

BEFORE THE NATIONAL GREEN TRIBUNAL

SOUTHERN ZONE, CHENNAI

Original Application No. 227 of 2021

IN THE MATTER OF OA. NO. 227 OF 2021 SUBMITTED TO HON'BLE NATIONAL GREEN TRIBUNAL, SOUTHERN ZONE, CHENNAI IN COMPLIANCE TO HON'BLE NGT ORDER DATED.07.01. 2022.

INDEX

S.No.	Particulars	Page Nos.
1.	Report of the Joint Committee comprising of representatives of District Magistrate, Visakhapatnam, Ministry of Environment and Forest & Climate Change, Central Pollution Control Board (CPCB), Andhra Pradesh Pollution Control Board (APPCB) and expert from National Environmental Engineering Research Institute in the matter of OA. No. 227 of 2021 submitted to Hon'ble National Green Tribunal, Southern Zone, Chennai in compliance to Hon'ble NGT order dated.07.01. 2022	1-25
2.	Annexure-I NGT order dated: 23.11.2021.	26-33
3.	Annexure-II NGT order dated: 07.01.2022.	34-60
4.	Annexure-III The villagers submitted representations (2no.s) to the committee.	61-110

S.No.	Particulars	Page Nos.
5.	Annexure-IV The photographs showing inspection of the Joint Committee in villages & industry and monitoring of air & water quality by officials of APPCB.	111-114
6.	Annexure-V Analysis reports of Ambient Air and Stack <i>Emission Monitoring</i>	115-118
7.	Annexure-VI MoEF&CC Notification dated:07.12.2015	119-129
8.	Annexure-VII CPCB directions order dated :11.12.2017	130-135
9.	Annexure-VIII The analysis reports of the sewage treatment plant outlet from industry & township.	136-137
10.	Annexure-IX The report submitted by the Deputy Director, Ground water Department, Visakhapatnam	138-186
11.	Annexure-X The analysis reports of water samples collected in the creek near ash pond by APPCB	187
12.	Annexure-XI The report submitted by the Joint Director of Agriculture, Visakhapatnam	188-192
13.	Annexure-XII Analysis results of the Ambient Air, Stack and Water samples collected by APPCB during the period 2019-2021.	193-197

S.No.	Particulars	Page Nos.
14.	Annexure-XIII The copies of the Environmental Clearances issued by MoEF&CC and CFO order dated.31.07.2017 of APPCB which is valid up to 31.08.2022	198-216
15.	Annexure-XIV A copy of the MoEF&CC vide letter No.J-13011/19/94-IA.II (T) dt:20.05.2002.	217-218
16.	Annexure-XV A copy of the letter issued by Ministry of Power, Government of India dated.22.09.2021.	219-220
17.	Annexure-XVI Reports of Treatment and data for the major diseases Medical Health reports issued by Primary Health Centers(PHCs) of Vadacheepurupalli, Parawada, Devada villages during 2018-19, 2019-20 & 2020-21.	221-223
18.	Annexure-XVII APPCB Directions Order dated: 13.04.2017	224-226
19.	Annexure-XVIII APPCB Directions Order dated: 21.12.2021	227-229

Dt: 09.02.2022
Place: Visakhapatnam.


(M. Pramod Kumar Reddy)
Environmental Engineer,
A.P. Pollution Control Board,
Regional Office, Visakhapatnam

Report of the Joint Committee comprising of representatives of District Magistrate, Visakhapatnam, Ministry of Environment and Forest & Climate Change, Central Pollution Control Board (CPCB), Andhra Pradesh Pollution Control Board (APPCB) and expert from National Environmental Engineering Research Institute (NEERI) in the matter of OA. No. 227 of 2021 submitted to Hon'ble National Green Tribunal, Southern Zone, Chennai in compliance to Hon'ble NGT order dated:07.01.2022.



**Submitted to
Hon'ble National Green Tribunal
SOUTHERN ZONE, CHENNAI**

1.0 Preamble:

Sri Battu Satish Reddy, Pittavanipalem Village, Pedagantyada Mandal, Visakhapatnam District has filed an application in Hon'ble NGT regarding the non-compliance of the conditions imposed in the Environmental Clearance (EC) granted to the M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited, Parawada (M), Visakhapatnam District and also the conditions imposed by the Andhra Pradesh Pollution Control Board (APPCB) in Consents granted. Further on account of non-maintenance of the pollution control mechanism in a proper way and also mismanagement of the fly ash generated and pollution caused to air, water & soil resulting in huge health hazards to the people in the locality.

2.0 Orders of the Hon'ble Green Tribunal:

2.1 Hon'ble NGT order dated. 23.11.2021 in OA No. 227 of 2021

On going through the allegations made in the application, Hon'ble NGT satisfied that there arises a substantial question of Environment which requires the interference of this Tribunal to resolve the issue, the application is admitted. In order to ascertain the genuineness of the allegations made in the application, the Hon'ble NGT order dated:23.11.2021 in OA 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. The copy of the NGT order dated: 23.11.2021 is submitted as Annexure-I.

2.2 Hon'ble NGT order dated. 07.01.2022, in OA No. 227 of 2021

In compliance with the Hon'ble NGT Order dt: 23.11.2021, APPCB has filed a report before the Hon'ble NGT on 06.01.2022. The Hon'ble NGT vide order dated:07.01.2022 in OA No. 227 of 2021 directed the Committee as well as the APPCB to file their further reports on or before 14.02.2022. The copy of the NGT order dated: 07.01.2022 is submitted as Annexure-II.

3.0 Constitution of Committee:

In compliance with the Hon'ble NGT vide order dated.23.11.2021, APPCB, being the nodal agency in this case constituted a Joint Committee with the following members:

- i. Sri. M. Venugopal Reddy I.A.S, Joint Collector & Additional District Magistrate, Visakhapatnam – Nominee of the District Collector, Visakhapatnam.*
- ii. Dr. Suresh Babu Pasupuleti, Scientist-D, Integrated Regional Office (IRO), Ministry of Environment, Forest and Climate Change, Vijayawada – Senior officer from MoEF&CC, Vijayawada.
- iii. Sri S. Karthikeyan, Scientist-C, Central Pollution Control Board, Regional Office, Chennai – Nominated by CPCB, Chennai.
- iv. Sri M. Pramod Kumar Reddy, Environmental Engineer, AP Pollution Control Board, Regional Office, Visakhapatnam – Nominated by APPCB.
- v. Dr. Shaik Basha, Scientist & Head, CSIR-NEERI Zonal Center, CSIR-National Environmental Engineer Research Institute, ICT Campus, Tarnaka, Hyderabad – Expert Member.

*The District Collector has nominated the Joint Collector & Addl. District Magistrate as member of the Joint Committee as the District Collector is pre-occupied with the meetings. The District Collector has nominated Dr. Shaik Basha, Scientist & Head, CSIR-NEERI Zonal Center, CSIR-National Environmental Engineer Research Institute, ICT Campus, Tarnaka, Hyderabad as expert to assist the committee.

4.0 Scope of Committee:

The Hon'ble NGT directed the Joint Committee to ascertain the 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.

5.0 Proceedings of the Committee:

Preliminary meeting with all the members was held in the chambers of the Joint Collector & Additional District Magistrate on 28.12.2021 and the District officers of Agriculture Department & Ground water Department were also participated in the meeting. The committee discussed the issue elaborately and decided to carry-out the inspection on 29.12.2021.

5.1. Inspection of the area in question (Meeting with Public as well as applicant):

The Joint Committee along with District officials from Agriculture Department & Ground water Department inspected M/s.Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited, and its surrounding area on 29.12.2021 and the committee also visited the surrounding villages namely Pittavanipalem, Devada & Marada Dasaripeta and heard the version of complainant Sri Battu Satish Reddy, Pittavanipalem at Ramalayam. During the visit, group of villagers met the committee and mainly the following villagers informed their problems due to operation of M/s.Simhadri Super Thermal Power Project, NTPC Limited to the committee members:

1. Sri B. Satish Reddy, Pittavanipalem.
2. Smt B. SuryaKumari, Corporator, 77th Ward GVMC, Pittavanipalem.
3. Sri Pitta Naringa Rao, Pittavanipalem
4. Sri A. Ramu, Pittavanipalem.
5. Sri A. Payad Raju, Pittavanipalem.
6. Sri D. Thata Rao, MaradaDasaripeta.
7. Sri D. Govinda, MaradaDasaripeta.
8. Sri K. Appa Rao, Devada.

The main problems/issues informed by the villagers to the committee are:

1. Huge dust emissions emanates from ash pond particularly during the summer season.
2. Suffering with health issues like skin allergies, breathing problems and cancer due to pollution from M/s. Simhadri Super Thermal Power Project, NTPC Limited.
3. The ground water in surrounding villages is contaminated due to pollution from M/s. Simhadri Super Thermal Power Project, NTPC Limited.
4. Not providing proper Medical Health Facilities to the villagers.
5. Not providing job opportunities to the villagers.
6. Ash (Cenosphere) from NTPC entering into creek during heavy rains leading to the Sea, thereby decreasing the fish catch and affecting fishermen livelihood.
7. Dust pollution due to vehicular movement while transporting the ash from ash ponds which are located within 300 m from habitation.
8. The villagers submitted representations (2no.s) to the committee are submitted as Annexure-III.

The photographs showing inspection of the Joint Committee in villages & industry and monitoring of air & water quality by Joint Committee is submitted as Annexure-IV.

5.2 Industry visit:

The Joint Committee inspected M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited, Parawada, Visakhapatnam District on 29.12.2021 and verified the present compliance status with the conditions stipulated in the Environmental Clearance (EC) granted by MoEF&CC & Consents granted by APPCB.

5.3 Monitoring and Sample collection

The Joint Committee has carried out the ambient air quality & stack monitoring and collected samples from piezo wells, bore wells and effluent for further analysis during the visit. The Agriculture Department has collected soil samples and Ground water department collected Bore well samples in and around industry during the visit.

i) *Air quality Monitoring:*

As per the analysis results of ambient air quality, the PM₁₀ values are exceed the norms. The analysis results are as follows:

Location	Date of monitoring	PM ₁₀ in (µg/m ³)
Complainant's house	29.12.2021 to 30.12.2021	116.0
Top of the storage building of NTPC premises	29.12.2021 to 30.12.2021	138.0
Standard(24 Hrly average)		100

A notice was issued to the industry on 27.01.2022 for not complying with the Board standards.

APPCB conducted emission monitoring for the stack attached to coal fired boilers of unit-II(stage-I) & Unit-IV(stage-II) on 29.12.2021 and as per the analysis results of the stack attached to 1 X 1675 TPH coal fired boiler(Unit-IV), the Particulate Matter (PM), SO₂, NO_x & Mercury are as follows:

Sampling location	Date of monitoring	Values			
		PM (mg/Nm ³)	SO ₂ (mg/Nm ³)	NO _x (mg/Nm ³)	Hg (mg/Nm ³)
Stack attached to 1 X 1675 TPH coal fired boiler(Unit-II)	29.12.2021	74.6	1095	392	0.002
Standard		100	200*	600	0.03
Stack attached to 1 X 1675 TPH coal fired boiler(Unit-IV)	29.12.2021	59.3	1188	364	0.001
Standard		50	200*	300	0.03

Note:*The industry is under installation of Flue Gas De-sulphurization (FGD) system to the stack attached to coal fired boilers and CPCB has given date to install the FGD by 31.12.2022 and CPCB has given date to install low

NO_x burners, providing Over Fire Air (OFA) etc., to comply NO_x emission limit by 31.12.2022. The analysis reports of Ambient Air and Stack *Emission Monitoring is submitted at Annexure – V.*

As per the MoEF&CC Amended Notification No.S.O.3305(E) dated:07.12.2015, the Thermal Power Plant shall comply with the standards by 07.12.2017, the Central Pollution Control Board vide order dated:11.12.2017 issued following directions regarding compliance of emission limit notified under notification N.S.O.3305(E), dated 07.12.2015 as:

“1. That plant shall install/retrofit Electrostatic Precipitators (ESP) by September 30, 2022 & December 31, 2022 in unit 3 & 4 respectively so as to comply PM emission limit.

