should be undertaken covering an area of 292 acres and should be implemented in a phased manner. After care, gap filling and monitoring should be ensured. A norm of 1500-2000 trees per ha should be followed. The afforestation plan may be submitted by November 1996 and the schedule given in it is adhered to strictly.	An afforestation plan was submitted to MoEF vide letter dated 09.12.1996. The tree Plantation at the station is about 8 lakhs at an area nearly 600 acres as on today. Besides this 3.2 lakhs trees are planted under Green Visakha.
12.	Continuous monitoring of ground water should be undertaken by establishing good network of observation wells in consultation with the Central Ground Water Board. Results and data collected should be analysed to ascertain the status of water quality and findings should be submitted for evaluation.	Monitoring of Ground Water around ash disposal area is being done regularly and the data is being submitted to Regional Office of MoEF, Bangalore on Half-yearly basis and every month to APPCB.

13.	All effluents generated in various plant activities should be collected in the Central Effluent Treatment Plant and treated to ensure adherence to specified standards of discharge. The concept of zero discharge should be adapted to a maximum possible extent.	As per specification, all the effluents generated are treated in the treatment plant at the respective point of origin. The major quantum of effluent is cooling water to which no significant pollutant is added. The outflow, after being monitored by continuous monitoring system, is sent to sea through outfall designed by NIO Goa. The concept of zero discharge has been adopted to the maximum possible extent by adopting the following: 1. Recirculation cooling water in cooling system. 2. Recirculating the ash water in ash handling system. 3. Recirculating the filter backwash water into the system. 4. Treating the main plant effluent water for turbidity and oil and same being recycling the same for re-use in the ash transportation process. 5. DM Plant effluent is sent to the ash slurry sump and then recycled back. 6. Plant clarifier sludge is put into ash slurry pump house for disposal in ash pond, which is recycled.
14.	Keeping in view that 2x520MW Thermal Power Plant by M/s. Hinduja National Power Corporation Ltd. (HNPCL) is proposed in the vicinity of Simhadri project, common facilities for coal transportation, laying of rail line etc. should be worked out in mutual consultation to avoid duplication of the facilities and acquisition of additional area.	NTPC has created facilities for coal transportation by lying of rail line etc., to cater the needs of Simhadri TPP.
15.	Financial provision of Rs. 301.55 crores should be provided for implementation of environmental mitigative measures with adequate scope for its enhancement, if required, in future	The requisite funds on environmental mitigation measures have been included and protection measures have been implemented.
16.	Regular monitoring for SPM, SO_2 and NOx around the power plant may be carried out and records maintained. The data so collected should be properly analysed and submitted to the Ministry every six months	The monitoring for SPM, SO_2 and NOx is being continued around the power plant and the data is being submitted to Regional MoEF on every six months after analysis.
17.	Full cooperation should be extended to Scientists / Officers from the Regional Office of the Ministry at Bangalore who	Full cooperation is being extended to the Scientists and officers of Regional Office of MOEF, Bangalore by site.

	would be monitoring the compliance of environmental status. Complete set of impact assessment report and the Management Plans should be forwarded to the Regional Office for their use during monitoring.	NOC, EIA report and EMP have been submitted to Regional Office of MOEF, Bangalore on 07.01.1997.
18.	Monitoring Committee should be constituted for reviewing the compliance to various safeguard measures by involving recognized local NGOs, Pollution Control Boards, Institutions, Experts etc.,	A Monitoring Committee has been constituted on 03.11.1999 as per stipulation and subsequently MoEF has been informed vide letter dated 17.11.1999. Committee is regularly meeting to review the Environment safeguards and compliance to measures.

(Contd., Page 06)

OM No. J-13011/19/94-IA-II(T) dated 6th February, 1998.

Sl.No.	Conditions	Status of Implementation as on 31.03.2016
1.	Use of coal should not exceed 16,800 tonnes per day for 100% PLF operation. Fly ash should be collected in dry form and should be fully used in a phased manner. Acquisition of land for ash disposal should be restricted to 630 acres. Presently, plan has been drawn for utilization of only 20% ash. A detailed scheme should be drawn for full utilization and submitted by June, 1998 for avoid contamination of ground water; ash pond should be suitably lined and dyked.	The quantity of coal stipulated is based on data provided by NTPC. A facility for collection of dry ash has been provided for the promotion of Ash Utilization. Scheme for full Ash Utilization has been forwarded to MoEF on 09.06.1997. The ash disposal area has been restricted to 630 acres. The issue of lining of ash dyke was taken up with MoEF. MoEF vide letter dated 20.05.2002 has waived the ash pond lining.

(Contd. Page.07)

OM No. J-13011/19/94-IA-II (T) dated 20th May, 2002.

S. No.	Conditions	Status of Implementation as on 31.03.2016
3.	Keeping in view the findings of the study report and geo-hydrological conditions in the region, Ministry partially modifies condition no. 2(viii) of the environmental clearance issued for the project vide its letter of even number dated 23rd July, 1996 regarding **lining of ash pond**. The ash disposal area identified for the project need not be lined. However, following mitigation measures should be ensured during operation of the plant.	The condition of ash pond lining has been waived off vide MoEF letter dated 20.05.2002. Monthly monitoring of Ground Water Analysis is being done around the plant and Ash Dyke locations as per State Pollution Control Board guidelines. These reports are being submitted to APPCB.
i)	No earth/ clay matter should be removed from the ash dyke hence forth for any activity related to the project.	Noted.
ii)	Leachate collections should be undertaken through Lysimeter at 6-10 locations around the ash dyke and monitoring report should be regularly submitted along with its analysis for ascertaining its change in water quality. For facilitating comparison, continuous monitoring of ground water quality should be immediately initiated to serve as baseline data.	Lysimeter have been installed at 3 locations near ash pond. No leachate is found.
iii)	In the initial period, only fly ash should be discharged in ash dyke due to its grain size being similar to soil profile.	Noted.
iv)	Green belt should be created around the ash dyke for controlling fugitive dust. A detailed proposal indicating area coverage and phased action plan should be submitted within three months.	Land is not available around Ash Dyke to raise green belt. For control of fugitive dust, water cover is being maintained on the ash ponds.
4.	NTPC should ensure strict implementation of all other environmental conditions stipulated in the clearance letter and its subsequent amendments.	Noted.

