

Report in compliance to Hon'ble NGT order dt: 23.11.2021 in O.A. No.227 of 2021 filed by Sri Battu Satish Reddy, Pattivanipalem Village, Visakhapatnam District against on M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited, Parawada (M), Visakhapatnam District:

It is to submit that M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited, is operating at Parawada, Visakhapatnam District and generating electricity of 2000 MW (4 X 500 MW) using indigenous coal. The industry has obtained Environmental Clearance vide order dated.23.07.1996 for 2 X 500 MW(Stage-I) and vide order dated.01.08.2007 for 2 X 500 MW(Stage-II). The industry has obtained CFO of the Board vide order dated.31.07.2017 to generate Electricity- 2000 MW (Coal with maximum Sulphur content of 0.6% and ash content of 45%) with certain conditions & standards which is valid up to 31.08.2022. The Stage -I was established in the year 2002 and Stage-II in the year 2011. The Power Plant has established in an extent of 3384 Acres (Plant Area: 1976 Acres, Green Belt – about 650 Acres (20%), Reservoir of 45 days capacity: 200 Acres (approx.), Township: 311 Acres and Ash Pond: 605 Acres). At present the industry is generating the electricity from 1930 MW to 1960 MW in an average. Pollution control measures implemented by M/s. Simhadri Super Thermal Power Project, NTPC Limited to control air, water & solid waste Management and Environmental Monitoring carried out by APPCB is submitted as follows:

a) Air Emissions & pollution control System:

- i. The industry has installed 4 No. of Boilers of capacity 1675 tons per hour (TPH) each using pulverized coal as fuel which contains 35-40% ash and 0.28 % of Sulphur and provided with Electro Static Precipitators as air pollution control equipment to the Boilers and provided 2 Nos. of bi-flue stacks of 275 M height each to disperse the emissions. The industry has installed on-line stack analyzers for all four stacks of 4 x 500 MW units. The continuous emission monitoring system (CEMS) connected to APPCB/CPCB website to upload the data continuously.
- ii. The Ash generated from the boilers is collected in ash silos and issued to brick and cement manufacturers, remaining ash being sent to Ash Ponds in the form of

slurry. Once the ash is settled in Ash Ponds, the water is recollected for making ash slurry.

- iii. During the process of power generation about 33,000 MT of coal burns per day and results in generation of about 9000 MT of fly ash & 2000 MT of bottom ash per day and the uses Sea water for ash slurry making.
- iv. The industry has provided 3 Nos. of Silos (500 Tons each) for collection of dry ash for Phase - I and 3 Nos. of Silos (1200 Tons each) for stage - II and Dry ash system stage - I is being augmented with 2 X 1200 Tons + 1 X 500 MT Silos for better fly ash collection.
- v. The industry has provided dust suppression systems at coal handling sections to avoid fugitive emissions.
- vi. Conocorpus species of tree plantation developed in around coal piles to mitigate fugitive dust emissions. Dust extraction systems have been provided in coal handling area including coal stock yard.
- vii. Flue Gas Desulphurization (FGD) is under implementation, to be commissioned on or before December 2022.
- viii. Combustion modification (De-NO_x /Low NO_x) is under implementation, to be completed on or before December 2022.
- ix. The industry has installed 3 No.s Continuous Ambient Air Quality Monitoring stations(CAQMS) at the periphery of the industry and connected to the CPCB/APPCB web site as per the directions of the CPCB/APPCB. In addition to 3 CAAQM stations the industry has installed additional 3 continuous ambient air quality monitoring stations at Pittavanipalem, Devada, Marada Dasaripeta for monitoring of PM₁₀.

b) Effluent Treatment system and Disposal:

- i. M/s. Simhadri Super Thermal Power Project, NTPC Limited consumes 4,29,240 KLD of Sea water as make up water for industrial cooling and 21,600 KLD of Fresh water. The industry generates about 2,68,810 KLD wastewater (Once through cooling tower blow downs, Boiler blow downs etc., of 2,10,220 KLD discharge into sea & DM plant regeneration/ash pond effluent etc. of 48280 KLD are being re-circulated for ash slurry preparation & for dust suppression at coal stock yards).

