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एनटीपीसी NTPC

रामगुंडम & तेलंगाना
RAMAGUNDAM & TELANGANA

Ref.No:09/EMG/E-10/2025/ 279

Date: 24.06.2025

To

The Deputy Director General of Forests,
Integrated Regional Office, MoEF& CC, Hyderabad
Aranya Bhawan, Opp. RBI, Safiabad – 500004,
Hyderabad, Telangana.
Email: iro.hyderabad-mefcc@gov.in

Sub: Half Yearly Compliance Status Report on Environmental Clearance conditions in respect of NTPC Telangana Super Thermal Power Project (Phase-I) for October 2024 to March 2025.

Respected Sir,

Please find enclosed the Half-Yearly Compliance Status Report on the Environmental Clearance (EC) conditions for NTPC Telangana Super Thermal Power Project Phase-I (2x800 MW) for the period October 2024 to March 2025 for your kind perusal.

Thanking you

Yours faithfully

(K.V Rao)
(DGM-EMG)

के.वेंकटेश्वर राव/K.VENKATESWARA RAO
उप महाप्रबंधक (ईएमजी) / DGM (EMG)
एनटीपीसी रामगुण्डम-तेलंगाना / NTPC Ramagundam-Telangana
ज्योतिनगर JYOTHINAGAR - 505 215.

Copy to:

The Environmental Engineer,
Telangana Pollution Control Board,
Regional Office – Ramagundam,
Jyothinagar, Peddapalli (Dist), Telangana, India – 505215

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Office of the
Environmental Engineer
Telangana Pollution Control Board
Regional Office, Ramagundam,
H. No Special C-3, NTPC, TTS
Near Zilla Parishad High School
JYOTHINAGAR - 505 215
Dist Peddpalli (TG)

Telangana Super Thermal Power Project
Phase-I (2X800MW)

ENVIRONMENTAL CLEARANCE
Half-Yearly Compliance Status
(Period: October 2024 to March 2025)

Telangana Super Thermal Power Project
Phase-I (2 x 800MW)

HALF-YEARLY COMPLIANCE STATUS OF ENVIRONMENTAL CLEARANCE CONDITIONS

Vide Letter No. J- 13012/112/2010-IA. II (T) Dated 20th January 2016

Sr.No.	EC Condition	Compliance Status
A	**SPECIFIC CONDITIONS**	
(i)	As the Satellite Imagery submitted was not clear, a clear satellite imagery shall be submitted to the Ministry and its R.O. Further, latest authenticated. Satellite imagery shall be submitted on an annual basis to the Ministry and its R.O to monitor the alterations of the area.	• The study is being conducted through Telangana Remote Sensing Application Centre (TGRAC), Govt. of Telangana. Study reports are being submitted to Regional Office of MOEF&CC. • Submission of Reports to MoEF & CC is as follows. o 1st Report on 16.03.2018 o 2nd Report on 02.11.2019 o 3rd Report on 21.05.2021 o 4th Report on 22.05.2024 o 5th Report on 30.11.2025
(ii)	The PP shall ensure compliance to the Ministry's Notification. Dated 02.01.2014 regarding use of coal with ash content not exceeding thirty-four per cent, on quarterly average basis. This is to be ensured by incorporating a condition in the MoU/FSA with CIL etc. Also, if required, coal washery shall be installed.	MoEF & CC notification dated 02.01.2014 has been amended vide MoEF & CC notification dtd. 21.05.2020. TeSTPP complying with the provision of amended notification. High Efficiency ESPs to control Particulate matter have been installed for both the operational units. Particulate Matter is well with in the prescribed limit i.e 30 mg/Nm3. Stack emissions monitoring report of EPA accredited lab is attached as **Annexure-I**
(iii)	The Sulphur and ash content of coal shall not exceed 0.5% and 34% respectively. In case of variation of quality at any point of time, fresh reference shall be made to the Ministry and suitable amendments to the environmental clearance will have to be sought.	The condition of 34% ash content and 0.5% Sulphur has been amended vide MoEF & CC notification dated 21.05.2020. High Efficiency ESPs to control Particulate matter and FGD system to control SO2 emissions have been installed for both the operational units.
(iv)	FGD shall be installed as the emissions are found to be almost reaching threshold limit of 80 unit (for the worst-case scenario) and also considering the cushion w.r.t NAAQS.	FGD system has been commissioned for both the units and declared commercially operational for Unit # I & Unit # II on 15.09.2024 & 30.09.2024 respectively. The SOx value in ambient air quality is well below the NAAQS prescribed limit of 80 µg/m3. Ambient Air Quality Monitoring Reports is attached as **Annexure-II.**

Sr.No.	EC Condition	Compliance Status
(v)	NTPC shall endeavor to enter into MoUs with NHAI, Associations of Cement Industries and Municipal Authorities for ensuring ash utilization in roads construction and cement manufacturing.	As per MoP Letter No:9/7/2011-S.Th.(Vo.IV) dt 22nd September 2021, Fly Ash should be auctioned through transparent bidding process. Details of ash utilization at TeSTPP are as follow: I. Tie up and evacuation through "10LMT Pond ash EOI" is in progress. II. 3 LMT of pond ash with NHAI tied up. III. Tie up and evacuation through "4.85LMT Pond ash/Fly ash EOI to Local MSMEs" is in progress. IV. Dry Fly Ash quantity of 5.15LMT tied up. V. Dry Fly Ash of quantity 10.85LMT is under process. VI. Dry Fly Ash quantity of 4LMT for MSMEs will be done. VII. E-auction proposal of 20LMT Pond ash is under process.
(vi)	The PP shall examine possibility of relocating the ash pond. In case, the relocation of ash pond is not possible, precautionary measures by providing maximum green belt between ash pond and reservoir etc. shall be undertaken.	The location of ash pond was selected after making detailed techno feasible examination of all available options. Protection bund is constructed between ash pond and reservoir area. Ash ponds are provided with HDPE lining, geotextile layer and a concrete layer. For Green belt development between ash pond and reservoir 71200 plants have been planted with Miyawaki technique in FY 2023-24.
(vii)	Study shall be conducted regarding the impact on agricultural fields in terms of heavy metal in food chain and ground water/soil for a period of one year and the report submitted to the Ministry.	A scientific study for assessment of impact on vegetation within 10 km radius of the Telangana STPP was conducted through Tropical Forest Research Institute – Jabalpur. Study report was submitted to MOEF&CC Integrated Regional Office-Hyderabad on 29.11.2021. As per the report findings “any detrimental impact on the quality of food grain grown using the decanted water from ash pond area is not evident”.
(viii)	The Ash water Re-circulation System (AWRS) shall be immediately installed for the existing TPP. Till that time, the ash pond effluent shall not be discharged into agricultural fields etc.	Ash Water Recirculation System (AWRS) has been provided and is operational. Decanted water from Overflow Lagoon (OFL) is recirculated and reused for ash disposal. Hence there is no discharge of ash pond effluent to agricultural fields.

Sr.No.	EC Condition	Compliance Status
(ix)	The PP shall enhance the green belt of the existing TPP in compliance to the earlier EC conditions etc.	• Already extensive greenbelt has been developed over the previous years in the existing Ramagundam STPP and Township area and around the plant boundary. • Telangana STPP Phase-I units is established within the MGR Area of Ramagundam STPP, thereby eliminating the need of land acquisition, diversion of forest land and displacement of population. Although the space is limited, within the MGR Bulb area, NTPC has undertaken plantation in all available areas within and around Telangana STPP including Ramagundam STPP. • In order to increase green cover, NTPC has also undertaken plantation outside project area. • Further, plantation will also continue at all available spaces in and around the project area. Recent Plantation Details: • In 2016-17 planted 36018 plants out of which 23058 survived (67%). • In 2018-19 planted 20650 plants out of which 16116 survived (82%). • 2019-20 plantation carried in 4 packages o 10657 plants out of which 10284 survived (96.5%) 25Km of SH-1 on either sides. o 3348 plants out of which 3348 survived (100%). o 83998 plants out of which 69240 survived (82.4%) in Municipal Corporation of Ramagundam. o 19000 plants out of which 17297 survived (91%) in Municipal Corporation of Sultanabad. • In 2020-21 planted 11244 plants out of which 10709 survived (95%). • In 2021-22 planted 17,848plants out of which 17,437 survived (98%). • In 2022-23 planted 7140 plants out of which 7140 survived (100%). • In 2023-24 planted 71200 plants out of which 71200 survived (100%). • In 2024-25 plantation of 33000 plants is in progress
(x)	Long term monitoring of temperature shall be undertaken on-site and off-site of the	NTPC has awarded long term onsite and offsite temperature study to Environment

Sr.No.	EC Condition	Compliance Status
	TPP, as data of decrease in temperature needs to be Verified. Further, requisite corrective action shall be taken based on the findings of the monitoring.	Protection, Training & Research Institute (EPTRI), Hyderabad. The report was submitted to IRO via mail on 19.06.2025. The Report is attached here as **Annexure-III**.
(xi)	As the data for the health studies was more than five years old, a fresh Occupational health and epidemic health disorders survey of the study area (10 km radius) shall be conducted, and the report submitted to the Ministry and its R.O within one year.	Occupational health and epidemic health disorders survey of the study area (10 km radius) was conducted through M/s Pollucon Laboratories Pvt. Ltd, Surat in July 2018. A copy of the final report was submitted to the Regional Office (South Zone), MOEF&CC at Chennai on 25th November 2018.
(xii)	As Committed, a minimum amount of Rs. 20 Crores shall be earmarked as capital cost for CSR activities and the recurring cost per annum shall be as per the CSR Policy of GOI till the operation of the plant commences.	NTPC Telangana has spent **Rs. 23.47** Crores against the committed budget of Rs. 20 crores on CSR activities. The focus areas of CSR activities include Education, Health & Sanitation, Infrastructure development support for public buildings, skill development, sports & Culture etc.
(xiii)	Vision document specifying prospective plan for the site shall be formulated and submitted to the Regional office of the Ministry within six months.	NTPC has already submitted a project vision document to the Regional Office (South Zone), MoEF & CC at Chennai vide letter dated 06.04.2016.
(xiv)	Harnessing solar power within the premises of the plant particularly at available roof tops shall be carried out and status of implementation including actual generation of solar power shall be submitted along with half yearly monitoring report.	1150 KW Solar power generation through roof top solar within the premises of the plant is envisaged. In FY 2024-25, 685.5 KU was generated through Roof Top Solar.
(xv)	A long term study of radio activity and heavy metals contents of coal to be used shall be carried out through a reputed institute and results thereof analyzed every two year and reported along with monitoring reports. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.	Radioactivity analysis in coal and fly ash (including bottom ash) has been done through BRIT in June 2024. Reports submitted through mail on 6th Dec,2024. Radioactivity Assessment Study in Coal and Ash storage areas at Telangana STPP has been awarded to M/s. Board of Radiation & Isotope Technology, Dept. of Atomic Energy, GoI). Final report is already submitted to IRO via mail on 03.05.2025. Final Report attached along with Annexure-A. MoEF and CC issued amendment to EC General conditions No.xv vide letter No:F.No.J-13012/112/2010-IA(T); dated:21.10.2020 with the additional conditions. Compliance status is as given in **Annexure-A.**
(xvi)	Online continuous emission monitoring system for stack emission and ambient air shall be installed.	Online Continuous Emissions Monitoring System (CEMS) for stack emissions in Unit # I & II have been installed. Four Online Continuous Ambient Air Quality Monitoring System (AAQMS) have been

Sr.No.	EC Condition	Compliance Status
		installed at locations finalized in consultation with TGPCB.
(xvii)	High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm^3 or as would be notified by the Ministry, whichever is lesser. Adequate dust extraction system such as cyclones/ bag filters and water spray system in dusty areas such as in coal handling and ash handling Points, transfer areas and other vulnerable dusty areas shall be provided along with an environment friendly sludge disposal system.	The High Efficiency Electrostatic Precipitators (ESP) have been installed. The particulate matter is well with in prescribed limit 30 mg/Nm3 in both the units. Adequate dust extraction systems and suitable water spray systems are included in the design of the plant to suppress/avoid dust emissions from the coal and ash handling areas. For handling of Coal slurry generated in the Coal handling plant, Coal Slurry Settling Pond (CSSP) have been provided to collect and recycle the CHP effluents. Treated water from CSSP shall be utilized in Dust Suppression system. MoEF&CC has granted amendment to EC Specific conditions No 6A(xvii) and 6A(xxiii) vide J-13012/112/2010-IA.II(T); dated:06.03.2017. Compliance status is as given in **Annexure-B**
(xviii)	Adequate dust extraction system such as cyclones/bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty area shall be provided	Adequate Dust Extraction (DE) & Dust Suppression (DS) systems have been provided in coal handling, ash handling and other vulnerable dusty area for control of fugitive dust emissions including Dry Fog Dust Suppression (DFDS) system at all coal transfer points. Water sprinklers are also installed at dust prone locations to mitigate fugitive dust emission.
(xix)	COC of at least 5.0 shall be adopted.	Closed cycle cooling system has been designed with COC (Cycle of Concentration) of 5.0 for optimization of water requirement and same is being practiced during Unit operation on full load.
(xx)	Monitoring of surface water quantity and quality shall also be regularly conducted, and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall also be undertaken and results/findings submitted along with half yearly monitoring report.	Monitoring of surface and groundwater quality is being carried out through EPA accredited third party lab and reports are being submitted to Ministry regularly along with Six Monthly EC Compliance Report. Reports attached as **Annexure- V**
(xxi)	A well-designed rainwater harvesting	• To harness the rainwater, 35 RWH pits are

Sr.No.	EC Condition	Compliance Status
	system shall be put in place within six months, which shall comprise of rain collection from the built up and Open area in the plant premises and detailed record kept of the quantity of water harvested every year and its use.	constructed for all the building facilities. 3 no of recharge basin and 2 RWH storage pond are under construction. • To enhance the rainwater harvesting at NTPC Township, Rainwater harvesting (RWH) Study was conducted through NIH Roorkee. Study has been completed and final report submitted by NIH in Dec'23. As per the recommendations of NIH study, surface rainwater storage ponds are being constructed. PO awarded and work is under progress.
(xxii)	No water bodies including natural drainage system in the area shall be disturbed due to activities associated with the setting up/ operation of the power plant.	No water body including natural drainage system of the area has been disturbed / shall be disturbed due to activities associated with the setting up / operation of the power plant.
(xxiii)	Wastewater generated from the plant shall be treated before discharge to comply limits prescribed by the SPCB/CPCB.	Wastewater generated from the plant is being treated and reused/recycled for various purposes in plant. No wastewater is being discharged outside the plant premises and ZLD maintained. MoEF&CC has granted amendment to EC Specific conditions No 6A(xvii) and 6A(xxiii) videJ-13012/112/2010-IA.II(T);dated: 06.03.2017. Compliance status attached at point (xvii).
(xxiv)	Online continuous effluent monitoring system shall also be installed.	Online Continuous Effluent Monitoring System has been installed.
(xxv)	Additional soil for leveling of the proposed site shall be generated within the sites (to the extent possible) so that natural drainage system of the area is protected and improved.	All additional soil leveling of the project site done from within the sites only with all necessary precautions to protect natural drainage system of the area.
(xxvi)	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) shall be monitored in the bottom ash. No ash shall be disposed off in low lying area.	Dry Ash Extraction System (DAES) for collection of dry fly ash with storage facility (silos) has been provided. Dry fly ash is being issued to cement and brick manufacturers. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) have been monitored in the bottom ash through EPA accredited lab and reports submitted to MoEF & CC along with the latest six-monthly compliance report. Copy of report attached as **Annexure-VI** No ash disposal in low lying areas is being ensured.
(xxvii)	Fugitive emission of fly ash (dry or wet) shall be controlled such that no agricultural or non-agricultural land is affected. Damage to any land shall be mitigated and suitable compensation provided in consultation with the local Panchayat.	Control measures for dust / fugitive dust at source are in place with the aid of suitable pollution control devices such as dust extraction system and dust suppression system, bag filters, water fogging system, sprinklers and others.

Sr.No.	EC Condition	Compliance Status
		If any land damage is reported, then suitable compensation will be provided in consultation with the local Panchayat.
(xxviii)	Green Belt consisting of three tiers of plantations of native species all around plant and at least 50 m width shall be raised. Wherever 50 m width is not feasible a 20 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not be less than 2500 per ha with survival rate not less than 80 %	• Already extensive greenbelt has been developed over the previous years in the existing Ramagundam STPP and Township area and around the plant boundary. • Telangana STPP Phase-I units are being established within the MGR Area of Ramagundam STPP, thereby eliminating the need of land acquisition, diversion of forest land and displacement of population. Although the space is limited, within the MGR Bulb area, NTPC has undertaken plantation in all available areas within and around Telangana STPP including Ramagundam STPP. • Further, plantation will also continue at all available spaces in and around the project area. • In order to increase green cover, NTPC has also undertaken plantation outside project area **Plantation Details** • In 2016-17 planted 36018 plants out of which 23058 survived (67%). • In 2018-19 planted 20650 plants out of which 16116 survived (82%). • 2019-20 plantation carried in 4 packages o 10657 plants out of which 10284 survived (96.5%) 25Km of SH-1 on either side. o 3348 plants out of which 3348 survived (100%). o 83998 plants out of which 69240 survived (82.4%) in Municipal Corporation of Ramagundam. o 19000 plants out of which 17297 survived (91%) in Municipal Corporation of Sultanabad. • In 2020-21 planted 11244 plants out of which 10709 survived (95%). • In 2021-22 planted 17,848plants out of which 17,437 survived (98%). • In 2022-23 planted 7140 plants out of which 7140 survived (100%). • In 2023-24 planted 71200 plants out of which 71200 survived (100%). • In 2024-25 plantation of 33000 plants is

Sr.No.	EC Condition	Compliance Status
		in progress
(xxix)	CSR schemes identified based on need based assessment shall be implemented in consultation with the village Panchayat and the District administration starting from the development of project itself. As part of CSR prior identification of local employable youth and eventual employment in the project after imparting relevant training shall be also undertaken. Company shall provide separate budget for community development activities and income generating programmes.	• Various CSR schemes have been implemented and shall be continued based on need-based survey in consultation with the village Panchayat and the District Administration. • Separate budget has been earmarked for implementing CSR-CD activities for the project and shall be utilized in accordance with the said stipulations. • NTPC provided solar lights & toilets in villages, distributed scholarships to school children & organized medical camps for local population and provided vocational training for local youth. • Development of infrastructure facilities, viz., improvement in roads, bus shelters, public facilities, solar streetlamps, sanitation, toilets, medical, Schools, sports facilities etc. are already implemented.
(xxx)	For proper and periodic monitoring of CSR activities, a CSR committee or a social Audit committee or a suitable credible external agency shall be appointed. CSR activities shall also be evaluated by an independent external agency. This evaluation shall be both concurrent and final.	Social audit of CSR activities was conducted by Deloitte & report submitted on July 2020. Periodic monitoring of CSR activities is carried out by a CSR consisting of two functional directors and three independent directors.
(xxxi)	An Environmental cell comprising of at least one expert in environmental science/ engineering, ecology, occupation health and social science, shall be created preferably at the project site itself and shall be headed by an officer of appropriate superiority and qualification. It shall be ensured that the Head of the Cell shall directly report to the Head of the Plant who would be accountable for implementation of environmental regulations and social impact improvement/mitigation measures.	An Environment Management Group (EMG) is already functional. The EMG will be responsible for implementing and monitoring the stipulations. The cell consists of one qualified expert and one officer of appropriate qualification, and the head of the cell reports to The Project Head. There is sufficient trained manpower and equipment for environmental monitoring and other environmental related activities to ensure compliance with statutory requirements and interact regularly with statutory authorities.
B	**GENERAL CONDITIONS**	
(i)	The treated effluents conforming to the prescribed standards only shall be recirculated and reused within the plant. Arrangements shall be made that effluents and storm water do not get mixed.	The concept of Zero Liquid Discharge (ZLD) along with the drain separation has been adopted at Telangana Project since commencement. The project has an integrated scheme for collection, treatment, recycle and reuse of effluents generated in plant. ZLD system consisting of Effluent Treatment Plant (ETP), Sewage Treatment

Sr.No.	EC Condition	Compliance Status
		Plant (STP), Coal Slurry Settling Pond (CSSP), WWRO system, waste service water system and Ash Water Recirculation System (AWRS) to reuse & recycle the effluents within the plant.
(ii)	A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt/ plantation.	All domestic sewage emanating from plant and township is treated in a sewage treatment plant. The treated sewage conforms to prescribed standards and is utilized for horticulture & raising green cover.
(iii)	Adequate safety measure shall be provided in the plant area to check/minimize spontaneous fires in coal yard, especially during summer season. Copy of these measures with full details along with location plant layout shall be submitted to the Ministry as well as to the Regional office of the Ministry.	Adequate safety measure i.e. Firefighting systems including Fire Hydrants and water sprinkling system been provided in the plant area to check/minimize spontaneous fires in coal yard. Layout of Fire Hydrant & Spray System is already submitted to the Ministry through mail on 6th Dec,2024.
(iv)	Storage facilities for auxiliary liquid fuel such as LDO/HFO/LSHS shall be made in the plant area in consultation with Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed 0.5%. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.	Storage facilities for auxiliary liquid fuel LDO/LSHS are designed in consultation with Petroleum & Explosives Safety Organization conforming to the safety standards and where risk is minimal. A detailed Disaster Management Plan & Risk assessment including fire and explosion is available and regular mock drills are conducted as per plan in order to address any eventuality in case of an accident.
(v)	First Aid and sanitation arrangement shall be made for the drivers and other contract workers during construction phase.	The plant is in operation. Hence, the condition is not applicable.
(vi)	Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 85 dB (A) from source. For people working in the high noise area, requisite personal protective equipment like earplugs/earmuffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non noisy/less noisy areas.	Design specification for the equipment has been made to comply with the stipulation. Personal protective equipment has been arranged through contractors during construction phase. The workers working in high noise area are provided with appropriate ear protection devices. Periodic examination of workers during operation phase shall be done as stipulated.
(vii)	Regular monitoring of ambient air ground level concentration of SO_2, NO_X, $PM_{2.5}$ & PM_{10} and Hg shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed the prescribed limits, Necessary control measures shall be provided immediately.	Regular monitoring of ambient air quality is being carried through NABL approved third party laboratory. Reports are submitted to Telangana SPCB on monthly basis. Copy of Third-party testing reports for period Oct 2024 to March 2025 is attached as

Sr.No.	EC Condition	Compliance Status
	The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the regional office of this Ministry. The data shall also be put on the website of the company.	**Annexure- II** The ambient air quality monitoring locations were decided in consultation with SPCB.
(viii)	Utilization of 100% Fly Ash generated shall be made from 4th year of operation. Status of implementation shall be reported to the Regional office of the Ministry from time to time.	COD of Unit-1 was declared on 28.09.2023 and Unit-2 on 01.03.2024. Utilization of Fly ash shall comply to Gazette Notification by MOEF&CC dated 31.12.2021. Fly ash utilization for FY 2024-25 is 27.29% Details of ash utilization at TeSTPP are as follow: I. Fly ash based products(bricks or blocks or tiles or Fibre cement sheets or pipes or boards or panels): 461169 MTPA II. Cement manufacturing: 238043 MTPA III. Ready mix concrete: 44523 MTPA IV. Others: 305015 MTPA
(ix)	Provision shall be made for the housing of construction labour (as applicable) within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	The plant is in operation. Therefore, the condition is not applicable at present.
(x)	The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project one of which shall be in the vernacular language of the locality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the state Pollution Control Board/ Committee and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in.	The information of Environmental Clearance was published in Two newspapers widely circulated in the region on 23.01.2016 namely: 1. THE HINDU (English) & 2. EENADU (Telugu)
(xi)	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad / Municipal Corporation, urban local Body and the Local NGO, if any from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Copy of Environmental Clearance letter has been submitted to Municipal Corporation, office of Zilla Parisad and other concerned local authorities on 23.01.2016. The Environmental Clearance was also uploaded on the NTPC website on 25.01.2016.
(xii)	The proponent shall upload the status of	The status of compliance of stipulated EC

Sr.No.	EC Condition	Compliance Status
	compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCBB. The criteria pollutant levels namely; SPM, RSPM $PM_{2.5}$ & PM_{10}, SO_2, NO_X (ambient levels as well as stack emissions) shall be displayed at a convenient location near the main gate of the company in the public domain.	conditions uploaded and updated periodically on company website @ https://ntpc.co.in/about-us/corporate-functions/environment/status-hyc-reports The latest HYC status report of the stipulated Environmental Clearance (EC) conditions is regularly being submitted to the Integrated Regional Office of MOEF&CC at Hyderabad, Zonal Office of CPCB and the SPCB. LED screen near the project entrance gate is installed and it displays ambient air quality in terms of PM_{10}, $PM_{2.5}$, SO_2 and NOx & also stack emissions in terms of SO_2, PM and NO_X
(xiii)	The environment statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent the respective Regional Offices of the Ministry by e-mail.	The Environment Statement (Form-V) for the FY 2023-24 submitted to the Telangana State Pollution Control Board (Telangana SPCB) on 28.09.2024. Copy of Annual Environment Statement (Form-V) uploaded on NTPC website @ https://ntpc.co.in/about-us/corporate-functions/environment/status-hyc-reports
(xiv)	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests.	Noted and being complied. Shall be uploaded in NTPC website & shall be updated on a regular basis
(xv)	Regional Office of the Ministry of Environment & Forests will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will up-load the compliance status in their website and	Noted and being complied. Half Yearly EC Compliance status is being uploaded on company's website on a regular basis. Criteria pollutants levels including NO_X (from stack & ambient air) are displayed at the main gate of the power plant.