(End)

COMPLIANCE STATUS
OF
ENVIRONMENTAL CLEARANCE
Stage-II (2x500 MW)

NTPC Limited
SIMHADRI SUPER THERMAL POWER STATION

ENVIRONMENT MANAGEMENT GROUP
NTPC-SIMHADRI (PO)
PIN: 531 020
Andhra Pradesh

March, 2016

NTPC-SIMHADRI SUPER THERMAL POWER STATION

ENVIRONMENTAL CLEARENCE

Stage – II (2X500 MW)

Sl.NO.	CONDITIONS STIPULATED	Status of Implementation as on 31.03.2016
3).		
i).	No activities in CRZ area shall be taken up without obtaining requisite prior clearance under the provisions of the CRZ notification, 1991.	The CRZ area clearance was accorded by MOEF, vide letter dated 25.06.2008.
ii).	Ash and sulphur content in the coal to be used as fuel shall not exceed 45% and 0.6% respectively.	Being complied.
iii).	Space provision shall be made for installation of Flue Gas De-sulphurisation (FGD) of requisite efficiency of removal of SO_2, if required at later stage.	Adequate space had been provided in the layout for installation of FGD plant in future for control of Sulphur dioxide, if necessary.
iv).	A bi-flue Stack of 275 m height with exit velocity of at least 22.2. M/sec shall be provided with continuous online monitoring system.	A bi-flue stack of 275 meters height has been constructed. Exit velocity of more than 22.2 m/sec is being maintained. Continuous online stack monitoring facility for measurement of Particulate, SO_2 and NO_x shall be provided.
v).	High efficiency Electrostatic Precipitators (ESPs) having efficiency of 99.9% shall be installed so as to ensure that particulate emission does not exceed 100 mg/Nm3.	The electrostatic precipitators are designed for an efficiency of more than 99.93 % so as to maintain the particulate emission below 100 mg/Nm^3.
vi).	Closed cycle cooling system with natural draft cooling towers shall be provided.	A closed cycle circulating cooling water system using Natural Draft Cooling Towers (NDCT) has been provided.
vii).	Treated effluents conforming to the prescribed standards shall be re-circulated and reused within the plant. The discharge, if any, into the sea shall be at ambient temperature from the cold side.	Provisions were made to re circulate cooling water blow down and ash pond effluents. The cooling tower blow down is being used significantly for ash transportation. The effluent treatment system comprising of neutralization pit (reused for ash slurry preparation after treatment), oil and grease separator, sediment tank, cooling towers etc have been provided. The effluents are treated adequately and discharged through Marine outfall. The treated effluent is conforming to the regulatory standards.
viii).	Rain water harvesting should be adopted. Central Ground Water Authority/Board shall be consulted for	Rain Water Harvesting structures like recharge well, Contour Built Filters with check dams and Rain Water Harvesting

	finalization of appropriate rain water harvesting technology within a period of three months from the date of clearance.	Pond is created in Simhadri Plant and Township areas as suggested by Central Ground Water Board. They have suggested to monitoring ground water levels and quality at regular intervals which is being complied with religiously.
ix).	Fly ash shall be collected in dry form and its 100 % utilization shall be achieved within 9 years in accordance with the notification on Fly Ash Utilization SO 763 (E) dated 14th September, 1999 and its amendments made therein from time to time.	Provision is being made for 100 % collection of fly ash from DAES in dry form along with rail cum road loading facility to comply with the Gazette notification.
x).	Regular monitoring of groundwater including heavy metals shall be undertaken around the ash dyke and the project area to ascertain the change, if any, in the water quality due to leaching of contaminants from ash disposal area.	Monitoring of ground water including heavy metals is being done regularly. The points are selected with the help of Central Ground Water Board directions.
xi).	Noise level should be limited to 75 dB (A). For people working in high noise areas, protective devices such as ear plugs etc, shall be provided.	The ambient noise level at plant boundary is well within 75 dB (A). The workers in generator halls and other high noise area are provided with appropriate ear protection devices.
xii).	In lieu of the 25 acres of green belt area to be utilized for the project, green belt shall be developed in an area of 10 acres between coal handling plant and cooling towers of stage-II. Additionally, afforestation shall be carried out in an area of 75 acres outside the plant premises in consultation with the state forest department.	Afforestation in 75 acres of land is completed at Thotlakonda area. Green belt in an area of 10 acres between coal handling plant and cooling towers of Stage-II, has been developed.
xiii).	Regular monitoring of the air quality shall be carried out in and around the power plant and records shall be maintained. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Six monthly reports shall be submitted to this Ministry.	The AAQ monitoring is being done The locations have been finalized in consultation with SPCB. The monitoring results are submitted regularly as per stipulation. Half-yearly AAQ Monitoring Reports are being submitted regularly.
xiv).	For controlling fugitive dust, regular sprinkling of water in vulnerable areas of the plant shall be ensured.	Dust suppression systems are provided in coal handling area including coal stock yard for control of coal dust. Dry fog dust suppression system (Conflow) is provided