- ii. The main plant effluent, which consists of the sea water (to the extent of 99.9%) that is used for cooling purpose, in the Cooling water circulation system. The seawater blow down from the Cooling water circuit is sent to the Common Monitoring Basin from where a combined treated effluent having parameters within the limits is sent to Marine out Fall (MOF) located 750 meters from the sea shore. This marine outfall is designed with the help of National Institute of Oceanography (NIO), Goa and National Institute of Ocean Technology (NIOT), Chennai and Tokyo KYUEI Co. Ltd., Japan.
- iii. M/s. Simhadri Super Thermal Power Project, NTPC Limited has provided Effluent Treatment Plant consisting of Neutralization pond, Tube settler and Coal settling pond for treating the DM plant regeneration effluents, CHP effluent etc.,.
- iv. M/s. Simhadri Super Thermal Power Project, NTPC Limited has provided 2 no. of STPs of 1700 KLD capacity for township and 65 KLD capacities for Plant. The treated sewage effluents utilized for on land irrigation within the industry premises.
- v. The industry has installed Continuous Effluent Quality Monitoring (CEMS) System for monitoring the effluent quality in real time basis, and all the parameters such pH, TSS, Temperature and conductivity data is uploaded to CPCB / APPCB on continuous basis.

c) Solid Waste Management:

There are four lagoons are existing and the lagoon 1 & 3 covered in an area of 85 acres each and lagoon 2 & 4 covered in an area of 115 acres each. Each lagoon is provided with separate garland drains which are connected to Toe drains around dykes for collection of seepage water which is pumped back for recirculation for ash slurry preparation and dust suppression in ash pond area. Garland drains which are connected to toe drains around dykes for collection of seepage water which is pumped back for recirculation to avoid soil contamination in surrounding area. Ash generation and utilization details for the year 2016 to 2022(upto October) are submitted as follows:

| Year | Ash Generation | Ash Utilization | % of Ash Utilization |
|------------------|----------------|-----------------|----------------------|
| 2016-17 | 3058234 | 2558190 | 84% |
| 2017-18 | 3010763 | 3058021 | 102% |
| 2018-19 | 2975585 | 2979991 | 100% |
| 2019-20 | 2641122 | 4430120 | 168% |
| 2020-21 | 2448817 | 3033286 | 124% |
| Apr-21 to Oct-21 | 1986578 | 1609698 | 81% |

From 2017 to 2020, the industry has achieved 100% utilization of fly ash. Total stock in ash pond as on Oct 2021 is 12.07 Million MT. The representative of M/s. Simhadri Super Thermal Power Project, NTPC Limited informed that the power plant facing difficulties in achieving the 100% ash utilization due to providing the fly ash to end users through a transparent bidding process only as per recent guidelines issued by Ministry of Power, Government of India vide letter dated.22.09.2021.

d) Environmental Monitoring carried out by APPCB:

- i. APPCB has conducted ambient air quality monitoring on 15.12.2021 to 17.12.2021 on the terrace of complainant's house, D.No.6-10, Back side of the Ramalayam Temple, Pittavanipalem(V), Parawada, Visakhapatnam and also conducted mobile continuous ambient air quality monitoring station at the Pump house, Administration Building and Sarada guest house, Township:

| Location | Date of monitoring | PM ₁₀ in (µg/m ³) |
|---------------------|--------------------------|--|
| Complainant's house | 15.12.2021 to 16.12.2021 | 120 |
| | 16.12.2021 to 17.12.2021 | 127 |
| Pump Station. | 16.12.2021 to 17.12.2021 | 131 |

| | | |
|----------------------------------|--------------------------|------------|
| Administration Building. | 17.12.2021 to 18.12.2021 | 126 |
| Sarada guest house, Township | 18.12.2021 to 19.12.2021 | 118 |
| Standard(24 Hrly average) | | 100 |

As per the analysis results of ambient air quality, the PM₁₀ values are exceed the APPCB norms.