Sr.No.	EC Condition	Compliance Status
	up-date the same from time to time at least six-monthly basis. Criteria pollutants levels including NO_X (from stack & ambient air) shall be displayed at the main gate of the power plant.	
(xvi)	Separate funds shall be allocated for implementation of environmental protection measures along with item-wise break-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protections measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	Separate funds have been allocated for implementation of Environment Protection measures. COD of Unit-1 was declared on 28.09.2023 and Unit-2 on 01.03.2024. Financial Provision stipulated towards environment protection measure will not be diverted for any other purpose. The certified copy of Expenditures for implementation of environment protection measures at Telangana Super Thermal Power Project (Phase-I) has been submitted to the Ministry through mail on 6th Dec,2025.
(xvii)	The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of plant.	Financial approval of the project was on 29.01.2016 and start of Land development work is on 09.05.2017. COD of Unit-1 was declared on 28.09.2023 and Unit-2 on 01.03.2024.
(xviii)	Full cooperation shall be extended to the Scientists / Officers from the Ministry / Regional Office of the Ministry /CPCB / SPCB who would be monitoring the compliance of environmental status.	Noted for Compliance. Full cooperation is being extended to the Scientists / officers from the Ministry / MOEF&CC's Integrated Regional Office at Hyderabad / CPCB / Telangana SPCB during monitoring of the project.
7	The ministry reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction. The Ministry may also impose additional environmental conditions or modify the existing ones, if necessary.	Noted.
8	The environmental clearance accorded shall be valid for a period of 7 years from the date of issue of this letter to start operations by the power plant.	Noted. MoEF & CC vide notification no. S.O. No.1807(E) dated 12/04/2022 amended the provisions of EIA Notification, 2006 regarding validity of Environment Clearance hence EC clearance for the station sis valid for 10 years.
9	Concealing factual data or submission of false / fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environmental (Protection) Act, 1986.	Noted.

Sr.No.	EC Condition	Compliance Status
10	In case of any deviation or alteration in the project proposed including coal transportation system from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the conditions (s) imposed and to add additional environmental protection measures required, if any.	Noted.
11	The above stipulations would be enforced among others under the water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environmental (Protection) Act, 1986 and rules there under, Hazardous Wastes (Management, Handling & Transboundary Movement) Rules, 2008 and its amendments, the Public Liability Insurance Act, 1991 and its amendments.	Noted.
12	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Noted.

EC Amendment issued by MOEF&CC
Vide Letter No. J- 13012/112/2010-IA. II (T) dated 08th August 2022.

Sr. No	EC Condition	Compliance Status
(i)	Area of Ash Pond shall be reduced by 50%. Reduced area (200Acre) of Ash pond shall be used for Greenbelt development, out of which 30 acres land (50m width) shall be used for creating plantation barrier between water storage area and ash pond so as to avoid mixing pollutants in the water body. Plantation shall be done by Miyawaki technique with 90% survival rate.	Area of Ash Pond is reduced to 50% by abandoning Lagoon 1 which is of 200 acres. During the period of 2023-24, 71200 plantations by Miyawaki method was done between the reservoir and ash dyke for creating plantation barrier between water storage area and ash pond area and >90% survival rate is maintained. For the financial year 2024-25, plantation of 33000 plants is in progress at Ash Pond in consultation with TGFDCL. Details of Tree Plantation is given at **Sl. No. IX of (A) Specific Conditions**
(ii)	HDPE lining shall be provided to the Ash Pond and the height of the Ash Pond shall not increase beyond 16m.	HDPE lining in Ash Pond Area is completed. Current height of the bund at the lowest point is 6m (including 1.5m of free board) and 2m at highest point (including 1.5m of free board). In future 3 raising of 3mts each will be carried. At the lowest point in the ash pond the height of the bund will be 6+9=15m and at the highest point height of the bund will be 2+9=11m.
(iii)	All other condition mentioned in EC dated 20.01.2016 shall remain unchanged.	Noted.

Annexure-A

Amendment in General EC Condition No-xv
Proposal No IA/TG/THE/113457/2019 by MoEF&CC vide letter No: F.No.J-13012/112/2010-IA(T); dated :21.10.2020

Sr. No	EC Condition	Compliance Status
i	Radio activity and heavy metals' contents in coal and fly ash (including bottom ash) shall be carried out through a reputed institute once in a year and the analysis reports to be submitted to the Ministry and its Regional Office.	COD of Unit-1 was declared on 28.09.2023 and Unit-2 on 01.03.2024. Testing for Radio activity and heavy metals contents in coal and fly ash (including bottom ash) was done through Board of Radiation & Isotope Technology (BRIT) & Mahabal Lab. Reports submitted through mail on 6th Dec,2024.
ii	The total Radioactivity in the working areas such as coal stock yard, fly ash pond shall be calculated based on the analysis results per unit weight of coal/ash. The total radioactivity in the atmosphere is to be compared with the maximum permissible dosage levels of each person working in those areas. This is to be conducted one in a year.	As mentioned in status of condition at sl. No. i above, Radioactivity analysis in coal and fly ash (including bottom ash) has been done through BRIT in June 2024. Reports submitted through mail on 6th Dec,2024. Study on total radioactivity in working areas has been carried out by BRIT and the Final report is already submitted to IRO via mail on 03.05.2025. Attached as **Annexure-IV.**
iii	While commissioning the proposed unit, the compliance of revised emission norms issued vide Notification dated 07.12.2015 and as amended time to time shall be achieved along with specific water consumption as per the notification dated 28.06.2018. The FGD System and NOX control measures such as SCR/SCNR/De-NOX burners shall be installed to achieve the revised emission norms.	FGD installed and commissioned for both the units. COD of Unit # I FGD & Unit # II FGD is 15.09.2024 & 30.09.2024 respectively. For NOX reduction separated air dampers are provided High Separated Overfire Air (H-SOFA) and Low Separated Overfire Air (L-SOFA) to regulate air temperature inside the boiler. In addition to this upper Concentric Coal overfire Air (CCOFA) is provided to reduce boiler temperature, there by controlling NOx formation.
iv	As per the Revised Tariff Policy notified by Ministry of Power vide dated 28.01.2016, project proponent shall explore the use of treated sewage water from the Sewage Treatment Plant of Municipality / local bodies / similar organization located within 50km radius of the proposed power project to minimize the water drawl from surface water bodies.	In Ramagundam Municipal Corporation, construction of STP in under progress. Utilization shall be explored on availability of STP.

Annexure-B

Amendment in Specific EC Condition No 6A(xvii) and 6A(xxiii) by MoEF&CC vide J-13012/112/2010-IA.II(T); dated:06.03.2017

Sr. No	EC Condition	Compliance Status
i	Specific condition no.6A(xvii): High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed the standards prescribed in the MoEF&CC vide Notification S.O.3305(E) dated 07.12.2015 or any other standards notified by the Ministry whichever is stringent. Emission standards notified vides.S.O.3305(E) dated 07.12.2015 shall be complied with adequate dust extraction system such as cyclones / bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided along with an environment friendly sludge disposal system.	The High Efficiency Electrostatic Precipitators (ESP) have been installed. The particulate matter is well with in prescribed limit 30 mg/Nm3 in both the units. Adequate dust extraction systems and suitable water spray systems are included in the design of the plant to suppress/avoid dust emissions from the coal and ash handling areas. For handling of Coal slurry generated in the Coal handling plant, Coal Slurry Settling Pond (CSSP) have been provided to collect and recycle the CHP effluents. Treated water from CSSP shall be utilized in Dust Suppression system.
ii	Specific condition no.6A(xxiii): Wastewater generated from the plant shall be treated and reused for various purposes within the plant. There shall not be any discharge of wastewater. Zero liquid discharge shall be adopted, and specific water consumption shall be achieved as per the MoEF&CC Notification S.O.3305(E) dated 07.12.2015.	The concept of Zero Liquid Discharge (ZLD) along with the drain separation has been adopted at Telangana Project since commencement. The project has an integrated scheme for collection, treatment, recycle and reuse of effluents generated in plant. ZLD system consisting of Effluent Treatment Plant (ETP), Sewage Treatment Plant (STP), Coal Slurry Settling Pond (CSSP), WWRO system, waste service water system and Ash Water Recirculation System (AWRS) etc. to reuse & recycle the effluents within the plant. The specific Water Consumption (SWC) of plant is well within the prescribed limit of 3.0 m3/MWh.

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Test Report

Sample Number:	VEL/AP/08-09	Report No.:	VEL/AP/2410190008-09
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
		Reporting Date:	24/10/2024
		Period of Analysis:	19/10/2024 - 24/10/2024
		Receipt Date:	19/10/2024
		Page No.:	1 of 1
Name of Sample:	Stack Emission Monitoring		
Sample Group:	Atmospheric Pollution		

General Information

Sample Collected By	:	VEL Representative (Mr. Rajesh)
Sampling Instrument Used	:	Stack Monitoring Kit
Instrument Code	:	VEL/INS/ENV/SMK/02
Instrument Calibration Status	:	Calibrated
Date of Sampling	:	16/10/2024
Meteorological Condition During Sampling	:	Intermittent Rain
Sampling Condition	:	Isokinetic
Protocol Used	:	CPCB Guidelines & IS: 11255
Parameter Required	:	As Per Work Order

S. No.	Locations	Test Results		
		Particulate Matter (as PM) mg/Nm^3	Sulphur Dioxide (as SO_2) mg/Nm^3	Oxides of Nitrogen(as NOx) mg/Nm^3
Test Method		IS: 11255 (P-1)	IS: 11255 (P-2)	IS: 11255 (P-7)
Limits As Per TSPCB		30	100	100
1.	Boiler Unit – 01	19.78	643.61	228.39
2.	Boiler Unit – 02	17.24	592.46	219.57

Note: TSPCB - Telangana State Pollution Control Board.

End of Report

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Amitabh Kumar Dubey
Technical Manager
Reviewed By

VARDAN ENVIROLAB LLP
Dr Shiv
Authorised Signatory
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Sample Number:	VEL/AP/08-09	Report No.:	VEL/AP/2410310008-0009
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
		Reporting Date:	05/11/2024
		Period of Analysis:	31/10/2024 - 05/11/2024
		Receipt Date:	31/10/2024
		Page No.:	1 of 1
Name of Sample:	Stack Emission Monitoring		
Sample Group:	Atmospheric Pollution		

General Information

Sample Collected By	: VEL Representative (Mr. Rajesh)
Sampling Instrument Used	: Stack Monitoring Kit
Instrument Code	: VEL/INS/ENV/SMK/02
Instrument Calibration Status	: Calibrated
Date of Sampling	: 25/10/2024
Meteorological Condition During Sampling	: Intermittent Rain
Sampling Condition	: Isokinetic
Protocol Used	: CPCB Guidelines & IS: 11255
Parameter Required	: As Per Work Order

S. No.	Locations	Test Results		
		Particulate Matter (as PM) mg/Nm^3	Sulphur Dioxide (as SO_2) mg/Nm^3	Oxides of Nitrogen (as NOx) mg/Nm^3
Test Method		IS: 11255 (P-1)	IS: 11255 (P-2)	IS: 11255 (P-7)
Limits As Per TSPCB		30	100	100
1.	Boiler Unit – 01	18.24	1184.68	231.46
2.	Boiler Unit – 02	13.51	1060.30	217.28

Note: TSPCB - Telangana State Pollution Control Board.

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Sample Number:	VEL/AP/08-09	Report No.:	VEL/AP/2411160008-09
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
		Reporting Date:	20/11/2024
		Period of Analysis:	16/11/2024 - 20/11/2024
		Receipt Date:	16/11/2024
		Page No.:	1 of 1
Name of Sample:	Stack Emission Monitoring		
Sample Group:	Atmospheric Pollution		

General Information

Sample Collected By	:	VEL Representative (Mr. Rajesh)
Sampling Instrument Used	:	Stack Monitoring Kit
Instrument Code	:	VEL/INS/ENV/SMK/02
Instrument Calibration Status	:	Calibrated
Date of Sampling	:	09/11/2024
Meteorological Condition During Sampling	:	Clear Sky
Sampling Condition	:	Isokinetic
Protocol Used	:	CPCB Guidelines & IS: 11255
Parameter Required	:	As Per Work Order

S. No.	Locations	Test Results		
		Particulate Matter (as PM) mg/Nm^3	Sulphur Dioxide(as SO_2) mg/Nm^3	Oxides of Nitrogen(as NOx) mg/Nm^3
Test Method		IS: 11255 (P-1)	IS: 11255 (P-2)	IS: 11255 (P-7)
Limits As Per TSPCB		30	100	100
1.	Boiler Unit – 01	18.64	647.87	232.12
2.	Boiler Unit – 02	15.13	589.67	215.48

Note: TSPCB - Telangana State Pollution Control Board.

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Test Report

Sample Number:	VEL/AP/08-09	Report No.:	VEL/AP/2411300008-0009
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
		Reporting Date:	02/12/2024
		Period of Analysis:	30/11/2024 - 02/12/2024
		Receipt Date:	30/11/2024
		Page No.:	1 of 1
Name of Sample:	Stack Emission Monitoring		
Sample Group:	Atmospheric Pollution		

General Information

Sample Collected By	: VEL Representative (Mr. Rajesh)
Sampling Instrument Used	: Stack Monitoring Kit
Instrument Code	: VEL/INS/ENV/SMK/02
Instrument Calibration Status	: Calibrated
Date of Sampling	: 25/11/2024
Meteorological Condition During Sampling	: Clear Sky
Sampling Condition	: Isokinetic
Protocol Used	: CPCB Guidelines & IS: 11255
Parameter Required	: As Per Work Order

S. No.	Locations	Test Results		
		Particulate Matter (as PM) mg/Nm^3	Sulphur Dioxide(as SO_2) mg/Nm^3	Oxides of Nitrogen (as NOx) mg/Nm^3
Test Method		IS: 11255 (P-1)	IS: 11255 (P-2)	IS: 11255 (P-7)
Limits As Per TSPCB		30	100	100
1.	Boiler Unit 01	19.75	689.24	229.85
2.	Boiler Unit – 02	14.21	565.42	220.36

Note: TSPCB - Telangana State Pollution Control Board.

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Test Report

Sample Number:	VEL/AP/08-09	Report No.:	VEL/AP/2412130008-09
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
		Reporting Date:	18/12/2024
		Period of Analysis:	13/12/2024 - 18/12/2024
		Receipt Date:	13/12/2024
		Page No.:	1 of 1
Name of Sample:	Stack Emission Monitoring		
Sample Group:	Atmospheric Pollution		

General Information

Sample Collected By	:	VEL Representative (Mr. Rajesh)
Sampling Instrument Used	:	Stack Monitoring Kit
Instrument Code	:	VEL/INS/ENV/SMK/02
Instrument Calibration Status	:	Calibrated
Date of Sampling	:	07/12/2024
Meteorological Condition During Sampling	:	Clear Sky
Sampling Condition	:	Isokinetic
Protocol Used	:	CPCB Guidelines & IS: 11255
Parameter Required	:	As Per Work Order

S. No.	Locations	Test Results		
		Particulate Matter (as PM) mg/Nm^3	Sulphur Dioxide (as SO_2) mg/Nm^3	Oxides of Nitrogen (as NOx) mg/Nm^3
Test Method		IS: 11255 (P-1)	IS: 11255 (P-2)	IS: 11255 (P-7)
Limits As Per TSPCB		30	100	100
1.	Boiler Unit – 01	21.18	91.30	236.49
2.	Boiler Unit – 02	17.42	90.60	219.36

Note: TSPCB - Telangana State Pollution Control Board.

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Sample Number:	VEL/AP/08-09	Report No.:	VEL/AP/2412310008-0009
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
		Reporting Date:	04/01/2025
		Period of Analysis:	31/12/2024 - 04/01/2025
		Receipt Date:	31/12/2024
		Page No.:	1 of 1
Name of Sample:	Stack Emission Monitoring		
Sample Group:	Atmospheric Pollution		

General Information

Sample Collected By	: VEL Representative (Mr. Rajesh)
Sampling Instrument Used	: Stack Monitoring Kit
Instrument Code	: VEL/INS/ENV/SMK/02
Instrument Calibration Status	: Calibrated
Date of Sampling	: 28/12/2024
Meteorological Condition During Sampling	: Clear Sky
Sampling Condition	: Isokinetic
Protocol Used	: CPCB Guidelines & IS: 11255
Parameter Required	: As Per Work Order

S. No.	Locations	Test Results		
		Particulate Matter (as PM) mg/Nm^3	Sulphur Dioxide(as SO_2) mg/Nm^3	Oxides of Nitrogen (as NOx) mg/Nm^3
Test Method		IS: 11255 (P-1)	IS: 11255 (P-2)	IS: 11255 (P-7)
Limits As Per TSPCB		30	100	100
1.	Boiler Unit – 01	18.64	86.90	226.13
2.	Boiler Unit – 02	16.87	70.80	223.64

Note: TSPCB - Telangana State Pollution Control Board.

End of Report

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Anikabh Kumar Dubey
Reviewed By

Authorized Signatory
VARDAN ENVIROLAB LLP Authorised Signatory
Shiv Prakash Singh
04.01.2025

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Test Report

Sample Number:	VEL/AP/08-09	**Report No.:**	VEL/AP/2501150008-09
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	**Format No.:**	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
		Reporting Date:	20/01/2025
		Period of Analysis:	15/01/2025 - 20/01/2025
		Receipt Date:	15/01/2025
		Page No.:	1 of 1
Name of Sample:	Stack Emission Monitoring		
Sample Group:	Atmospheric Pollution		

General Information

Sample Collected By	:	VEL Representative (Mr. Rajesh)
Sampling Instrument Used	:	Stack Monitoring Kit
Instrument Code	:	VEL/INS/ENV/SMK/02
Instrument Calibration Status	:	Calibrated
Date of Sampling	:	06/01/2025 to 08/01/2025
Meteorological Condition During Sampling	:	Clear Sky
Sampling Condition	:	Isokinetic
Protocol Used	:	CPCB Guidelines & IS: 11255
Parameter Required	:	As Per Work Order

S. No.	Locations	Test Results		
		Particulate Matter (as PM) mg/Nm^3	Sulphur Dioxide(as SO_2) mg/Nm^3	Oxides of Nitrogen(as NOx) mg/Nm^3
Test Method		IS: 11255 (P-1)	IS: 11255 (P-2)	IS: 11255 (P-7)
Limits As Per TSPCB		30	100	100
1.	Boiler Unit – 01	22.46	82.40	232.70
2.	Boiler Unit – 02	19.37	74.00	223.27

Note: TSPCB - Telangana State Pollution Control Board.

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Test Report

Sample Number:	**VEL/AP/08-09**	**Report No.:**	**VEL/AP/2501300008-0009**
Name & Address of the Party:	**M/s NTPC Limited** **Telangana Super Thermal Power Project,** **P.O. : Jyotinagar, District : Peddapalli,** **Telangana – 505215**	**Format No.:**	**7.8 F-03**
		Party Reference No.:	**4000316836-037-1019** **Dated: 30/09/2023**
		Reporting Date:	**04/02/2025**
		Period of Analysis:	**30/01/2025 - 04/02/2025**
		Receipt Date:	**30/01/2025**
		Page No.:	**1 of 1**
Name of Sample:	**Stack Emission Monitoring**		
Sample Group:	**Atmospheric Pollution**		

General Information

Sample Collected By	: **VEL Representative (Mr. Rajesh)**
Sampling Instrument Used	: **Stack Monitoring Kit**
Instrument Code	: **VEL/INS/ENV/SMK/02**
Instrument Calibration Status	: **Calibrated**
Date of Sampling	: **18/01/2025 to 24/01/2025**
Meteorological Condition During Sampling	: **Clear Sky**
Sampling Condition	: **Isokinetic**
Protocol Used	: **CPCB Guidelines & IS: 11255**
Parameter Required	: **As Per Work Order**

S. No.	Locations	Test Results		
		Particulate Matter (as PM) mg/Nm^3	Sulphur Dioxide(as SO_2) mg/Nm^3	Oxides of Nitrogen (as NOx) mg/Nm^3
Test Method		**IS: 11255 (P-1)**	**IS: 11255 (P-2)**	**IS: 11255 (P-7)**
Limits As Per TSPCB		**30**	**100**	**100**
1.	**Boiler Unit – 01**	**17.19**	**88.60**	**221.34**
2.	**Boiler Unit – 02**	**18.34**	**77.80**	**226.46**

Note: TSPCB - Telangana State Pollution Control Board.

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Test Report

Sample Number:	**VEL/AP/08-09**	**Report No.:**	**VEL/AP/2502120008-09**
Name & Address of the Party:	**M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215**	**Format No.:**	**7.8 F-03**
		Party Reference No.:	**4000316836-037-1019 Dated: 30/09/2023**
		Reporting Date:	**18/02/2025**
		Period of Analysis:	**12/02/2025 - 18/02/2025**
		Receipt Date:	**12/02/2025**
		Page No.:	**1 of 1**
Name of Sample:	**Stack Emission Monitoring**		
Sample Group:	**Atmospheric Pollution**		

General Information

Sample Collected By	:	**VEL Representative (Mr. Rajesh)**
Sampling Instrument Used	:	**Stack Monitoring Kit**
Instrument Code	:	**VEL/INS/ENV/SMK/02**
Instrument Calibration Status	:	**Calibrated**
Date of Sampling	:	**08/02/2025 to 09/02/2025**
Meteorological Condition During Sampling	:	**Clear Sky**
Sampling Condition	:	**Isokinetic**
Protocol Used	:	**CPCB Guidelines & IS: 11255**
Parameter Required	:	**As Per Work Order**

S. No.	Locations	Test Results		
		Particulate Matter (as PM) mg/Nm^3	**Sulphur Dioxide (as SO_2) mg/Nm^3**	**Oxides of Nitrogen (as NOx) mg/Nm^3**
Test Method		**IS: 11255 (P-1)**	**IS: 11255 (P-2)**	**IS: 11255 (P-7)**
Limits As Per TSPCB		**30**	**100**	**100**
1.	**Boiler Unit – 01**	**25.13**	**86.37**	**228.64**
2.	**Boiler Unit – 02**	**21.42**	**86.00**	**219.93**

Note: TSPCB - Telangana State Pollution Control Board.

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Test Report

Sample Number:	**VEL/AP/08-09**	**Report No.:**	**VEL/AP/2502240008-0009**
Name & Address of the Party:	**M/s NTPC Limited** **Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215**	**Format No.:**	**7.8 F-03**
		Party Reference No.:	**4000316836-037-1019 Dated: 30/09/2023**
		Reporting Date:	**28/02/2025**
		Period of Analysis:	**24/02/2025 - 28/02/2025**
		Receipt Date:	**24/02/2025**
		Page No.:	**1 of 1**
Name of Sample:	**Stack Emission Monitoring**		
Sample Group:	**Atmospheric Pollution**		

General Information

Sample Collected By	: **VEL Representative (Mr. Rajesh)**
Sampling Instrument Used	: **Stack Monitoring Kit**
Instrument Code	: **VEL/INS/ENV/SMK/02**
Instrument Calibration Status	: **Calibrated**
Date of Sampling	: **18/02/2025 to 20/02/2025**
Meteorological Condition During Sampling	: **Clear Sky**
Sampling Condition	: **Isokinetic**
Protocol Used	: **CPCB Guidelines & IS: 11255**
Parameter Required	: **As Per Work Order**

S. No.	Locations	Test Results		
		Particulate Matter (as PM) mg/Nm^3	**Sulphur Dioxide (as SO_2) mg/Nm^3**	**Oxides of Nitrogen (as NOx) mg/Nm^3**
Test Method		**IS: 11255 (P-1)**	**IS: 11255 (P-2)**	**IS: 11255 (P-7)**
Limits As Per TSPCB		**30**	**100**	**100**
1.	**Boiler Unit – 01**	**20.35**	**83.51**	**225.38**
2.	**Boiler Unit – 02**	**17.58**	**90.00**	**223.53**

Note: TSPCB - Telangana State Pollution Control Board.