2. That plant shall install FGD by 31st March-2022, 30th June-2022 30th September-2022 & 31st December-2022 in unit 1, 2, 3 & 4 respectively so as to comply SO₂ emission limit

3. That plant shall take immediate measures like installation of low NO_x burners, providing Over Fire Air (OFA) etc., and achieve progressive reduction so as to comply NO_x emission limit by the year 2022.”

The copy of the MoEF&CC Notification dated:07.12.2015 is herewith submitted as Annexure-VI and CPCB directions order dated:11.12.2017 issued to M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited is herewith submitted as Annexure-VII.

ii) Water quality Monitoring:

As per the analysis results of wastewater samples collected from outlet of Effluent Disposal Point(EDP) into the sea after treatment and wastewater samples collected at outlet of the sewage treatment plant from the industry & township are within the APPCB norms. The analysis reports of outlet of Effluent Disposal point and outlet of sewage treatment plant from industry & township are herewith submitted as Annexure-VIII.

iii) Ground Water quality Monitoring:

The report submitted by the Deputy Director, Ground water Department, Visakhapatnam is herewith submitted as Annexure-IX. The officials from ground water Department along with Joint committee conducted detailed ground water survey at Pittavani palem village, Maradi Dasaripeta Village, T.Devada Village. The Ground water department has collected 41 water samples from the existing bore wells and dug wells covered three villages including 3 samples from Fly ash ponds, trenches and analysed the samples for the parameters available. 3 No.s of water samples of Ash ponds & Trenches fall under over grade, remaining 38 No's of water samples chemical analysis results reveals that 36 samples falls in acceptable limits and balance 2 No's of samples under permissible limits which are suitable for domestic purpose as per Bureau of Indian standards. One Piezometer net work station with digital water level recorder established by ground water department at T. Devada village to monitor the water levels from month to month, season to season and to study the quality of ground water from pre- monsoon (i.e May) and post - monsoon (November) in every year. After careful observation of the chemical analysis of water samples of last five years data reveals that quality of ground water in the area is potable.

As suggested by the Joint Committee, APPCB collected water samples from the bore wells at Pittavanipalem, Devada, Marada Dasaripeta villages and piezo wells around ash ponds on 30.12.2021. As per the analysis results of the water samples collected by APPCB from bore wells, all the parameters are within the drinking water specification IS10500:2012 and as per the analysis reports of the water samples collected from Piezo wells around ash ponds, all the parameters are within the permissible limits, except the values for the parameter viz., Chlorides, TDS, Total Hardness and sulphates are observed more than the permissible limits of the drinking water specification IS10500:2012.

The water sample collected in the creek near ash pond and as per the results, all the parameters are within the drinking water specification

IS10500:2012 except Total Dissolved Solids. The analysis reports of water samples collected in the creek near ash pond is submitted as Annexure-X.

iv) Soil Quality Monitoring:

The report submitted by the Joint Director of Agriculture, Visakhapatnam is herewith submitted as Annexure-XI. The team of Agriculture Department, Visakhapatnam participated in the Joint Inspection of M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited and surroundings for assessment of damage and soil samples were collected. As per the Joint Director of Agriculture, Visakhapatnam report "the soil samples analysis results, except sample collected from dyke of ash pond located in the premises of factory showed slightly critical levels but other two samples collected from coconut and cashew nut, Orchards of Pittavanipalem village indicated that no significant disastrous levels of the components analyzed".

v) APPCB monitoring data during the period 2019-2021:

The committee examined the APPCB monitoring data conducted during the period 2019 to 2021 and observed the following:

- i. As per the Ambient Air Quality monitoring data conducted by APPCB from 16.12.2021 to 26.12.2021 and 25.12.2020 to 28.12.2020 in the industry premises, the PM_{2.5} & PM₁₀ values are exceeded the Board standards.*
- ii. As per the analysis results of the water samples collected from outlet of Effluent Disposal Point(EDP) the values for the parameter TSS for the months of February-2020, August-2020, January-2019 to April-2019 are exceeded the standards and the values of all the other parameters are within the standards during the period 2019-2021.*
- iii. APPCB has been collecting water sample from Bore well at Pittavanipalem Village under National Water quality Monitoring Programme(NWMP) and as per the analysis reports of the samples collected during the period 2019 to 2021 the values for the Physico-Chemical Parameters are within the norms except TDS & hardness.*

- iv. Analysis results of the Ambient Air, Stack and Water samples collected by APPCB during the period 2019-2021 are herewith submitted as Annexure-XII.

6.0 About the Industry

M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited, is operating at Parawada Mandal, Visakhapatnam District and generating electricity of 2000 MW (4 X 500 MW) using indigenous coal. 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. The copies of the Environmental Clearances issued by MoEF&CC and CFO order dated.31.07.2017 of APPCB which is valid up to 31.08.2022 are herewith submitted as Annexure-XIII.

Pollution control mechanism provided with respect to air, water & soil:

Air:

M/s. Simhadri Super Thermal Power Project, NTPC Limited, has installed 4 No. of Boilers of capacity 1675 tons per hour (TPH) each using pulverized coal as fuel which contains about 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 fly ash generated from the boilers is collected in ash silos and issued to brick and cement manufacturers, remaining fly ash and bottom ash is 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. 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 uses seawater for ash slurry making.

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 effective collection of fly ash.

M/s. Simhadri Super Thermal Power Project, NTPC Limited has provided dust suppression systems at coal handling sections to avoid fugitive emissions. Conocarpus 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. Flue Gas Desulphurization (FGD) is under implementation, to be commissioned on or before December 2022. Combustion modification (De-NO_x /Low NO_x) is under implementation, to be completed on or before December 2022.

Water:

M/s. Simhadri Super Thermal Power Project, NTPC Limited consumes 4,29,240 KLD of seawater as make up water for industrial cooling and 21,600 KLD of Fresh water. The industry discharges once through cooling water, Boiler & cooling blow downs etc., about 2,10,220 KLD after treatment 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. 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.

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 utilized for on land irrigation within the industry premises. 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 steam used for Power generation gets cooled in the Condenser by way of seawater based Circulating Cooling water system and the seawater again gets cooled in the Cooling Towers. The cold water from Cooling Towers is required to be blow down and replaced with makeup water to maintain required COC (Cycles of Concentration). 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.

Continuous emission/effluent monitoring system installed by the industry for continuous monitoring of emissions & effluent:

M/s. Simhadri Super Thermal Power Project, NTPC Limited has installed:

- i. Continuous ambient air quality monitoring stations three no.s at Pittavanipalem, Devada, Marada Dasaripeta for monitoring of PM₁₀ and also installed 3 No. Continuous Ambient Air Quality Monitoring stations for parameters Viz., PM₁₀ & PM_{2.5}, SO₂ & NO_x at the periphery of the industry.
- ii. Continuous Emission Monitoring System for four stacks for monitoring of the air quality parameters PM, SO₂, NO_x in real time basis and data is uploaded to CPCB / APPCB on continuous basis.
- iii. Continuous Effluent Monitoring System for monitoring the effluent quality parameters such as pH, TSS, Temperature and conductivity in real time basis and data is uploaded to CPCB / APPCB on continuous basis.

Solid Waste Management:

There are four ash ponds are existing and the ash ponds 1 & 3 covered in an area of 85 acres each and ash ponds 2 & 4 covered in an area of 115 acres each and each ash pond 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. From 2017

to 2020, the industry has achieved 100% utilization of fly ash. Total stock in ash pond as on January-2022 is 160 lakh MT.

7.0 **Point wise observations of the Joint Committee with regard to Hon'ble NGT directions:**

Direction - i:

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

The Joint Committee inspected M/s. Simhadri Super Thermal Power Project(Stage-I&II), NTPC Limited and verified the present compliance status with the conditions stipulated in the Environmental Clearance (EC) granted by MoEF&CC and consents granted by APPCB to M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited, Parawada, Visakhapatnam District. The following *non-compliances* of the main conditions of Environmental Clearance orders to control pollution observed by the Committee:

1. Detailed implementation status of Rehabilitation Master Plan for rehabilitation of 150 families, compensation package, training facilities etc., not submitted.
2. The industry has not installed adequate high pressure mist spray sprinklers at coal storage yard to control fugitive emissions effectively and they have provided only few mechanical water sprinklers at coal stock yards which are not sufficient.
3. The industry has not adopted mechanism for continuous monitoring of ground water establishing good network of observation wells in consultation with the Central Ground Water Board. Not submitting the results and data to ascertain the status of water quality and findings for evaluation.
4. Not carried leachate collection through Lysimeter at 6-10 locations around the ash dyke and not submitting monitoring report for ascertaining its change in water quality.

5. Not developed green belt around the ash dyke for controlling fugitive dust emission.
6. Not submitted latest half yearly reports on the status of implementation of the conditions and environmental safeguards to the MoEF&CC, Regional Office, Vijayawada.
7. As per GSR.02 (E), dated 02.01.2014, the analysis report of the ash & sulphur content present in the coal is not being submitted in quarterly basis to the MoEF&CC.
8. Uploading of EC letters, half yearly compliance report along with all monitoring data and Environmental Statement in Form-V is not being uploaded in the company website for public transparency.

The following non-compliances of the main conditions of consent for Operation of APPCB to control pollution observed by the Committee:

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. During heavy rains, the industry has failed to collect the total cenosphere which is very light weight air entrapped ash particle in overflow ash pond thereby the cenosphere particles find its way to creek along with storm water.
4. 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.

Direction - ii:

Whether the pollution control mechanism provided are sufficient to mitigate the situation of causing pollution of air, water and soil,

Air:

M/s. Simhadri Super Thermal Power Project, NTPC Limited, has installed 4 No. of Boilers of capacity 1675 tons per hour (TPH) and provided with Electro Static Precipitators as air pollution control equipment to the Boilers. 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.

M/s. Simhadri Super Thermal Power Project, NTPC Limited has provided dust suppression systems at coal handling sections to avoid fugitive emissions. Flue Gas Desulphurization (FGD) is under implementation, to be commissioned on or before December 2022. Combustion modification (De-NO_x /Low NO_x) is under implementation, to be completed on or before December 2022.

Water:

M/s. Simhadri Super Thermal Power Project, NTPC Limited consumes 4,29,240 KLD of seawater as make up water for industrial cooling and 21,600 KLD of Fresh water. 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., for treatment of effluents.

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 utilized for on land irrigation within the industry

premises. It has been observed that the STP for the plant is not being maintained properly.

Solid Waste Management:

There are four ash ponds are existing and the lagoon 1 & 3 covered in an area of 85 acres each and ash ponds 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.

Direction - 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,

Ground Water Department, Visakhapatnam collected 41 water samples from the existing bore wells and dug wells covered three villages including 3 samples from Fly ash ponds & trenches and analysed the samples for the parameters available. 3 No.s of water samples of Ash ponds & Trenches fall under over grade, remaining 38 No's of water samples chemical analysis results reveals that 36 samples falls in acceptable limits and balance 2 No's of samples under permissible limits which are suitable for domestic purpose as per Bureau of Indian standards.

One Piezometer net work station with digital water level recorder established by ground water department at T. Devada village to monitor the water levels from month to month, season to season and to study the quality of ground water from pre- monsoon (i.e May) and post - monsoon (November) in every year. After careful observation of the chemical analysis

of water samples of last five years data reveals that quality of ground water in the area is potable.

M/s. Simhadri Super Thermal Power Project, NTPC Limited, has not provided HDPE liner in ash ponds as per the recommendations of the National Institute of Hydrology, Roorkee and with the approval of MoEF&CC vide letter No.J-13011/19/94-IA.II (T) dt:20.05.2002. A copy of the MoEF&CC vide letter No.J-13011/19/94-IA.II (T) dt:20.05.2002 is submitted as Annexure-XIV.