- ii. APPCB has conducted stack monitoring for the stack attached to coal fired boilers of unit I, II, III & IV on 16.12.2021 to 20.12.2021 and as per the analysis results the Particulate Matter (PM) values are within the APPCB norms.
- iii. APPCB has collected ground water samples from the borewells on 15.12.2021 at Pittavanipalem (Complainants village), Devada, Marada Dasaripeta villages, which are nearer to the ash ponds. As per the analysis results of the water samples collected by APPCB from bore wells on 15.12.2021 to 19.12.2021 all the parameters are within the drinking water specification IS10500:2012. The Total Dissolved Solids, Total Hardness (as CaCO₃) & Nitrate (as NO₃) for the bore well samples collected at hand pump-3 at Beri Ayyanna house Pittavanipalem village and Total Hardness (as CaCO₃) & Nitrate (as NO₃) hand pump-2 at Post office Devada village are slightly exceeded the drinking water specification IS-10500:2012.
- iv. The analysis reports of air & water monitoring conducted by APPCB are submitted as Annexure-A.

The Hon'ble NGT vide order dated. 23.11.2021 in O.A. No. 227 of 2021 has appointed a Joint Committee consisting of(i) The District Collector, Visakhapatnam District; (ii) a Senior Officer from Ministry of Environment Forest and Climate Change (MoEF&CC), Integrated Regional Office, Vijayawada;(iii) a Senior Officer from the Central Pollution Control Board (CPCB), Regional Office, Chennai and (iv) a Senior officer from the Andhra Pradesh Pollution Control Board (APPCB) to inspect the area in question and submit a factual as well as action taken report if there is any violation found with a direction as to ascertain following:

- i. *Whether there was any violation of Environmental Clearance(EC) and consent conditions committed by the first respondent / NTPC unit,*

- ii. *Whether the pollution control mechanism provided are sufficient to mitigate the situation of causing pollution of air, water and soil,*
- iii. *Whether the ash pond maintained by the first respondent are being properly maintained as directed by the Andhra Pradesh Pollution Control Board to avoid percolation of the fly ash to contaminate the ground water,*
- iv. *Whether the first respondent unit is complying with in the 100% disposal of fly ash generated and if not, what is the percentage (%) of disposal achieved by them and what is the nature of action taken by the regulators for non-compliance of the same,*
- v. *Whether the Ambient Air Quality (AAQ), Ground Water and the soil quality has been affected on account of any of the activities of the first respondent and if any contamination has been caused, what is the nature of remediation to be taken for the purpose of mitigating the situation,*
- vi. *If any damage has been caused to the environment on account of the violations committed, then the committee is directed to assess the damage caused and also environmental compensation payable by the first respondent,*
- vii. *If there is any further study to be conducted for carrying out the remediation process in an effective manner, the committee is at liberty to suggest and co-opt any expert in this field for the purpose of suggesting the remediation method.*
- viii. *When they are conducting the study regarding the area unit affected on account of the pollution, they are directed to ascertain the impact of pollution on water, air and soil pollution within the project area and also a reasonable distance outside the project area and if there is any damage caused to the agricultural operation on account of the air pollution/dust pollution, that aspect also is directed to be considered by the committee while submitting the report and also including the compensation if any payable on that aspect considering the nature of damage caused to the fertility of the land, affecting the productivity.*

The officials from APPCB during the visit along with Joint Committee on 29.12.2021, the following non-compliances were observed on the main conditions stipulated in Consent for operation vide order issued by the Board dated. 31.07.2017:

1. The industry is not maintaining permanent mechanical sprinklers for suppression of dust on the haul roads in between the villages.
2. The industry has not maintaining water cover in the ash pond area to prevent fly ash from getting air borne and air pollution in the surrounding area especially to the residents of Pittavanipalem.
3. The industry has developed the greenbelt to the extent of 20% of total area against the consent condition of 33% of total area of 3384 Acres. In order to meet 33% of the green belt development as per the conditions imposed by APPCB, M/s. Simhadri Super Thermal Power Project, NTPC Limited, has reported that they have planted 5,50,000 saplings under Green Visakha Programme and also planted around 2.8 Lakh saplings in paderu under accelerated afforestation Programme. The representative of the industry has informed that they have complied with the 33% of the green belt of total plant area excluding ash pond area, reservoir area & Township area.
4. During heavy rains, the industry has failed to collect the total cenosphere which is very light weight air entrapped ash particle in overflow lagoons thereby the cenosphere particles find its way to creek along with storm water. Recently cenosphere is discharging along with storm water to the sub-creek and the Board has issued directions after reviewing in Task force committee on 21.12.2021. APPCB also imposed Bank guarantee of 1.28 Cr. towards compliance of the conditions / directions stipulated by APPCB and the industry yet to submit the Bank Guarantee to APPCB. Now the industry collecting Cenosphere material by providing additional screen with mesh to stop spill over of any cenosphere.
5. APPCB has monitored the ambient air quality, stack emissions and effluent samples collected during joint inspection. The samples analysis is under progress and it may take 3-4 weeks.
6. Photographs showing inspection of the joint committee in villages & industry and monitoring of air & water quality by officials of APPCB is submitted as Annexure-B.
7. The copy of the Joint Inspection report is herewith enclosed for kind perusal.