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Test Report

Sample Number:	VEL/AP/08-09	**Report No.:**	VEL/AP/2503170008-09
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	**Format No.:**	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
		Reporting Date:	22/03/2025
		Period of Analysis:	17/03/2025 - 22/07/2025
		Receipt Date:	17/03/2025
		Page No.:	1 of 1
Name of Sample:	Stack Emission Monitoring		
Sample Group:	Atmospheric Pollution		

General Information

Sample Collected By	:	VEL Representative (Mr. Rajesh)
Sampling Instrument Used	:	Stack Monitoring Kit
Instrument Code	:	VEL/INS/ENV/SMK/02
Instrument Calibration Status	:	Calibrated
Date of Sampling	:	08/03/2025 to 09/03/2025
Meteorological Condition During Sampling	:	Clear Sky
Sampling Condition	:	Isokinetic
Protocol Used	:	CPCB Guidelines & IS: 11255
Parameter Required	:	As Per Work Order

S. No.	Locations	Test Results		
		Particulate Matter (as PM) mg/Nm^3	Sulphur Dioxide (as SO_2) mg/Nm^3	Oxides of Nitrogen (as NOx) mg/Nm^3
Test Method		IS: 11255 (P-1)	IS: 11255 (P-2)	IS: 11255 (P-7)
Limits As Per TSPCB		30	100	100
1.	Boiler Unit – 01	17.25	88.28	234.58
2.	Boiler Unit – 02	18.53	89.00	223.27

Note: TSPCB - Telangana State Pollution Control Board.

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Test Report

Sample Number:	VEL/AP/08-09	**Report No.:**	VEL/AP/2503210008-0009
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	**Format No.:**	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
		Reporting Date:	26/03/2025
		Period of Analysis:	21/03/2025 - 26/03/2025
		Receipt Date:	21/03/2025
		Page No.:	1 of 1
Name of Sample:	Stack Emission Monitoring		
Sample Group:	Atmospheric Pollution		

General Information

Sample Collected By	: VEL Representative (Mr. Rajesh)
Sampling Instrument Used	: Stack Monitoring Kit
Instrument Code	: VEL/INS/ENV/SMK/02
Instrument Calibration Status	: Calibrated
Date of Sampling	: 20/03/2025
Meteorological Condition During Sampling	: Clear Sky
Sampling Condition	: Isokinetic
Protocol Used	: CPCB Guidelines & IS: 11255
Parameter Required	: As Per Work Order

S. No.	Locations	Test Results			
		Particulate Matter (as PM) mg/Nm^3	Sulphur Dioxide (as SO_2) mg/Nm^3		Oxides of Nitrogen (as NOx) mg/Nm^3
Test Method		IS: 11255 (P-1)	IS: 11255 (P-2)		IS: 11255 (P-7)
Limits As Per TSPCB		30	100		100
1.	Boiler Unit – 01	15.45	86.38		229.24
2.	Boiler Unit – 02	17.72	94.00		218.72

Note: TSPCB - Telangana State Pollution Control Board.

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Test Report

Sample Number:	VEL/AP/25-32	Report No.:	VEL/AP/24100000025-0032
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyothinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	05/11/2024
Sampling Location:	C.I.S.F. Colony	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	01-10-2024 To 02-10-2024	41.76	21.52	16.43	20.74
7.	03-10-2024 To 04-10-2024	38.43	23.82	14.92	22.35
8.	07-10-2024 To 08-10-2024	42.61	17.64	15.31	18.52
9.	08-10-2024 To 09-10-2024	39.23	19.35	11.34	17.64
10.	14-10-2024 To 15-10-2024	40.35	20.46	14.96	21.30
11.	15-10-2024 To 16-10-2024	36.79	21.24	19.35	19.72
12.	21-10-2024 To 22-10-2024	39.32	23.96	13.61	23.82
13.	22-10-2024 To 23-10-2024	35.81	18.62	15.46	24.34
14.	Maximum	42.61	23.96	19.35	24.34
15.	Minimum	35.81	17.64	11.34	17.64
16.	Average	39.53	20.82	15.04	21.05

Note: CPCB: Central Pollution Control Board,
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/33-40	Report No.:	VEL/AP/2410000633-0040
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyothinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	05/11/2024
Sampling Location:	Annapurna Colony	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	01-10-2024 To 02-10-2024	37.43	18.15	15.46	19.53
7.	03-10-2024 To 04-10-2024	42.75	19.43	13.98	21.82
8.	07-10-2024 To 08-10-2024	44.63	22.37	17.63	23.35
9.	08-10-2024 To 09-10-2024	36.68	20.51	18.34	18.21
10.	14-10-2024 To 15-10-2024	43.51	23.42	16.13	24.46
11.	15-10-2024 To 16-10-2024	38.24	19.13	15.81	27.63
12.	21-10-2024 To 22-10-2024	39.12	22.71	12.92	22.28
13.	22-10-2024 To 23-10-2024	44.27	17.56	14.27	20.58
14.	Maximum	44.63	23.42	18.34	27.63
15.	Minimum	36.68	17.56	12.92	18.21
16.	Average	40.82	20.44	15.56	22.23

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/41-48	Report No.:	VEL/AP/24100000041-48
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyothinagar, District : Peddapalli, Telangana – 505215	Format No.: Party Reference No.:	7.8 F-03 4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	05/11/2024
Sampling Location:	Laxmipur Railway Cabin	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	01-10-2024 To 02-10-2024	40.52	20.27	12.62	23.64
7.	03-10-2024 To 04-10-2024	39.43	18.62	10.28	19.27
8.	07-10-2024 To 08-10-2024	37.68	19.43	11.53	20.59
9.	08-10-2024 To 09-10-2024	43.81	23.59	9.13	22.73
10.	14-10-2024 To 15-10-2024	37.25	21.38	13.86	25.94
11.	15-10-2024 To 16-10-2024	42.75	22.42	12.64	23.40
12.	21-10-2024 To 22-10-2024	45.31	24.51	10.72	20.68
13.	22-10-2024 To 23-10-2024	43.20	19.34	15.69	18.49
14.	Maximum	45.31	24.51	15.69	25.94
15.	Minimum	37.25	18.62	9.13	18.49
16.	Average	41.24	21.19	12.05	22.34

Note: CPCB: Central Pollution Control Board,
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/49-56	Report No.:	VEL/AP/2410000049-0056
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	05/11/2024
Sampling Location:	100 MW Floating Solar	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	01-10-2024 To 02-10-2024	44.61	21.41	17.54	27.54
7.	03-10-2024 To 04-10-2024	38.42	19.85	16.30	25.23
8.	07-10-2024 To 08-10-2024	45.30	18.64	18.86	26.95
9.	08-10-2024 To 09-10-2024	37.25	20.33	19.43	22.38
10.	14-10-2024 To 15-10-2024	41.28	17.75	20.12	23.72
11.	15-10-2024 To 16-10-2024	40.63	22.81	21.34	27.49
12.	21-10-2024 To 22-10-2024	39.97	19.10	16.93	29.39
13.	22-10-2024 To 23-10-2024	43.24	23.63	21.28	28.42
14.	Maximum	45.30	23.63	21.34	29.39
15.	Minimum	37.25	17.75	16.30	22.38
16.	Average	41.34	20.64	19.07	26.39

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/25-32	Report No.:	VEL/AP/2411000025-0032
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyothinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	02/12/2024
Sampling Location:	C.I.S.F. Colony	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	04-11-2024 To 05-11-2024	44.31	23.61	18.54	21.53
7.	05-11-2024 To 06-11-2024	41.68	25.12	16.43	24.69
8.	11-11-2024 To 12-11-2024	45.12	19.75	17.19	20.74
9.	12-11-2024 To 13-11-2024	40.69	21.68	16.65	22.43
10.	18-11-2024 To 19-11-2024	43.16	24.58	13.85	21.51
11.	19-11-2024 To 20-11-2024	46.98	25.27	18.34	25.48
12.	25-11-2024 To 26-11-2024	40.16	26.98	20.32	26.76
13.	26-11-2024 To 27-11-2024	38.46	22.56	19.35	23.36
14.	Maximum	46.98	26.98	20.32	26.76
15.	Minimum	38.46	19.75	13.85	20.74
16.	Average	42.57	23.69	17.58	23.18

Note: CPCB: Central Pollution Control Board,
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/33-40	Report No.:	VEL/AP/24110000033-0040
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyothinagar, District : Peddapalli, Telangana – 505215	Format No.: Party Reference No.:	7.8 F-03 4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	02/12/2024
Sampling Location:	Annapurna Colony	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	04-11-2024 To 05-11-2024	40.25	19.25	16.67	22.43
7.	05-11-2024 To 06-11-2024	43.61	21.56	14.52	24.69
8.	11-11-2024 To 12-11-2024	42.37	23.57	19.32	21.16
9.	12-11-2024 To 13-11-2024	39.58	21.79	20.87	22.52
10.	18-11-2024 To 19-11-2024	45.69	24.31	19.53	23.58
11.	19-11-2024 To 20-11-2024	41.16	20.89	18.24	26.37
12.	25-11-2024 To 26-11-2024	44.83	23.06	15.31	24.13
13.	26-11-2024 To 27-11-2024	46.65	19.38	16.74	25.36
14.	Maximum	46.65	24.31	20.87	26.37
15.	Minimum	39.58	19.25	14.52	21.16
16.	Average	43.01	21.72	17.65	23.78

Note: CPCB: Central Pollution Control Board
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/41-48	Report No.:	VEL/AP/2411000041-48
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.: Party Reference No.:	7.8 F-03 4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	02/12/2024
Sampling Location:	Laxmipur Railway Cabin	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	04-11-2024 To 05-11-2024	42.61	22.46	14.51	25.41
7.	05-11-2024 To 06-11-2024	41.27	19.35	12.35	21.39
8.	11-11-2024 To 12-11-2024	43.15	21.86	10.69	23.98
9.	12-11-2024 To 13-11-2024	44.32	24.76	11.34	24.32
10.	18-11-2024 To 19-11-2024	46.95	23.41	15.72	28.74
11.	19-11-2024 To 20-11-2024	41.73	25.23	13.21	26.65
12.	25-11-2024 To 26-11-2024	43.68	22.69	12.96	22.69
13.	26-11-2024 To 27-11-2024	45.71	20.53	16.82	20.13
14.	Maximum	46.95	25.23	16.82	28.74
15.	Minimum	41.27	19.35	10.69	20.13
16.	Average	43.67	22.53	13.45	24.16

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/49-56	Report No.:	VEL/AP/2411000049-0056
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.: Purty Reference No.:	7.8 F-03 4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	02/12/2024
Sampling Location:	100 MW Floating Solar	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	04-11-2024 To 05-11-2024	42.53	22.62	19.43	26.31
7.	05-11-2024 To 06-11-2024	41.29	20.47	17.61	27.52
8.	11-11-2024 To 12-11-2024	48.63	21.82	20.76	24.83
9.	12-11-2024 To 13-11-2024	42.86	23.59	22.89	20.13
10.	18-11-2024 To 19-11-2024	46.43	19.46	21.64	25.48
11.	19-11-2024 To 20-11-2024	44.31	24.74	19.53	28.82
12.	25-11-2024 To 26-11-2024	40.68	21.83	23.08	26.74
13.	26-11-2024 To 27-11-2024	47.85	24.68	18.74	29.69
14.	Maximum	48.63	24.74	23.08	29.69
15.	Minimum	40.68	19.46	17.61	20.13
16.	Average	44.32	22.39	20.45	26.19

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/25-32	Report No.:	VEL/AP/2412000025-0032
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O.: Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 20/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	03/01/2025
Sampling Location:	C.I.S.F. Colony	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	µg/m³	µg/m³	µg/m³	µg/m³
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	02-12-2024 To 03-12-2024	47.62	21.85	19.36	23.49
7.	03-12-2024 To 04-12-2024	45.27	23.64	18.67	27.81
8.	09-12-2024 To 10-12-2024	50.49	20.39	20.68	25.37
9.	10-12-2024 To 11-12-2024	43.72	22.41	17.51	21.79
10.	16-12-2024 To 17-12-2024	47.63	25.32	15.23	23.62
11.	17-12-2024 To 18-12-2024	44.31	22.09	22.79	26.27
12.	20-12-2024 To 21-12-2024	42.37	27.64	19.24	29.78
13.	24-12-2024 To 25-12-2024	46.29	26.31	21.36	24.95
14.	Maximum	50.49	27.64	22.79	29.78
15.	Minimum	42.37	20.39	15.23	21.79
16.	Average	45.96	23.70	19.36	25.38

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/33-40	Report No.:	VEL/AP/2412000033-0040
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana - 505215	Format No.: Party Reference No.:	7.8 F-03 4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	03/01/2025
Sampling Location:	Annapurna Colony	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	02-12-2024 To 03-12-2024	44.61	18.58	17.34	23.84
7.	03-12-2024 To 04-12-2024	49.34	22.46	21.61	25.49
8.	09-12-2024 To 10-12-2024	45.51	24.31	16.53	23.25
9.	10-12-2024 To 11-12-2024	42.98	26.27	18.67	21.76
10.	16-12-2024 To 17-12-2024	48.31	25.63	20.79	24.19
11.	17-12-2024 To 18-12-2024	50.27	21.40	22.48	29.31
12.	23-12-2024 To 24-12-2024	46.49	20.73	18.72	28.72
13.	24-12-2024 To 25-12-2024	47.72	22.34	17.42	20.64
14.	Maximum	50.27	26.27	22.48	29.31
15.	Minimum	42.98	18.58	16.53	20.64
16.	Average	46.90	22.71	19.19	24.40

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/41-48	Report No.:	VEL/AP/2412000041-48
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	03/01/2025
Sampling Location:	Laxmipur Railway Cabin	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	02-12-2024 To 03-12-2024	46.57	20.75	16.49	24.64
7.	03-12-2024 To 04-12-2024	51.38	25.43	18.61	23.18
8.	09-12-2024 To 10-12-2024	47.61	23.16	14.76	21.37
9.	10-12-2024 To 11-12-2024	54.28	28.68	19.68	29.76
10.	16-12-2024 To 17-12-2024	50.17	22.78	17.51	25.34
11.	17-12-2024 To 18-12-2024	45.93	21.26	16.82	21.27
12.	23-12-2024 To 24-12-2024	55.21	30.43	22.38	28.78
13.	24-12-2024 To 25-12-2024	48.64	26.39	20.16	22.52
14.	Maximum	55.21	30.43	22.38	29.76
15.	Minimum	45.93	20.75	14.76	21.27
16.	Average	49.97	24.86	18.30	24.60

Note: CPCB: Central Pollution Control Board.
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Test Report

Sample Number:	VEL/AP/49-56	Report No.:	VEL/AP/24120000049-0056
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	03/01/2025
Sampling Location:	100 MW Floating Solar	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	mg/m^3
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	02-12-2024 To 03-12-2024	46.27	24.52	18.64	27.58
7.	03-12-2024 To 04-12-2024	44.16	22.94	19.52	24.46
8.	09-12-2024 To 10-12-2024	50.37	26.66	23.38	29.19
9.	10-12-2024 To 11-12-2024	47.69	24.34	20.61	21.43
10.	16-12-2024 To 17-12-2024	49.31	25.79	24.49	26.76
11.	17-12-2024 To 18-12-2024	53.17	28.86	26.14	31.40
12.	23-12-2024 To 24-12-2024	45.67	23.45	21.10	25.51
13.	24-12-2024 To 25-12-2024	48.21	26.32	22.97	28.84
14.	Maximum	53.17	28.86	26.14	31.40
15.	Minimum	44.16	22.94	18.64	21.43
16.	Average	48.10	25.36	22.11	26.87

Note: CPCB: Central Pollution Control Board;
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/25-32	Report No.:	VEL/AP/2501000025-0032
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	03/02/2025
Sampling Location:	C.I.S.F. Colony	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	02-01-2025 To 03-01-2025	49.72	22.39	20.58	22.37
7.	03-01-2025 To 04-01-2025	48.64	24.33	19.46	29.62
8.	06-01-2025 To 07-01-2025	52.36	21.17	22.16	27.74
9.	07-01-2025 To 08-01-2025	44.75	26.93	18.93	23.66
10.	15-01-2025 To 16-01-2025	49.35	27.53	17.57	21.34
11.	16-01-2025 To 17-01-2025	51.94	21.34	21.46	28.16
12.	20-01-2025 To 21-01-2025	47.85	28.73	20.26	25.42
13.	21-01-2025 To 22-01-2025	49.34	25.58	24.38	21.82
14.	27-01-2025 To 28-01-2025	53.49	22.37	23.76	26.76
15.	28-01-2025 To 29-01-2025	50.67	24.16	22.39	28.48
16.	Maximum	53.49	28.73	24.38	29.62
17.	Minimum	44.75	21.17	17.57	21.34
18.	Average	49.81	24.45	21.09	25.53

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/33-40	Report No.:	VEL/AP/2501000033-0040
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1010 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	03/02/2025
Sampling Location:	Annapurna Colony	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	02-01-2025 To 03-01-2025	47.89	19.61	19.69	24.47
7.	03-01-2025 To 04-01-2025	50.16	23.43	22.34	26.53
8.	06-01-2025 To 07-01-2025	48.67	26.18	18.43	21.49
9.	07-01-2025 To 08-01-2025	52.41	24.78	20.64	23.58
10.	15-01-2025 To 16-01-2025	49.72	23.42	23.49	23.13
11.	16-01-2025 To 17-01-2025	53.84	25.67	21.42	28.74
12.	20-01-2025 To 21-01-2025	48.67	21.58	16.93	29.64
13.	21-01-2025 To 22-01-2025	46.51	24.69	22.72	22.71
14.	27-01-2025 To 28-01-2025	49.67	26.14	23.36	25.58
15.	28-01-2025 To 29-01-2025	51.48	27.93	24.85	24.96
16.	Maximum	53.84	27.93	24.85	29.64
17.	Minimum	46.51	19.61	16.93	21.49
18.	Average	49.90	24.34	21.38	25.08

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

End of Report

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Reviewed By

VARDAN ENVIROLAB LLP GURUGRAM
Authorized Signatory

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Test Report

Sample Number:	VEL/AP/41-48	Report No.:	VEL/AP/2501000041-48
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.: Party Reference No.:	7.8 F-03 4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	03/02/2025
Sampling Location:	Laxmipur Railway Cabin	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	µg/m³	µg/m³	µg/m³	µg/m³
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	02-01-2025 To 03-01-2025	52.46	22.62	18.41	25.15
7.	03-01-2025 To 04-01-2025	53.12	24.19	19.87	26.83
8.	06-01-2025 To 07-01-2025	49.79	25.34	16.39	23.76
9.	07-01-2025 To 08-01-2025	55.18	29.79	21.47	28.14
10.	15-01-2025 To 16-01-2025	52.36	26.15	19.38	29.69
11.	16-01-2025 To 17-01-2025	48.91	23.98	18.63	22.86
12.	20-01-2025 To 21-01-2025	57.38	32.32	24.75	29.49
13.	21-01-2025 To 22-01-2025	49.34	24.79	22.49	20.64
14.	27-01-2025 To 28-01-2025	55.28	27.41	20.16	27.49
15.	28-01-2025 To 29-01-2025	53.17	26.76	19.43	24.37
16.	Maximum	57.38	32.32	24.75	29.69
17.	Minimum	48.91	22.62	16.39	20.64
18.	Average	52.67	26.33	20.09	25.84

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/49-56	Report No.:	VEL/AP/2501000049-0056
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	03/02/2025
Sampling Location:	100 MW Floating Solar	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	02-01-2025 To 03-01-2025	50.64	26.31	19.53	29.40
7.	03-01-2025 To 04-01-2025	48.37	21.73	21.17	26.36
8.	06-01-2025 To 07-01-2025	56.19	27.19	25.13	30.75
9.	07-01-2025 To 08-01-2025	48.27	26.53	22.43	23.44
10.	15-01-2025 To 16-01-2025	53.14	27.63	27.78	28.52
11.	16-01-2025 To 17-01-2025	52.96	29.79	25.63	33.69
12.	20-01-2025 To 21-01-2025	48.64	24.66	23.41	27.76
13.	21-01-2025 To 22-01-2025	51.39	28.58	24.79	24.39
14.	27-01-2025 To 28-01-2025	54.43	25.51	22.37	26.53
15.	28-01-2025 To 29-01-2025	52.72	28.43	21.69	25.94
16.	Maximum	56.19	29.79	27.78	33.69
17.	Minimum	48.27	21.73	19.53	23.44
18.	Average	51.67	26.63	23.39	27.67

Note: CPCB: Central Pollution Control Board,
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/25-32	**Report No.:**	VEL/AP/2502000025-0032
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyothinagar, District : Peddapalli, Telangana – 505215	**Format No.:** **Party Reference No.:**	7.8 F-03 4900316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	**Reporting Date:**	03/03/2025
Sampling Location:	C.I.S.F. Colony	**Parameter Required:**	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	**Sample Collected By:**	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	**Page No.:**	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	03-02-2025 To 04-02-2025	46.62	23.64	21.89	21.42
7.	04-02-2025 To 05-02-2025	47.42	23.74	20.31	28.45
8.	10-02-2025 To 11-02-2025	53.19	20.49	24.27	26.13
9.	11-02-2025 To 12-02-2025	48.71	25.75	19.62	24.61
10.	17-02-2025 To 18-02-2025	46.88	29.37	18.34	23.68
11.	18-02-2025 To 19-02-2025	55.32	24.18	22.71	26.86
12.	24-02-2025 To 25-02-2025	52.12	29.42	23.52	29.73
13.	25-02-2025 To 26-02-2025	50.97	26.29	26.43	27.41
16.	Maximum	55.32	29.42	26.43	29.73
17.	Minimum	46.62	20.49	18.34	21.42
18.	Average	50.15	25.36	22.13	26.03

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/33-40	**Report No.:**	VEL/AP/2502000033-0040
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyothinagar, District : Peddapalli, Telangana – 505215	**Format No.:** **Party Reference No.:**	7.8 F-03 4900316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	**Reporting Date:**	03/03/2025
Sampling Location:	Annapurna Colony	**Parameter Required:**	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	**Sample Collected By:**	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	**Page No.:**	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	03-02-2025 To 04-02-2025	48.34	21.56	18.92	23.68
7.	04-02-2025 To 05-02-2025	52.75	24.36	21.52	24.46
8.	10-02-2025 To 11-02-2025	50.94	25.72	19.62	22.15
9.	11-02-2025 To 12-02-2025	53.62	26.19	22.37	20.83
10.	17-02-2025 To 18-02-2025	51.86	22.53	24.75	27.54
11.	18-02-2025 To 19-02-2025	54.79	26.34	23.64	25.92
12.	24-02-2025 To 25-02-2025	47.39	23.89	19.27	28.37
13.	25-02-2025 To 26-02-2025	45.29	21.72	20.78	24.32
14.	Maximum	54.79	26.34	24.75	28.37
15.	Minimum	45.29	21.56	18.92	20.83
16.	Average	50.62	24.04	21.35	24.65

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

End of Report

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Test Report

Sample Number:	VEL/AP/41-48	**Report No.:**	VEL/AP/2502000041-48
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyothinagar, District : Peddapalli, Telangana – 505215	**Format No.:** **Party Reference No.:**	7.8 F-03 4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	**Reporting Date:**	03/03/2025
Sampling Location:	Laxmipur Railway Cabin	**Parameter Required:**	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	**Sample Collected By:**	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	**Page No.:**	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	03-02-2025 To 04-02-2025	55.27	23.41	17.56	24.34
7.	04-02-2025 To 05-02-2025	51.53	26.52	21.42	22.62
8.	10-02-2025 To 11-02-2025	48.68	27.62	18.89	21.78
9.	11-02-2025 To 12-02-2025	57.32	28.31	22.76	25.93
10.	17-02-2025 To 18-02-2025	56.93	25.43	20.51	27.52
11.	18-02-2025 To 19-02-2025	51.42	21.79	19.73	25.43
12.	24-02-2025 To 25-02-2025	59.93	30.16	21.38	26.71
13.	25-02-2025 To 26-02-2025	48.23	29.34	25.73	23.41
16.	Maximum	59.93	30.16	25.73	27.52
17.	Minimum	48.23	21.79	17.56	21.78
18.	Average	53.66	26.57	20.99	24.71

Note: CPCB: Central Pollution Control Board,
NAAQS : National Ambient Air Quality Standards.