xv).	The project proponent should advertise in at least two local newspapers widely circulated in the region around the project, one of which should be in the vernacular language of the locality concerned, informing that the project has been accorded environmental clearance and copies of clearance letter is available with the State Pollution control Board/Committee and may also be seen at website of the Ministry of Environment and Forests at http:/www.envfor.nic.in	The information of Environmental Clearance was published in four news papers on 11.08.2007. 1. "Vaarta" on 11.08. 2007 in vernacular language. 2. "The Hindu" on 11.08.2007 in English. 3. "Eenaadu" on 11.08.2007 in vernacular language. 4. "Deccan Chronicle" on 11.08.2007 in English.
xvi).	A separate environment monitoring cell with suitable qualified staff should be set up for implementation of the stipulated environmental safeguards.	An Environment Management Group (EMG) has been set up at Simhadri TPP. Additional General Manager heads this group. EMG has sufficient trained manpower for environmental monitoring and other environmental related activities to ensure compliance with statutory requirements. It interacts regularly with the State Pollution Control Board. The Environmental laboratory at Simhadri STPP is adequately equipped for monitoring of ambient air quality, stack emission water/effluent quality, etc.
xvii).	Half yearly report on the status of implementation of the conditions and environmental safeguards should be submitted stipulated to the ministry, the Regional Office, CPBC and SPCB.	Half yearly reports on the status of implementation of the conditions and environmental safeguards are being submitted to MOEF/regularly.
xviii).	Regional Office of the Ministry of Environment & forests located at Bangalore will monitor the implementation of the stipulated conditions. A completed set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information/ clarifications submitted subsequently to this ministry should be forwarded to the Regional Office for their use during monitoring.	A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information/clarifications submitted to MOEF have been forwarded on 08.08.2007 to the Regional Office of MOEF at Bangalore.
xix).	Separate funds should be allocated for implementation of environmental protection measures along with item-	The requisite funds for environmental mitigation measures have been included in the project cost. Financial provision

	wise break-up. This cost should be included as part of the project cost. The funds earmarked for the environment protection measures should not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	stipulated exclusively towards environmental mitigate measures which are being implemented in totality.
xx).	Full cooperation should be extended to the Scientists / Officers from the Ministry / Regional Office of the ministry at Bangalore / the CPCB / the SPCB during monitoring of the project.	Full Cooperation is being extended to the statutory Officials.
4).	The Ministry reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry.	Noted
5).	The environmental clearance accorded shall be valid for a period of 5 years to the start of production operations by the power plant.	Noted
6).	In case of any deviation or alteration on the proposed project from that 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 incorporate additional environmental protection measures required, if any.	Noted
7).	The above stipulations shall be enforced among others under the Water (Prevention and Control Pollution) Act, 1947, the Air (Prevention and Control of Pollution) Act. 1981, the Environment (Protection) Act, 1986, the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989, the public Liability Insurance Act, 1991 and its amendments.	Noted

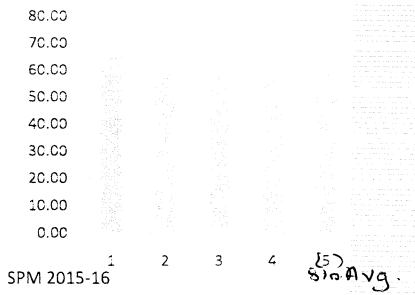
(End)

Monitoring Report- 2015-16

Index

Emission Inventory 2015-16

Description	u 1	u 2	u 3	u4	Total Yearly Emission Tons/year	Specific Emission g/KWhr
Flue Gas flow Nm3/hr	2213901.3	2131813.6	2183373.7	2132669.7		
SPM in tons/yr	1308.0	1114.5	1013.3	1048.9	**4484.7**	0.310
Sox in tons/yr	21074.6	19448.0	19797.5	19986.0	**80306.1**	5.550
Nox in tons/yr	6451.7	5567.6	5390.2	5382.0	**22791.4**	1.575



SPM 2015-16

SPM													
	Mar	Feb	Jan	Dec	Nov	Oct	Sept	Aug	July	June	May	April	Average
Unit-1	55.50	55.50	52.50	59.50	76.00	54.00	59.50	81.50	71.00	77.50	85.00	82.00	67.46
Unit-2	57.00	56.00	56.00	66.00	74.00	46.00	93.00	86.00	U/s	59.50	73.50	82.00	68.09
Unit-3	50.50	53.00	53.00	47.00	59.00	52.00	71.50	55.00	71.50	65.50	55.00	65.00	58.17
Unit-4	51.00	52.50	56.00	37.50	65.00	47.00	60.50	92.50	71.00	42.50	46.00	56.50	56.50
													62.55

SOX													
	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	Average
Unit-1	**970**	1175	1235	1440	1195	1080	1230	1000	980	945	885	905	1086.67
Unit-2	**1005**	1235	1160	U/s	1050	1080	1170	990	983	985	883	915	1041.41
Unit-3	**1005**	1000	1226	1275	805	980	U/s	1160	1195	925	855	960	1035.09
Unit-4	**1015**	1225	1040	1240	1285	1000	1065	1143	1025	945	915	940	1069.79
													1058.24

NOX													
	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	Average
Unit-1	**435**	410	505	365	338	265	355	273	263	245	268	273	332.67
Unit-2	**260**	349	365	U/s	280	245	320	293	298	309	282	280	298.14
Unit-3	**262**	210	403	315	218	230	U/s	315	298	300	270	280	281.82
Unit-4	**265**	251	295	326	325	263	300	303	285	300	278	268	288.08
													300.18