Hence the Joint Committee recommends the following measures/studies to be taken up by M/s. Simhadri Super Thermal Power Project, NTPC Limited immediately:

1. The industry shall avoid the excavation operations in ash ponds during heavy winds.
2. The industry shall install micro meteorological station to monitor wind velocity and wind direction, accordingly, the industry shall handle the excavation operations in ash ponds
3. The industry shall install adequate high pressure mist spray sprinklers at coal storage yard and also develop thick greenbelt with tall growing trees to control fugitive emissions effectively.
4. The industry shall provide bitumen / concrete to the haul roads in ash pond area where the heavy vehicular movement is there for transporting pond ash and also install mechanical water sprinklers along the haul road to control fugitive dust emissions in surrounding area.
5. The industry shall provide truck-tyre washing facility near ash pond area to avoid dust emissions during the movement of the trucks.
6. The industry shall develop atleast 10 rows of tall growing trees all around the ash ponds which may act as wind barrier.
7. The industry shall conduct long term impact assessment study to ascertain the impact of pollution on water, air and soil within 5 Km radius of the project area including ash pond area through NEERI/any reputed institutions and also conduct assessment study of impact on human health due to pollution of M/s. Simhadri Super Thermal Power Project, NTPC Limited if any.

Submitted.


ENVIRONMENTAL ENGINEER



ANDHRA PRADESH POLLUTION CONTROL BOARD
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FORM - IV
REPORT BY THE STATE BOARD ANALYST

[See Rule-14]

Report No. 2021 – 12 – ST – 001 to 004

Date:20.12.2021

I hereby certify that I M. Ravi (I) State Board Analyst duly appointed under sub-section (3) of Section 26 of the Air (Prevention and Control of Pollution) Act, 1981, received a stack emission samples of M/s Simhadri Super Thermal Power Project (Stage-I & II), NTPC Ltd., Parawada (M), Visakhapatnam District collected from the Stack attached to 1 X 1675 TPH Coal Fired Boiler (Unit-I) (ST-001), Stack attached to 1 X 1675 TPH Coal Fired Boiler (Unit-II) (ST-002), Stack attached to 1 X 1675 TPH Coal Fired Boiler (Unit-III) (ST-003) & Stack attached to 1 X 1675 TPH Coal Fired Boiler (Unit-IV) (ST-004) collected on 15.12.2021 and received on the day of 16.12.2021 from Junior Scientific Officer, Zonal Laboratory, Visakhapatnam for analysis.

The sample was in a condition fit for analysis as reported below:

I further certify that I have analyzed the above mentioned sample from 16.12.2021 to 20.12.2021 and declare the result of the analysis to be as follows: -

| S.No. | Sample No. | Values | Standard (mg/Nm ³) |
|-------|---|-------------------------|--------------------------------|
| | | Particulate Matter (PM) | |
| 1 | Stack attached to 1 X 1675 TPH Coal Fired Boiler (Unit-I) | 75.4 | 115.0 |
| 2 | Stack attached to 1 X 1675 TPH Coal Fired Boiler (Unit-II) | 86.1 | 115.0 |
| 3 | Stack attached to 1 X 1675 TPH Coal Fired Boiler (Unit-III) | 54.6 | 100.0 |
| 4 | Stack attached to 1 X 1675 TPH Coal Fired Boiler (Unit-IV) | 58.7 | 100.0 |

The condition of the seals, fastening and container on receipt was intact.