Direction – 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,

Ash generation and utilization details for the year 2016 to 2022 (upto January) are submitted as follows:

Year	Ash Generation		Total ash	Ash Utilization	% of Ash Utilization
	Fly ash	Bottom ash			
2016-17	2752238	688060	3440298	2558190	74%
2017-18	2408610	602153	3010763	3058021	102%
2018-19	2380468	595117	2975585	2979991	100%
2019-20	2112898	528224	2641122	4430120	168%
2020-21	1959054	489763	2448817	3033286	124%
Apr-21 to Jan-22	2294249	573562	2867811	2564566	89%

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 as per recent guidelines issued by the Ministry of Power, Government of India. A copy of the letter issued by Ministry of Power, Government of India dated.22.09.2021 is herewith submitted as Annexure-XV.

Direction – 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,

1. As per the analysis results of ambient air quality monitoring conducted on 29.12.2021 and APPCB monitoring data 2021-2020, the PM₁₀ & PM_{2.5} values are exceeded the norms. To maintain air quality within National Ambient air quality standards the industry shall implement the following dust pollution control measures to control fugitive emissions:
 - a) *The industry shall install permanent mechanical sprinklers for suppression of dust on the haul roads in between the villages.*
 - b) *The industry shall suspend the excavation operations in ash ponds during heavy wind time.*
 - c) *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.*
 - d) *The industry shall monitor the performance of dust separators in coal handling plant, dust suppression in Ash handling/dyke and ESP.*
 - e) *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.*
 - f) *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.*
 - g) *The industry shall provide truck-tyre washing facility near ash pond area to avoid dust emissions during the movement of the trucks.*
 - h) *The industry shall develop at least 10 rows of tall growing trees all around the ash ponds which may act as wind barrier.*

2. The Joint Director of Agricultural Department obtained remarks from Horticulture Department regarding yield parameters as major area of the villages area covered with Horticulture crops like cashew and coconut and reported that “a chance of 22-30% reduction in yields of horticulture crops like cashew and coconuts may be due to fly ash deposits on the leaves which hinders photosynthesis” and further it is was reported that the entire Horticulture cropped area of Pittavanipalem(Devada Revenue Village) Village of Pedagantyada Mandal belongs to government land only, (Given to WAQF Board) and so there will not be any proof of documents to occupant / cultivating farmers there. But as per physical verification, there will be nearly around 25 acres of cashew orchards and 4 acres of coconut will be there in Pittavanipalem Village of Pedagantyada Mandal.

The committee opined that M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited shall conduct long term impact assessment study to ascertain the impact of pollution on agricultural crops due to pollution of M/s. Simhadri Super Thermal Power Project, NTPC Limited, if any.

3. Reports of Treatment and data for the major diseases Medical Health reports issued by Primary Health Centers(PHCs) of Vadacheepurupalli, Parawada, Devada villages during 2018-19, 2019-20 & 2020-21 are herewith submitted as Annexure-XVI. As per the report of PHC, Devada, 4-8% of the patients are suffering from Dermatology diseases were observed. There are no specific major diseases are reported in other two PHCs (Vadacheepurupalli, Parawada). However, the committee opined that M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited shall conduct long term health impact assessment study to ascertain the epidemic diseases due to impact of pollution of M/s. Simhadri Super Thermal Power Project, NTPC Limited through Indian Council of Medical Research (ICMR).

Direction - 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,

The Joint Committee has observed the following non-compliances:

1. Ambient air quality recorded more than National ambient air quality standards for PM₁₀ & PM_{2.5} parameters.
2. Not provided mechanical water sprinkling system at haul roads.
3. Not developed 33% greenbelt in the industry premises.
4. Not maintained water curtains in the ash ponds properly.
5. Cenosphere discharge from ash ponds along with storm water takes place now and then to nearby sub creek particularly during heavy rains even after issuing notices from 2019 onwards. Recently observed cenosphere discharge along with storm water to the sub-creek and issued directions on 21.12.2021 after reviewing in Task force committee. APPCB imposed BG of 1.28 Cr. towards compliance of the conditions / directions stipulated by APPCB. The industry not submitted the bank guarantee so far.

The Joint Committee assessed the compensation on the basis of the Directions issued by the Hon'ble National Green Tribunal, Principal Bench, New Delhi in the matter of OA No.: 593 of 2017, Paryavaran Suraksha Samiti & others Vs Union of India & Others a formula was evolved, approved by the Principle Bench and on that basis, suitable directions have been issued by CPCB to all SPCBs/PCCs to implement the same.

The Joint Committee has observed that APPCB has issued directions on 13.04.2017 and again non-compliance of the APPCB directions/conditions observed by APPCB on 17.11.2021. The copy of the directions dated: 13.04.2017 is herewith submitted as Annexure-XVII and directions order dated:21.12.2021 is herewith submitted as Annexure-XVIII. The Joint Committee has calculated the Environmental Compensation as per CPCB formula:

$$EC=PI \times N \times R \times S \times LF$$

Where,

EC = Environmental Compensation in INR

PI = Pollution Index of industrial sector (Red-80)

N = Number of days of violation took place (The number of days for which violation took place)

R = A factor in Rupees for EC

S = Factor for scale of operation

LF = Location factor (present Vizag population is more than 10 lakh=2)

- i. Pollution Index of industrial sector (PI): APPCB has categorized M/s.Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited, Parawada (M), Visakhapatnam District into red category of industries and accordingly the Combined consent & Authorisation have been granted. For red category of industries, average pollution index is 80.
Number of days of violation (N): The number of days for which violation took place is considered as the period between the day of violation observed and day of compliance verified by the CPCB/ APPCB. From the available records, it is observed that APPCB has issued directions on 13.04.2017 for non-compliance of the Board directions and APPCB observed the violations again on 02.09.2021 and issued directions on 17.11.2021. The committee opined that no. of the days to be considered for calculation of period of violation for estimating EC from 13.04.2017 up to committee visit date:29.12.2021 as the committee observed certain non-compliance during the visit.
- ii. Scale of operation (S):The industry is considered as large as per the capital investment by the industry is around Rupees Rs. 9824.42 Cr. Thus, scale of operation (S) for EC estimation is considered as 1.5.
- iii. Location factor (LF):The industry is located within the 10 km radius from GVMC. The population of the GVMC is above 10 lakhs. Thus location factor (LF) is considered as 2 for EC estimation
- iv. Factor in Rupees (Rs): As per the environmental compensation estimation guidelines, factor of rupees may be minimum of Rs 100/- and maximum of Rs.500/-. The factor of rupees is considered as Rs. 200/- for estimating

environmental compensation for this industry, considering its pollution potential.

Period of non-compliance	PI	S	LF	R (Rs)	N (days)	Environmental compensation (Rs)
13.04.2017 to 29.12.2021	80	1.5	2	200/-	1722	Rs.8,26,56,000/-
Total EC for violating						Rs.8,26,56,000/-
Rupees Eight Crores Twenty Six Lakhs Fifty Six Thousands Only						

Direction -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,

The District Collector has nominated Dr. Shaik Basha, Scientist & Head, CSIR-NEERI Zonal Center, CSIR-National Environmental Engineer Research Institute, IICT Campus, Tarnaka, Hyderabad as expert to assist the committee. The expert from NEERI suggested to 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 any reputed institutions and also assessment of impacts on human health due to pollution of M/s. Simhadri Super Thermal Power Project, NTPC Limited, if any. Based on the study report, necessary remediation methods shall be suggested to M/s. Simhadri Super Thermal Power Project, NTPC Limited.

Direction - 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.

In order to ascertain the impact of pollution on water, air, and soil pollution in both project and surrounding areas, the Joint Committee **recommends the following measures/studies** to be taken up by M/s. Simhadri Super Thermal Power Project, NTPC Limited immediately:

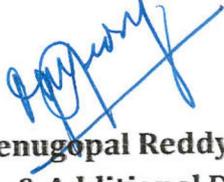
1. The industry shall suspend the excavation operations in ash ponds during heavy wind time.
2. The industry shall install micro meteorological station to monitor wind velocity and wind direction, accordingly, the industry shall handle the excavation operations in ash ponds
3. The industry shall monitor the performance of dust separators in coal handling plant, dust suppression in Ash handling/dyke and ESP
4. 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.
5. 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.
6. The industry shall provide truck-tyre washing facility near ash pond area to avoid dust emissions during the movement of the trucks.
7. The industry shall develop atleast 10 rows of tall growing trees all around the ash ponds which may act as wind barrier.
8. The industry should remove the Fly ash deposits from the dykes from time to time for controlling the fugitive dust in and around the area.
9. M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited, should attend the repairs whenever RO plants and bore wells are getting

- mechanical problems and restore the units & bore wells to supply the drinking water continuously to the Pittavanipalem and T.Devada villages.
10. M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited, should ensure to establish the Piezometers with digital water level recorder at maximum number of locations to represent the villages and ash ponds based on Geo-Hydrological conditions for regular monitoring of water levels from month to month, season to season and collect the water samples in pre-monsoon (i.e., May) and in post monsoon (i.e., in November) such water levels data and chemical analysis report should be submitted to the ground water department for further course of studying purpose.
 11. The industry shall conduct long term Environmental Impact Assessment study to ascertain the impact of pollution on water, air, soil and agricultural crops within 5 Km radius of the project area including ash pond area through NEERI/any reputed Government institutions and also conduct impact assessment study on human health due to pollution of M/s. Simhadri Super Thermal Power Project, NTPC Limited if any through ICMR institute/any reputed Government institutions.

8.0 Concluding remarks:

1. M/s. Simhadri Super Thermal Power Project, NTPC Limited shall pay the Environmental compensation of Rs.8,26,56,000/- for the failure to comply with the conditions of Environmental Clearance and Consent issued by MoEF&CC & APPCB and same shall be paid to APPCB.
2. After submission of the study reports of Environmental Impact Assessment on water, air, soil & agricultural crops and impact Assessment on human health, M/s.Simhadri Super Thermal Power Project, NTPC Limited shall comply with the recommendations / suggestions of study reports.

3. M/s.Simhadri Super Thermal Power Project, NTPC Limited shall comply with the directions issued by the Central Pollution Control Board vide order dated 11.12.2017 to comply with the standards.
4. M/s.Simhadri Super Thermal Power Project, NTPC Limited may be directed to comply with all the measures/studies recommended by the Joint Committee.



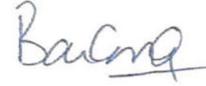
Sri. M. Venugopal Reddy,
Joint Collector & Additional District
Magistrate, Visakhapatnam



Dr. Suresh Babu Pasupuleti
Scientist-D, MoEF&CC, IRO,
Vijayawada



Sri. S. Karthikeyan
Scientist-C, CPCB, Chennai



Dr. Shaik Basha,
Scientist & Head, CSIR-NEERI
Zonal Center, Hyderabad



Sri. M. Pramod Kumar Reddy,
Environmental Engineer,
APPCB, Visakhapatnam

Item No.01:

BEFORE THE NATIONAL GREEN TRIBUNAL

SOUTHERN ZONE, CHENNAI

Original Application No. 227 of 2021 (SZ)

(Through Video Conference)

IN THE MATTER OF:

Battu Satish Reddy,
Andhra Pradesh.



...Applicant(s)

Versus

National Thermal Power Corporation Ltd.,
Simhadri Plant,
Andhra Pradesh and others.

...Respondent(s)

Date of hearing: 23.11.2021.

CORAM:

HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER

HON'BLE DR. K. SATYAGOPAL, EXPERT MEMBER

For Applicant(s): Mr. Sravan Kumar

For Respondent(s): Mrs. Maduri Donti Reddy for R3, R5 & R6

ORDER

1. The grievance in this application is regarding the non-compliance of the conditions imposed in the Environmental Clearance (EC) granted to the first respondent/National Thermal Power Corporation Ltd (NTPC), Simhadri Power Plant at Visakhapatnam of Andhra Pradesh and also the conditions of imposed by the Andhra Pradesh Pollution Control Board (APPCB) in

Consents granted. Further on account of non-maintenance of the pollution control mechanism in a proper way and also mismanagement of the fly ash generated, pollution is caused to air, water and soil resulting in huge health hazards to the people in the locality. Though on the basis of the complaints, certain inspections were conducted and found that there are certain violations of Environmental Clearance (EC) conditions and consent conditions and the pollution control mechanism is not properly maintained by them, certain directions were issued, but there was no improvement in the situation there, in respect of pollution being caused in the locality on account of their operation.