End of Report

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Test Report

Sample Number:	VEL/AP/49-56	Report No.:	VEL/AP/2502000049-0056
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyothinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-017-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	03/03/2025
Sampling Location:	100 MW Floating Solar	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	03-02-2025 To 04-02-2025	53.81	27.42	18.34	28.61
7.	04-02-2025 To 05-02-2025	49.69	23.16	22.19	27.49
8.	10-02-2025 To 11-02-2025	58.31	26.28	21.83	29.36
9.	11-02-2025 To 12-02-2025	50.16	29.62	24.18	26.53
10.	17-02-2025 To 18-02-2025	54.27	24.72	26.34	31.29
11.	18-02-2025 To 19-02-2025	53.49	29.98	28.43	32.39
12.	24-02-2025 To 25-02-2025	52.32	23.46	25.15	26.13
13.	25-02-2025 To 26-02-2025	47.89	29.71	27.98	29.72
16.	Maximum	58.31	29.71	28.43	32.39
17.	Minimum	47.89	23.16	18.34	26.13
18.	Average	52.49	26.66	24.30	28.94

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

End of Report

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Author (and Signatory)

Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)
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Test Report

Sample Number:	VEL/AP/25-32	Report No.:	VEL/AP/2503000025-0032
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyothinagar, District : Peddapalli, Telangana – 505215	Format No.: Party Reference No.:	7.8 F-03 4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	03/04/2025
Sampling Location:	C.I.S.F. Colony	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	03-03-2025 To 04-03-2025	47.86	26.43	12.36	23.97
7.	04-03-2025 To 05-03-2025	49.27	21.82	23.75	27.36
8.	10-03-2025 To 11-03-2025	51.25	22.37	15.43	25.52
9.	11-03-2025 To 12-03-2025	50.39	26.89	21.83	22.82
10.	17-03-2025 To 18-03-2025	48.73	28.72	19.72	24.72
11.	18-03-2025 To 19-03-2025	57.39	27.52	22.42	27.41
12.	24-03-2025 To 25-03-2025	54.89	31.19	24.83	28.36
13.	25-03-2025 To 26-03-2025	49.68	29.71	25.64	29.38
16.	Maximum	57.39	31.19	25.64	29.38
17.	Minimum	47.86	21.82	12.36	22.82
18.	Average	51.18	26.83	20.74	26.19

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/33-40	Report No.:	VEL/AP/2503000033-0040
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyothinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	03/04/2025
Sampling Location:	Annapurna Colony	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	03-03-2025 To 04-03-2025	49.53	22.29	19.82	26.43
7.	04-03-2025 To 05-03-2025	54.28	26.42	20.39	23.28
8.	10-03-2025 To 11-03-2025	52.19	28.61	21.71	24.36
9.	11-03-2025 To 12-03-2025	55.83	25.83	20.28	22.53
10.	17-03-2025 To 18-03-2025	52.42	24.71	21.89	28.41
11.	18-03-2025 To 19-03-2025	56.32	27.62	19.43	27.63
12.	24-03-2025 To 25-03-2025	50.96	22.94	18.67	29.87
13.	25-03-2025 To 26-03-2025	48.71	22.42	20.16	22.94
16.	Maximum	56.32	28.61	21.89	29.87
17.	Minimum	48.71	22.29	18.67	22.53
18.	Average	52.53	25.23	20.29	25.68

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

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Test Report

Sample Number:	VEL/AP/41-48	Report No.:	VEL/AP/2503000041-48
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	03/04/2025
Sampling Location:	Laxmipur Railway Cabin	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	03-03-2025 To 04-03-2025	57.34	24.53	18.43	23.79
7.	04-03-2025 To 05-03-2025	53.61	25.38	18.16	20.83
8.	10-03-2025 To 11-03-2025	49.42	26.93	19.62	22.73
9.	11-03-2025 To 12-03-2025	58.62	29.51	20.38	26.15
10.	17-03-2025 To 18-03-2025	54.87	24.82	21.72	28.43
11.	18-03-2025 To 19-03-2025	53.61	23.31	18.86	23.12
12.	24-03-2025 To 25-03-2025	62.34	32.72	20.63	29.62
13.	25-03-2025 To 26-03-2025	50.46	28.46	24.41	22.72
16.	Maximum	62.34	32.72	24.41	29.62
17.	Minimum	49.42	23.31	18.16	20.83
18.	Average	55.03	26.95	20.27	24.67

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

End of Report

Reviewed By

Authorised Signatory

Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)
ISO 9001 | ISO 14001 | ISO 45001

Test Report

Sample Number:	VEL/AP/49-56	Report No.:	VEL/AP/2503000049-0056
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
Sampling & Analysis Protocol:	CPCB Guidelines & IS: 5182	Reporting Date:	03/04/2025
Sampling Location:	100 MW Floating Solar	Parameter Required:	As Per Work Order
Name of Sample:	Ambient Air Quality Monitoring	Sample Collected By:	VEL Representative (Mr. Rajesh)
Sample Group:	Atmospheric Pollution	Page No.:	1 of 1

TEST RESULTS

S. No.	Concentration of Pollutants				
1.	Parameters	PM_{10}	$PM_{2.5}$	SO_2	NO_2
2.	Units	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$	$\mu g/m^3$
3.	Limits As Per NAAQS	100	60	80	80
4.	Test Method	IS: 5182 (P-23)	IS: 5182 (P-24)	IS: 5182 (P-2)	IS: 5182 (P-6)
5.	Limit of Quantification	5.0	5.0	5.0	6.0
6.	03-03-2025 To 04-03-2025	55.35	29.38	20.43	26.43
7.	04-03-2025 To 05-03-2025	48.29	22.42	21.61	25.78
8.	10-03-2025 To 11-03-2025	56.42	27.81	22.79	28.46
9.	11-03-2025 To 12-03-2025	52.24	26.76	23.67	29.82
10.	17-03-2025 To 18-03-2025	57.82	29.35	22.71	30.76
11.	18-03-2025 To 19-03-2025	54.93	26.39	23.86	34.19
12.	24-03-2025 To 25-03-2025	50.42	25.73	22.38	27.53
13.	25-03-2025 To 26-03-2025	51.73	30.22	24.53	33.38
16.	Maximum	57.82	30.22	24.53	34.19
17.	Minimum	48.29	22.42	20.43	25.78
18.	Average	53.40	27.25	22.74	29.56

Note: CPCB: Central Pollution Control Board.
NAAQS : National Ambient Air Quality Standards.

End of Report

Reviewed By

Authorized Signatory

REPORT ON LONG TERM AMBIENT TEMPERATURE STUDY OF RAMAGUNDAM, PEDDAPALLI DISTRICT, TELANGANA STATE

Prepared by

EPTRI

Environment Protection Training & Research Institute
Survey No: 91/4, Gachibowli,
Hyderabad – 500 032

Submitted to

NTPC Telangana STPP (2x800 MW)
Ramagundam,PeddapalliDistrict
Telangana State

May

2025

REPORT ON LONG TERM AMBIENT TEMPERATURE STUDY OF RAMAGUNDAM, PEDDAPALLI DISTRICT, TELANGANA STATE

Project Team	
In charge of Environmental Engineering and Management (EEM) & Environmental Quality Mapping (EQM) (I/C) **NABET Approved**: EIA Coordinator: • Mining of minerals including opencast / underground mining • Thermal Power Plant • Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes Function Area Expert: • Water pollution monitoring, prevention and control (WP) • Air pollution monitoring, prevention and control (AP) • Meteorology, air quality modelling and prediction (AQ) • Soil conservation (SC)	**Mrs.V.Bhavani** Bhavani V 9/6/25
In charge of Environmental Engineering and Management (EEM) &Environmental Quality Mapping (EQM) (I/C) **NABET Approved**: EIA Coordinator: • Mining of minerals including opencast / underground mining • River Valley projects • Coal washeries • Building and construction projects Function Area Expert: • Water pollution monitoring, prevention and control (WP) • Air pollution monitoring, prevention and control (AP) • Meteorology, air quality modelling and prediction (AQ) • Solid and hazardous waste management (SHW)	**Mrs. Shaheda Begum** Shaheda 9/6/2025

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1. About the project

NTPC is India's largest energy conglomerate with roots planted way back in 1975 to accelerate power development in India. Since then, it has established itself as the dominant power major with presence in the entire value chain of the power generation business. From fossil fuels it has forayed into generating electricity via hydro, nuclear and renewable energy sources. This foray will play a major role in lowering its carbon footprint by reducing greenhouse gas emissions. To strengthen its core business, the corporation has diversified into the fields of consultancy, power trading, training of power professionals, rural electrification, ash utilization and coal mining as well. NTPC became a Maharatna company in May 2010. The total installed capacity of the company is 76,074 MW comprising of 52 NTPC owned stations including 27 coal based, 7 gas based, 1 Hydro, 16 Solar PV and 1 Small hydro project and 42 Joint Venture (JVs) and Subsidiaries (9 coal based, 4 gas based, 8 hydro, 1 small hydro, 16 solar PV and 4 wind). By 2032, non-fossil fuel-based generation capacity shall make up nearly 40% of NTPC's portfolio.

Ramagundam Super Thermal Power Station is third flagship project of NTPC with total installed capacity of 2600 MW and the first ISO 14001 certified "Super Thermal Power Station "in India. Foundation Stone of Ramagundam was laid by the then Prime Minister Late Shri Morarji Desai on 14.11.1978. This station was originally envisioned with 2100 MW capacity with Stage-I (3x200 MW) and Stage-II (3x500 MW). The installed capacity got expanded 2600 MW with the addition of one more 500 MW Unit in Stage-III in 2005.

Telangana Super Thermal Power Project, Phase-I (1600 MW)

As per Andhra Pradesh Re-organization Act 2014, NTPC has been mandated to set-up **4000 MW** coal fired thermal power station for Telangana State. Foundation stone of Telangana Super Thermal Power Station, Phase-I (2X800MW) was laid by Hon'ble Prime Minister Shri Narendra Modi on 07.08.2016. Unit-I & II of Telangana STPP, Phase-I (2X800MW) were dedicated to Nation by Hon'ble Prime Minister on 03.10.2023 & 04.03.2024 respectively. Unit-I & Unit-II of Telangana STPP are under commercial operation since 28.09.2023 and 01.03.2024 respectively.

Ministry of Environment & Forest and Climate Change (MoEF&CC) has accorded the Environmental Clearance (EC) for Telangana Super Thermal Power Project Phase-I (2x800 MW) vide letter no. J-13012/112/2010-IA.II (T) dated 20.01.2016 stipulating various conditions for implementation by NTPC. One of the conditions is as follow:

"Long term monitoring of temperature shall be undertaken on-site and off-site of the TPP, as data of decrease in temperature needs to be verified. Further, requisite corrective action shall be taken based on the findings of the monitoring."

2. About EPTRI

Environment Protection Training and Research Institute [EPTRI] a premier agency in India, provides training, consultancy, applied research services and extends advocacy in the area of environment protection to industries, regulatory bodies, Government Organizations and NGOs and works towards bringing about change for more balanced development. It is involved in various activities covering environmental issues such as protected areas and biodiversity, urban agglomeration, environmental awareness, Human Resource Development, Capacity Building and Research.

EPTRI IS RECOGNIZED BY THE RESPECTIVE AUTHORITIES

- **Environmental Impact Assessment (EIA) Consultant Organization** since 2008 according to the National Accreditation Board for Education and Training (NABET), Quality Council of India (QCI).
- Empanelled **Training Institute of Government of India** for imparting training under the **Technical Cooperation Scheme of the Colombo Plan**.
- **Centre for Climate Change** and Nodal Agency for **Clean Development Mechanism.**
- **Technical Consultant** of Municipal Solid Waste Management.
- **Empanelled Agency** to provide technical support to States / ULBs to carryout investigation, design and thereafter to prepare the DPRs to help structure and manage schemes/ programmes in the field of Municipal Solid Waste Management.
- **National Host Institute** for preparation of **State of Environment Reports**.
- Centre of Excellence in **Spatial Environmental Planning**.
- **Environmental Information System** (ENVIS) Centres for Ecology of Eastern Ghats and State of Environment Report & related issues.
- **Key Resource Centre** for Rural Water and Sanitation.
- Member in the **Awareness & Capacity Building Committee** of Telangana State Bio-diversity Board'

LABORATORY RECEIVED RECOGNITIONS &ACCREDITATIONS BY

- **NABL** (National Accreditation Board for Testing and Calibration Laboratories) in the fields of **Chemical and Bio-technology**.
- **Scientific and Industrial Organisation** (SIRO) – recognised by Department of Scientific Research, Government of India.
- **Environmental Laboratory** under the Environment Protection Act, 1986.
- **State Laboratory** under the Water (Prevention & Control of Pollution) Act, of 1974.
- EPTRI is certified **ISO 14001: 2015** valid up to September, 2024 (Certificate No.E9186414039).
- EPTRI is certified **ISO 9001: 2015** valid up to September 2024 (Certificate No. Q91864141051).
- EPTRI is certified **ISO 45001: 2018** valid up to September 2024 (Certificate No. OHSAS9186414028).

3. Scope of work

1. The offsite hourly ambient temperature data was collected from the Indian Meteorological Department (IMD) for the period from April 1999 to December 2024 by NTPC. On-site temperature data was obtained from the weather monitoring station, which is part of the Online Ambient Air Quality Monitoring System (AAQMS) located at NTPC Ramagundam, for the period from 2010 to 2024.
2. Comprehensive analysis of long-term onsite and offsite ambient temperature data for NTPC Telangana to assess temporal trends and deviations in ambient temperature patterns at Ramagundam
3. To generate graphical representations of annual and seasonal variations in maximum temperature, and to compile the findings in a comprehensive report.
4. Recommendations based on the study findings.

3.1. Methodology

Based on the objectives and scope of work, the schematic representation of the methodology adopted for carrying out the analysis of Ambient Air Temperature Study for Telangana STPP, Ramagundam is given in Figure 1.

In this study, maximum annual and seasonal temperature data (Winter, Summer, Monsoon, and Post-Monsoon) have been compiled using offsite data from 1999 to 2024, and onsite daily data from 2010 to 2024, computed using Microsoft Excel.

Mann Kendall (MK) Test:

As per the "Statistical Assessment of the changing climate on Vadodara city, India during 1969-2006" the Mann–Kendall nonparametric test has been suggested by the World Meteorological Organization to assess the trend in environmental time series data This test consists of comparing each data point of a time series with the remaining data in a sequential order. The number of times that the remaining terms are greater than that under analysis is counted. This test is based on the statistic S which is defined as below:

$$S = \sum_{i=2}^{n} \sum_{j=1}^{i-1} sign(x_i - x_j)$$

Here x_j are the sequential data values, n is the length of the time series, and sign $(x_i - x_j)$ is -1 for $(x_i - x_j) < 0$, 0 for $(x_i - x_j) = 0$ and 1 for $(x_i - x_j) > 0$. The mean E [S] and variance V[S] of the statistic S is given as below:

E[S] = 0

$$Var[S] = \frac{n(n-1)(2n+5) - \sum_{p=1}^{q} t_p(t_p-1)(2t_p+5)}{18}$$

Here t_p is the number of ties for the p^{th} value and q is the number of tied values. The second term represents an adjustment for tied and censored data. The standardized test statistic Z_{MK}

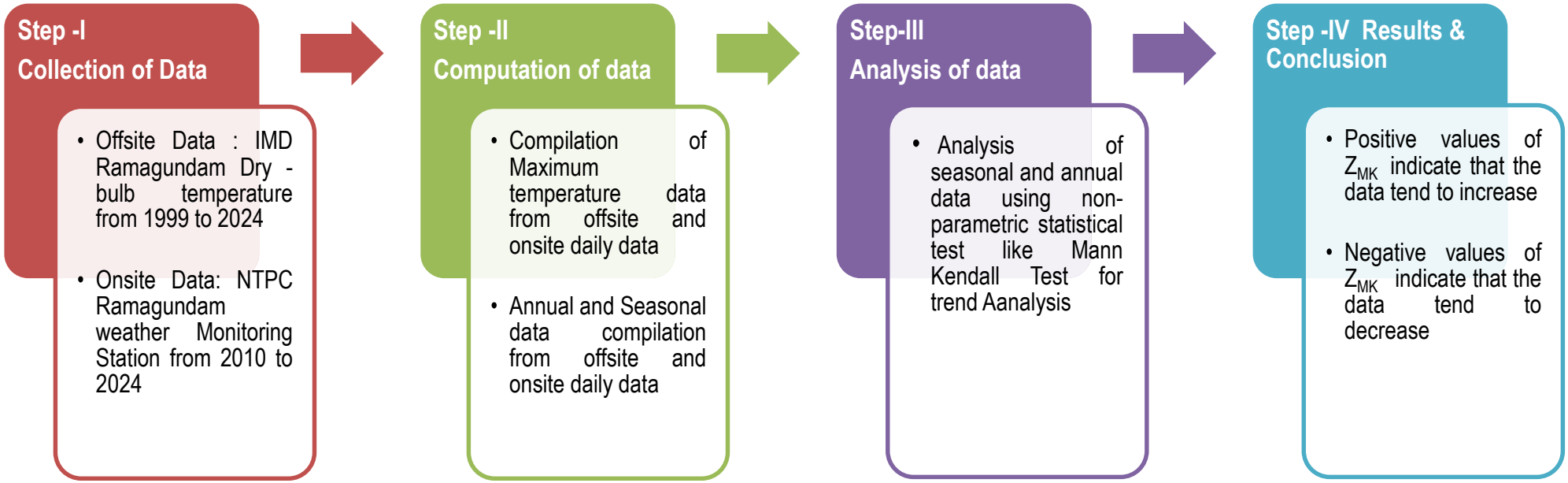
$$Z_{MK} = \begin{cases} \frac{S-1}{\sqrt{Var(S)}} & if\ S > 0 \\ 0 & if\ S = 0 \\ \frac{S+1}{\sqrt{Var(S)}} & if\ S < 0 \end{cases}$$

The presence of a statistically significant trend is evaluated using the Z_{MK} value. The statistic is used to test the null hypothesis that no trend exists. A positive Z_{MK} value indicates an increasing trend, while a negative value indicates a decreasing trend.

Table 1: Interpretation of the Mann-Kendall Trend Test Results (Z_{MK})

Range of Z_{MK}	**Interpretation of the Temperature Trend (in terms of Z_{MK} range)**
> 2.576	Increasing Trend significant at 99% confidence level
> 1.96 & ≤ 2.576	Increasing Trend significant at 95% confidence level
> 1.654 & ≤ 1.96	Increasing Trend significant at 90% confidence level
> 0 & ≤ 1.654	Increasing Trend not significant
0	No Trend
≥ -1.654 & < 0	Decreasing Trend not significant
≥ -1.96 & < -1.654	Decreasing Trend significant at 90% confidence level
≥ 2.576 & < -1.96	Decreasing Trend significant at 95% confidence level
< -2.576	Decreasing Trend significant at 99% confidence level

Figure 1: Methodology adopted in carrying out the analysis



3.2. Offsite Data Analysis (IMD Ramagundam)

The Indian Meteorological Department (IMD) has installed a meteorological station at Brahmanapalli, Ramagundam, in Peddapalli District. Offsite temperature data for the Ramagundam area, recorded at this station, has been collected from IMD for the period from April 1999 to December 2024.

The automatic weather station installed at Ramagundam is shown in Figure 2 below.

Figure 2: Photograph showing automatic weather station installed at IMD Ramagundam office

3.2.1. Season-wise Offsite IMD data

The offsite data is obtained from Automatic Weather Station (AWS), IMD and is based on Dry-bulb Temperature (T_{dry}), analogous to air temperature.

The Indian Meteorological Department (IMD) classifies India's climate into four main seasons:

- Winter (December-February),
- Summer (March-May),
- Monsoon/Rainy (June-September), and
- Post-Monsoon (October-December).

Seasonal Trends (Offsite IMD):

The maximum temperature recorded in the offsite IMD data during the winter, summer, monsoon and post monsoon season for the period 1999 to 2024 is provided in Table-1 ,2,3 and 4 of Annexure-1. Based on the data analysed, the corresponding graphs are plotted for maximum temperature during Winter Season (Figure 3) Summer Season (Figure 4) Monsoon Season (Figure 5) and Post Monsoon Season (Figure 6) are shown respectively.

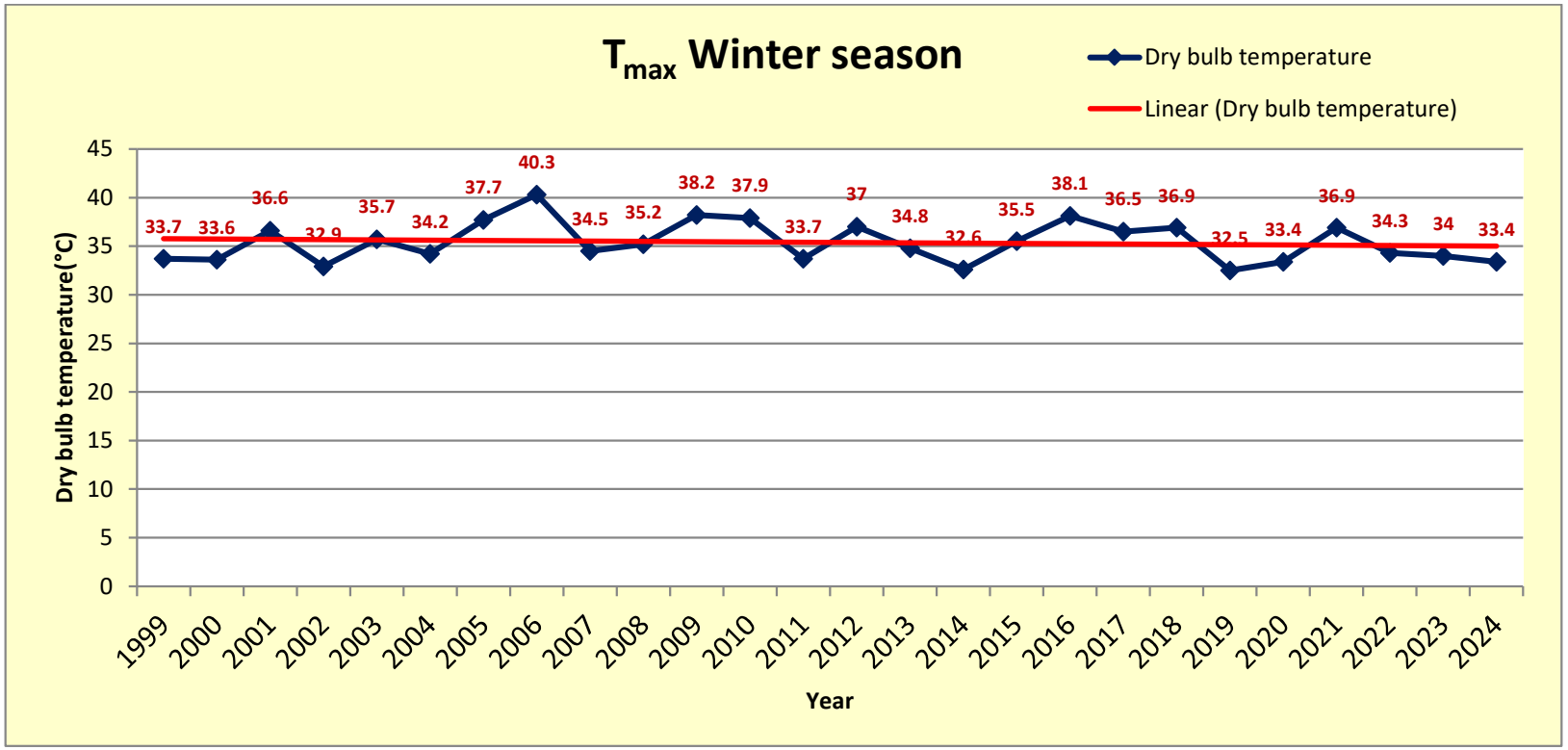


Figure 3: Maximum temperature during winter season (IMD Ramagundam)