Signed this: 20.12.2021

Address:

M. Ravi,
 Senior Environmental Scientist,
 Zonal Laboratory,
 APPCB, Visakhapatnam


 SIGNATURE OF THE STATE BOARD ANALYST

A.P. POLLUTION CONTROL BOARD, ZONAL LABORATORY, VISAKHAPATNAM
MOBILE CONTINUOUS AMBIENT AIR QUALITY MONITORING STATION

24 Hrs. AVERAGE VALUES
M/s. NTPC - SIMHADRI, PARAWADA, VISAKHAPATNAM

Location-1: PUMP STATION

| Date | Time | CO mg/m ³ | O3 µg/m ³ | NO µg/m ³ | NO2 µg/m ³ | NOx µg/m ³ | NH3 µg/m ³ | SO2 µg/m ³ | PM 2.5 µg/m ³ | PM 10 µg/m ³ | AT °C | RH % | WS m/s | WD deg | BP mmHg |
|--------------------------------|----------------------|-------------------------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-----------------------------|----------------------------|----------|---------|-----------|-----------|------------|
| 16.12.2021 to 17.12.2021 | 12:00 to 11:00 | 0.8 | 78.3 | 11.5 | 23.4 | 34.9 | 45 | 25.7 | 72 | 131 | 23.7 | 71.2 | 1.6 | 209 | 771 |

Location-2: ADMINISTRATION BUILDING

| Date | Time | CO mg/m ³ | O3 µg/m ³ | NO µg/m ³ | NO2 µg/m ³ | NOx µg/m ³ | NH3 µg/m ³ | SO2 µg/m ³ | PM 2.5 µg/m ³ | PM 10 µg/m ³ | AT °C | RH % | WS m/s | WD deg | BP mmHg |
|--------------------------------|----------------------|-------------------------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-----------------------------|----------------------------|----------|---------|-----------|-----------|------------|
| 17.12.2021 to 18.12.2021 | 15:00 to 14:00 | 0.8 | 87.4 | 16.7 | 19.8 | 36.5 | 53 | 33.7 | 63 | 126 | 22.5 | 69.0 | 1.4 | 200 | 770 |

Location-3: SARADA GUEST HOUSE, TOWNSHIP

| Date | Time | CO mg/m ³ | O3 µg/m ³ | NO µg/m ³ | NO2 µg/m ³ | NOx µg/m ³ | NH3 µg/m ³ | SO2 µg/m ³ | PM 2.5 µg/m ³ | PM 10 µg/m ³ | AT °C | RH % | WS m/s | WD deg | BP mmHg |
|--------------------------------|----------------------|-------------------------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-----------------------------|----------------------------|----------|---------|-----------|-----------|------------|
| 18.12.2021 to 19.12.2021 | 16:00 to 15:00 | 0.7 | 72.6 | 11.4 | 22.6 | 34.0 | 44 | 26.3 | 70 | 118 | 23.3 | 69.6 | 0.7 | 137 | 769 |
| NAAQ Standards 24 Hrs. | - | *2 | *100 | - | 80 | - | 400 | 80 | 60 | 100 | - | - | - | - | - |

Note:

* O3 & CO standards is for 8 hours

SENIOR ENVIRONMENTAL SCIENTIST

[Signature]



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AMBIENT AIR QUALITY MONITORING REPORT

Analysis Report No. : 2021 – 12 – A – 003 & 004

Monitoring Location : On the terrace of complainant's house,
D.No. 6-10, Back side of the Ramalayam Temple,
Pittavanipalem (V), Parawada (M), Visakhapatnam District.