2. Further, on account of non-maintenance of the Ash pond by the National Thermal Power Corporation Ltd (NTPC), in the Simhadri Thermal Power Plant, it causes ground water pollution as well. They have not even utilised the necessary Corporate Social Responsibility (CSR) fund expected to be used by them for the development of the areas around the plant for dealing with the problems of the project affected people, they are also not filing the Half-Yearly statements as per the Environmental Clearance (EC) conditions and the Ministry of Environment, Forests and Climate Change (MoEF&CC), Regional Office has found some dissatisfaction regarding the non-compliance of conditions, but no serious action was taken against them. So the applicant has no other remedy except to approach this Tribunal seeking the following reliefs:-

- (1) Direct the Union Ministry of Environment, Forest & Climate Change and AP Pollution Control Board to initiate action against Respondent No. 1 for violating the Conditions No. (VII), (IX), (X), (XI), (XII), (XIII), (XV), (XVII), (XVIII) of the Environment Clearance dated 23.07.1996 according to the clause 3 of the EC and Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution), 1981, Environment (Protection) Act, 1986, The Public Liability Insurance Act, 1991;
- (2) Direct the Respondents No. 1 to pay appropriate compensation, rehabilitation and resettlement to the residents of Pittavaripalem Village of Visakhapatnam District as per condition No. (IX) of the Environment Clearance dated 23.07.1996 and implement Rehabilitation and Resettlement Policy of 2017 to the affected people of Simhadri Thermal Power Plant of NTPC at Pittavani Palem near Visakhapatnam of Andhra Pradesh;
- (3) Direct Respondent No. 1 to submit the report to this Tribunal on Rs. 301.55 Crores, 270.42 Crores money spent for the implementation of environmental mitigative and environmental protection as mandated in EC dated 23.07.1996 and 01.08.2007;
- (4) Direct the Respondent No. 1 to provide mandatory Green Belt in the Unit around Ash pond according to the

Environment Clearances dated 23.07.1996 and 01.08.2007.

If sufficient land is not available the project may be restricted according to the availability of natural resources for implementing environment mitigation measures;

3. On going through the allegations made in the application, we are satisfied that there arises a substantial question of environment which requires the interference of this Tribunal for resolving the same. So, the application is admitted.
4. Issue notice to the respondents by Registered post with acknowledgement due, by e-mail and also by dusthi if possible and produce proof of service on them by filing proof affidavit as per rules.
5. The learned standing counsel appearing for the official respondent submitted 3, 5 & 6 submitted that they have received the copy of the application.
6. The applicant is also directed to produce necessary requisite along with postal cover and the necessary postal stamps before this Tribunal within a week, so as to enable this Tribunal to send notice to the respondents through Tribunal, to ensure service on them to proceed against them if they did not appear, in their absence in accordance with law.
7. In order to ascertain the genuineness of the allegations made in the application, we feel it appropriate to appoint a Joint Committee consisting of
(1) The District Collector, Visakhapatnam District (2) a Senior Officer from Ministry of Environment Forests and Climate Change (MoEF &CC),

Integrated Regional Office, Vijayawada, (3) a Senior Officer from Central Pollution Control Board (CPCB), Regional Office, Chennai, and (4) a Senior Officer from Andhra Pradesh Pollution Control Board (APPCB), Head Office, Vijayawada, Andhra Pradesh to inspect the area in question and submit a factual as well as action taken report, if there is any violation found.

8. The committee is directed to ascertain as to:

- 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 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.

9. The Andhra Pradesh Pollution Control Board (APPCB) will be the nodal agency for co-ordination and for providing necessary logistics for this purpose.

10. Considering the gravity of the allegations made and also the nature of pollution alleged, the District Collector himself/herself is directed to participate in the inspection instead of deputing any other Junior Officer for this purpose.

11. The Committee is also directed to submit the report to this Tribunal on or before **07.01.2022** by e-filing in the form of searchable PDF/OCR Supportable PDF and not in the form of Image PDF along with necessary hardcopies to be produced as per rules.

12. The applicant is directed to serve a set of papers to the members of the Committee within a week, so as to enable them to comply with the direction without delay. If the committee is not able to submit the final report within the time specified above, then they are directed to file the Interim report regarding the violations committed by them and the probable damage, if any, caused to the water quality, air quality and soil quality in that area before the next hearing date.

13. The Registry is directed to communicate this order to the members of the committee and also to the official respondents immediately through e-mail, so as to enable them to comply with the direction for filing independent response as well as report directed by this Tribunal.

14. For appearance of parties, filing their independent response and also for consideration of report, post on **07.01.2022**.



सत्यमेव जयते

.....J.M.

(Justice K. Ramakrishnan)

Sd/-

.....E.M.

(Dr. K. Satyagopal)

O. A. No.227/2021, (SZ)
23.11.2021, Sr.



Item No.01:

BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI

Original Application No. 227of 2021(SZ)

(Through Video Conference)

IN THE MATTER OF:

Battu Satish Reddy,
Andhra Pradesh.

...Applicant(s)

National Thermal Power Corporation Ltd.,
Simhadri Plant,
Andhra Pradesh and others.

...Respondent(s)

Date of hearing: 07.01.2022.

CORAM:

HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER
HON'BLE DR. SATYAGOPAL KORLAPATI, EXPERT MEMBER

For Applicant(s): Mr. Sravan Kumar

For Respondent(s): Mr. C. Mohan represented
M/s. King & Partridge for R1.
Mr. G.M. Syed Nurualh Sheriff for R2
Mrs. Maduri Donti Reddy for R3, R5 & R6
Ms. Nathami for R4.

ORDER

1. The above case has been posted to today for appearance of parties, filing their independent response and also for consideration of Joint Committee report. All the respondents entered appearance through their counsel. Service Complete.
2. The Central Pollution Control Board (CPCB) has filed a reply in the form of affidavit.
3. The Andhra Pradesh Pollution Control Board (APPCB) has filed a report dated Nil, e-filed on 06.01.2022 which reads as follows:-

“Report in compliance to lionible NGT order dt: 23.11.2021 in D.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&H), 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 datec1.31.07.2017 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 -1 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 [TM 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.

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. Conocarpus 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 PM in-

b) Effluent Treatment system and Disposal:

i **Mis. 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 'MEI 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. !Ns. 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 (CENTS) 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 Mis. 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	PM10 in (.g/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 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 1510500:2012. The Total Dissolved Solids, Total Hardness (as CaCO₃) & Nitrate [as NO₃] for the bore well samples collected at hand pump-3 at Beni 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:

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."

4. The Joint Committee has filed an interim report dated Nil, e-filed on 06.01.2022 which reads as follows:-

Joint Committee interim report in the matter of Hon'ble National Green Tribunal (NGT), Southern Bench, Chennai order dated.23.11.2021 in O.A. No. 227 of 2021;

Sri Battu Satish Reddy, Pattivanipalem Village, Visakhapatnam District has filed an application in Hon'ble NGT regarding the non-compliance of the conditions imposed in the Environmental Clearance (EC) granted to the M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited, Parawada (M), Visakhapatnam District and also the conditions imposed by the Andhra Pradesh Pollution Control Board (APPCB) in Consents granted. Further on account of non-maintenance of the pollution control mechanism in a proper way and also mismanagement of the fly ash generated and pollution caused to air, water & soil resulting in huge health hazards to the people in the locality.

The Hon'ble NGT order dated. 23.11.2021 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 copy of the NGT order dated. 23.11.2021 is submitted as Annexure I.

In compliance with the Hon`ble NGT order dated.23.11.2021 the following members were nominated:

- i. Sri. M. Venugopal Reddy, Joint Collector & Additional District Magistrate, Visakhapatnam – Nominee of the District Collector, Visakhapatnam*
- ii. Dr. Suresh Babu Pasupuleti, Scientist-D, Integrated Regional Office (IRO), Ministry of Environment, Forest and Climate Change, Vijayawada – Senior officer from MoEF&CC, Vijayawada.
- iii. Sri S. Karthikeyan, Scientist-C, Central Pollution Control Board, Regional Office, Chennai – Nominated by CPCB, Chennai.

- iv. Sri M. Pramod Kumar Reddy, Environmental Engineer, AP Pollution Control Board, Regional Office, Visakhapatnam – Nominated by APPCB.
- v. Dr. Shaik Basha, Scientist & Head, CSIR-NEERI Zonal Center, CSIR-National Environmental Engineer Research Institute, IICT Campus, Tarnaka, Hyderabad – Expert Member

*The District Collector has nominated the Joint Collector & Addl. District Magistrate as member of the Joint Committee as the District Collector is pre-occupied with the meetings.

The committee met in the chambers of the Joint Collector & Additional District Magistrate on 28.12.2021 at 12:15 PM along with the District officers of Agriculture Department & Ground water Department. The committee discussed the issue elaborately and decided to carry-out the inspection of the committee on 29.12.2021. The joint Committee along with District officials from Agriculture Department & Ground water Department inspected M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited, and its surrounding area on 29.12.2021.

The joint Committee also visited the villages namely Pittavanipalem, Devada & Marada Dasaripeta and heard the version of complainant Sri Battu Satish Reddy, Pittavanipalem at Ramalayam. During the visit, group of villagers met the committee and mainly the following villagers informed their problems due to operation of M/s. Simhadri Super Thermal Power Project, NTPC Limited to the committee members:

1. Sri B. Satish Reddy, Pittavanipalem.
2. Smt B. SuryaKumari, Corporator, 77th Ward GVMC, Pittavanipalem.
3. Sri Pitta Naringa Rao, Pittavanipalem
4. Sri A. Ramu, Pittavanipalem.
5. Sri A. Payad Raju, Pittavanipalem.
6. Sri D. Thata Rao, Marada Dasaripeta.
7. Sri D. Govinda, Marada Dasaripeta.
8. Sri K. Appa Rao, Devada.

The main problems/issues informed by the villagers to the committee are:

1. Huge dust emissions emanates from ash pond particularly during the summer season.
2. Suffering with health issues like skin allergies, breathing problems and cancer due to pollution from M/s. Simhadri Super Thermal Power Project, NTPC Limited.
3. The ground water in surrounding villages is contaminated due to pollution from M/s. Simhadri Super Thermal Power Project, NTPC Limited.
4. Not providing proper medical health facilities to the villagers.
5. Not providing job opportunities to the villagers.
6. Ash (Cenosphere) from NTPC entering into creek during heavy rains leading to the Sea, thereby decreasing the fish catch and affecting fishermen livelihood.
7. Dust pollution due to vehicular movement while transporting the ash from ash ponds which are located within 300 m from habitation.
8. The villagers submitted representations (2no.s) to the committee are submitted as Annexure II.

The joint committee further interacted with Dr. Ravindra, Community Health Centre, Pattivanipalem during the visit and he informed the committee that the villagers are approaching Health Centre with dermatitis & psoriasis skin allergic problems.

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 Stage -1 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. A copy of the Environmental Clearances issued by MoEF&CC and CFO order dated.31.07.2017 of APPCB which is valid up to 31.08.2022 are submitted as Annexure-III.

The observations of the Joint Committee are submitted below:

NGT Direction No. i	Whether there was any violation of Environmental Clearance (EC) and consent conditions committed by the first respondent / NTPC unit,
	<p>The Joint Committee inspected M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited and verified the present compliance status with the conditions stipulated in the Environmental Clearance (EC) granted by MoEF&CC & Consents granted by Andhra Pradesh Pollution Control Board(APPCB) to M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited, Parawada, Visakhapatnam District. The following <i>non-compliances</i> of the main conditions of Environmental Clearance orders to control pollution observed by the Committee:</p> <ol style="list-style-type: none"> 1. Detailed implementation status of Rehabilitation Master Plan for rehabilitation of 150 families, compensation package, training facilities etc., not submitted. 2. The industry has not installed adequate high pressure mist spray sprinklers at coal storage yard to control fugitive emissions effectively and they have provided only few mechanical water sprinklers at coal stock yards which are not sufficient. 3. The industry has not adopted mechanism for continuous monitoring of ground water establishing good network of observation wells in consultation with the Central Ground Water Board. Not submitting the results and data to ascertain the status of water quality and findings for evaluation. 4. Not carried leachate collection through Lysimeter at 6-10 locations around the ash dyke and not submitting monitoring report for ascertaining its change in water quality. 5. Not developed green belt around the ash dyke for controlling fugitive dust emission. 6. Not submitting half yearly report on the status of implementation of the conditions and environmental safeguards to the MoEF&CC, Regional Office.