*U/s :under shutdown

Station	Bal Bharati School				R & D Building				KALAPAKA				PITTA VANI PALEM	DASARI PETA	DEWADA
2015-16	BBPS SO_2	BBPS NO_X	BBPS PM10	BBPS PM2.5	R&D SO_2	R&D NO_X	R&D PM10	R&D PM2.5	Kalpaka SO_2	Kalpaka NO_X	Kalpaka PM10	Kalpaka PM2.5	PVP PM10	DSP PM10	DVD PM10
Mar'16	**15.6**	**27.5**	**19.0**	**26.7**	**21.2**	**24.1**	**41.7**	**22.4**	**17.9**	**32.0**	**43.3**	**18.7**	**46.9**	**67.6**	**56.8**
Feb'16	13.1	23.6	17.7	34.0	17.8	22.8	49.1	28.6	14.7	27.5	45.1	16.2	65.9	74.9	61.2
Jan'16	18.9	22.6	19.0	45.5	17.4	32.7	71.6	45.8	14.6	19.6	63.8	22.0	93.7	89.0	97.2
Dec'15	14.9	23.8	19.0	25.2	17.4	34.7	70.7	35.5	16.8	26.5	62.9	20.5	86.9	77.2	98.3
Nov'15	17.9	24.9	19.0	26.2	18.7	28.4	64.8	34.6	21.1	27.1	65.2	26.2	74.7	73.6	78.7
Oct'15	18.7	31.4	19.0	27.8	15.5	29.9	62.3	34.9	20.5	51.0	61.5	32.4	53.7	72.7	75.1
Sep'15	17.7	17.4	35.6	13.5	15.3	12.8	32.7	17.4	16.2	12.7	34.2	13.9	57.5	59.4	41.1
Aug'15	23.3	22.3	31.3	13.5	15.4	15.0	33.1	18.1	16.6	14.8	31.7	12.5	55.7	56.2	47.8
july'15	17.8	18.2	37.9	17.3	14.7	13.5	37.2	21.4	18.9	25.6	39.1	16.2	66.0	69.9	54.1
Jun'15	14.4	26.4	22.7	15.6	19.1	20.3	49.3	16.5	22.0	32.1	50.5	18.3	76.1	59.0	50.8
May'15	14.4	26.4	22.7	15.6	19.1	20.3	49.3	16.5	22.0	32.1	50.5	18.3	76.1	59.0	50.8
Apr'15	11.9	22.9	26.7	14.1	17.6	18.0	28.1	15.6	19.5	28.6	24.9	11.6	36.9	39.6	41.9
Averages	**16.6**	**24.0**	**24.1**	**22.9**	**17.4**	**22.7**	**49.2**	**25.6**	**18.4**	**27.5**	**47.7**	**18.9**	**65.8**	**66.5**	**62.8**

2015-16

Simhadri Effluent Monitoring Report

Parameter	April	May	June	July	August	September	October	November	December	January	February	March	Average
pH	8	8	8	8	8	8	8	8	8	8	8	8	8
Free chlorine as Cl2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Diff Temp	2	2	2	2	2	2	2	2	2	2	2	2	2
Conductivity	63215	68912	68322	63105	60788	52887	60788	52887	54780	56530	58990	58415	59968
TDS at 180°C	36667	40065	39393	35517	34042	29617	34042	29617	30676	33250	33880	33127	34158
TSS	55	27	30	28	31	28	31	28	22	22	28	28	30
D.O	6	6	6	5	6	5	6	5	6	6	6	5	6
BOD	65	72	72	69	64	68	64	68	63	60	69	67	66
COD	295	395	323	313	290	295	290	295	267	252	267	265	296
Phosphates as PO_4	0	0	0	0	1	0	1	0	0	0	0	0	0
Oil &Grease	2	1	1	1	2	1	2	1	1	1	1	1	1
Iron as Fe	0	0	0	0	0	0	0	0	0	0	0	0	0
Chromium as Cr	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zinc as Zn	0	0	0	0	0	0	0	0	0	0	0	0	0
Copper as Cu	0	0	0	0	0	0	0	0	0	0	0	0	0
Mercury as Hg	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic as As	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead as Pb	0	0	0	0	0	0	0	0	0	0	0	0	0
Cadmium as Cd	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Township STP Reports April-15 to March-16

Parameter	apr	may	jun	jul	aug	sep	oct	nov	dec	jan	feb	mar
pH	7.4	**7.8**	7.4	7.7	7.5	8.1	8.1	8.1	7.5	7.8	7.5	7.7
TSS	21.7	**22.3**	20.7	21.7	18.0	21.7	24.7	21.7	17.3	19.0	22.3	20.0
BOD	18.3	**20.3**	335.3	17.3	13.7	484.3	446.7	484.3	448.3	420.0	510.0	345.0
COD	74.7	**85.3**	15.3	94.0	85.7	13.0	11.0	13.0	11.3	10.0	345.3	19.0
TDS	436.7	**415.0**	62.0	383.3	423.3	81.7	69.0	81.7	62.3	60.0	70.3	80.0
Oil & Grease	2.3	**1.9**	1.9	NIL	NIL	NIL	NIL	NIL	NIL	NIL	0.0	0.0