Monitoring conducted by : Analyst (OS), Regional Office, Visakhapatnam

Results:-

| S.No. | Date of monitoring | Parameters (24 Hrs Avg.) | | | |
|---------------------------|--------------------------|--|---|---|---|
| | | PM ₁₀ (µg/m ³) | SO ₂ (µg/m ³) | NO ₂ (µg/m ³) | NH ₃ (µg/m ³) |
| 1. | 15.12.2021 to 16.12.2021 | 120.0 | 15.0 | 19.0 | 28.0 |
| 2. | 16.12.2021 to 17.12.2021 | 127.0 | 13.0 | 21.0 | 32.0 |
| Standards(24 hrs average) | | 100.0 | 80.0 | 80.0 | 400.0 |


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ANALYSIS REPORT

Sample No. : 2021 - 12 - W - 199 to 205
Sample location/Address : Surrounding villages of M/s NTPC, Parawada Mandal ,Visakhapatnam.
Sample Source : W - 199: Sample of water from the hand pump-1 at besides kalpaka road, Pittavanipalem village
W - 200: Sample of water from the hand pump-2 at besides kalpaka road, Pittavanipalem village
W - 201: Sample of water from the hand pump-3 at Beri Ayyanna house Pittavanipalem village
W - 202: Sample of water from the hand pump-1 at Grameena Health care, Devada village
W - 203: Sample of water from the hand pump-2 at Post office Devada village
W - 204: Sample of water from the hand pump-1 at Village approach road, Dasaraipeeta village
W - 205: Sample of water from the hand pump-2 at MPUP school, Dasaraipeeta village
Sample collected on : 15.12.2021
Sample submitted on : 16.12.2021
Sample collected by : Analyst (OS), Regional Office, Visakhapatnam

| S. No. | Parameter | W-199 | W-200 | W-201 | W-202 | W-203 | W-204 | W-205 | Drinking water specification IS10500:2012 | |
|--------|---|--------|--------|--------|--------|--------|--------|--------|---|--|
| | | | | | | | | | Requirement (Acceptable Limit) | Permissible Limit in the absence of alternate source |
| 1. | pH | 6.51 | 6.57 | 6.70 | 7.12 | 6.75 | 6.81 | 6.87 | 6.5-8.5 | NR |
| 2. | Electrical Conductivity (as $\mu\text{S}/\text{cm}$) | 1565 | 2156 | 3230 | 2007 | 1815 | 1930 | 1263 | -- | -- |
| 3. | Chloride (as Cl) | 185.8 | 342.4 | 320.0 | 293.5 | 215.2 | 249.4 | 88.0 | 250 mg/L | 1000 mg/L |
| 4. | Total Dissolved Solids | 1012 | 1380 | 2110 | 1296 | 1182 | 1250 | 816 | 500 mg/L | 2000 mg/L |
| 5. | Total Alkalinity (as CaCO_3) | 408 | 512 | 368 | 480 | 448 | 560 | 472 | 200 mg/L | 600 mg/L |
| 6. | Total Hardness (as CaCO_3) | 400 | 500 | 808 | 420 | 680 | 544 | 436 | 200 mg/L | 600 mg/L |
| 7. | Calcium (as Ca) | 107.2 | 108.8 | 182.4 | 49.6 | 174.4 | 81.6 | 67.2 | 75 mg/L | 200 mg/L |
| 8. | Magnesium (as Mg) | 32.07 | 55.40 | 50.0 | 71.92 | 59.29 | 82.62 | 65.12 | 30 mg/L | 100 mg/L |
| 9. | Nitrate (as NO_3) | 40.7 | 31.8 | 90.0 | 38.3 | 66.4 | 34.8 | 39.6 | 45 mg/L | NR |
| 10. | Nitrite Nitrogen (as $\text{NO}_2\text{-N}$) | 0.02 | 0.03 | 0.84 | 1.46 | 0.06 | 0.10 | 0.04 | -- | -- |
| 11. | Ammonical Nitrogen (as $\text{NH}_3\text{-N}$) | 0.04 | 0.02 | 0.02 | 0.08 | 0.05 | 0.02 | 0.03 | 0.5 mg/L | NR |
| 12. | Phosphate (as P) | 0.02 | 0.01 | BDL | 0.01 | BDL | 0.01 | BDL | -- | -- |
| 13. | Sulphate (as SO_4) | 95.15 | 98.64 | 110.0 | 96.05 | 95.88 | 68.64 | 31.64 | 200 mg/L | 400 mg/L |
| 14. | Fluoride (as F) | 0.16 | 0.59 | 0.11 | 0.87 | 0.48 | 0.72 | 0.74 | 1.0 mg/L | 1.5 mg/L |
| 15. | Sodium (as Na) | 168 | 257 | 164 | 296 | 114 | 204 | 110 | -- | -- |
| 16. | Potassium (as K) | 19 | 5 | 10 | 3 | 12 | 8 | 5 | -- | -- |
| 17. | Chromium (as Cr) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.05 mg/L | NR |
| 18. | Manganese (as Mn) | 0.002 | 0.004 | 0.037 | 0.027 | 0.025 | 0.028 | 0.005 | 0.1 mg/L | 0.3 mg/L |
| 19. | Iron (as Fe) | 0.049 | 0.042 | 0.063 | 0.022 | 0.100 | 0.034 | 0.031 | 0.3 mg/L | NR |
| 20. | Nickel (as Ni) | <0.001 | 0.001 | <0.001 | <0.001 | 0.005 | <0.001 | <0.001 | 0.02 mg/L | NR |
| 21. | Copper (as Cu) | 0.001 | 0.003 | 0.005 | 0.003 | 0.011 | 0.001 | 0.006 | 0.05 mg/L | 1.5 mg/L |
| 22. | Zinc (as Zn) | 0.180 | 0.059 | 0.047 | 0.078 | 0.207 | 0.136 | 0.029 | 5.0 mg/L | 15 mg/L |
| 24. | Arsenic (as As) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.01 mg/L | 0.05 mg/L |
| 25. | Cadmium (as Cd) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.003 mg/L | NR |
| 26. | Mercury (as Hg) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.001 mg/L | NR |
| 27. | Lead (as Pb) | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | 0.01 mg/L | NR |