	<p>7. As per GSR.02 (E), dated 02.01.2014, the analysis report of the ash & sulphur content present in the coal is not being submitted in quarterly basis to the MoEF&CC.</p> <p>8. Uploading of EC letter's, six monthly compliance report along with all monitoring data and Environmental Statement in Form-V is not being uploaded in the company website for public transparency.</p> <p>The following non-compliances of the main conditions of consent for Operation of APPCB to control pollution observed by the Committee:</p> <ol style="list-style-type: none"> 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. 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. 4. 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.
<p>NGT Direction No. ii</p>	<p>Whether the pollution control mechanism provided are sufficient to mitigate the situation of causing pollution of air, water and soil,</p>
	<p>Pollution control mechanism provided w.r.t air, water & soil:</p> <p>Air:</p> <p>M/s. Simhadri Super Thermal Power Project, NTPC Limited, has installed</p>

4 No. of Boilers of capacity 1675 tons per hour (TPH) each using pulverized coal as fuel which contains about 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 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. 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.

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.

M/s. Simhadri Super Thermal Power Project, NTPC Limited has provided dust suppression systems at coal handling sections to avoid fugitive emissions. Conocarpus 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. Flue Gas Desulphurization (FGD) is under implementation, to be commissioned on or before December 2022. Combustion modification (De-NO_x/Low NO_x) is under implementation, to be completed on or before December 2022.

Continuous air quality monitoring Station:

M/s. Simhadri Super Thermal Power Project, NTPC Limited has installed 3 continuous ambient air quality monitoring stations at Pittavanipalem, Devada, Marada Dasaripeta for PM₁₀. The industry has installed 3 No. Continuous Ambient Air Quality Monitoring stations at the periphery of the industry and connected to the CPCB/APPCB web site as per the directions of the Board.

M/s. Simhadri Super Thermal Power Project, NTPC Limited has installed on-line stack analyzers for all four stacks of 4 x 500 MW units. The

continuous emission monitoring system connected to APPCB/CPCB website to upload the data continuously.

Water:

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). 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.,.

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. 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 steam used for Power generation gets cooled in the Condenser by way of seawater based Circulating Cooling water system and the sea water again gets cooled in the Cooling Towers. The cold water from Cooling Towers is required to be blow down and replaced with makeup water to maintain required COC (Cycles of Concentration). 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.

Continuous effluent quality monitoring station:

M/s. Simhadri Super Thermal Power Project, NTPC Limited has installed

	<p>Continuous Effluent Quality Monitoring (CEQMS) 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.</p> <p>Solid Waste Management:</p> <p>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.</p> <p>The Joint Committee carried out the ambient air quality and collected ground water & soil Samples during the visit on 29.12.2021. The Ground water Department, Visakhapatnam has collected the ground water samples and Department of Agriculture, Visakhapatnam collected the soil samples in Pittavanipalem, Devada & Marada Dasaripeta villages. APPCB has monitored the ambient air quality monitoring, Source emission monitoring and collected Wastewater samples for analysis. The samples analysis is under progress and it may take 3-4 weeks.</p>
<p>NGT Direction No. iii</p>	<p>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</p>
	<p>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. Seawater is being used to mix ash and then transport it to ash ponds as ash slurry through pipes. After discharge to ash ponds, water is decanted through decant wells and collected in Overflow lagoons (OFL). There are two overflow lagoons OFL-1 and OFL-2 each have an area of 19 and 18 acres respectively with a depth of 4-5 meters. The decanted water</p>

collected in the OFLs is pumped back to plant, re-circulated and used in ash slurry again. Toe drain arrangement is there to collect seepage water which is also reused with decanted water. Garland drain provided which is connected to Toe drains around dykes for collection of seepage water which is pumped back for recirculation. Storm water drains are connected to creek and is controlled using sluice gate which is kept closed in normal conditions. Cenosphere is a very light weight air entrapped particle. Due to heavy rains in ash dyke, some of the cenosphere particles escaped to creek along with storm water which was cleaned immediately. Cenosphere is used in oil and gas exploration industry and has international market. Recently observed cenosphere is discharging along with storm water to the sub-creek and issued directions after reviewing in Task force committee on 21.12.2021. APPCB also imposed BG of 1.28 Crores towards compliance of the conditions / directions stipulated by APPCB and 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.

M/s. Simhadri Super Thermal Power Project, NTPC Limited, has not provided HDPE liner in ash ponds as per the recommendations of the National Institute of Hydrology, Roorkee and with the approval of MoEF&CC vide letter No.J-13011/19/94-IA.II (T) dt:20.05.2002. A copy of the letter is submitted as Annexure-IV.

**NGT Direction
No. 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,

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. A copy of the letter issued by Ministry of Power, Government of India dated.22.09.2021 is herewith submitted as Annexure-V.

**NGT Direction
No. 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,

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 following locations of M/s. Simhadri Super Thermal Power Project, NTPC Limited:

1. Pump house.
2. Administration Building.
3. Sarada guest house, Township.

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

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	
<p>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. APPCB has also 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. The analysis reports of air & water monitoring conducted by APPCB are submitted as Annexure VI.</p> <p>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.</p> <p>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 IS10500:2012.</p> <p>The joint committee monitored the ambient air quality, stacks, ground water from piezo wells & borewells and soil quality, during the visit on 29.12.2021. The Ground water Department, Visakhapatnam has collected the ground water samples and Department of Agriculture, Visakhapatnam collected the soil samples. APPCB has monitored the ambient air quality, stacks and effluent samples collected for analysis. The samples analysis is under progress and it may take 3-4 weeks.</p>			
NGT Direction No. 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,		
	<ol style="list-style-type: none"> 1. Not provided mechanical water sprinkling system at haul roads. 2. Not developed 33% greenbelt in the factory premises. 3. Not maintained water curtains in the ash ponds. 		

	<p>4. The industry is discharging cenosphere from ash ponds nearby sub creek even after issuing several notices from 2019 onwards. Recently observed cenosphere is discharging along with storm water to the sub-creek and issued directions after reviewing in Task force committee on 21.12.2021. APPCB also imposed BG of 1.28 Crores towards compliance of the conditions / directions stipulated by APPCB.</p> <p><i>Environmental compensation will be estimated based on the violations committed and will be submitted in final report.</i></p>
NGT Direction No. 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.
	<p>The District Collector has nominated Dr. Shaik Basha, Scientist & Head, CSIR-NEERI Zonal Center, CSIR-National Environmental Engineer Research Institute, ICT Campus, Tarnaka, Hyderabad as expert to assist the committee. The expert from NEERI suggested to 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 any reputed institutions and also assessment of impacts on human health due to pollution of M/s. Simhadri Super Thermal Power Project, NTPC Limited, if any, through reputed organization. Based on the study report, necessary remediation methods shall be suggested to M/s. Simhadri Super Thermal Power Project, NTPC Limited.</p>
NGT Direction No. 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

	<p>including the compensation if any payable on that aspect considering the nature of damage caused to the fertility of the land, affecting the productivity.</p>
	<p>In order to ascertain the impact of pollution on water, air, and soil pollution in both project and surrounding areas, the Joint Committee recommends the following measures/studies to be taken up by the M/s. Simhadri Super Thermal Power Project, NTPC Limited immediately:</p> <ol style="list-style-type: none"> 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.

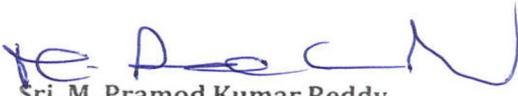
The joint committee visited the M/s. Simhadri Super Thermal Power Project, NTPC Limited site on December 29, 2021 and monitored ambient air quality for 24 hours at two locations, two flue gas stacks and also collected groundwater and soil from three villages (Pittavanipalem, Devada and Dasaripet). Final treated wastewater samples from STPs (two in township and one in plant) were also collected. The analysis of samples for various parameters is under progress and may take 3-4 weeks for completion of the same. Further, the environmental compensation is to be estimated based on the violations committed. Various information/documents are required to be collected from different agencies and to be verified. In view of this, the joint committee requests Hon'ble NGT to grant 12 weeks time for the submission of the final report.


Sri. M. Venugopal Reddy,
Joint Collector & Additional District Magistrate,
Visakhapatnam

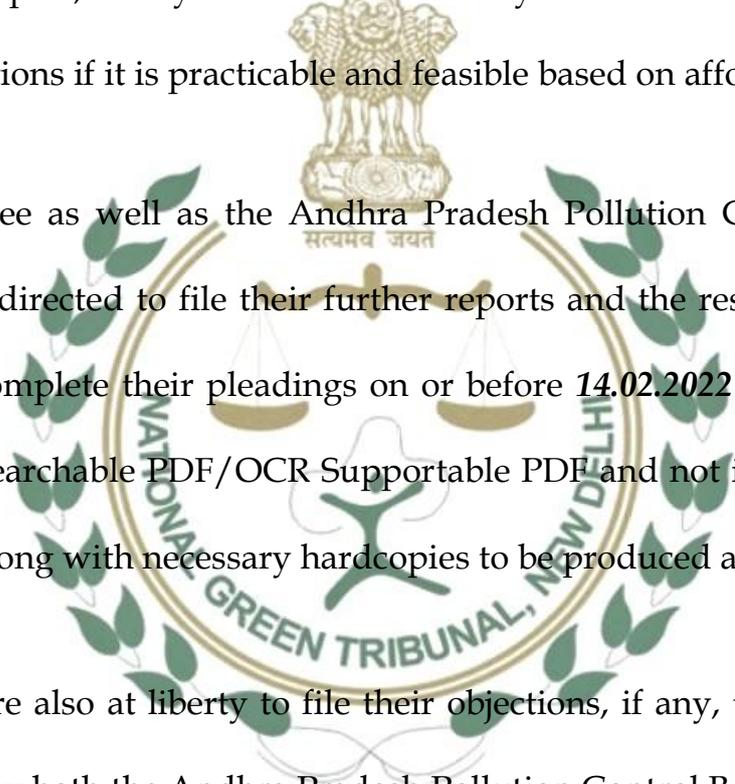

Dr. P. Suresh Babu
Scientist-D,
MoEF&CC, Vijayawada


Sri. S. Karthikeyan
Scientist-C, CPCB, Chennai


Dr. Shaik Basha,
Scientist & Head, CSIR-NEERI
Zonal Center, Hyderabad


Sri. M. Pramod Kumar Reddy,
Environmental Engineer,
APPCB, Visakhapatnam

5. The Joint Committee after recording certain observations wanted 12 (twelve) weeks time to file the final report.
6. The respondents wanted some time to file their independent reply statement. The project proponent also wanted some time to file their objection to the committee report and also wanted some time to file their compliance report, if any to be carried out by them on the basis of the recommendations if it is practicable and feasible based on affordability.
7. The Committee as well as the Andhra Pradesh Pollution Control Board (APPCB) are directed to file their further reports and the respondents are directed to complete their pleadings on or before **14.02.2022** by e-filing in the form of searchable PDF/OCR Supportable PDF and not in the form of Image PDF along with necessary hardcopies to be produced as per rules.
8. The parties are also at liberty to file their objections, if any, to the interim reports filed by both the Andhra Pradesh Pollution Control Board (APPCB) as well as the Joint Committee before the next hearing date.
9. The Registry is directed to communicate this order to the members of the committee and also to the official respondents immediately through e-mail, so as to enable them to comply with the direction.



10. For completion of pleadings, consideration of interim as well as further reports and also for objections (if any) to the report already filed, post on **14.02.2022**.