Plant STP Reports April-15 to March-16

Parameter	apr	may	jun	jul	aug	sep	oct	nov	dec	jan	feb	mar
pH	8.1	8.2	8.0	8.1	8.1	8.1	8.1	7.9	7.5	7.8	7.2	7.3
TSS	25.7	31.0	30.7	27.0	25.0	29.3	24.7	25.0	17.3	19.3	28.0	26.0
BOD	16.3	15.0	78.0	17.7	15.3	83.3	69.0	68.0	62.3	62.7	12.3	40.3
COD	63.3	56.3	19.0	90.0	88.3	13.7	11.0	11.3	11.3	10.3	64.3	51.0
TDS	2938.3	2851.7	2786.7	1759.0	1960.0	1710.0	446.7	1343.3	448.3	1154.7	2200.0	2682.0
Oil & Grease	1.8	2.3	2.7	NIL	NIL	NIL	NIL	NIL	NIL	NIL	1.9	0.0

Ground Water

LOCATION: KATRUNAIDUPALEM

Parameter	Mar, 15	apr,15	may,15	june,15	jul,15	aug,15	sep,15	oct,15	nov,15	dec, 15	Jan, 2016	Feb, 2016	March, 16
pH	8.05	7.5	8.35	7.9	8.05	8.2	8.2	8.35	7.35	7.15	7.1	7.22	7.64
Temp	28	25	25	28	27	27	27	25	25	20	20	20	21
Cond	1480	1570	1370	1610	1270	1220	1050	1140	1060	1800	1910	1510	1600
TDS	960	1020	890	1050	820	790	680	750	690	1200	1380	920	1110
TSS	5	5	5	5	5	5	5	8	8	12	10	9	8
DO	-	-	-	-	-	-	-	-	-	-	-	-	-
BOD	-	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil & Greese	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Alkalinity as CaCO3	240	105	90	160	180	120	1250	150	225	190	160	175	180
Fluoride as F	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5
Chloride as Cl	195	195	180	170	160	125	130	160	105	155	210	180	200
Sulphate as SO4	92	80	85	115	75	35	90	112	95	110	105	106	100
Phosphate as PO4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrate as NO3	40.5	44.6	44.8	48.8	42.8	25.7	42.8	45.4	105	18	15	18	14.4
Silica	46.2	18.4	100	45.5	36.3	23.3	22.2	20.7	19.8	17.5	21.4	16.2	20.6
Calcium as Ca	310	320	310	260	180	115	165	215	215	220	240	220	260
Magnesium as Mg	110	120	100	120	130	105	140	175	175	210	220	200	230
Total Hardness	420	18.4	54.2	380	310	220	305	390	390	430	460	420	490
Sodium as Na	98.2	440	80.5	75.8	95.4	78.4	84.4	67.7	52.3	90.7	105.2	68.6	101.4
Potassium as K	12.3	10.4	10.8	13.8	9.8	5.8	9.8	11.6	3.8	8.9	10.3	14.5	10
Iron	0.06	0.05	0.06	0.06	0.05	0.05	0.06	0.05	0.05	0.06	0.06	0.07	0.05
Phenolics (C6H5OH	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Coliform	Nil	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

GROUND WATER

LOCATION: PEDDAPALEM

Parameter	APR, 15	MAY, 15	june,15	jul,15	aug,15	sep,15	oct,15	nov,15	dec,15	Jan, 2016	Feb, 2016	March, 16
pH	7.85	8.25	7.7	8.2	8.1	8.2	8.2	8.2	7.8	7.5	7.7	7.25
Temp oC	24	25	27	27	27	28	25	23	21	21	21	22
Cond	1330	1410	960	980	1090	1290	1310	1240	1260	1250	1230	1400
TDS	825	920	620	640	705	850	850	790	795	810	790	850
TSS	4	5	5	15	8	5	5	5	5	5	5	5
Diss. Oxygen	-	-	-	-	-	-	-	-	-	-	-	-
BOD	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-
Oil & Greese	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Alkalinity as CaCO3	240	140	280	285	190	185	180	170	160	196	184	185
Fluoride as F	0.6	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.4
Chloride as Cl	125	155	240	210	155	120	130	130	140	130	120	110
Sulphate as SO4	85	35	55	60	38	40	55	58	55	60	55	72
Phosphate as PO4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrate as NO3	5.9	10.3	15.5	12.8	23.2	52.7	56	9.8	7.5	2	2	2.4
Silica	18.4	31.6	36.3	35.3	21.3	22.5	21.5	18.8	17.9	19.9	18.1	18.8
Calcium as Ca	290	160	130	110	140	110	120	120	120	120	120	140
Magnesium as Mg	140	70	110	110	120	120	90	110	90	85	100	100
TH as CaCO3	430	230	240	220	260	230	210	230	210	205	220	240
Sodium as Na	77.4	89.9	197.6	195.5	55.5	105.5	115.5	18.8	73.8	81.5	77	80
Potassium as K	9.6	8.5	16.2	11.4	4.4	15.4	15.8	15.2	16.2	14.3	20.1	13.9
Iron	0.06	0.04	0.04	0.06	0.04	0.04	0.05	0.04	0.04	0.04	0.08	0.04
Phenolics (C6H5OH	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Coliform	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