Note: - All values are expressed in mg/l except pH and EC
NR: No Relaxation

M. Ravi
SENIOR ENVIRONMENTAL SCIENTIST

Annexure-B

Photographs showing inspection of the joint committee in villages & industry and monitoring of air& water quality by officials of APPCB:



29 Dec 2021 13:01:38
17°35'46.23042"N 83°7'34.96062"E
M/s. NTPC (simhadri power plant)

Joint Committee at Pittavanipalem Village



29 Dec 2021 13:57:46
17°35'53.0897"N 83°8'9.1815"E
Peddapalem
Visakhapatnam
Vishakhapatnam
Andhra Pradesh
M/s. NTPC (simhadri power plant)

Joint Committee at Marada Dasaripeta



29 Dec 2021 14:19:10
17°35'9.05897"N 83°8'21.40191"E
Unnamed Road
Peddapalem
Visakhapatnam
Vishakhapatnam
Andhra Pradesh
M/s. NTPC (simhadri power plant)

Joint Committee at Devada village



Joint committee inspection at Ash Pond area



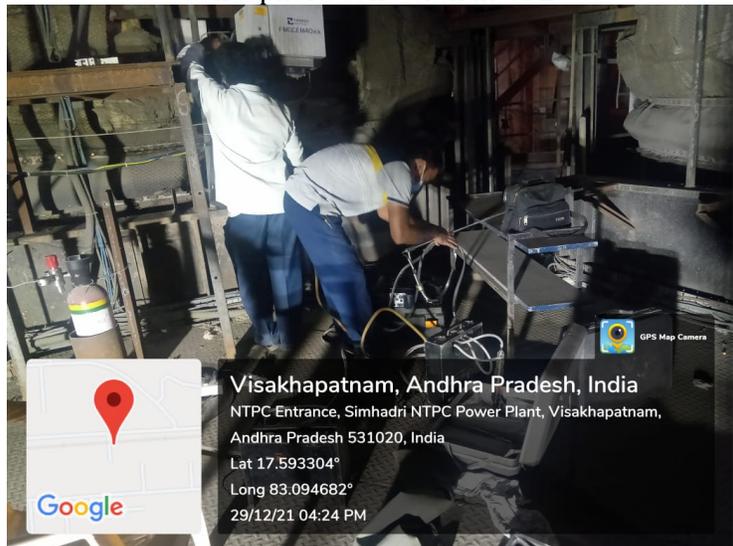
Excavation activity in Ash Pond



Overflow lagoon (OFL)



Cenosphere collection in OFL



Stack Monitoring



Ambient air quality monitoring in Industry



Display of air quality monitoring online data



Peizowell sample collection at ash pond