Sd/-

.....J.M.
(Justice K. Ramakrishnan)

Sd/-

.....E.M.
(Dr. Satyagopal Korlapati)

O. A. No.227/2021 (SZ)
07.01.2022, Sr.



తేది: 29-12-2021

మహారాజ శ్రీ గౌరవనీయులైన విశాఖపట్నం జిల్లా కలెక్టర్ వారికి మరియు పొల్యూషన్ బోర్డు వారికి దివ్యసముఖమునతో పెదగంట్యాడ మండలం 77వ వార్డ్ పిట్టవానిపాలెం మరడదాసరిపేట దేవాడ గ్రామాలప్రజలు నమస్కరించి వ్రాసుకున్న విన్నపం.

విషయం:- NTPC కాలుష్యం నుండి పిట్టవానిపాలెం మరడదాసరిపేట దేవాడ గ్రామాలను కాపాడండి.

అయ్యా : NTPC నుండి వెలువడే విద్యుత్ తయారీకి ఉపయోగించే బొగ్గు వ్యర్థాలు మా గ్రామాలకు అతి దగ్గరగా సుమారు 50 నుండి 100మి|| దూరంలో ఉన్న యాస్ పాండ్ కి విడుదల చేస్తారు. దానివలన భుగార్యాజలలు కలుషితం అయిపోయినవి. ఇక్కడ ఉన్న నీరు మనుషులు గాని, పశువులు గాని, తాగడానికి గాని, వాడుకోవడానికి సైతం పనికిరావు. NTPC ప్రారంభించి సుమారు 25 సంవత్సరాలు పైచిలుకు అవుతుంది. యాస్ పాండ్లు ప్రభావం ప్రత్యక్షంగా చూస్తేగాని అర్థం కాదు. సుమారు వేల టన్నుల బొగ్గు వ్యర్థాలను ఇసుక కంటే మెత్తగా ఉండే తెల్లటి బూడిదను సముద్రపు నీటిలో కలిపి పైపుల ద్వారా పిట్టవానిపాలెం, మరడదాసరిపేట, దేవాడ గ్రామాలకు అనుకోనిఉన్న ఈ యాస్ పాండ్ కి వస్తుంది. 1000 ఎకరాల విస్తీర్ణంగల ఈ యాస్ పాండ్ 25మి|| ఎత్తుగల చెరువులో ఈ బూడిద వచ్చి చేరుతుంది. ప్రతిరోజు ఎండ త్రివర్తను బట్టి, గాలివాటం బట్టి చుట్టుపక్కల ఉన్న గ్రామాలకు ఈ యాస్ ఎగిరిపడుతుంది. ఈ బూడిదలో అనేకరకమైన ప్రమాదకరమైన రసాయనాలు వాతావరణంలో వేదజల్లుపడుతున్నాయి. MERCURY SULPHUR DIOXIDE వంటి ఆరోగ్యనికి హానికరమైన వ్యర్థాలను మేము పిల్చే గాలి ద్వారా త్రాగునీటి ద్వారా శరీరంలోకి చేరి అనారోగ్యం పాలవున్నాం. ఈ బూడిద వలన ప్రజలు భయంకరమైన అంతుచిక్కని వ్యాధులకు గురవుతున్నారని అన్వేర్మేంట్ సైన్సెస్ నివేదికలో పొందిపరచింది. NTPC ద్వారా వచ్చే కాలుష్యం వలన చాలామందికి వంటిపై దద్దుర్లు పెద్ద పెద్ద పున్ను వచ్చి చర్మం అంత పాడైపోతుంది. పసిపల్లలో ఎదుగుదల కనిపించడం లేదు. గర్భశ్రావాలు ఉపిరితిత్తుల వ్యాధులు కిడ్నీ, కేన్సర్, అస్మా వంటి మరెన్నో వ్యాధులులతో ఇక్కడ ప్రజలు బాధపడుతున్నారు. వృద్ధులు లేచి నిలపడలేనంత బలహీన పడుతున్నారు. ఈ సమస్య నందు ప్రభుత్వంవారు గాని NTPC వారు గాని పట్టించుకోవడం లేదు. ఇంతటి ప్రభావాన్ని కలిగిస్తున్న ఈ యాస్ పాండ్ నుండి ఈ గ్రామాలను సురక్షిత ప్రాంతానికి తరలించామని ప్రజలు వేడుకుంటున్నారు.

2004వ సంవత్సరంలో అప్పటి MLA తిప్పల గురుమూర్తి రెడ్డి గారు శాసన సభ్యుగా ఉన్న సమయంలో మా గ్రామస్థులు అంత కలిసి NTPC కంపెనీ పనులు నిలిపివేసి ధర్నాలు చేసాము. అయితే ఆనాడు కంపెనీ పనులను ఆపవద్దు అని గ్రామాలను తరలించే బాధ్యత నేను తీసుకుంటానని MLA తిప్పల గురుమూర్తి రెడ్డి గారు మా ధర్నాలను విరమింప చేసారు.

2008వ సంవత్సరంలో గౌరవనీయులు సర్గియ ముఖ్యమంత్రి వై ఎస్ రాజశేఖర్ రెడ్డి గారు NTPC 2వ యూనిట్ ప్రారంభానికి వచ్చినప్పుడు యాస్ పాండ్ కు అనుకోని ఉన్న మూడు గ్రామాలను సురక్షితమైన ప్రాంతానికి తరలిస్తామని హామీ ఇచ్చారు. అప్పటి కేంద్ర విద్యుత్ శాఖ మంత్రి సుసిల్ కుమార్ సిండ్ గారు కూడా చెప్పి ఉన్నారు. దురదృష్టవశాత్తూ ముఖ్యమంత్రి వై ఎస్ రాజశేఖర్ రెడ్డి గారు మరణించాడం వలన తరలింపు ఆగిపోయినది. తరువాత ప్రస్తుత ముఖ్యమంత్రి వర్యులు వై ఎస్ జగన్మోహన్ రెడ్డి గారు కూడా సబ్బవరం బహిరంగంగా సభలో మాట ఇవ్వడం జరిగింది. మా నియోజకవర్గ MLA అన్నంరెడ్డి అదీప్ రాజు గారు కూడా మా గ్రామాలను తరలించాలని అసెంబ్లీలో మాట్లాడటం కూడా జరిగింది. కానీ ఇప్పటివరకు ఎటువంటి చర్యలు తీసుకోలేదు. మా గ్రామాలయండు దయించి మా ఈ సమస్యను పరిష్కరించమని కోరుతున్నాం.

యోగి రెడ్డి
(గౌరవనీయులు)
కొడిలియినమాడు

శ్రీ చైతన్య
ఎన్నటి ఆభారావు
K. Anand

ఇట్లు

పిట్టవానిపాలెం, మరడదాసరిపేట, దేవాడ గ్రామ ప్రజలు

P. G. Lakshmi
B. Satish Reddy
K. Venkata Lakshmi
P. Kalyan Babu
B. Paidi Reddy
B. Satish

**ISSUES IN PITTAVANIPALEM H/o. DEVADA
VILLGE OF PEDAGANTYADA MANDAL**

@@@

- 1) FLY ASH**
- 2) GROUND WATER**
- 3) HEALTH PROBLEM**
- 4) AGRICULTURE**
- 5) GVMC WATER**
- 6) BREATHING PROBLEM**
- 7) LANDS - WAKF BOARD LANDS**

Amur
24/12/2018
TARABUDAR
PEDAGANTYADA MANDAL
VISAKHAPATNAM DISTRICT



ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY, VISAKHAPATNAM

D.No. 39-33-20/1/4, Behind RTA Office,
Madhavadhara VUDA Colony, Visakhapatnam-530 018.

P. SOM SUNDAR, M.Sc
SENIOR ENVIRONMENTAL SCIENTIST

Ph: 0891-2719480/380/481 Fax: 2719480
e-mail:zovsplab-ses1@ appcb.gov.in

ANALYSIS REPORT

Sample No. : 2019 – 02 – W – 96 to 101

Sample location/Address : Pittavanipalem (V), Visakhapatnam.

Sample Source : 2019 – 02 – W – 96: Open well sample near Sri A. Appa Rao House, D.No.6–84
2019 – 02 – W – 97: Bore well sample near Sri K. Appa Rao House, D.No. 4–64
2019 – 02 – W – 98: Hand Bore well sample near Sri P. Appa Rao House, D.No.4–55
2019 – 02 – W – 99: Bore well sample near Sri B. Appala Reddy, House, D.No.5–55
2019 – 02 – W – 100: Open well sample near MPP School
2019 – 02 – W – 101: Bore well sample near Pydimamba Temple

Sample collected on : 07.02.2019

Sample received on : 08.02.2019

Sample collected by : Junior Scientific Officer, Regional Office, Visakhapatnam

Sl. No.	Parameters	2019 02 W-96	2019 02 W-97	2019 02 W-98	2019 02 W-99	2019 02 W-100	2019 02 W-101	Drinking water Standards: (Permissible Limit) IS:10500:2012
1.	pH	8.15	7.98	7.14	7.33	8.54	7.56	6.5-8.5
2.	Conductivity (µS/cm)	2460	2990	18250	14330	2250	41800	--
3.	Total Dissolved Solids at 105°C	1812	2304	17312	9852	1644	37284	2000 mg/L
4.	Chlorides as Cl ⁻	538	782	7143	3816	489	17514	1000 mg/L
5.	Total Hardness as CaCO ₃	640	788	8000	5100	472	14000	600 mg/L
6.	Total Alkalinity	368	308	212	288	360	160	600 mg/L
7.	Phosphates as PO ₄ ³⁻	0.03	0.02	0.02	0.02	0.04	0.03	--
8.	Sulphates as SO ₄ ²⁻	139	139	580	345	107	2669	400 mg/L
9.	Fluorides as F ⁻	0.78	0.33	1.13	0.88	0.96	1.22	1.5 mg/L
10.	Nitrates as NO ₃	38.82	50.30	34.41	55.58	40.14	7.19	45 mg/L
11.	Calcium as Ca ⁺²	160	184	2240	1056	104	2000	200 mg/L
12.	Magnesium as Mg ⁺²	58.3	79.7	583.2	597.7	51.51	2187	100 mg/L
13.	Lead (as Pb)	0.001	0.001	0.001	ND	ND	ND	0.01 mg/L
14.	Zinc (as Zn)	0.007	0.073	0.186	0.025	0.004	0.021	0.5 mg/L
15.	Nickel (as Ni)	0.001	0.002	0.006	0.008	0.001	0.002	0.02 mg/L
16.	Copper (as Cu)	0.001	0.001	0.004	0.012	0.003	0.001	0.5 mg/L
17.	Chromium (as Cr)	0.001	ND	ND	ND	0.001	ND	0.05 mg/L
18.	Iron (as Fe)	0.070	0.086	0.810	0.385	0.033	0.462	0.3 mg/L
19.	Manganese (as Mn)	0.003	0.006	0.013	0.003	0.001	0.060	0.3 mg/L
20.	Mercury (as Hg)	0.001	0.001	0.001	ND	0.001	ND	0.001 mg/L
21.	Arsenic (as As)	0.001	ND	ND	ND	0.001	ND	0.05 mg/L
22.	Cadmium (as Cd)	ND	ND	ND	ND	ND	ND	0.003 mg/L

Note: - All values are expressed in mg/l except pH
ND : Not Detectable

20.2.19
SENIOR ENVIRONMENTAL SCIENT

Water Quality

Station Code 3090	Sampling Date 03.04.2019	Sampling time 02.00PM	Field Observations:	
Name of monitoring station: Hand Pump at Pittavanipalem, Visakhapatnam			Weather:	Clear
Type of the water body:	Borewell		Depth of water body:	
Name of the water body:			Human activities:	Others
Name of river basin:	Lake		Floating matter:	None
Name of sub-basin:			Colour:	Clear
District:	Visakhapatnam	State:	Andhra Pradesh	
Name of monitoring agency:	ANP			
Frequency of monitoring:	Half yearly	Stn.Short name:		
Use based class:	C			
			Flow:	(m ³ /Sec)
			W.Temp.	28.0 (°C)
			DO:	5.8 (mg/l)

69

Major polluting sources:	Industrial	<input checked="" type="checkbox"/>	Domestic
	Agriculture	<input type="checkbox"/>	Other
Use of water at or in down stream of monitoring station:			
Washing purposes			