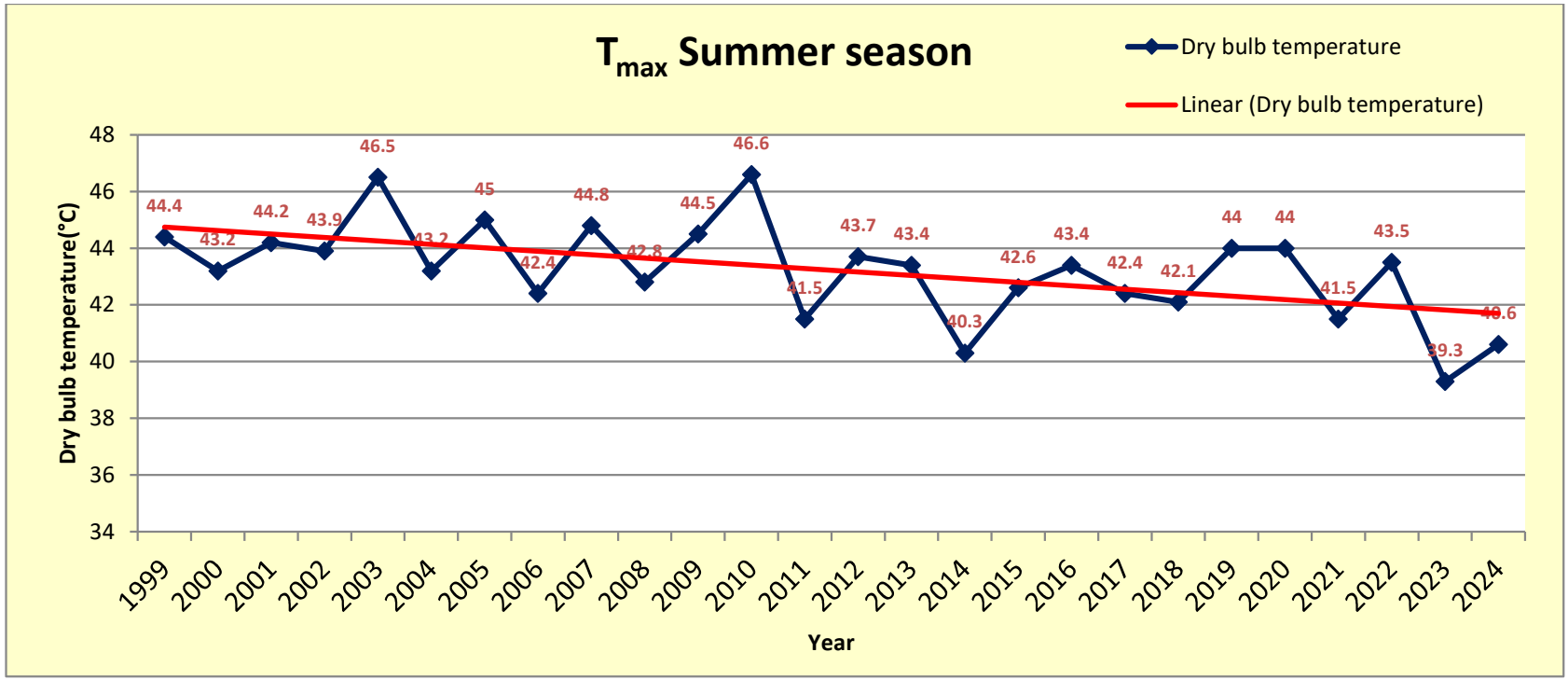


Figure 4: Maximum Temperature during summer season (IMD Ramagundam)

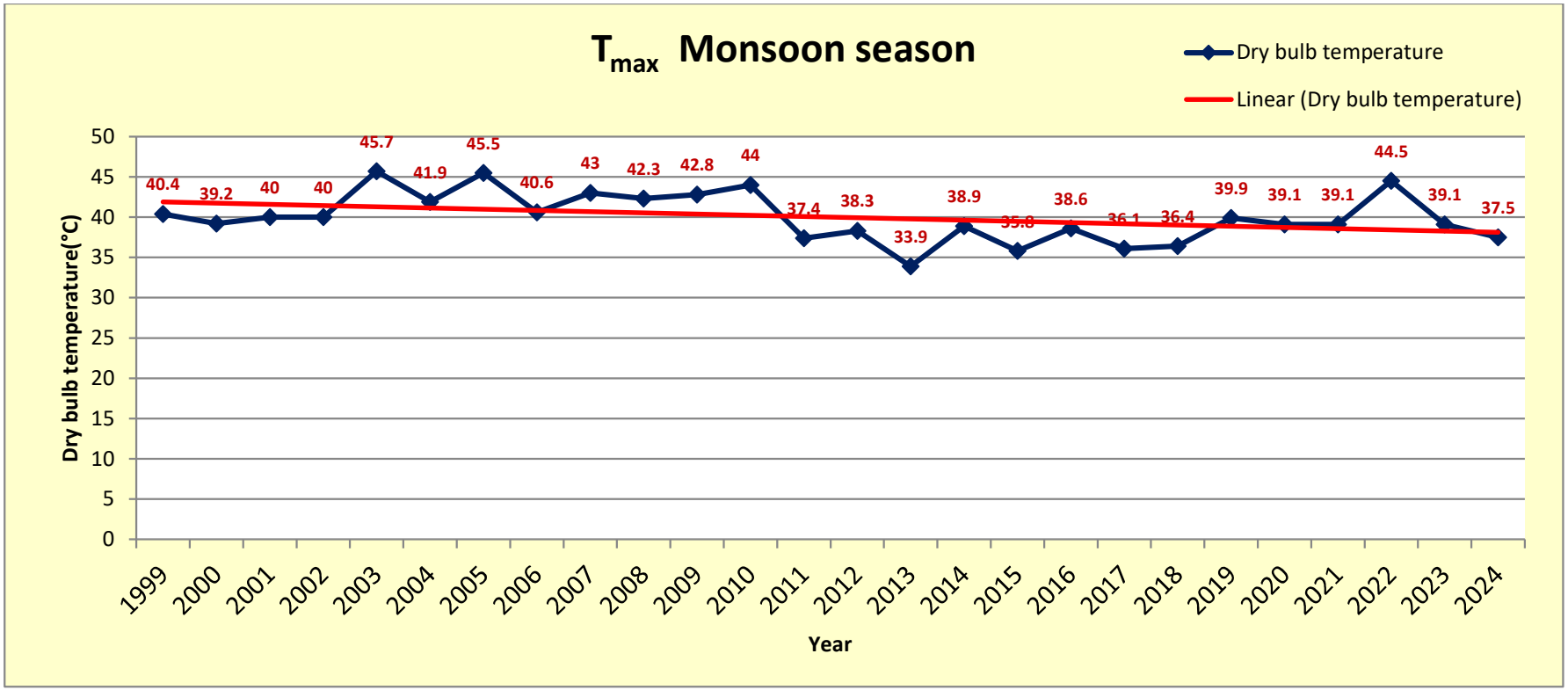


Figure 5 : Maximum temperature during monsoon season (IMD Ramagundam)

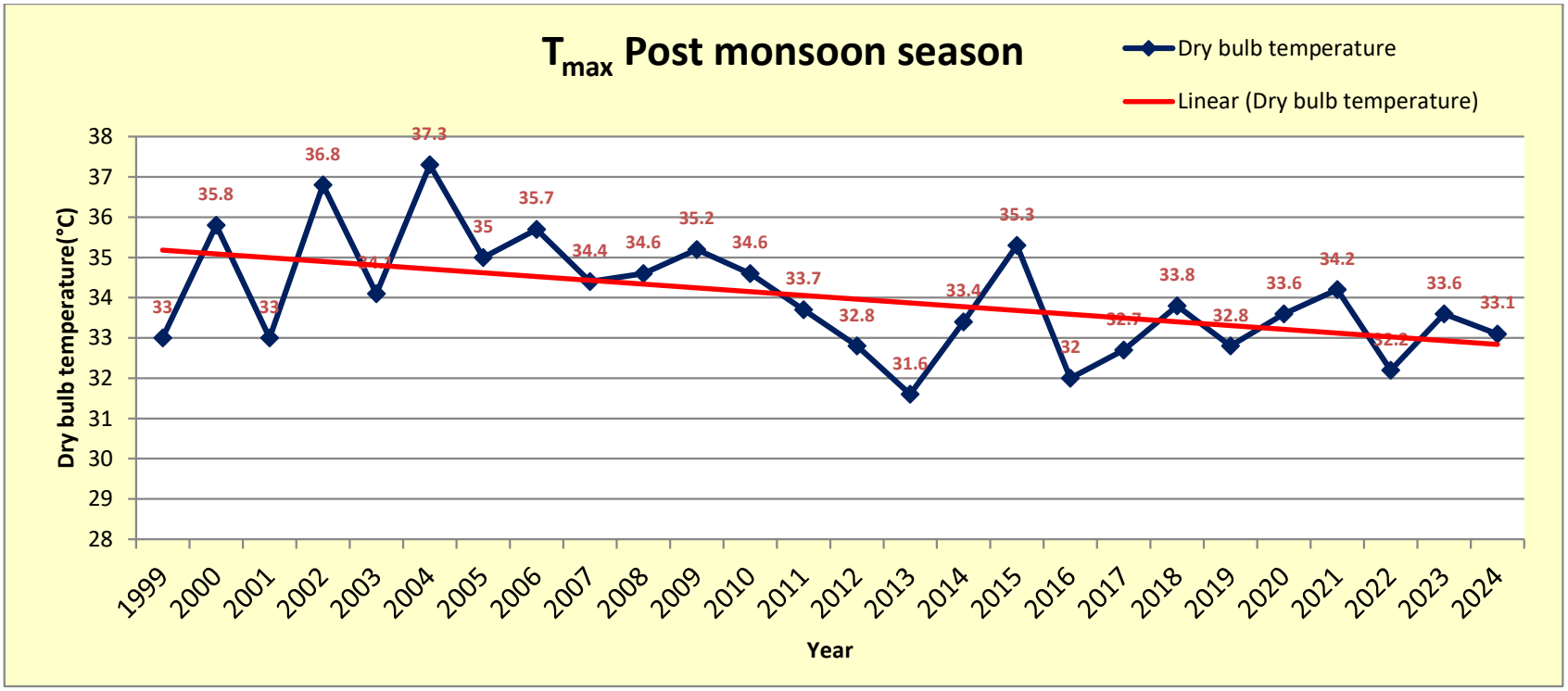


Figure 6: Maximum temperature during post monsoon season (IMD Ramagundam)

The maximum temperature recorded for each season was analysed for the period from 1999 to 2024.

The yearly temperature seasonal trend from 1999 to 2024 shows that the temperature is high in summer season rather than other season like winter, monsoon and post monsoon season. Even during the summer season, the temperature is gradually decreasing from 46.6^{0}C in 2010 to 39.3 ^{0}C in 2023. However, there is fluctuations in the temperature trends between 39.3 ^{0}C to 44 ^{0}C. The minimum fluctuation in the temperature is shown in 2023 and maximum fluctuations in the temperature are shown in 2019 and 2020

Graphs plotted on a seasonal basis indicate a decreasing trend, which was further validated using the Mann-Kendall (MK) test. A positive and negative values of Z_{MK} indicate that the data tend to increase or decrease with time respectively.

The MK test was performed on the maximum temperature data, and the results are summarized in the Table 2 showing the test statistic Z_{MK} for each season. The results confirm a statistically significant decreasing trend over the period.

Table 2: Offsite Maximum temperature Z_{MK} test Statistic

Season	Z_{MK} (MK test statistic)	Confidence level (%)
Winter	-0.507	< 90%
Summer	-2.58	99%
Monsoon	-1.77	92%
Post monsoon	-2.38	98%

Based on Z_{MK} test statistic value for summer season the temperature trend is interpreted as showing significant decreasing trend at 99% confidence level when compared to the results obtained in winter, monsoon and post monsoon seasons.

3.2.2. Annual Trends (Offsite IMD data)

The year-wise summary of minimum and maximum temperature data is provided in Annexure II, under Table 5. A graph plotted using the Annual offsite maximum temperature data for the period 1999–2024 is as given below in Figure 7.

The graph is showing a decreasing trend in ambient maximum temperature over the period. It shows that the temperature is gradually decreasing from 1999 (44.4^{0}C), however temperature has increased slightly in years 2003 (46.5^{0}C), 2005 (44.5^{0}C), 2007 (44.8^{0}C), 2010 (46.6^{0}C), and 2022 (44.5^{0}C) with respect to year 1999.

This decreasing trend is further validated by the results of the Mann-Kendall (MK) test, Z_{MK} = -2.295 significant at 95% confidence level.

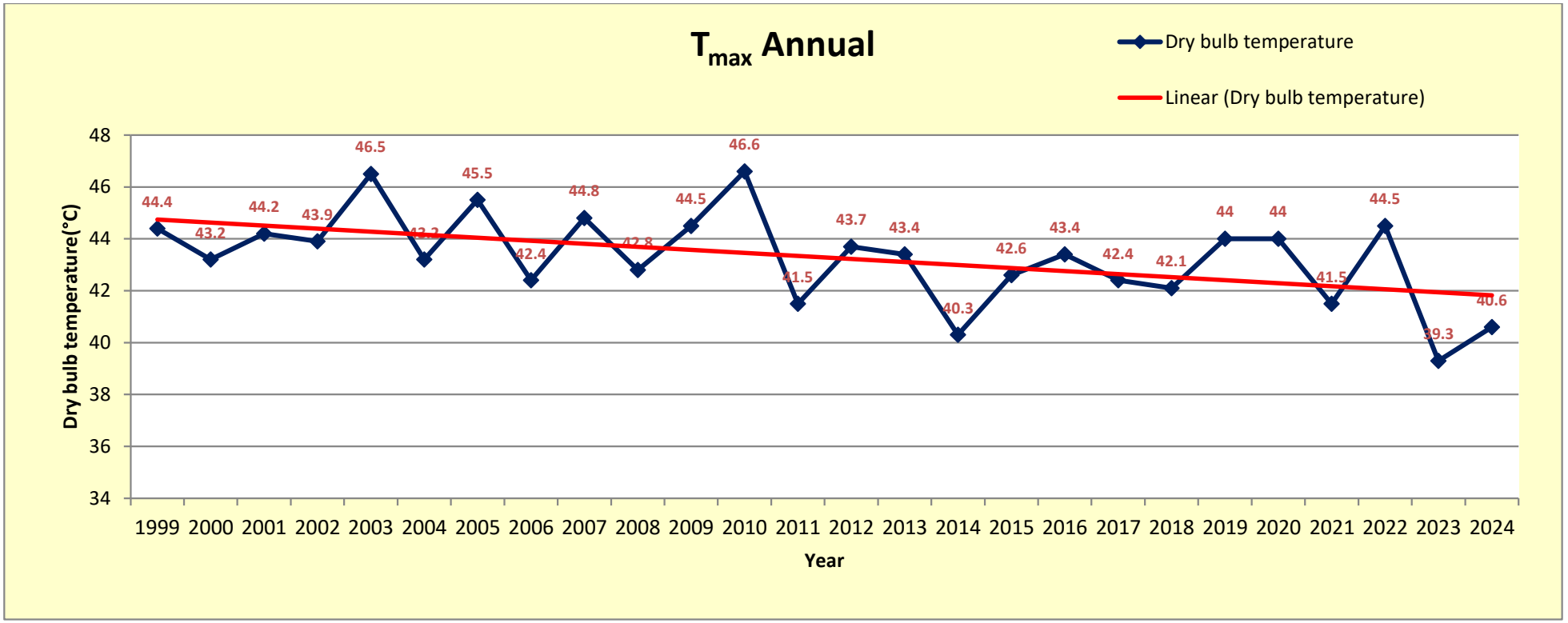


Figure 7: Annual maximum temperature (IMD-Ramagundam)

3.3. Onsite Temperature data Analysis (NTPC Ramagundam)

NTPC has installed a weather monitoring station along with an Online Ambient Air Quality Monitoring System (AAQMS) of NTPC Ramagundam since 2010 to measure the onsite temperature at NTPC Ramagundam area. On the basis of data availability, seasonal trend analysis has been done from 2011 to 2024 and annual trend analysis from 2010 to 2024.

A photograph of the installed automatic weather station is provided in Figure 8.

Figure 8: Photograph showing onsite automatic weather station installed at RSTPS

3.3.1. Seasonal Trends (Onsite Temperature data-NTPC Ramagundam)

The India Meteorological Department (IMD) classifies India's climate into four main seasons:

- Winter (December-February),
- Summer (March-May),
- Monsoon/Rainy (June-September), and
- Post-Monsoon (October-December)

Season wise maximum temperature data for a period from 2011 to 2024 recorded in the onsite weather monitoring system is given in Annexure III under the Table 6,7,8 and 9 respectively. Based on the data analysed, the corresponding graphs are plotted for maximum temperature during winter, summer, monsoon and post monsoon seasons as shown in Figures 9,10,11 and 12 respectively.

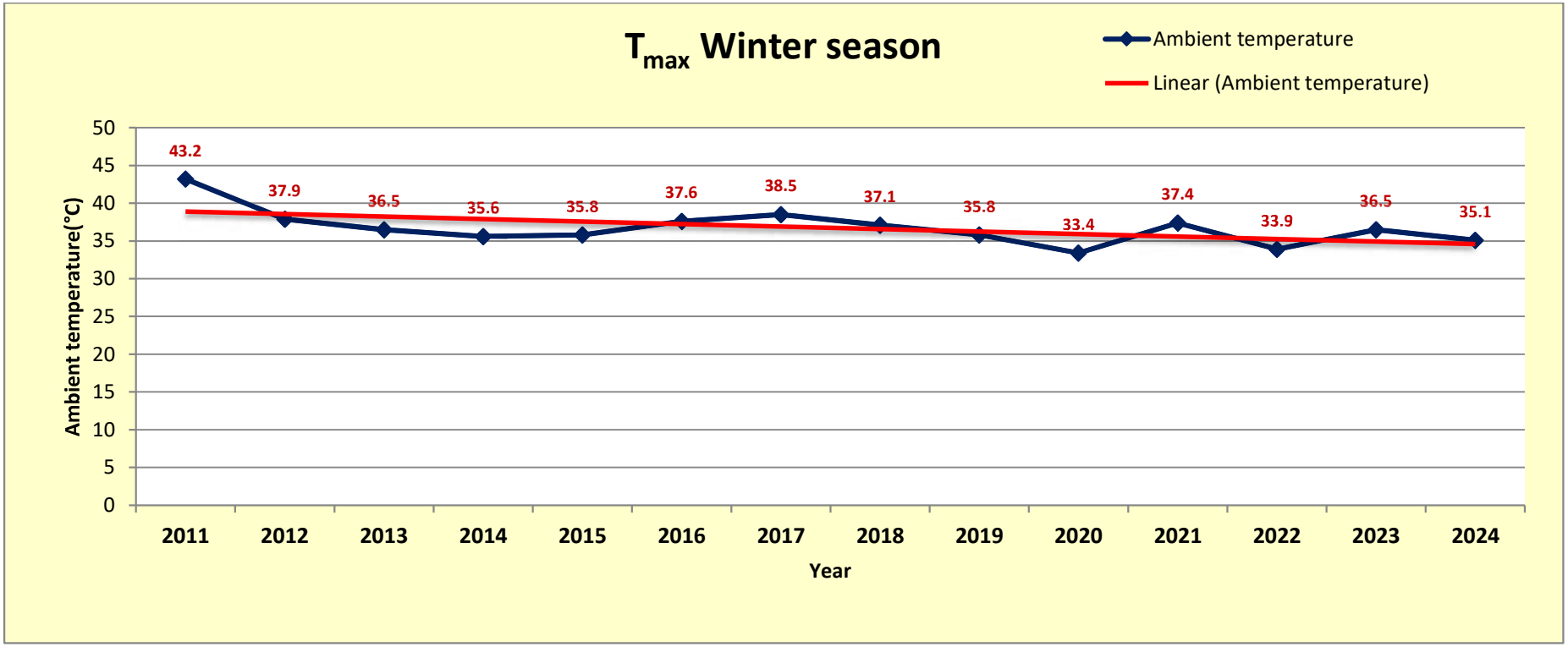


Figure 9 : Maximum temperature during winter season (NTPC –Ramagundam WMS)

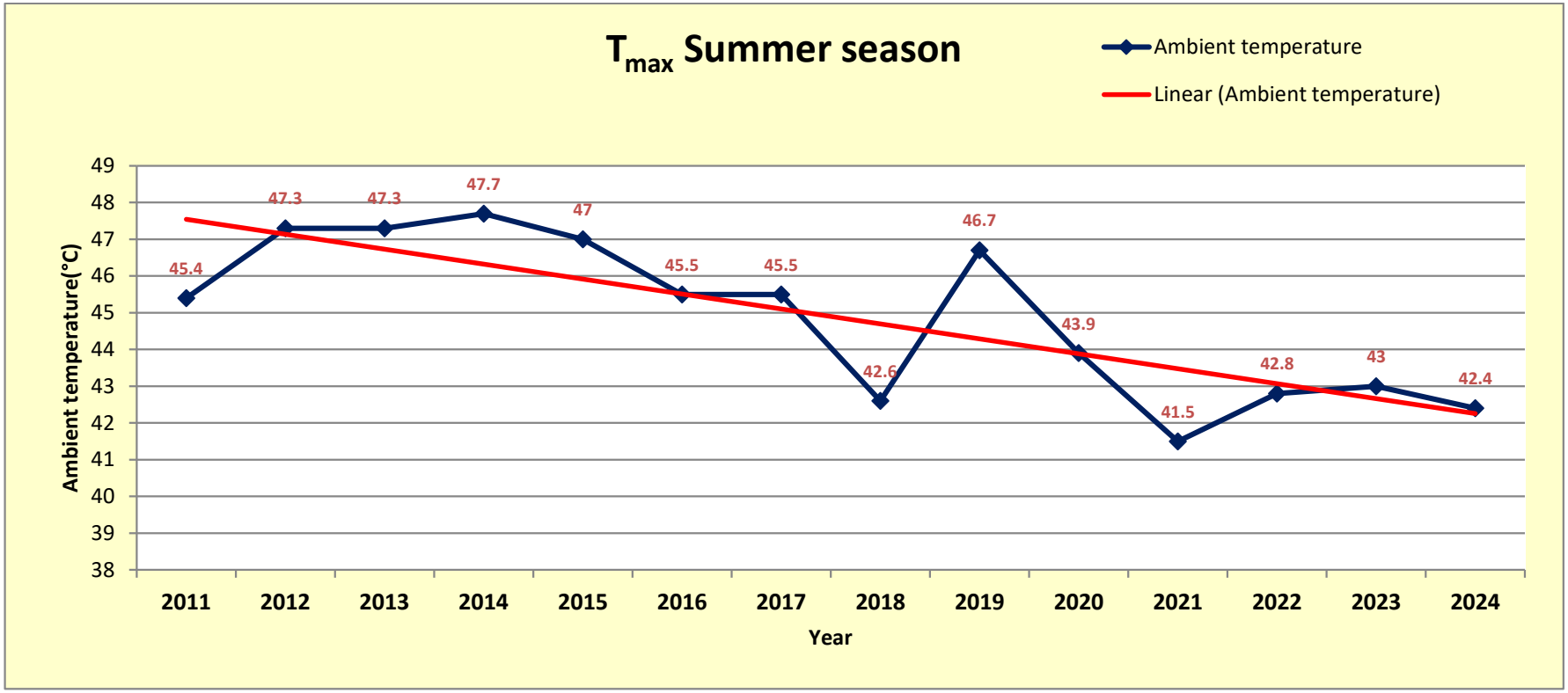


Figure 10 :Maximum temperature during summer season (NTPC -Ramagundam WMS)

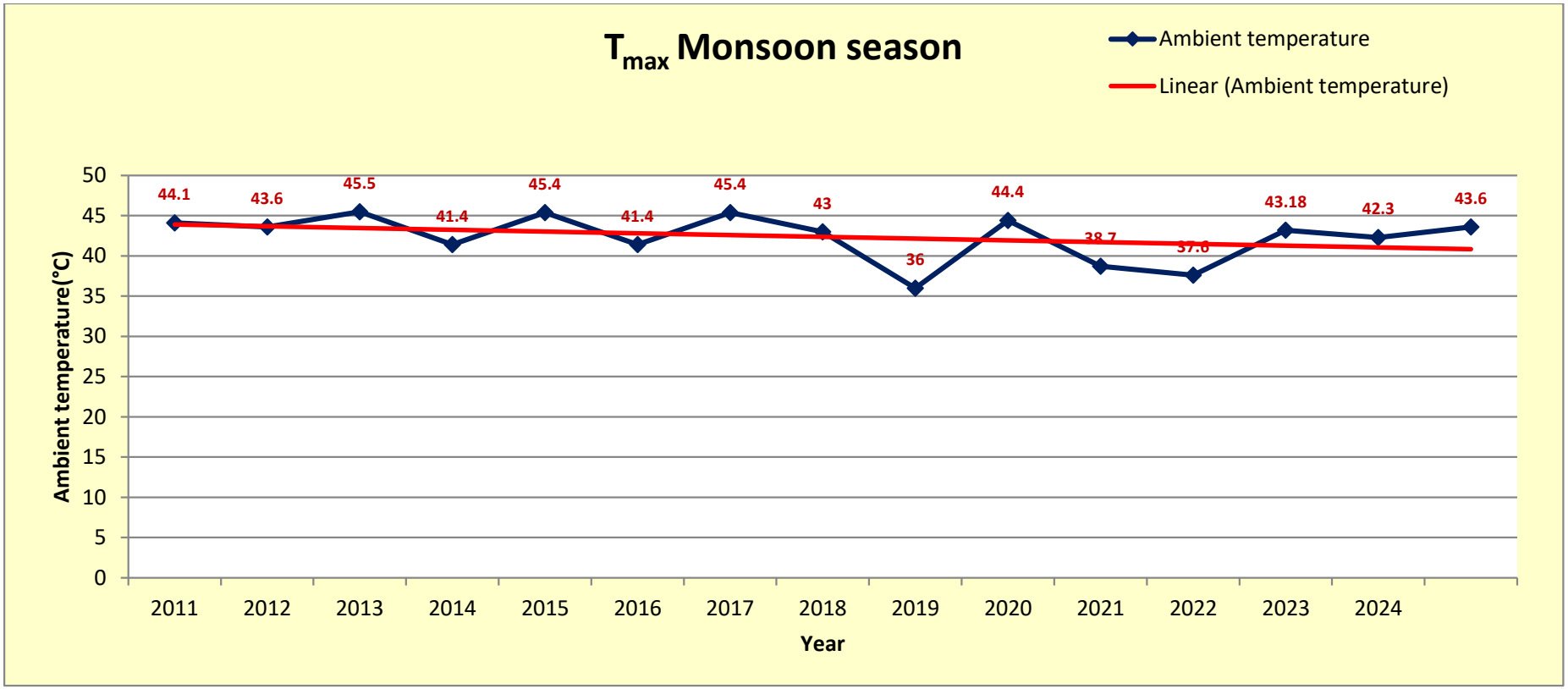


Figure 11: Maximum temperature during monsoon season (NTPC -Ramagundam WMS)