GROUND WATER

LOCATION: ISLAMPET

Parameter	apr,15	may,15	june,15	jul,15	aug,15	sep,15	oct,15	nov,15	dec,15	Jan, 2016	Feb, 2016	March, 16
pH	7.2	7.9	7.25	7.9	7.85	8.05	8.05	7.4	7.7	7.7	7.52	7.5
Temp oC	25	25	28	26	28	28	24	24	21	21	21	22
Cond	1920	2180	3820	1280	750	630	1280	1110	2050	2700	2200	2900
TDS	1270	1410	2510	830	490	410	805	720	1320	1750	1110	1810
TSS	5	5	38	14	17	5	5	5	5	5	5	5
Diss. Oxygen	-	-	-	-	-	-	-	-	-	-	-	-
BOD	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-
Oil & Grease	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Alkalinity as CaCO3	220	210	470	315	140	160	180	160	140	260	190	280
Fluoride as F	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.6
Chloride as Cl	430	405	940	250	140	60	130	132	180	402	310	385
Sulphate as SO4	110	120	195	80	24	42	65	62	80	102	92	105
Phosphate as PO4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrate as NO3	9.1	7.8	3.7	0.5	0.5	0.5	0.5	0.5	14.6	4.6	2.9	4.9
Silica	18.5	33.8	49.4	28.5	21.5	18.9	17.7	18	22	22	14.4	21.4
Calcium as Ca	390	410	380	140	130	110	110	130	140	370	350	380
Magnesium as Mg	180	210	540	220	90	80	80	80	110	160	120	180
TH as CaCO3	570	620	920	360	220	190	350	210	250	530	470	560
Sodium as Na	162.5	135.5	474.6	171.6	35.6	45.4	51.6	86.6	95.5	114.8	144	110.2
Potassium as K	19.8	14.8	38.5	15.5	3.5	4.2	4.7	7	10.2	27.9	32.4	25.6
Iron	0.05	0.05	0.06	0.04	0.04	0.04	0.04	0.04	0.06	0.06	0.08	0.05
Phenolics (C6H5OH)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Coliform	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

GROUND WATER

LOCATION: PITTAVANIPALEM SCO(

Parameter	apr,15	may,15	june,15	jul,15	aug,15	sep,15	oct,15	nov,15	dec,15	Jan, 2016	Feb, 2016	March, 16
pH	7.8	8.4	7.5	7.5	7.75	8.05	7.87	7.3	7.5	7.4	7.4	7.41
Temp	24	27	27	27	28	28	26	24	20	20	20	22
conductivity	3010	2400	2220	2360	2360	2360	2230	1980	2100	2500	2500	2600
TDS	1750	1560	1436	1530	1420	1550	1450	1230	1340	1620	1620	1560
TSS	5	5	5	5	5	5	5	5	5	5	5	5
DO	-	-	-	-	-	-	-	-	-	-	-	-
BOD	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-
Oil & Greese	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Alkalinity (M)	145	360	259	260	100	120	130	170	180	250	250	220
Fluoride as F	0.9	0.8	0.9	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5
Chloride as Cl	390	370	435	410	295	297	290	380	395	345	345	340
Sulphate as SO4	140	105	118	105	95	140	150	150	145	150	150	100
Phosphate as PO4	<0.01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrate as NO3	45	41.2	51.8	61	130	8.9	9.8	32.5	35.7	15.6	15.6	18.8
Silica	41.9	41.9	43.3	39.8	25.5	24	21.6	20.5	19.5	21	21	19
Calcium as Ca	490	290	360	370	310	375	290	320	320	340	340	310
Magnesium as Mg	190	150	220	240	220	230	180	210	190	250	250	210
Total Hardness	680	440	580	610	530	605	470	530	510	590	590	520
Sodium as Na	145.8	260.8	210.2	176.8	96.8	62.8	96.5	151.8	165.8	170.3	170.3	80
Potassium as K	0.05	18.6	27.8	24.1	12.4	5.4	7.8	22.8	20.8	22.5	22.5	64.6
Iron as Fe	0.05	0.05	0.06	0.05	0.06	0.05	0.04	0.04	0.04	0.04	0.04	0.07
Phenolics (C6H5OH)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Coliform	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

GROUND WATER

Dasaripetta

Parameter	APR, 15	MAY,15	JUN, 15	jul,15	aug,15	sep,15	oct,15	nov,15	dec,15	Jan, 2016	Feb, 2016	March, 16
pH	7.85	8.1	7.5	7.6	7.7	8.25	7.95	7.95	7.4	7.3	7.3	7.66
Temp°C	24	24	27	27	28	28	26	24	21	21	21	22
cond	1330	1390	1640	1510	1240	1510	1490	1490	1740	1910	1910	1800
TDS	825	910	1080	980	750	980	980	980	1110	1210	1210	1100
TSS	4	4	4	5	5	5	5	5	5	5	5	5
Diss. Oxygen	-	-	-	-	-	-	-	-	-	-	-	-
BOD	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-
Oil & Greese	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Alkalinity as CaCO3	240	220	520	560	29	305	320	320	305	280	280	282
Fluorideas F	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6
Chloride as Cl	165	130	250	220	140	110	140	140	155	155	155	160
Sulphate as SO4	85	80	60	52	30	40	70	70	80	90	90	84
Phosphate as PO4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrate as NO3	10.6	9.2	11.6	207.4	12.5	9.8	11.3	11.3	14	5.5	5.5	9.1
Silica	20.5	39	41.1	14.4	21.8	19.9	18.5	19	19.5	18.6	18.6	15.1
Calcium as Ca	290	39.7	180	190	180	180	150	150	150	250	250	230
Magnesium as Mg	140	240	280	290	260	250	130	130	120	140	140	150
TH as CaCO3	430	140	460	480	440	430	280	280	270	390	390	380
Sodium as Na	78.2	380	216.4	207.4	54.6	48.6	144.3	145.2	160.2	210.5	210.5	125.2
Potassium as K	10.5	4.8	12.5	8.2	6.4	4.4	11.9	17.8	14.8	19.6	19.6	25.6
Iron as Fe	0.06	0.06	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.08
Phenolics (C6H5O	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Coli Form in 100ml.	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

एनटीपीसी NTPC
एक महारत्न कम्पनी

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

सिम्हाद्रि / Simhadri

SMPP;F&A:Comml./2016-17/25

Date: 05.07.2016

To

Additional General Manager (F&A),
Singareni Bhavan, Red Hills,
P.B.No.: 18, Khairatabad (P.O.),
Hyderabad – 500 004.