Core parameters:		General Parameters:		Specific parameters:(mg/L)	
pH:	7.67	Turbidity:	1.79 NTU	Arsenic:	ND
Conductivity:	4652.0 (µS/cm)	Phenolphthalein alkalinity as CaCO ₃ :	0.0 (mg/L)	Cadmium:	ND
BOD:	1.6 (mg/L)	Total Alkalinity as CaCO ₃ :	304.0 (mg/L)	Copper:	0.002
Nitrate-N:	18.05 (mg/L)	Chlorides:	910.0 (mg/L)	Lead:	ND
Nitrite-N:	5.8 (mg/L)	COD:	20.0 (mg/L)	Chromium:	ND
Fecal Coli:	15 MPN/100 ml	Total Kjeldahl-N:	0.58 (mg/L)	Nickel:	0.005
Total Coli:	150 MPN/100 ml	Ammonia-N:	0.01 (mg/L)	Zinc:	0.452
Bio-monitoring:		Hardness as CaCO ₃ :	640.0 (mg/L)	Mercury:	0.006
Saprobity Index:	<input type="text"/>	Calcium as CaCO ₃ :	420.0 (mg/L)	Iron(Total):	0.100
Diversity Index:	<input type="text"/>	Magnesium as CaCO ₃ :	220.0 (mg/L)	Cyanide:	
P/R Ratio:	<input type="text"/>	Sulphate:	493.4 (mg/L)	Any other	
		Sodium:	685.6 (mg/L)		
		Total Dissolved Solids:	3024.0 (mg/L)	**Pesticide:	
		Fixed Dissolved Solids:	2994.0 (mg/L)	BHC(Total):	
		Total Suspended Solids:	14.0 (mg/L)	DDT(Total):	
		Phosphate:	0.01 (mg/L)	Endosulphan:	
		Boron:	0.264 (mg/L)	Dieldrin:	
		Potassium:	14.92 (mg/L)	Aldrin:	
		Fluoride:	0.47 (mg/L)	Carbamate:	
		% Sodium:	69.38 (meq/L)	2,4-D:	
		SAR:	11.80 (meq/L)	Any other:	
		Any other:			


SENIOR ENVIRONMENTAL SCIENTIST



ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY, VISAKHAPATNAM

D.No. 39-33-20/1/4, Behind RTA Office,
Madhavadhara VUDA Colony, Visakhapatnam-530 018.

P. SOM SUNDAR, M.Sc
SENIOR ENVIRONMENTAL SCIENTIST

Ph: 0891-2719480/380/481 Fax: 2719480

e-mail: zovsplab-ses1@ appcb.gov.in

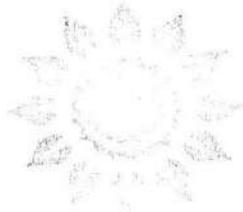
ANALYSIS REPORT

Sample No. : 2019 - 01 - W - 140
Sample location/Address : Pittavanipalem (V),
Visakhapatnam.
Sample Source : Bore well at Pittavanipalem
Sample collected on : 09.01.2019
Sample received on : 11.01.2019
Sample collected by : Analyst (C), Regional Office, Visakhapatnam

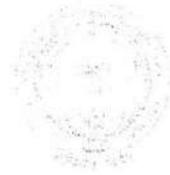
Sl. No.	Parameters	Values
1.	pH	
2.	Conductivity ($\mu\text{S}/\text{cm}$)	7.31
3.	Total Dissolved Solids at 105°C	3410
4.	Chlorides as Cl^{-}	1940
5.	Total Hardness as CaCO_3	558
6.	Total Alkalinity	740
7.	Phosphates as PO_4^{3-}	320
8.	Sulphates as SO_4^{2-}	BDL
9.	Fluorides as F^{-}	123
10.	Nitrates Nitrogen as $\text{NO}_3\text{-N}$	0.75
11.	Nitrites Nitrogen as $\text{NO}_2\text{-N}$	14.7
12.	Ammonical Nitrogen as $\text{NH}_3\text{-N}$	1.26
13.	Calcium as Ca^{+2}	BDL
14.	Magnesium as Mg^{+2}	152
15.	Lead (as Pb)	87.48
16.	Zinc (as Zn)	ND
17.	Nickel (as Ni)	0.004
18.	Copper (as Cu)	0.002
19.	Chromium (as Cr)	0.001
20.	Iron (as Fe)	ND
21.	Manganese (as Mn)	0.008
22.	Mercury (as Hg)	0.001
		0.017

Note: - All values are expressed in mg/l except pH
ND: Not Detectable

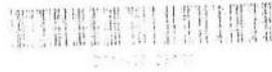

8.2.19
SENIOR ENVIRONMENTAL SCIENTIST



ప్రజలే ముందు
PEOPLE FIRST



సోమవారం అర్ధీ రోజు



శ్రీ నారా చంద్రబాబు నాయుడు
సా. ముఖ్యమంత్రి వ్యవహారాలంధ్రప్రదేశ్

VISHAKAPATNAM

అర్ధీ నంబరు	2018-16128141	తేదీ	25-8-2018
అర్ధీ రకం	REVENUE-->LOCAL BODIES EXCEPT MUNICIPALITIES > MISAPPROPRIATION FUNDS ENQUIRY		
పేరు	Battu Satish Reddy	చ/ర పేరు	-
జిల్లా	VISHAKAPATNAM	మాండలము	PEDAGANTYADA
గ్రామము	PEDAGANTYADA	ఆధార్ కార్డు	204163289702
ఫోను	9492787243		
ప్రస్తుత వివాదం	మార్పులేదు		
సమస్య వివరాలు	MISAPPROPRIATION FUNDS ENQUIRY		
పరిష్కరించు అధికారి	అహమిల్లార్ పెద గంట్లూరి		
తదాన	39 రోజులు		అర్ధీ రోజుల సోమవారం
ఎక్స్‌ప్లైంట్ ఆఫీసర్	ఎ.కె.ఎం. రాజు, డి.ఎం.ఆర్. కార్యదర్శి, వారం కార్యాలయము, విశాఖపట్నం రోడ్డు		

ఇది ఒక ప్రాథమిక అధిగ్రహణ మరియు అధిగ్రహణను నివారించడానికి ప్రయత్నించబడింది. ఇది సరిగ్గా ఉంటే, దీనిని ముగియడానికి ప్రయత్నించబడింది.

మొదటి

కాలుష్యం వాళ్ళ వీరవడిన చర్మ వ్యాధులు



Vivo V11Pro
AI Dual Camera

కిటికీ పై పేరుకుపోయిన యాస్ బూడిద



కిటికీ పై పేరుకుపోయిన బూడిద

ఎగసిపడుతున్న యాప్ బూడిద



50 Vivo V11Pro
AI Dual Camera



50 Vivo V11Pro
AI Dual Camera

ఇంటిలోపల పేరుకుపోయిన ఋషిద



Vivo V11Pro
AI Dual Camera



Vivo V11Pro
AI Dual Camera



బూడిద గడ్డి మేస్తున్న పశువు

null

27/10/21 02:41 PM



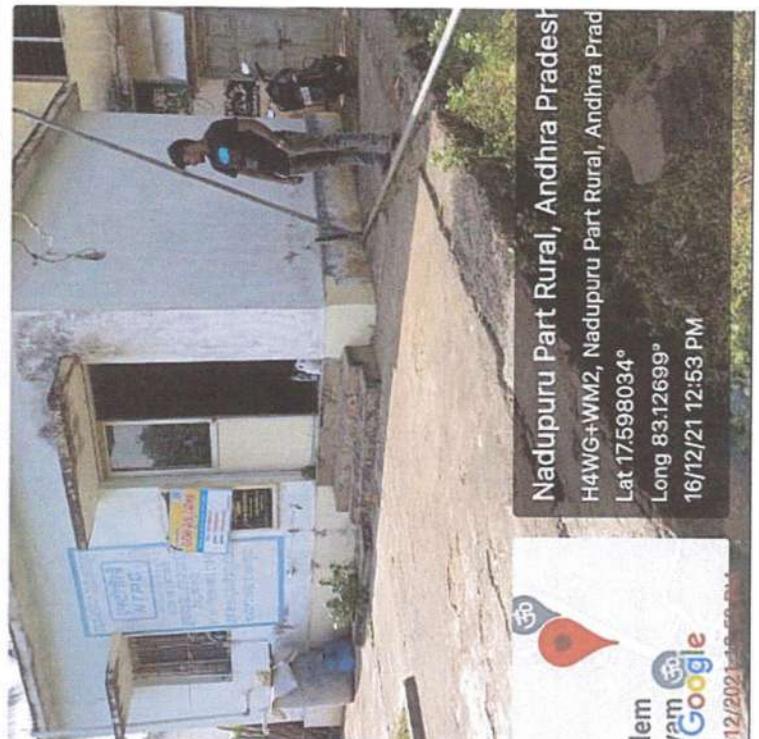
GPS Map Camera



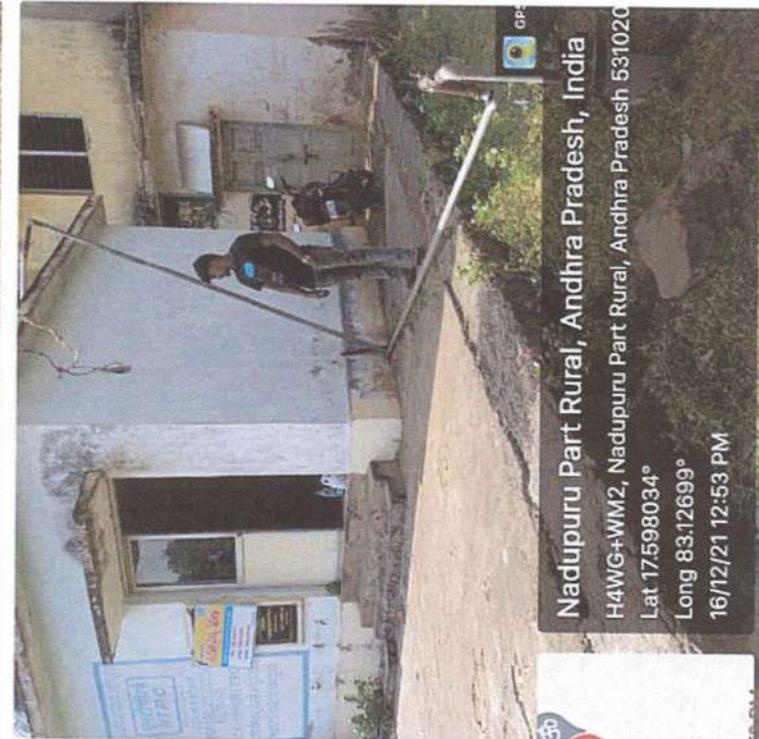
Nadupuru Part Rural, Andhra Pradesh, India
 H4WG+WM2, Nadupuru Part Rural, Andhra Pradesh 53102
 Lat 17.598038°
 Long 83.127179°
 16/12/21 12:52 PM



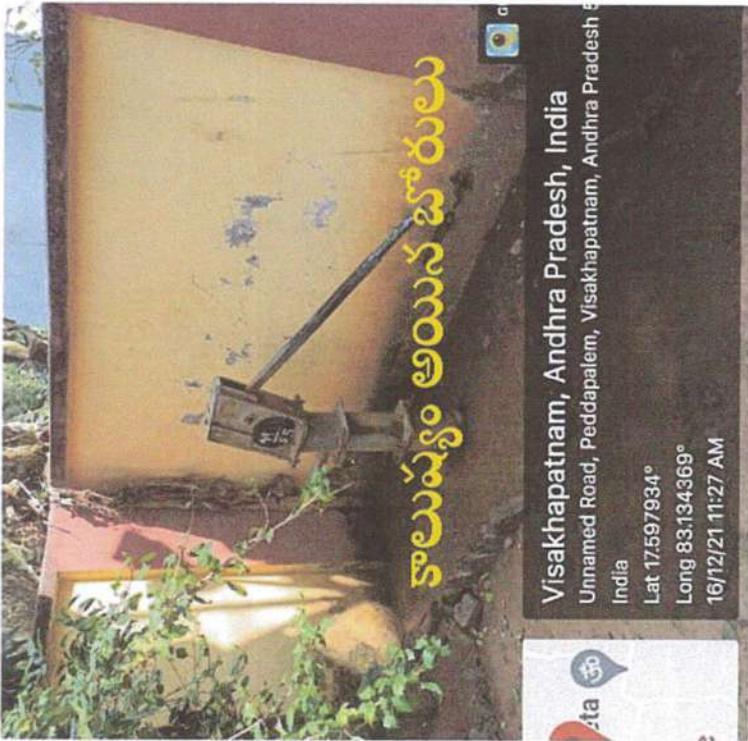
Nadupuru Part Rural, Andhra Pradesh, India
 H4WG+WM2, Nadupuru Part Rural, Andhra Pradesh 53102
 Lat 17.59804°
 Long 83.126942°
 16/12/21 12:54 PM