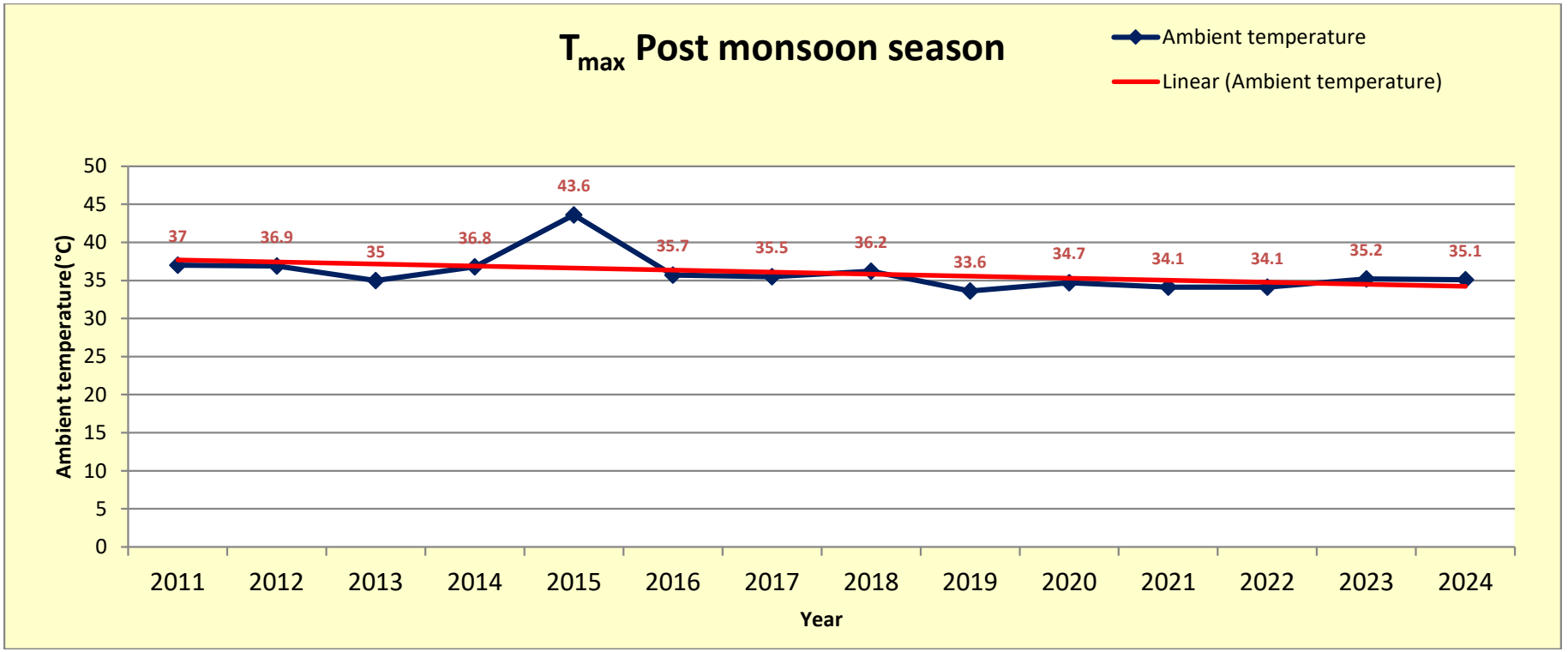


Figure 12: Maximum temperature during post monsoon season (NTPC -Ramagundam WMS)

The yearly seasonal temperature trend from 2011 to 2024 shows that temperatures are highest during the summer season when compared to other seasons, such as winter, monsoon and post-monsoon.

Even during the summer season, temperatures have shown a gradual decrease, from 47.3^{0}C & 47.7^{0}C in 2012, 2013, and 2014 respectively to 42.4^{0}C & 41.5^{0}C in 2023 & 2021 respectively. The Table-3 presents the results obtained for test statistic Z_{MK} for seasonal analysis.

Hence can be concluded that the temperature is gradually in decreasing trend.

Table 3: Onsite Maximum temperature Z_{MK} test Statistic

Season	Z_{MK} (MK test statistic)	Confidence level (%)
Summer	-2.745	99%
Winter	-1.867	93%
Monsoon	-1.543	< 90%
Post Monsoon	-2.36	98%

Based on the Z_{MK} test statistic value for summer season, the temperature trend is interpreted as showing significant decreasing trend at 99% confidence level when compared to winter, monsoon and post monsoon seasons.

3.3.2 Annual Trends (Onsite Temperature data- NTPC Ramagundam)

The minimum and maximum temperature data from 2010 to 2024 is given in Annexure IV under Table 10. A graph plotted using the Annual onsite maximum temperature data for the period 2010 – 2024 is as given below in Figure 13. The graph is showing a decreasing trend in ambient maximum temperature over the period.

The graphs shows a gradual decrease in temperature from 2010 (46^{o}C), however temperature has increased slightly in years 2012 (47.3^{o}C),2013 (47.3^{o}C),2014 (47.7^{o}C),2015 (47^{o}C), and 2019 (46.5^{o}C) with respect to year 2010.

This decreasing trend is further validated by the results of the Mann-Kendall (MK) test, the MK test statistic ZMK = -2.480 is significant at 95% confidence level, hence validating the annual decreasing temperature trend for onsite data.

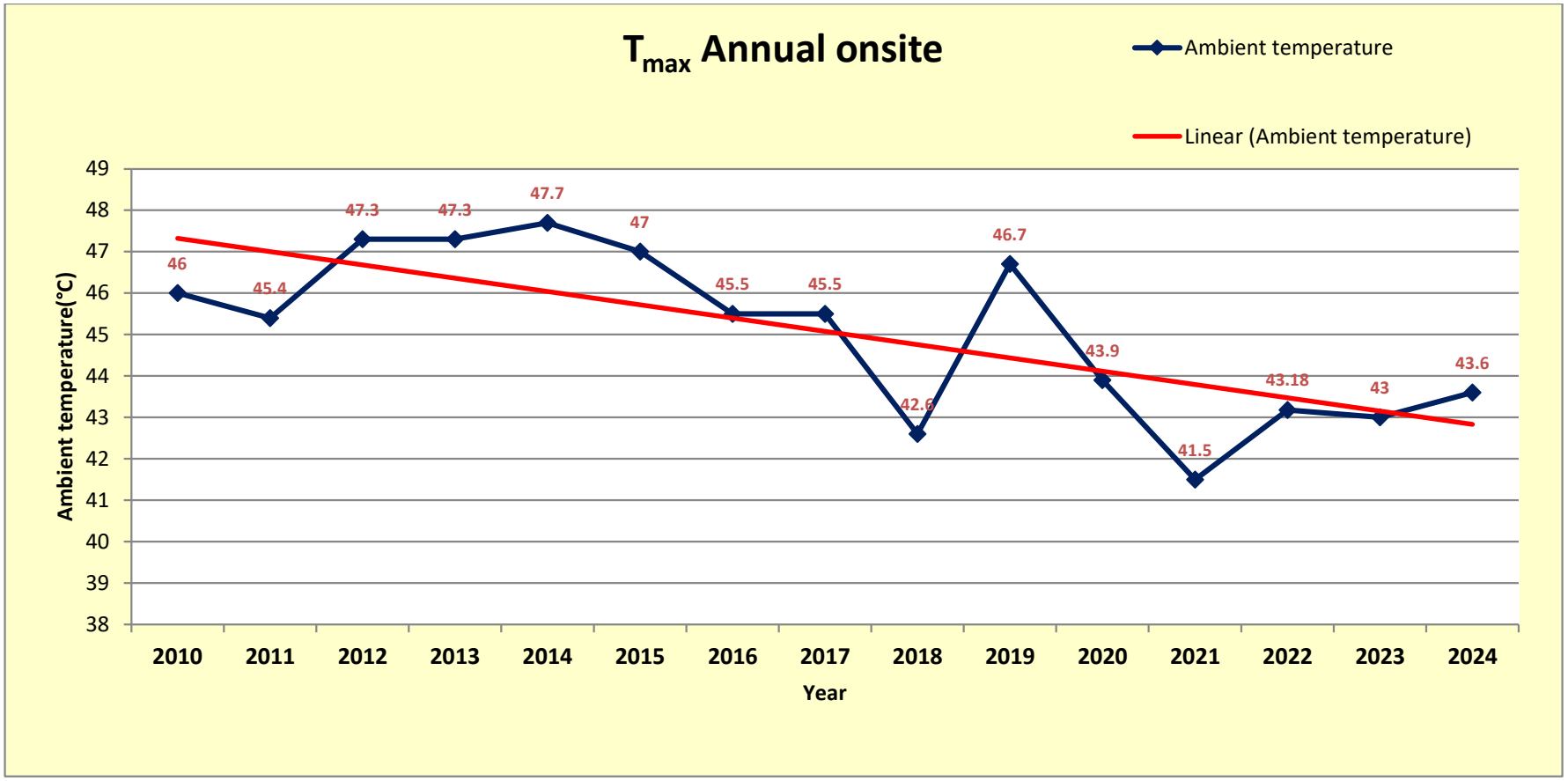


Figure 13: Annual Maximum temperature (NTPC -Ramagundam WMS)

4. Conclusion

Telangana State is located in the arid and semi-arid climatic zones of India, is characterized by scorching summers and relatively mild winters. Ramagundam, in particular, experiences dry inland climatic conditions, with hot summers and cool winters. The city receives the majority of its annual rainfall from the Southwest Monsoon.

Ambient air temperature in any region is influenced by a combination of factors, including altitude, cloud cover, human activities, land use and land cover, precipitation, vegetation, seasonal variations, and prevailing wind patterns. These variables, among others, collectively shape the local thermal environment.

The ambient air temperature study for both offsite and onsite locations in Ramagundam was carried out using two methods: a parametric method (linear trend analysis) and a non-parametric method (Mann-Kendall test). These methods were applied to analyse the long-term trends in maximum temperatures, focusing on seasonal and annual patterns for offsite data from 1999 to 2024 and onsite data from 2010 to 2024. Based on the data analysis conducted in this report, the following conclusions have been drawn.

Seasonal Trend: An analysis of long-term ambient temperature trends during all four seasons, based on IMD data (1999–2024) and onsite data from the NTPC Ramagundam Weather Monitoring Station (2010–2024), indicates a decreasing trend in maximum ambient air temperatures over the years.

Annual Trend: The annual trend analysis of ambient temperature data from the India Meteorological Department (IMD) for the period 1999–2024 (offsite) and from the NTPC Ramagundam Weather Monitoring Station for the period 2010–2024 (onsite) indicates a decreasing trend in maximum ambient temperature over the years.

The ambient air temperature study for the Ramagundam area indicates a gradual decrease in both off-site and on-site temperature data over the study period.

According to a report on Weather and Climatology of Telangana, issued by the Telangana State Development Planning Society (TSDPS) and the Directorate of Economics and Statistics (DES), Planning Department, Government of Telangana in February 2024, it is shown that temperatures are decreasing in Telangana state due to La Nino conditions prevailing over Equatorial Pacific Ocean due to tropical easterly flow is more predominant in summer seasons. Due to this, Telangana state mostly shows easterly flow at lower tropospheric level and cloudy sky condition.

5. Recommendations

1. Mitigation measures to reduce the temperature within site

- Installation of advanced pollution control equipment, such as High-Efficiency Electrostatic Precipitators (ESPs) and Flue Gas Desulfurization (FGD) systems, to control stack emissions.
- Insulation improvement: Enhance insulation on steam lines, valves, and equipment to minimize heat losses and improve overall thermal efficiency.
- Economizer optimization: Regular inspection and maintenance of economisers to ensure effective heat recovery from flue gases and preheating of boiler feedwater.
- Variable frequency drives (VFDs): Implement VFDs on fans, pumps, and other rotating equipment.
- Air preheater maintenance: Regular cleaning and maintenance of air preheaters to ensure efficient heat exchange between the flue gas and combustion air, thereby improving boiler efficiency.

2. Greenbelt Development for Environmental Enhancement

The greenbelt development aims to bring about comprehensive improvement in the environmental conditions of an area. Green belt development addresses several key concerns, including the prevention of land degradation during construction activities, increasing green cover, enhancing the aesthetic appeal of the project area, and maintaining the ecological balance of the region. Trees play a critical role in improving air quality by absorbing carbon dioxide and other pollutants while releasing oxygen. Greenbelts also help remove particulate matter from the air by trapping it on their surfaces. Furthermore, they act as natural sound barriers, reducing noise pollution. As such, greenbelts in and around urban and industrial areas are vital to the ecological health of any region.

NTPC Ramagundam & Telangana has made significant progress in environmental conservation by developing a denser and more robust green cover within the plant premises and surrounding areas. The adoption of the Miyawaki technique has allowed for planting of more trees in smaller areas, leading to the creation of compact, biodiverse forests. These green zones not only act as carbon sinks but also function as mini oxygen factories.

It is recommended that NTPC continue expanding the green cover in and around the plant area by using native and fast-growing species to create dense, multilayered green zones. Trees provide shade and help cool the air through transpiration. An expanded green cover will further enhance the ambient environmental quality of the Ramagundam region.

3. Development of Water Bodies

The creation and enhancement of rainwater harvesting ponds, along with the rejuvenation of existing ponds in and around NTPC Ramagundam and across Telangana, is strongly recommended. These water bodies function as thermal sinks, helping to moderate the local microclimate by absorbing and storing heat. Rejuvenated ponds also enhance local biodiversity, support ecological balance, and

contribute to improved working conditions in the area by reducing ambient temperatures and improving air quality.

*****

Annexure I :Offsite Seasonal Data

Table 1- Maximum temperature during winter season (IMD Ramagundam)

	Dec	Jan	Feb
	Temperature (°Celsius)		
1999	NA	29.8	33.7
2000	29.2	33.2	33.6
2001	30.2	30.9	36.6
2002	32.2	32.9	26.1
2003	32.4	34.2	35.7
2004	29.6	31.6	34.2
2005	32.7	33.4	37.7
2006	32	35	40.3
2007	33.1	34	34.5
2008	34.4	33.1	35.2
2009	32.3	35.5	38.2
2010	31.1	31	37.9
2011	30.2	32.2	33.7
2012	31.2	32	37
2013	31.1	32.5	34.8
2014	29.5	30.4	32.6
2015	29.2	31	35.5
2016	32.1	31.5	38.1
2017	30	30.4	36.5
2018	30.1	32.5	36.9
2019	28.3	28.7	32.5
2020	31	33.4	33.4
2021	31.7	32	36.9
2022	32	32	34.3
2023	31.1	31	34
2024	29.2	30.4	33.4

Table 2- Maximum Temperature during summer season (IMD Ramagundam)

	Mar	Apr	May
	Temperature (°Celsius)		
1999	37.6	44.4	43
2000	37.8	43	43.2
2001	44.2	40.6	44.2
2002	39.3	41.7	43.9
2003	39.9	43.6	46.5
2004	30.5	43.2	42.2

	Mar	Apr	May
	Temperature (°Celsius)		
2005	40.7	41.8	45
2006	38.6	41.8	42.4
2007	40.2	42.1	44.8
2008	37.3	41.5	42.8
2009	39.6	44	44.5
2010	41.8	43.6	46.6
2011	38.6	36.3	41.5
2012	40.6	39.8	43.7
2013	38.5	39.6	43.4
2014	39	39.4	40.3
2015	39	37.5	42.6
2016	39.6	42.8	43.4
2017	39.6	41.4	42.4
2018	39.9	39.7	42.1
2019	36.8	41.1	44
2020	34.9	41.2	44
2021	41.5	39.1	39.8
2022	41.2	43.5	40.7
2023	34.7	38.1	39.3
2024	36.5	40.1	40.6

Table 3-Maximum temperature during monsoon season (IMD Ramagundam)

	Jun	Jul	Aug	Sep
	Temperature (°Celsius)			
1999	40.4	35.4	33.5	32.6
2000	39.2	34.5	34.6	35.1
2001	40	35.6	33.4	35
2002	40	36	33.1	35.8
2003	45.7	34.8	32.7	33.5
2004	41.9	36.1	36.4	37.9
2005	45.5	35.8	37.1	36.3
2006	40.6	35.2	33.7	36.1
2007	43	35.3	35.5	34.9
2008	42.3	35.9	33.9	33.8
2009	42.8	35	36	36.5
2010	44	35.1	35	33.9
2011	37.4	33.1	31.5	32.3
2012	38.3	31.9	31.2	32.4
2013	33.9	30.7	30.3	32.8

	Jun	Jul	Aug	Sep
	Temperature (°Celsius)			
2014	38.9	32.8	33.4	32.5
2015	35.8	35.1	32.8	33.6
2016	38.6	32.6	33.4	31.2
2017	36.1	32.8	31.4	33.6
2018	36.4	30.9	30.5	32.8
2019	39.9	33.5	34.8	33.6
2020	39.1	36.4	33.7	35
2021	37.6	35.6	34.7	39.1
2022	44.5	30.4	34.4	32.2
2023	39.1	32	32.8	31.5
2024	37.5	31.4	32.5	32

Table 4-Maximum temperature during post monsoon season (IMD Ramagundam)

Years	Oct	Nov	Dec
	Temperature (°Celsius)		
1999	33	30.3	29.2
2000	35.8	32.9	30.2
2001	32.9	33	32.2
2002	36.8	33.7	32.4
2003	34.1	31.9	29.6
2004	34.8	37.3	32.7
2005	35	31.8	32
2006	35.7	32.8	33.1
2007	34.4	33.6	34.4
2008	34.6	34.2	32.3
2009	35.2	34.2	31.1
2010	34.6	33.6	30.2
2011	33.7	32.9	31.2
2012	32.8	30.8	31.1
2013	31.6	30.1	29.5
2014	33.4	31.8	29.2
2015	35.3	33.1	32.1
2016	32	31	30
2017	32.7	31.2	30.1
2018	33.8	32.7	28.3
2019	32.8	31.7	31
2020	33.6	33.1	31.7
2021	34.2	31.5	32
2022	32.2	30.7	31.1

Years	Oct	Nov	Dec
	Temperature (°Celsius)		
2023	33.6	31.5	29.2
2024	33.1	30.6	30.1

Annexure II :Offsite Annual Data

Table 5-Offsite, Year wise Minimum and Maximum temperature data (IMD)

S.No.	Year	Temperature (° Celsius)	
		Min.	Max.
1	1999	12.9	44.4
2	2000	10.8	43.2
3	2001	10.2	44.2
4	2002	11.2	43.9
5	2003	10	46.5
6	2004	11.2	43.2
7	2005	9.2	45.5
8	2006	9.6	42.4
9	2007	9.2	44.8
10	2008	13	42.8
11	2009	12.1	44.5
12	2010	11.5	46.6
13	2011	10.2	41.5
14	2012	10.1	43.7
15	2013	12.8	43.4
16	2014	14	40.3
17	2015	12.4	42.6
18	2016	12.2	43.4
19	2017	13.7	42.4
20	2018	12.5	42.1
21	2019	13.5	44
22	2020	11.5	44
23	2021	9.9	41.5
24	2022	5.1	44.5
25	2023	15	39.3
26	2024	17.8	40.6

Annexure III :Onsite Seasonal Data

Table 6- Onsite Winter Season Maximum Temperature data

Year	December (previous year)	January	February
	Temperature (°Celsius)		
2011	31.2	40.1	43.2
2012	34	33.8	37.9
2013	34.7	36.5	36.2
2014	33	32.4	35.6
2015	32.8	32.6	35.8
2016	35.7	36.2	37.6
2017	32.3	33.4	38.5
2018	31.8	33.6	37.1
2019	31.6	30.4	35.8
2020	30.6	32.76	33.4
2021	31.1	32.1	37.4
2022	31	31	33.9
2023	--	32.1	36.5
2024	32.7	32.4	35.1

Table 7- Onsite Summer Season Maximum Temperature data

Year	March	April	May
	Temperature (°Celsius)		
2011	39.1	42.8	45.4
2012	42.8	44.7	47.3
2013	41.7	44.1	47.3
2014	42.1	41.3	47.7
2015	38.5	41.8	47
2016	40.2	45.2	45.5
2017	39.8	43.3	45.5
2018	39.5	39.5	42.6
2019	40.4	43.5	46.7
2020	37.3	40.8	43.9
2021	40.9	40.5	41.5
2022	40.2	42.8	42.8
2023	36.3	40.1	43
2024	35.1	37.4	42.4

Table 8- Onsite Monsoon Season Maximum Temperature data

Year	June	July	August	September
	Temperature (°Celsius)			
2010	44.1	44	34.7	35
2011	43.6	37.3	42.3	35.7
2012	45.5	36.9	25.1	34.8
2013	41.4	35.7	36	36.4
2014	45.4	40.3	38.3	40.3
2015	41.4	37.7	40.6	37.4
2016	45.4	36.8	36	34.9
2017	43	36.6	35	35.4
2018	35.2	36	34.9	35.7
2019	44.4	38.4	34.1	33.8
2020	38.7	34.9	35.6	34.5
2021	37.6	36.1	35	33.2
2022	43.18	34.2	34.2	35
2023	42.3	36.7	34.5	35
2024	43.6	35.8	33.9	34.7

Table 9- Onsite Post Monsoon Season Temperature data

Year	October	November	December
	Temperature (°Celsius)		
2011	37	35.6	31.2
2012	36.9	33.5	34
2013	35	34	34.7
2014	36.8	36.2	33
2015	43.6	39.9	32.8
2016	35.4	33.2	35.7
2017	35.5	34.3	32.3
2018	36.2	34.6	31.8
2019	33.6	31.9	31.6
2020	34.7	33.4	30.6
2021	34.1	32.9	31.1
2022	34.1	32.8	31
2023	35.2	32.5	--
2024	35.1	32.4	32.7

Annexure IV: Onsite Seasonal Data

Table 10- Onsite Year wise Minimum and Maximum temperature data

Year	Temperature (º Celsius)	
	Min.	Max.
2024	13.0	43.6
2023	13.0	43.0
2022	12.2	43.18
2021	11.6	41.5
2020	12.4	43.9
2019	9.9	46.7
2018	9.9	42.6
2017	10.5	45.5
2016	11.6	45.5
2015	8.8	47
2014	9.1	47.7
2013	11.8	47.3
2012	9	47.3
2011	9	45.4
2010	9.9	46

Report

on

Radioactivity Assessment Study

at

NTPC, Ramagundam

by

Isotope Application Services

Board of Radiation & Isotope Technology

Navi Mumbai

Jan-2025

CONTENTS

1. INTRODUCTION

1.1 Introduction to BRIT

Board of Radiation and Isotope Technology (BRIT) was separated from Bhabha Atomic Research Centre, Department of Atomic Energy, Government of India to undertake commercial activities of radioisotope and radiation applications in 1989. In other words, it is a commercial wing of Department of Atomic Energy. Few of the industrial applications of radioisotopes like Gamma column scanning, blockage, void, corrosion detection in pipelines, identification of location of leakage in underground pipelines, residence time distribution analysis in reactor vessels of any kind, flow rate estimation and flow-meter calibration, effluent dispersion studies in surface waters and sediment transport studies on river/sea bed, bore-well interconnection studies for groundwater, studies for the enhanced recovery of oil from the oil wells, reservoir development, interconnection between oil wells, monitoring secondary recovery of oil and its effectiveness, etc are undertaken by BRIT. BRIT also supplies industrial irradiators for the irradiation of surgical items for sterilization, food grains for removal of pests and enhancement of their shelf life, etc. Gamma chambers of various capacities are supplied for research purposes. Indigenous radiography cameras (Industrial gamma radiography exposure device) are supplied for industrial radiography and the radioisotopes are provided for the imported radiography camera. For diagnosis and therapy, radiopharmaceuticals are produced and supplied to the hospitals in India and abroad. BRIT has laboratories for radiopharmaceutical distribution at various locations throughout India.

1.2 What is Radiation Survey?

A survey is an assessment of work areas, equipment & tools, floors in a laboratory or outdoor places for the radioactivity level and contamination. The following procedures are adopted to perform a survey:

- Radiation Field Survey
- Sample Analysis at Laboratory

Survey results should be documented and records should be kept so that all the information is readily available by laboratory staff or members of the Radiation Safety Office.