Dear Sir,

Sub.: Debit notes for interest on belated payments-reg
Ref.: Your debit notes raised vide HYD/FAD/CA/2016-17/214 and 215 dated 30.6.16

We are in receipt of two debit notes raised vide the reference cited above. In this regard, you are requested to send the debit notes/credit notes addressed to General Manager (Fuel Management), NTPC Simhadri, Deepanjalinagar, Parawada, Vizag – 531020 as the fuel department is the competent person for processing all bills/invoices/debit notes/credit notes raised by SCCL.

Hence, you are requested to forward the above cited debit notes to Fuel department. This letter is written without prejudice to our rights for contesting your interest claim.

Thanking you,

Yours faithfully,

F-188
09/7/16

08.7.2016

सिम्हाद्रि थर्मल पावर प्रोजेक्ट, पोस्ट : एनटीपीसी सिम्हाद्रि - 531 020. जिला : विशाखपट्टणम (आं.प्र.)
Simhadri Thermal Power Project, Post : NTPC Simhadri - 531 020. Dist. : Visakhapatnam (A.P.)
Phone No. : 00-91-8924-243053 / 243874 Fax : 0243092

GROUND WATER

Parameter	Apr, 16	May, 15	june,15	jul,15	aug,15	sep,15	oct,15	nov,15	dec,15	Jan, 2016	Feb, 2016	March, 16
pH	7.95	8.3	8.05	8.2	8.35	8.35	7.9	7.7	7.7	7.6	7.64	7.8
Temp oC	23	23	27	27	27	27	25	24	22	22	22	21
cond	2460	2300	21085	2110	2400	2680	2740	2290	2700	2900	2700	3200
TDS	1580	1490	1350	1370	1440	1720	1780	1390	1620	1780	1490	1910
TSS	5	5	8	6	6	5	5	5	5	5	5	5
Diss. Oxygen	-	-	-	-	-	-	-	-	-	-	-	-
BOD	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-
Oil & Greese	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Alkalinity as CaCO3	275	290	320	535	260	305	320	325	3340	320	322	300
Fluoride as F	0.8	0.8	0.8	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.4	0.7
Chloride as Cl	385	350	250	280	340	305	330	330	360	355	334	340
Sulphate as SO4	55	58	170	140	90	150	170	160	180	110	132	100
Phosphate as PO4	<0.1	<0.1	<01	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrate as NO3	41.6	38.2	24.4	22	54	89.5	78.6	29.9	35.7	6.8	19.2	6.5
Silica	19.6	37.4	37	36.5	27.5	26	23	22.5	23.6	20.5	15.3	20.2
Calcium as Ca	210	230	140	140	140	150	150	180	210	160	160	170
Magnesium as Mg	70	90	10	120	110	130	130	130	140	120	140	130
TH as CaCO3	280	320	250	260	120	280	305	310	350	280	300	300
Sodium as Na	329	278	368.7	371	230	305.7	280.5	310.3	285.9	240.4	330.6	210
Potassium as K	28.9	16.8	23.2	21.2	288	25.6	28.2	27.2	23.7	25.8	38.4	23.1
Iron as Fe	0.07	0.07	0.04	0.04	0.04	0.04	0.04	0.05	0.7	0.7	0.14	0.06
Phenolics (C6H5OH)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Coliform	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

GROUND WATER

LOCATION: SOMUNAIDUPALEM

Parameter	APR, 15	May, 15	june,15	jul,15	aug,15	sep,15	oct,15	nov,15	dec,15	Jan, 2016	Feb, 2016	March, 16
PH	7.4	7.8	7.35	7.15	7	8.25	7.1	7	7	6.9	7	6.8
Temp	23	23	26	26	27	27	5.5	24	21	21	21	22
COND	1420	1750	1150	980	605	810	1070	910	1140	1600	1200	1300
TDS	940	1130	740	640	390	525	670	590	720	1045	920	870
TSS	5	5	27	27	12	10	7	7	8	8	7	9
DO	-	-	-	-	-	-	-	-	-	-	-	-
BOD	-	-	-	-	-	-	-	-	-	-	-	-
COD	-	-	-	-	-	-	-	-	-	-	-	-
Oil & Greese	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Alkalinity as CaCO3	70	80	130	110	70	65	80	60	55	65	54	70
Floride as F	0.7	0.7	0.7	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.8	0.7
Chloride as Cl	260	80	155	110	95	115	140	130	140	175	144	170
Sulphate as SO4	97	105	45	40	25	28	45	40	45	60	54	70
Phosphate as PO4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrate as NO3	8.4	9	4.5	3.4	5.5	4	6	6	8.5	2.2	5.8	2.8
Silica	17.8	36.8	42.8	41.5	19.5	21	19.5	18.4	16.5	18.4	14.2	18.9
Calcium as Ca	280	290	90	95	80	80	150	120	120	160	150	170
Magnesium as Mg	150	160	120	125	110	90	110	70	75	110	100	120
TH as CaCO3	430	450	210	220	190	170	260	190	195	270	250	290
Sodium as Na	127.8	62.8	83.1	72.5	32.8	44.6	35.4	42.8	45.5	56.9	280	55.2
Potassium as K	11.6	7.6	6.8	6.2	2.2	3.8	2.6	3.8	4.5	4.9	11	3.5
IRON as Fe	0.05	0.05	0.05	0.05	0.03	0.04	0.04	0.04	0.04	0.04	0.09	0.05
Phenolics (C6H5O	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL

GROUND WATER

LOCATION: SWAYAMBHUVARAM

Parameter	apr,15	may,15	june,15	jul,15	aug,15	sep,15	oct,15	nov,15	dec,15	Jan, 2016	Feb, 2016	March, 16
pH	7.05	8	7.2	7.2	8.15	8.2	8.1	7.1	7	6.8	6.8	7
Temp oC	24	24	28	28	24	28	25	24	21	21	21	21
Cond	1930	1990	1760	1760	1940	1810	1670	1670	1790	1190	1190	1720
TDS	1215	1305	1145	1145	1270	1180	1090	1090	1160	890	890	1010
TSS	5	5	85	5	5	5	5	5	5	5	5	5
Diss. Oxygen	-	-		-	-	-	-	-	-	-	-	-
BOD	-	-		-	-	-	-	-	-	-	-	-
COD	-	-		-	-	-	-	-	-	-	-	-
Oil & Greese	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Alkalinity as CaCO	90	80	195	195	120	110	140	120	105	65	65	85
Fluoride as F	0.8	0.8	0.8	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5
Chloride as Cl	325	270	250	290	255	245	280	310	335	170	170	220
Sulphate as SO4	95	98	120	120	55	95	110	105	115	75	75	100
Phosphate as PO4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Nitrate as NO3	19.9	270	12.5	12.5	30.5	32.8	38.9	30	32.6	3.5	3.5	4.2
Silica	19.9	34.6	37	37	24.6	20.5	19.9	21	20	20.9	20.9	16.3
Calcium as Ca	400	380	320	320	305	325	235	260	260	160	160	190
Magnesium as Mg	110	110	185	185	185	105	205	2105	220	120	120	1340
Total Hardness	510	490	505	505	490	530	440	470	480	280	280	330
Sodium as Na	110.4	78.8	102.1	102.1	165.5	38.5	57.9	101.5	109.9	78.9	78.9	70.2
Potassium as K	11.4	6.4	11.4	102.1	11.5	3.5	6.4	15.7	13.7	11	11	11.7
Iron	0.06	0.06	0.04	0.04	0.05	0.06	0.04	0.05	0.04	0.04	0.04	0.08
Phenolics (C6H5	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Coliform	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

NOISE LEVEL MONITORING -April, 15 TO MARCH, 16.

	APR, '15		May, '15		June, '15		July, '15		AUG, '15		Sep, 15		Oct, 15		Nov, 15		Dec, 15		Jan, 16		Feb, 16		March, 16	
Limit in dB(A)	Day -75	Night -70	Day -75	Night -70	Day -75	Night -70	Day -75	Night -70	Day -75	Night -70	Day -75	Night -70	Day -75	Night -70	Day -75	Night -70	Day -75	Night -70	Day -75	Night -70	Day -75	Night -70	Day -75	Night -70
Somunaidu Palem	51.6	45.4	48.4	42.7	47.2	41.6	46.1	42.2	52.3	41.6	51.6	42.1	52.1	41.1	52.2	42.9	52.9	43	52.4	42	52.4	43.1	52.1	42.8
Swayambhuvaram	55.8	44.7	51.8	46.4	50.4	45.1	50.4	46.8	53.9	42	54.3	43.6	53.4	41.9	55.5	42.6	56.2	42.9	54.1	41.8	54.8	42.9	54.6	42.5
Kalpaka	53.2	46.4	56.4	45.7	54.8	42.8	57.1	46.3	52.1	44.6	53.2	46.4	52	44.2	54.1	45.3	54.5	45.5	53.2	43.8	54.6	46.1	54.9	46.4
Devada	53.4	43.8	51.9	48.1	51.2	47.6	53.3	47.4	52	42.1	53.1	42.6	52.3	42.8	53.4	42.7	55	44	52.4	42.2	53.2	42	53	42.8
Revada	58.7	48.1	57.5	48.1	56.4	48.3	56.3	47.4	58.1	48.4	58.6	49.1	57.9	49.2	58.5	49.2	57.8	48.8	58.5	48.7	59.1	48.8	58.6	48.1
Nunaparthy	56.4	48.7	50.8	44.7	50.4	44	50.3	45.6	58.3	50.1	57.6	48.2	58.5	49.9	56.8	48.3	57.4	49	58.2	48.8	56.6	48.6	56.1	48.4
Vadacheepurupalli	60.4	54.4	57.5	47.9	56.4	46.8	56.4	47.7	57.1	49.8	58.1	47.6	57.8	49.4	57.7	49.6	58.3	49.6	57.2	49.7	57.9	49.8	57.2	48.2
Dalaipalem	58.8	48.9	54.6	47.6	53.3	48.1	55.3	48.1	57.6	48.8	58.2	47.6	58.1	47.9	57.9	48.4	57.2	49.2	57.8	47.8	58.1	48.2	58	49.4
Paravada Jn.	62.8	55.9	63.4	49.3	61.4	50.7	66.1	59.8	60.2	52.4	61.4	53.6	61.8	53.1	63.4	52.8	62.8	53	61.5	53.2	64.4	53.4	64.8	52.1
NTPC Hospital	47.1	42.4	48.8	42.7	47.1	40.3	49.3	46.1	49.1	40	48.4	40.6	48.2	40.4	49.4	41.4	48.9	40.8	49.3	40.8	49.2	41.8	48.6	42.2