1.3 Radiation Exposure

People are getting exposed to the radiation emitted by naturally occurring atomic species like uranium, thorium and potassium. As the growth of science and technology has created additional sources of exposures, such as X-rays, TV monitors, radioactive releases from nuclear reactor operations and accidents, fallout from weapon tests, exposure due to radioactive waste disposal and other industrial, medical and agricultural uses of radioisotopes, Still, the major contribution to the background radiation exposure arises from the natural sources. Natural sources of exposures are due to (a) external source of extra-terrestrial origin (cosmic rays), (b) source of terrestrial origin (radioactive nuclides present in earth's crust, in atmosphere and in building materials etc.), (c) internal source of exposure from naturally occurring radionuclides taken into the body through ingestion of food materials etc, and (d) lung irradiation due to radon and thoron and their daughter products inhaled through air. Extent of exposure to natural radiation depends on the occupation, type of dwelling, location of habitation and life style of the population. Total annual effective doses from natural radiation sources to the Indian population residing in normal background areas is approximately 2.3 mSv/year.

Radiation exposure refers to the situation where the body is in the presence of radiation. There are two types of radiation exposure, "internal exposure" and "external exposure." External exposure means to receive radiation that comes from radioactive materials existing on the ground, suspended in the air, or attached to clothes or the surface of the body i.e., radiation from outside of the body. Conversely, internal exposure is caused (i) when a person has a meal and takes in radioactive materials in the food or drink (ingestion); (ii) when a person breathes in radioactive materials in the air (inhalation); (iii) when radioactive materials are absorbed through the skin (percutaneous absorption); (iv) when radioactive materials enter the body from a wound (wound contamination); and (v) when radiopharmaceuticals containing radioactive materials are administered for the purpose of medical treatment. Once radioactive materials enter the body, the body will continue to be exposed to radiation until the radioactive materials are excreted in the urine or feces (biological half-life) or as the radioactivity weakens over time (physical half-life).

In general, criteria of time, distance and shielding needs to be observed while handling radiation of any kind i.e., alpha, beta and gamma. Time taken to handle the radioisotope or when in vicinity should be minimum, the radioisotope should be handled from a distance as far as possible or one should keep away from the source and the radioisotope needs to be

adequately shielded for handling. This ionising radiation may cause biological changes in the exposed person hence the doses to the occupational workers shall be kept As Low As Reasonably Achievable (ALARA) and doses to patients shall be optimized. The normal exposure of individuals resulting from all relevant practices should be subject to dose limits to ensure that no individual is exposed to a risk that is judged to be unacceptable. The permissible effective whole body dose limit to the occupational worker is 20 mSv/yr averaged over 5 consecutive years (30 mSv in any single year). This limit for general public is 1 mSv/yr.

2. RADIATION SURVEY JOB AT NTPC, Ramagundam

Coal is largely composed of organic matter, but it is the inorganic matter in coal such as heavy metals and other trace elements etc. that have been cited as possible causes of health, environmental, and technological problems associated with the use of coal. Some trace elements in coal are naturally radioactive. These radioactive elements include uranium (U), thorium (Th), and their numerous decay products, including radium (Ra) and radon (Rn). Although these elements are less chemically toxic than other coal constituents such as arsenic, selenium, or mercury, the possibility of radiation hazard from these radioactive elements are matter of study.

At NTPC, Ramagundam, huge coal and fly ash storage yards are present as they generate electricity by burning coal. During environmental audit, they were asked to get assessment of the amount of radiation dose from coal and fly ash stacks affecting the workers around it and whether it is in safe levels.

In this regard, purchase order was placed as **Order No. 4000350676-057-1035 dt. 10/01/25** for "**Radioactivity Assessment Study in coal and ash storage areas and Analysis of 8 nos. samples at NTPC Telangana**".

To carry out this job, it was decided to monitor the radiation levels at the site by using MIRION contamination monitor (Sr. No. 820545) and RADEYE survey meters (Sr. No. 31477 & 10354).

The samples collected at the site was analysed for its radioactivity content at Radioanalytical Laboratory (RAL, NABL accredited), BRIT, Vashi.

Daily work progress for Radiation survey are as follows:

Sr. No.	Date	Work
1	22/01/25	Arrival of BRIT team at Ramagundam
2	23/01/25	Radiation survey of the specified areas
3	24/01/25	Radiation survey of the specified areas
4	25/01/25	Departure of BRIT team at Ramagundam

3.OBSERVATION

Background radiation level: 6-10 µR/hr

S.No.	Name of Area/ Location	Description of Dimension/ Capacity	Max. Dose rate(µR/hr)
1	Coal stock Yard area Pile-1: 1.89LMT Pile-2: 1.89LMT Pile-3: 1.89LMT Pile-4: 1.89LMT Total Yard Capacity:- 6.86 LMT	Pile-1: 655.6mtr(L) X 50 mtr(W) x 10mtr(H)	**12**
		Pile-2: 655.6mtr(L) X 50 mtr(W) x 10mtr(H)	**11**
		Pile-3: 655.6mtr(L) X 50 mtr(W) x 10mtr(H)	**13**
		Pile-4: 655.6mtr(L) X 50 mtr(W) x 10mtr(H)	**9**
2	Coal Handling Plant	04 Crusher Areas each of dimension = 9.5 MTR(L)x4.4 mtr(W)	**7**
3	Bunkers (Coal Holding Capacity)	i) Unit#1 bunkers: 9nos. (697.5 MT)	**5**
		ii) Unit#2 bunkers: 9nos. (697.5 MT)	**16**
4	Ash Dyke Area	i) DYKE-1 (Lagoon-1) (including AWRS system): 200 Acre	**16**
		ii) DYKE-1 (Lagoon-2) (including AWRS system): 95 Acre	**16**
		ii) DYKE-1 (Lagoon-3) (including AWRS system): 95 Acre	**28**
5	Ash handling Plant: Stage wise Capacity of Ash handling system	03Nos. (1510 M3/hr.)	**08**
6	Ash Silo (Ash Holding Capacity):	HCSD Silos:- 03Nos(Capacity of Each HCSD Silo:-700T) Fly ash Silos:- 4 Nos Capacity of Each HCSD Silo:-1180 Cum)	**5** **12**
7	ESP Area: Stage wise number of hoppers	i) Unit-I: 240 Hoppers	**14**
		ii) Unit-II: 240 hoppers	**18**

Table 1: Maximum Dose rates Observed at the survey locations

Dose Calculation:

Note: 1 Sv = 100 R

1. **Coal Yard Area: -**

   Number of working hours in a day: - 8 hrs
   Number of working days in a week: - 5 days
   Number of working weeks in a year: - 52 weeks
   Therefore total no. of working hours in a year: - 2080 hrs
   Maximum dose rate in the area: - 13 µR/hr

   Dose received by a person in a year: - 2080 × 13 = 27040 µR = **0.27 mSv**

2. **Coal Handling Plant: -**

   Number of working hours in a day: - 8 hrs
   Number of working days in a week: - 5 days
   Number of working weeks in a year: - 52 weeks
   Therefore total no. of working hours in a year: - 2080 hrs
   Maximum dose rate in the area: - 7 µR/hr

   Dose received in a year: - 2080 × 7 =14560 µR = **0.14 mSv**

3. **Bunkers:**

   Number of working hours in a day: - 8 hrs
   Number of working days in a week: - 5 days
   Number of working weeks in a year: - 52 weeks
   Therefore total no. of working hours in a year: - 2080 hrs
   Maximum dose rate in the area is in Unit#2 bunkers: - 16 µR/hr

   Dose received in a year: - 2080 × 16 = 33280 µR = **0.33 mSv**

4. **Ash Dyke Area: -**

   Number of working hours in a day: - 8 hrs
   Number of working days in a week: - 5 days
   Number of working weeks in a year: - 52 weeks
   Therefore total no. of working hours in a year: - 2080 hrs
   Maximum dose rate in the area is in Lagoon-3(including AWRS system): - 28 µR/hr

   Dose received in a year: - 2080 × 2 =58240 µR = **0.58 mSv**

5. **Ash handling Plant:**

Number of working hours in a day: - 8 hrs
Number of working days in a week: - 5 days
Number of working weeks in a year: - 52 weeks
Therefore total no. of working hours in a year: - 2080 hrs
Maximum dose rate in the area: - 08 µR/hr

Dose received in a year: - 2080 × 08 = 16640 µR = **0.16 mSv**

6. **Ash Silo:**

Number of working hours in a day: - 8 hrs
Number of working days in a week: - 5 days
Number of working weeks in a year: - 52 weeks
Therefore total no. of working hours in a year: - 2080 hrs
Maximum dose rate in the area is in Fly ash Silos: - 12 µR/hr

Dose received in a year: - 2080 × 12 =24960 µR = **0.24 mSv**

7. **ESP Area:**

Number of working hours in a day: - 8 hrs
Number of working days in a week: - 5 days
Number of working weeks in a year: - 52 weeks
Therefore total no. of working hours in a year: - 2080 hrs
Maximum dose rate in the area is in Unit-II: - 18 µR/hr

Dose received in a year: - 2080 ×18 = 37440 µR = **0.37 mSv**

The analysis of the samples collected from the above locations were analysed at Radioanalytical Laboratory, BRIT, Vashi. The radioactivity present in the samples has been tabulated in Bq/Kg.

Sr.No.	Sample Name & ID	U-238 (Bq/Kg)	Th-232 (Bq/Kg)	Ra-226 (Bq/Kg)	K-40 (Bq/Kg)
1	Coal Yard Area	32.5 ±2.5	57.1±3.8	19.3±3.1	165.6±11.1
2	Bunkers	42.1±2.8	78.8±3.3	24.5±4.7	352.6±22.5
3	Ash Dyke Area(DYKE-I LAGOON-1)	88.6±5.2	137.3±7.3	73.1±9.3	488.6±28.2
4	Ash Dyke Area(DYKE-I LAGOON-2)	119.1±3.7	186.8±7.0	114.1±12.0	543.9±27.1
5	Ash Dyke Area(DYKE-I LAGOON-3)	116.4±4.1	189.3±14.5	121.2±10.6	763.7±32.6
6	Ash handling Plant	89.8±3.8	149.9±4.2	82.5±10	594.4±31.9
7	Ash Silo	97.9±3.3	172.4±3.7	71.3±7.9	601.9±28.5
8	ESP Area	92.1±3.6	155.6±6.1	114.5±10.1	558.9±26.7
	Activity concentration for exempt material (as per IAEA SSR-6 Rev.1 2018, Regulations for the safe transport of radioactive material)	**$1 X 10^4$**	**$1 X 10^4$**	**$1 X 10^4$**	**$1 X 10^5$**
(*mdl is the Minimum Detectable Level)					

Table 2: Sample analysis for radioactivity content

4. RESULTS AND DISCUSSION

- No significant rise from the background radiation level was observed at the coal and fly ash storage yards.
- The maximum permissible effective whole-body dose for occupational exposure is **30 mSv/year** (20 mSv/year averaged over 5 consecutive years) and the general public exposure limit is **1 mSv/year** as per the **AERB directive No. 01/2011.**

- It may be noted that the readings in table 1 are the maximum readings observed over the entire area. The maximum readings were found at very few and isolated spaces and do not represent the average field observed in those areas. Still to be on conservative side, the maximum readings are considered for calculation. Considering the maximum recorded dose rate of 28 µR/hr (Ash DYKE-1 Lagoon-3 including AWRS system), A person may receive 0.58 mSv/year of radiation dose (working 8 hours per day and 5 days in a week) which is very less than the general public exposure limit.
- The activity concentration (Bq/kg) of the radioactive elements in the coal / ash samples were very less than the limit for material exemption as prescribed by **IAEA SSR-6 Rev.1/2018.**

5. RECOMMENDATIONS

- The radioactivity assessment study should be conducted as per the regulatory requirements to avoid the potential radiation hazard.

Maneesh Saxena
Scientific Assistant-E, BRIT

Vinay Bhave
DGM, BRIT

Annexure V

Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)
ISO 9001 | ISO 14001 | ISO 45001

Test Report

Sample Number:	VEL/W/01	Report No.:	VEL/W/2410220001
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.: Party Reference No.:	7.8 F-03 4000316836-037-1019 Dated: 30/09/2023
Name of Sample :	Surface Water Sample	Reporting Date:	30/10/2024
Sample Group :	Water/Residue and contaminants in Water	Period of Analysis :	26/10/2024 - 30/10/2024
Location :	Godavari River (Up Stream)	Receipt Date :	26/10/2024
Sample Collected By :	VEL Representative	Sampling Date :	22/10/2024
Environmental Condition :	25±2°C	Sampling Quantity :	2.0 Liters
Sampling And Analysis Protocol :	IS: 3025, APHA 23rd Edition 2017 & STP	Sampling Type :	Grab
		Preservation :	Ice Box
		Parameter Required :	As Per Work Order

S. No.	Test Parameters	Test Method	Results	Units
Discipline : Chemical				
1.	pH (at 25°C)	IS: 3025 (P-11)	7.72	--
2.	Total Dissolved Solids (at 180°C)	IS: 3025 (P-16)	192.43	mg/L
3.	Electrical Conductivity (at 25°C)	IS: 3025 (P-14)	314.32	uS/cm
4.	Residual Free Chlorine (R.F.C)	IS: 3025 (P-26)	*BLQ(**LOQ-0.15)	mg/L
5.	Phosphate	IS:3025(Part-31)	0.34	mg/L
6.	Total Nitrogen	IS: 3025 (P-34)	1.75	mg/L
7.	Oil & Grease	IS 3025 (P-39)	<0.4	mg/L
8.	Total Suspended Solids	IS: 3025 (P-17)	5.63	mg/L
9.	Biochemical Oxygen Demand (B.O.D.) (3 Days @27°C)	IS: 3025 (P-44)	3.28	mg/L
10.	Chemical Oxygen Demand (C.O.D.)	IS: 3025 (P-58)	57.42	mg/L
11.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.35	mg/L
12.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.021	mg/L
13.	Mercury (as Hg)	VEL/EN/STP/03,Issue No.-01, Issue Date :01/11/2023	<0.0005	mg/L
14.	Arsenic (as As)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.005	mg/L
15.	Lead (as Pb)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.005	mg/L
16.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.063	mg/L
17.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.002	mg/L
18.	Total Chromium as Cr	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	<0.005	mg/L

Note: STP-Standard Testing Procedure, *BLQ- Below Limit of Quantification, **LOQ- Limit of Quantification.

End of Report

Tested By

Authorised Signatory

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Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)
ISO 9001 | ISO 14001 | ISO 45001

Test Report

Sample Number:	VEL/W/02	Report No.:	VEL/W/2410220002
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyothinagar, District : Peddapalli, Telangana – 505215	Format No.: Party Reference No.:	7.8 F-03 4000316836-037-1019 Dated: 30/09/2023

Name of Sample :	Surface Water Sample	Reporting Date:	30/10/2024
Sample Group :	Water/Residue and contaminants in Water	Period of Analysis	26/10/2024 - 30/10/2024
Location :	Godavari River (Down Stream)	Reciept Date :	26/10/2024
Sample Collected By :	VEL Representative	Sampling Date :	22/10/2024
Environmental Condition :	25±2°C	Sampling Quantity :	2.0 Liters
Sampling And Analysis Protocol :	IS: 3025, APHA 23rd Edition 2017 & STP	Sampling Type :	Grab
		Preservation :	Ice Box
		Parameter Required :	As Per Work Order

S. No.	Test Parameters	Test Method	Results	Units
Discipline : Chemical				
1.	pH (at 25°C)	IS: 3025 (P-11)	7.46	--
2.	Total Dissolved Solids (at 180°C)	IS: 3025 (P-16)	187	mg/L
3.	Electrical Conductivity (at 25°C)	IS: 3025 (P-14)	302	uS/cm
4.	Residual Free Chlorine (R.F.C)	IS: 3025 (P-26)	*BLQ(**LOQ-0.15)	mg/L
5.	Phosphate	IS:3025(Part-31)	0.35	mg/L
6.	Total Nitrogen	IS: 3025 (P-34)	3.52	mg/L
7.	Oil & Grease	IS 3025 (P-39)	<0.4	mg/L
8.	Total Suspended Solids	IS: 3025 (P-17)	5.25	mg/L
9.	Biochemical Oxygen Demand (B.O.D.) (3 Days @27°C)	IS: 3025 (P-44)	2.3	mg/L
10.	Chemical Oxygen Demand (C.O.D.)	IS: 3025 (P-58)	42.53	mg/L
11.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.35	mg/L
12.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.019	mg/L
13.	Mercury (as Hg)	VEL/EN/STP/03,Issue No.-01, Issue Date 01/11/2023	<0.0005	mg/L
14.	Arsenic (as As)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.005	mg/L
15.	Lead (as Pb)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.005	mg/L
16.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.136	mg/L
17.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.002	mg/L
18.	Total Chromium as Cr	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	<0.005	mg/L

Note: STP- Standard Testing Procedure, *BLQ- Below Limit of Quantification, **LOQ- Limit of Quantification.

End of Report

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Test Report

Sample Number:	VEL/W/01	Report No.:	VEL/W/2411230001
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
Name of Sample :	Surface Water Sample	Reporting Date:	27/11/2024
Sample Group :	Water/Residue and contaminants in Water	Period of Analysis :	23/11/2024 - 27/11/2024
Location :	Godavari River (Up Stream)	Receipt Date :	23/11/2024
Sample Collected By :	VEL Representative	Sampling Date :	19/11/2024
Environmental Condition :	25±2°C	Sampling Quantity :	2.0 Liters
Sampling And Analysis Protocol :	IS: 3025, APHA 23rd Edition 2017 & STP	Sampling Type :	Grab
		Preservation :	Ice Box
		Parameter Required :	As Per Work Order

S. No.	Test Parameters	Test Method	Results	Units
Discipline : Chemical				
1.	pH (at 25°C)	IS: 3025 (P-11)	7.59	--
2.	Total Dissolved Solids (at 180°C)	IS: 3025 (P-16)	195.76	mg/L
3.	Electrical Conductivity (at 25°C)	IS: 3025 (P-14)	317.41	µS/cm
4.	Residual Free Chlorine (R.F.C)	IS: 3025 (P-26)	*BLQ(**LOQ-0.15)	mg/L
5.	Phosphate	IS:3025(Part-31)	0.43	mg/L
6.	Total Nitrogen	IS: 3025 (P-34)	2.64	mg/L
7.	Oil & Grease	IS 3025 (P-39)	<0.4	mg/L
8.	Total Suspended Solids	IS: 3025 (P-17)	4.96	mg/L
9.	Biochemical Oxygen Demand (B.O.D.) (3 Days @27°C)	IS: 3025 (P-44)	2.49	mg/L
10.	Chemical Oxygen Demand (C.O.D.)	IS: 3025 (P-58)	54.31	mg/L
11.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.42	mg/L
12.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.026	mg/L
13.	Mercury (as Hg)	VEL/EN/STP/03,Issue No.-01, Issue Date :01/11/2023	<0.0005	mg/L
14.	Arsenic (as As)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.005	mg/L
15.	Lead (as Pb)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.005	mg/L
16.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.071	mg/L
17.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.002	mg/L
18.	Total Chromium as Cr	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	<0.005	mg/L

Note: STP- Standard Testing Procedure, *BLQ- Below Limit of Quantification, **LOQ- Limit of Quantification.

End of Report

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Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)
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Test Report

Sample Number:	VEL/W/02	Report No.:	VEL/W/2411230002
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyothinagar, District : Peddapalli, Telangana – 505215	Format No.: Party Reference No.:	7.8 F-03 4000316836-037-1019 Dated: 30/09/2023

Name of Sample :	Surface Water Sample	Reporting Date:	27/11/2024
Sample Group :	Water/Residue and contaminants in Water	Period of Analysis	23/11/2024 - 27/11/2024
Location :	Godavari River (Down Stream)	Reciept Date :	23/11/2024
Sample Collected By :	VEL Representative	Sampling Date :	19/11/2024
Environmental Condition :	25±2°C	Sampling Quantity :	2.0 Liters
Sampling And Analysis Protocol :	IS: 3025, APHA 23rd Edition 2017 & STP	Sampling Type :	Grab
		Preservation :	Ice Box
		Parameter Required :	As Per Work Order

S. No.	Test Parameters	Test Method	Results	Units
Discipline : Chemical				
1.	pH (at 25°C)	IS: 3025 (P-11)	7.65	--
2.	Total Dissolved Solids (at 180°C)	IS: 3025 (P-16)	189	mg/L
3.	Electrical Conductivity (at 25°C)	IS: 3025 (P-14)	305	uS/cm
4.	Residual Free Chlorine (R.F.C)	IS: 3025 (P-26)	*BLQ(**LOQ-0.15)	mg/L
5.	Phosphate	IS:3025(Part-31)	0.46	mg/L
6.	Total Nitrogen	IS: 3025 (P-34)	4.27	mg/L
7.	Oil & Grease	IS 3025 (P-39)	<0.4	mg/L
8.	Total Suspended Solids	IS: 3025 (P-17)	6.89	mg/L
9.	Biochemical Oxygen Demand (B.O.D.) (3 Days @27°C)	IS: 3025 (P-44)	3.6	mg/L
10.	Chemical Oxygen Demand (C.O.D.)	IS: 3025 (P-58)	45.79	mg/L
11.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.28	mg/L
12.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.024	mg/L
13.	Mercury (as Hg)	VEL/EN/STP/03,Issue No.-01, Issue Date :01/11/2023	<0.0005	mg/L
14.	Arsenic (as As)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.005	mg/L
15.	Lead (as Pb)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.005	mg/L
16.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.142	mg/L
17.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.002	mg/L
18.	Total Chromium as Cr	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	<0.005	mg/L

Note: STP- Standard Testing Procedure, ^BLQ- Below Limit of Quantification, **LOQ- Limit of Quantification.

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Test Report

Sample Number:	VEL/W/01	Report No.:	VEL/W/2412130001
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
Name of Sample :	Surface Water Sample	Reporting Date:	21/12/2024
Sample Group :	Water/Residue and contaminants in Water	Period of Analysis :	16/12/2024 - 21/12/2024
Location :	Godavari River (Up Stream)	Receipt Date :	16/12/2024
Sample Collected By :	VEL Representative	Sampling Date :	13/12/2024
Environmental Condition :	25±2°C	Sampling Quantity :	2.0 Liters
Sampling And Analysis Protocol :	IS: 3025, APHA 23rd Edition 2017 & STP	Sampling Type :	Grab
		Preservation :	Ice Box
		Parameter Required :	As Per Work Order

S. No.	Test Parameters	Test Method	Results	Units
Discipline : Chemical				
1.	pH (at 25°C)	IS: 3025 (P-11)	7.67	--
2.	Total Dissolved Solids (at 180°C)	IS: 3025 (P-16)	198.43	mg/L
3.	Electrical Conductivity (at 25°C)	IS: 3025 (P-14)	321.72	µS/cm
4.	Residual Free Chlorine (R.F.C)	IS: 3025 (P-26)	*BLQ(**LOQ-0.15)	mg/L
5.	Phosphate	IS:3025(Part-31)	0.52	mg/L
6.	Total Nitrogen	IS: 3025 (P-34)	3.91	mg/L
7.	Oil & Grease	IS 3025 (P-39)	<0.4	mg/L
8.	Total Suspended Solids	IS: 3025 (P-17)	5.78	mg/L
9.	Biochemical Oxygen Demand (B.O.D.) (3 Days @27°C)	IS: 3025 (P-44)	3.68	mg/L
10.	Chemical Oxygen Demand (C.O.D.)	IS: 3025 (P-58)	57.42	mg/L
11.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.39	mg/L
12.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.019	mg/L
13.	Mercury (as Hg)	VEL/EN/STP/03.Issue No.-01, Issue Date :01/11/2023	<0.0005	mg/L
14.	Arsenic (as As)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.005	mg/L
15.	Lead (as Pb)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.005	mg/L
16.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.084	mg/L
17.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.002	mg/L
18.	Total Chromium as Cr	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	<0.005	mg/L

Note: STP- Standard Testing Procedure, *BLQ- Below Limit of Quantification, **LOQ- Limit of Quantification.

End of Report

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Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)
ISO 9001 | ISO 14001 | ISO 45001

Test Report

Sample Number:	VEL/W/02	Report No.:	VEL/W/2412130002
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.: Party Reference No.:	7.8 F-03 4000316836-037-1019 Dated: 30/09/2023

Name of Sample :	Surface Water Sample	Reporting Date:	21/12/2024
Sample Group :	Water/Residue and contaminants in Water	Period of Analysis	16/12/2024 - 21/12/2024
Location :	Godavari River (Down Stream)	Reciept Date :	16/12/2024
Sample Collected By :	VEL Representative	Sampling Date :	13/12/2024
Environmental Condition :	25±2°C	Sampling Quantity :	2.0 Liters
Sampling And Analysis Protocol :	IS: 3025, APHA 23rd Edition 2017 & STP	Sampling Type :	Grab
		Preservation :	Ice Box
		Parameter Required :	As Per Work Order

S. No.	Test Parameters	Test Method	Results	Units
Discipline : Chemical				
1.	pH (at 25°C)	IS: 3025 (P-11)	7.47	--
2.	Total Dissolved Solids (at 180°C)	IS: 3025 (P-16)	192	mg/L
3.	Electrical Conductivity (at 25°C)	IS: 3025 (P-14)	309	uS/cm
4.	Residual Free Chlorine (R.F.C)	IS: 3025 (P-26)	*BLQ(**LOQ-0.15)	mg/L
5.	Phosphate	IS:3025(Part-31)	0.56	mg/L
6.	Total Nitrogen	IS: 3025 (P-34)	5.76	mg/L
7.	Oil & Grease	IS 3025 (P-39)	<0.4	mg/L
8.	Total Suspended Solids	IS: 3025 (P-17)	5.42	mg/L
9.	Biochemical Oxygen Demand (B.O.D.) (3 Days @27°C)	IS: 3025 (P-44)	4.1	mg/L
10.	Chemical Oxygen Demand (C.O.D.)	IS: 3025 (P-58)	48.54	mg/L
11.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No:- 01, Issue Date : 01/11/2021	0.32	mg/L
12.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.036	mg/L
13.	Mercury (as Hg)	VEL/EN/STP/03,Issue No.-01, Issue Date: 01/11/2023	<0.0005	mg/L
14.	Arsenic (as As)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.005	mg/L
15.	Lead (as Pb)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.005	mg/L
16.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	0.216	mg/L
17.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2021	<0.002	mg/L
18.	Total Chromium as Cr	VEL/STP/ICP/W-01, Issue No.-01, 01/11/21	<0.005	mg/L

Note: STP- Standard Testing Procedure, *BLQ- Below Limit of Quantification, **LOQ- Limit of Quantification.

End of Report

Authorized Signatory

Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)
ISO 9001 | ISO 14001 | ISO 45001

Test Report

Sample Number:	VEL/W/01	Report No.:	VEL/W/2501250001
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.: Party Reference No.:	7.8 F-03 4000316836-037-1019 Dated: 30/09/2023
Name of Sample :	Surface Water Sample	Reporting Date:	30/01/2025
Sample Group :	Water/Residue and contaminants in Water	Period of Analysis :	25/01/2025 - 30/01/2025
Location :	Godavari River (Up Stream)	Receipt Date :	25/01/2025
Sample Collected By :	VEL Representative	Sampling Date :	21/01/2025
Environmental Condition :	25±2°C	Sampling Quantity :	2.0 Liters
Sampling And Analysis Protocol :	IS: 3025, APHA 23rd Edition 2017 & STP	Sampling Type :	Grab
		Preservation :	Ice Box
		Parameter Required :	As Per Work Order

S. No.	Test Parameters	Test Method	Results	Units
Discipline : Chemical				
1.	pH (at 25°C)	IS: 3025 (P-11)	7.75	--
2.	Total Dissolved Solids (at 180°C)	IS: 3025 (P-16)	193.18	mg/L
3.	Electrical Conductivity (at 25°C)	IS: 3025 (P-14)	321.72	uS/cm
4.	Residual Free Chlorine (R.F.C)	IS: 3025 (P-26)	*BLQ(**LOQ-0.15)	mg/L
5.	Phosphate	IS: 3025 (P-31)	0.61	mg/L
6.	Total Nitrogen	IS: 3025 (P-34)	2.78	mg/L
7.	Oil & Grease	IS: 3025 (P-39)	<0.4	mg/L
8.	Total Suspended Solids	IS: 3025 (P-17)	4.81	mg/L
9.	Biochemical Oxygen Demand (B.O.D.) (3 Days @27°C)	IS: 3025 (P-44)	5.27	mg/L
10.	Chemical Oxygen Demand (C.O.D.)	IS: 3025 (P-58)	52.92	mg/L
11.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2023	0.46	mg/L
12.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2023	0.026	mg/L
13.	Mercury (as Hg)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2023	*BLQ(**LOQ-0.0005)	mg/L
14.	Arsenic (as As)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2023	*BLQ(**LOQ-0.005)	mg/L
15.	Lead (as Pb)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2023	*BLQ(**LOQ-0.002)	mg/L
16.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2023	0.091	mg/L
17.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2023	*BLQ(**LOQ-0.002)	mg/L
18.	Total Chromium as Cr	VEL/STP/ICP/W-01, Issue No.-01, Issue Date : 01/11/2023	*BLQ(**LOQ-0.002)	mg/L

Note: STP- Standard Testing Procedure, *BLQ- Below Limit of Quantification, **LOQ- Limit of Quantification.

End of Report

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Test Report

Sample Number:	**VEL/W/02**	**Report No.:**	**VEL/W/2501250002**
Name & Address of the Party:	**M/s NTPC Limited, Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215**	**Format No.:**	**7.8 F-03**
		Party Reference No.:	**4000316836-037-1019 Dated: 30/09/2023**

Name of Sample :	**Surface Water Sample**	**Reporting Date:**	**30/01/2025**
Sample Group :	**Water/Residue and contaminants in Water**	**Period of Analysis :**	**25/01/2025 - 30/01/2025**
Location :	**Godavari River (Down Stream)**	**Reciept Date :**	**25/01/2025**
Sample Collected By :	**VEL Representative**	**Sampling Date :**	**21/01/2025**
Environmental Condition :	**25±2°C**	**Sampling Quantity :**	**2.0 Liters**
Sampling And Analysis Protocol :	**IS: 3025, APHA 23rd Edition 2017 & STP**	**Sampling Type :**	**Grab**
		Preservation :	**Ice Box**
		Parameter Required :	**As Per Work Order**

S. No.	Test Parameters	Test Method	Results	Units
Discipline : Chemical				
1.	pH (at 25°C)	IS: 3025 (P-11)	7.65	--
2.	Total Dissolved Solids (at 180°C)	IS: 3025 (P-16)	196	mg/L
3.	Electrical Conductivity (at 25°C)	IS: 3025 (P-14)	313	uS/cm
4.	Residual Free Chlorine (R.F.C)	IS: 3025 (P-26)	*BLQ(**LOQ-0.15)	mg/L
5.	Phosphate	IS: 3025 (P-31)	0.49	mg/L
6.	Total Nitrogen	IS: 3025 (P-34)	4.46	mg/L
7.	Oil & Grease	IS: 3025 (P-39)	<0.4	mg/L
8.	Total Suspended Solids	IS: 3025 (P-17)	3.58	mg/L
9.	Biochemical Oxygen Demand (B.O.D.) (3 Days @27°C)	IS: 3025 (P-44)	5.37	mg/L
10.	Chemical Oxygen Demand (C.O.D.)	IS:3025 (P-58)	51.29	mg/L
11.	Iron (as Fe)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2023	0.42	mg/L
12.	Copper (as Cu)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2023	0.028	mg/L
13.	Mercury (as Hg)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2023	*BLQ(**LOQ-0.0005)	mg/L
14.	Arsenic (as As)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2023	*BLQ(**LOQ-0.005)	mg/L
15.	Lead (as Pb)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2023	*BLQ(**LOQ-0.002)	mg/L
16.	Zinc (as Zn)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2023	0.224	mg/L
17.	Cadmium (as Cd)	VEL/STP/ICP/W-01, Issue No.- 01, Issue Date : 01/11/2023	*BLQ(**LOQ-0.002)	mg/L
18.	Total Chromium as Cr	VEL/STP/ICP/W-01, Issue No.-01, Issue Date : 01/11/2023	*BLQ(**LOQ-0.002)	mg/L

Note: STP- Standard Testing Procedure, *BLQ- Below Limit of Quantification, **LOQ- Limit of Quantification.

End of Report

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Page No. 1 of 1

Authorized Signatory

Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)
ISO 9001 | ISO 14001 | ISO 45001

Test Report

Sample Number:	VEL/W/01	Report No.:	VEL/W/2502180001
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023
Name of Sample :	Surface Water Sample	Reporting Date:	24/02/2025
Sample Group :	Water/Residue and contaminants in Water	Period of Analysis :	18/02/2025 - 24/02/2025
Location :	Godavari River (Up Stream)	Receipt Date :	18/02/2025
Sample Collected By :	VEL Representative	Sampling Date :	13/02/2025
Environmental Condition :	25±2°C	Sampling Quantity :	2.0 Liters
Sampling And Analysis Protocol :	IS: 3025, APHA 23rd Edition 2017 & STP	Sampling Type :	Grab
		Preservation :	Ice Box
		Parameter Required :	As Per Work Order

S. No.	Test Parameters	Test Method	Results	Units
Discipline : Chemical				
1.	pH (at 25°C)	IS: 3025 (P-11)	7.85	--
2.	Total Dissolved Solids (at 180°C)	IS: 3025 (P-16)	197.32	mg/L
3.	Electrical Conductivity (at 25°C)	IS: 3025 (P-14)	318.43	uS/cm
4.	Residual Free Chlorine (R.F.C)	IS: 3025 (P-26)	*BLQ(**LOQ-0.15)	mg/L
5.	Phosphate	IS: 3025 (P-31)	0.58	mg/L
6.	Total Nitrogen	IS: 3025 (P-34)	1.49	mg/L
7.	Oil & Grease	IS: 3025 (P-39)	*BLQ(**LOQ-4.0)	mg/L
8.	Total Suspended Solids	IS: 3025 (P-17)	3.63	mg/L
9.	Biochemical Oxygen Demand (B.O.D.) (3 Days @27°C)	IS: 3025 (P-44)	6.82	mg/L
10.	Chemical Oxygen Demand (C.O.D.)	IS: 3025 (P-58)	56.29	mg/L
11.	Iron (as Fe)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	0.51	mg/L
12.	Copper (as Cu)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	0.017	mg/L
13.	Mercury (as Hg)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.0005)	mg/L
14.	Arsenic (as As)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.005)	mg/L
15.	Lead (as Pb)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.002)	mg/L
16.	Zinc (as Zn)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	0.078	mg/L
17.	Cadmium (as Cd)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.002)	mg/L
18.	Total Chromium as Cr	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.002)	mg/L

Note: STP- Standard Testing Procedure, *BLQ- Below Limit of Quantification, **LOQ- Limit of Quantification.

End of Report

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Authorised Signatory

Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)
ISO 9001 | ISO 14001 | ISO 45001

Test Report

Sample Number:	VEL/W/02	Report No.:	VEL/W/2502180002
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.:	7.8 F-03
		Party Reference No.:	4000316836-037-1019 Dated: 30/09/2023

Name of Sample :	Surface Water Sample	Reporting Date:	24/02/2025
Sample Group :	Water/Residue and contaminants in Water	Period of Analysis :	18/02/2025 - 24/02/2025
Location :	Godavari River (Down Stream)	Reciept Date :	18/02/2025
Sample Collected By :	VEL Representative	Sampling Date :	13/02/2025
Environmental Condition :	25±2°C	Sampling Quantity :	2.0 Liters
Sampling And Analysis Protocol :	IS: 3025, APHA 23rd Edition 2017 & STP	Sampling Type :	Grab
		Preservation :	Ice Box
		Parameter Required :	As Per Work Order

S. No.	Test Parameters	Test Method	Results	Units
Discipline : Chemical				
1.	pH (at 25°C)	IS: 3025 (P-11)	7.72	--
2.	Total Dissolved Solids (at 180°C)	IS: 3025 (P-16)	192	mg/L
3.	Electrical Conductivity (at 25°C)	IS: 3025 (P-14)	309	uS/cm
4.	Residual Free Chlorine (R.F.C)	IS: 3025 (P-26)	*BLQ(**LOQ-0.15)	mg/L
5.	Phosphate	IS: 3025 (P-31)	0.53	mg/L
6.	Total Nitrogen	IS: 3025 (P-34)	3.71	mg/L
7.	Oil & Grease	IS: 3025 (P-39)	*BLQ(**LOQ-4.0)	mg/L
8.	Total Suspended Solids	IS: 3025 (P-17)	2.64	mg/L
9.	Biochemical Oxygen Demand (B.O.D.) (3 Days @27°C)	IS: 3025 (P-44)	4.79	mg/L
10.	Chemical Oxygen Demand (C.O.D.)	IS: 3025 (P-58)	53.96	mg/L
11.	Iron (as Fe)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	0.39	mg/L
12.	Copper (as Cu)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	0.021	mg/L
13.	Mercury (as Hg)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.0005)	mg/L
14.	Arsenic (as As)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.005)	mg/L
15.	Lead (as Pb)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.002)	mg/L
16.	Zinc (as Zn)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	0.224	mg/L
17.	Cadmium (as Cd)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.002)	mg/L
18.	Total Chromium as Cr	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.002)	mg/L

Note: STP- Standard Testing Procedure, *BLQ- Below Limit of Quantification, **LOQ- Limit of Quantification.

End of Report

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Authorized Signatory

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Customer Care: 8010127843, Ph: 0124-4343750, 9810355569, 9953147268 | E-mail: environment@vardan.co.in, bd@vardan.co.in

Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)
ISO 9001 | ISO 14001 | ISO 45001

Test Report

Sample Number:	VEL/W/01	Report No.:	VEL/W/2503210001
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.: Party Reference No.:	7.8 F-03 4000316836-037-1019 Dated: 30/09/2023
Name of Sample :	Surface Water Sample	Reporting Date:	27/03/2025
Sample Group :	Water/Residue and contaminants in Water	Period of Analysis :	21/03/2025 - 27/03/2025
Location :	Godavari River (Up Stream)	Receipt Date :	21/03/2025
Sample Collected By :	VEL Representative	Sampling Date :	18/03/2025
Environmental Condition :	25±2°C	Sampling Quantity :	2.0 Liters
Sampling And Analysis Protocol :	IS: 3025, APHA 23rd Edition 2017 & STP	Sampling Type :	Grab
		Preservation :	Ice Box
		Parameter Required :	As Per Work Order

S. No.	Test Parameters	Test Method	Results	Units
Discipline : Chemical				
1.	pH (at 25°C)	IS: 3025 (P-11)	7.69	--
2.	Total Dissolved Solids (at 180°C)	IS: 3025 (P-16)	193.41	mg/L
3.	Electrical Conductivity (at 25°C)	IS: 3025 (P-14)	315.82	uS/cm
4.	Residual Free Chlorine (R.F.C)	IS: 3025 (P-26)	*BLQ(**LOQ-0.15)	mg/L
5.	Phosphate	IS: 3025 (P-31)	0.49	mg/L
6.	Total Nitrogen	IS: 3025 (P-34)	2.76	mg/L
7.	Oil & Grease	IS: 3025 (P-39)	*BLQ(**LOQ-4.0)	mg/L
8.	Total Suspended Solids	IS: 3025 (P-17)	2.89	mg/L
9.	Biochemical Oxygen Demand (B.O.D.) (3 Days @27°C)	IS: 3025 (P-44)	5.71	mg/L
10.	Chemical Oxygen Demand (C.O.D.)	IS: 3025 (P-58)	54.85	mg/L
11.	Iron (as Fe)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	0.62	mg/L
12.	Copper (as Cu)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	0.020	mg/L
13.	Mercury (as Hg)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.0005)	mg/L
14.	Arsenic (as As)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.005)	mg/L
15.	Lead (as Pb)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.002)	mg/L
16.	Zinc (as Zn)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	0.067	mg/L
17.	Cadmium (as Cd)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.002)	mg/L
18.	Total Chromium as Cr	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.002)	mg/L

Note: STP- Standard Testing Procedure, *BLQ- Below Limit of Quantification, **LOQ- Limit of Quantification.

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Vardan Envirolab LLP

Laboratory: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (HR)
ISO 9001 | ISO 14001 | ISO 45001

Test Report

Sample Number:	VEL/W/02	Report No.:	VEL/W/2503210002
Name & Address of the Party:	M/s NTPC Limited Telangana Super Thermal Power Project, P.O. : Jyotinagar, District : Peddapalli, Telangana – 505215	Format No.: Party Reference No.:	7.8 F-03 4000316836-037-1019 Dated: 30/09/2023

Name of Sample :	Surface Water Sample	Reporting Date:	27/03/2025
Sample Group :	Water/Residue and contaminants in Water	Period of Analysis :	21/03/2025 - 27/03/2025
Location :	Godavari River (Down Stream)	Reciept Date :	21/03/2025
Sample Collected By :	VEL Representative	Sampling Date :	18/03/2025
Environmental Condition :	25±2°C	Sampling Quantity :	2.0 Liters
Sampling And Analysis Protocol :	IS: 3025, APHA 23rd Edition 2017 & STP	Sampling Type :	Grab
		Preservation :	Ice Box
		Parameter Required :	As Per Work Order

S. No.	Test Parameters	Test Method	Results	Units
Discipline : Chemical				
1.	pH (at 25°C)	IS: 3025 (P-11)	7.68	–
2.	Total Dissolved Solids (at 180°C)	IS: 3025 (P-16)	197	mg/L
3.	Electrical Conductivity (at 25°C)	IS: 3025 (P-14)	313	uS/cm
4.	Residual Free Chlorine (R.F.C)	IS: 3025 (P-26)	*BLQ(**LOQ-0.15)	mg/L
5.	Phosphate	IS: 3025 (P-31)	0.68	mg/L
6.	Total Nitrogen	IS: 3025 (P-34)	2.86	mg/L
7.	Oil & Grease	IS: 3025 (P-39)	*BLQ(**LOQ-4.0)	mg/L
8.	Total Suspended Solids	IS: 3025 (P-17)	3.14	mg/L
9.	Biochemical Oxygen Demand (B.O.D.) (3 Days @27°C)	IS: 3025 (P-44)	5.58	mg/L
10.	Chemical Oxygen Demand (C.O.D.)	IS: 3025 (P-58)	51.78	mg/L
11.	Iron (as Fe)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	0.46	mg/L
12.	Copper (as Cu)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	0.036	mg/L
13.	Mercury (as Hg)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.0005)	mg/L
14.	Arsenic (as As)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.005)	mg/L
15.	Lead (as Pb)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.002)	mg/L
16.	Zinc (as Zn)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	0.311	mg/L
17.	Cadmium (as Cd)	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.002)	mg/L
18.	Total Chromium as Cr	VEL/W/STP/03, Issue No -01, Issue date- 01/11/2023:2023	*BLQ(**LOQ-0.002)	mg/L

Note: STP- Standard Testing Procedure, *BLQ- Below Limit of Quantification, **LOQ- Limit of Quantification.

End of Report

Reviewed By

Authorized Signatory

Dr. Shiv Prakash Singh

Mahabal Enviro Engineers Pvt. Ltd.

PLOT NOS. 13,14,17,18, GRAMPANCHAYAT BOKHARA, CHHINDWARA ROAD, KORADI, NAGPUR, MAHARASHTRA, INDIA
Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT

Report No.:	ME-0076240402	Date: 13.04.2024
ULR No.:	-	

Name and Address of Customer	**NTPC LIMITED TELANGANA STPP STATION PO. JyotiNagar, Dist. Peddapalli, Telangana-505215 India**		PO No.: 8200406971-057-1057 Version 0 PO Date: 28.03.2024
Sample Description / Type	ASH Sample	Sampling Done by	Customer
Sampling Location	Bottom Ash Unit No #1	Sample Quantity / Packing	400g X 1 No. Polythene Bag
Date of Sampling	-	Date of Receipt of Sample	02.04.2024
Sampling Procedure	Sample tested as received		
Date of Start of Analysis	04.04.2024	Date of Completion of Analysis	13.04.2024

Sr. No.	Parameter	Unit	Result	Method Reference
	Discipline: Chemical Testing; Product Group: Building Material (Bottom Ash)			
1.	Lead (as Pb)	mg/kg	22.1	ASTM D-3683
2.	Antimony (as Sb)	mg/kg	4.18	ASTM D-6357-11
3.	Selenium (as Se)	mg/kg	BQL (LOQ:2)	ASTM D-4606
4.	Titanium (as Ti)	mg/kg	5657	ASTM D-6357-11
5.	Vanadium (as V)	mg/kg	91.2	ASTM A-6357-11
6.	Barium (as Ba)	mg/kg	514	ASTM D-6357-11
7.	Zinc (as Zn)	mg/kg	21.3	ASTM D-3683
8.	Mercury (as Hg)	mg/kg	BQL (LOQ:0.1)	CPCB (HW) Page No. 62
9.	Tin (as Sn)	mg/kg	4.78	ASTM D-6357-11
10.	Beryllium (as Be)	mg/kg	2.79	ASTM D-6357-11
11.	Arsenic (as As)	mg/kg	1.01	ASTM D-4606
12.	Lithium (as Li)	mg/kg	298	IS: 1355-1984 RA 2001
13.	Cadmium (as Cd)	mg/kg	BQL (LOQ:2)	ASTM D-3683
14.	Cobalt (as Co)	mg/kg	BQL (LOQ:2)	ASTM D-6357-11
15.	Chromium (as Cr)	mg/kg	104	ASTM D-3683
16.	Copper (as Cu)	mg/kg	47.0	ASTM D-3683
17.	Manganese (as Mn)	mg/kg	302	ASTM D-3683

Reviewed and authorised by

Harish Mendhi
Technical Manager
Chemical Testing

Mahabal Enviro Engineers Pvt. Ltd.

PLOT NOS. 13,14,17,18, GRAMPANCHAYAT BOKHARA, CHHINDWARA ROAD, KORADI, NAGPUR, MAHARASHTRA, INDIA
Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT

Report No.:	ME-0076240402	Date: 13.04.2024
ULR No.:	-	

Sr. No.	Parameter	Unit	Result	Method Reference
18.	Molybdenum (as Mo)	mg/kg	2.19	ASTM D-5357-11
19.	Nickel (as Ni)	mg/kg	38.9	ASTM D-3683

END OF REPORT

Note:
1. BQL: Below Quantification Limit.
2. LOQ: Limit of Quantification.
3. All results expressed on as received basis.
4. The result listed refers only to the tested sample(s) and applicable parameter(s).
5. This report is not to be reproduced except in full, without the written approval of the laboratory.
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Reviewed and authorised by

Harish Mendhi
Technical Manager
Chemical Testing

Mahabal Enviro Engineers Pvt. Ltd.

PLOT NOS. 13,14,17,18, GRAMPANCHAYAT BOKHARA, CHHINDWARA ROAD, KORADI, NAGPUR, MAHARASHTRA, INDIA
Phone: 0712-2612162/2612212 email: nagpur@mahabal.com

TEST REPORT

Report No.:	ME-0077240402	Date: 13.04.2024
ULR No.:	-	

Name and Address of Customer	**NTPC LIMITED TELANGANA STPP STATION PO. JyotiNagar, Dist. Peddapalli, Telangana-505215 India**		PO No.: 8200406971-057-1057 Version 0 PO Date: 28.03.2024
Sample Description / Type	ASH Sample	Sampling Done by	Customer
Sampling Location	Bottom Ash Unit No #2	Sample Quantity / Packing	400g X 1 No. Polythene Bag
Date of Sampling	-	Date of Receipt of Sample	02.04.2024
Sampling Procedure	Sample tested as received		
Date of Start of Analysis	04.04.2024	Date of Completion of Analysis	13.04.2024

Sr. No.	Parameter	Unit	Result	Method Reference
	Discipline: Chemical Testing; Product Group: Building Material (Bottom Ash)			
1.	Lead (as Pb)	mg/kg	26.6	ASTM D-3683
2.	Antimony (as Sb)	mg/kg	6.0	ASTM D-6357-11
3.	Selenium (as Se)	mg/kg	BQL (LOQ:2)	ASTM D-4606
4.	Titanium (as Ti)	mg/kg	4527	ASTM D-6357-11
5.	Vanadium (as V)	mg/kg	76.8	ASTM A-6357-11
6.	Barium (as Ba)	mg/kg	478	ASTM D-6357-11
7.	Zinc (as Zn)	mg/kg	22.8	ASTM D-3683
8.	Mercury (as Hg)	mg/kg	BQL (LOQ:0.1)	CPCB (HW) Page No. 62
9.	Tin (as Sn)	mg/kg	4.20	ASTM D-6357-11
10.	Beryllium (as Be)	mg/kg	2.40	ASTM D-6357-11
11.	Arsenic (as As)	mg/kg	1.00	ASTM D-4606
12.	Lithium (as Li)	mg/kg	209	IS: 1355-1984 RA 2001
13.	Cadmium (as Cd)	mg/kg	BQL (LOQ:2)	ASTM D-3683
14.	Cobalt (as Co)	mg/kg	BQL (LOQ:2)	ASTM D-6357-11
15.	Chromium (as Cr)	mg/kg	99.9	ASTM D-3683
16.	Copper (as Cu)	mg/kg	37.0	ASTM D-3683
17.	Manganese (as Mn)	mg/kg	220	ASTM D-3683

Reviewed and authorised by

Harish Mendhi
Technical Manager
Chemical Testing

QF/SALE/02
Issue No 03
Date 05.12.2019.
Amd 03 Date
18.07.2023