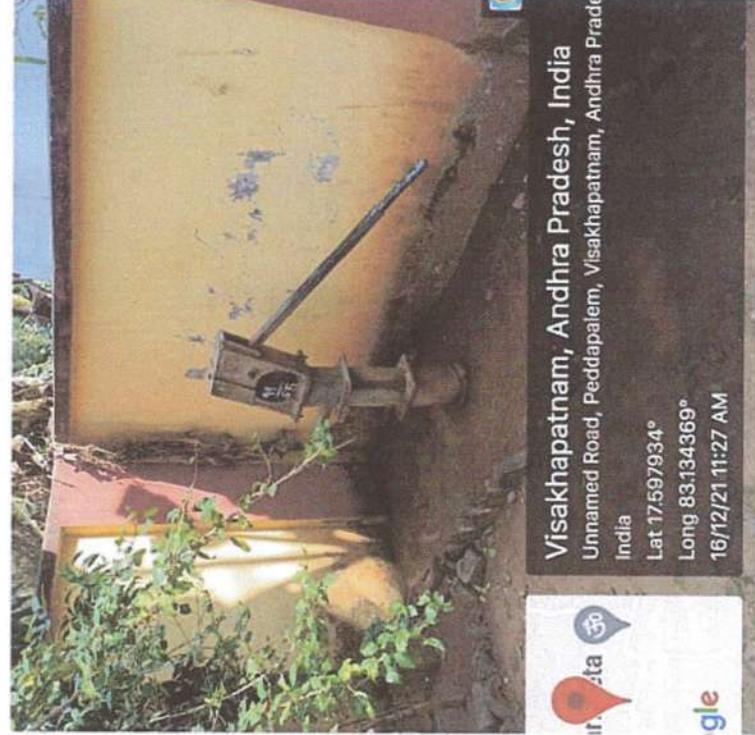
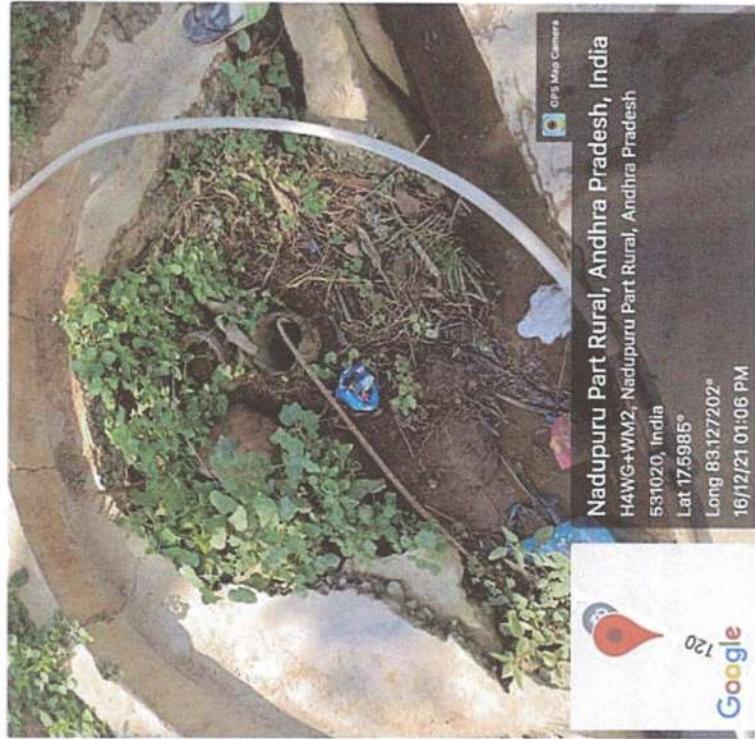
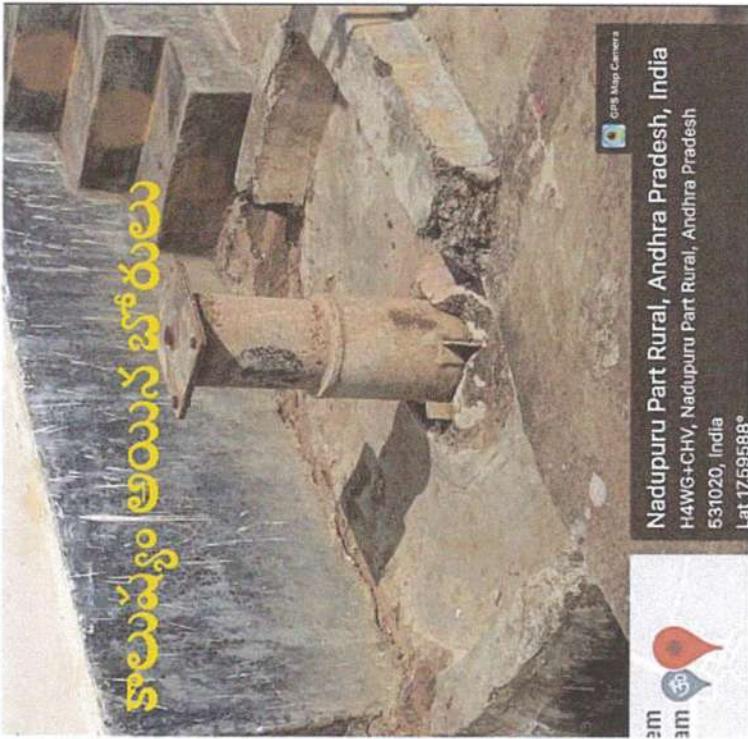


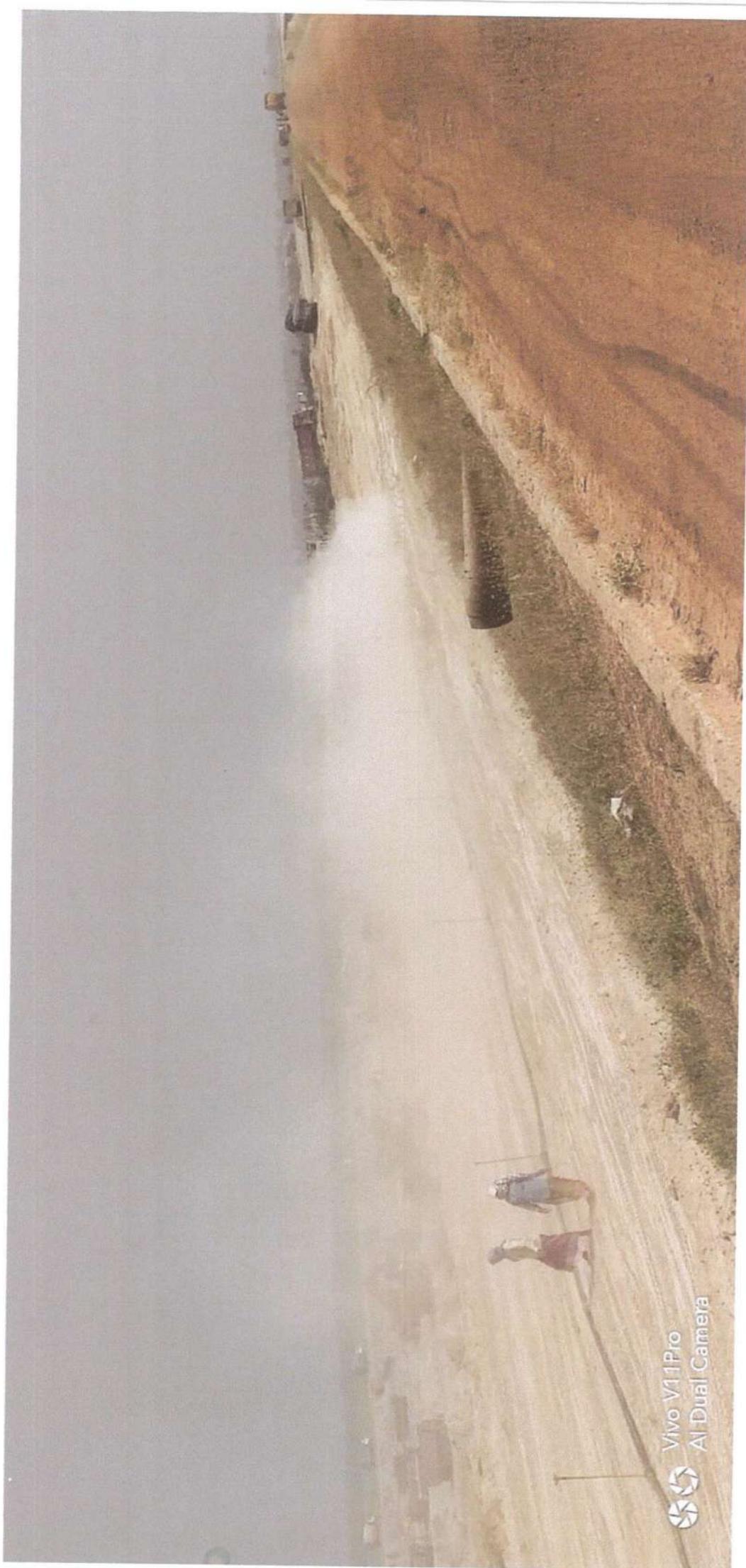
Nadupuru Part Rural, Andhra Pradesh
 H4WG+WM2, Nadupuru Part Rural, Andhra Prad
 Lat 17.598034°
 Long 83.12699°
 16/12/21 12:53 PM



Nadupuru Part Rural, Andhra Pradesh, India
 H4WG+WM2, Nadupuru Part Rural, Andhra Pradesh 531020
 Lat 17.598034°
 Long 83.12699°
 16/12/21 12:53 PM







Vivo V11Pro
AI Dual Camera

P. G. C. S. S. S.

G. Chinna Ravana

S. S. S. S. S.

B. S. S. S. S.

P. S. S. S. S.

S. S. S. S. S.

B. S. S. S. S.

B. Raj

B. Raj

B. pentamma

B. Vasa lakshmi

P. నర్సారావు

B. అంజల

G. Lavanya Devi

G. Appalepessay

K. అంజల

P. Laxmi

P. Ramya

K. Vasa Laxmi

H. Bharani

B. అంజల

B. అంజల

A. అంజల

U. అంజల

M. అంజల

A. అంజల

A. Laxman.

A. Rama.

A. Pedanna

A. Ramu

B. Venkata Ratham.

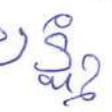
K. అంజల

1. వింతు

2. A. Sriam

3. A. Paidibilli

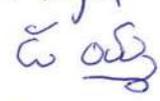
4. S.  etc.

5. A. 

6. B. Appal Reddy

7. B. Santosh Rao

8. Y. Appala Raju

9. A. 

10. A. 

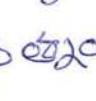
11. O. 

12. 

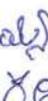
13. O. Lakshmi

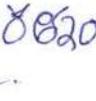
14. A. 

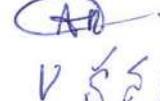
15. M. Lavanya

16. M. 

17. m. 

18. m. 

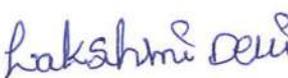
19. M. 

20.  V. 

(21) K.  Kamelava Reddy

(22) K.  Nar Simha Reddy

R. 

B.  Lakshmi Devi

K. SRINU

P. Devi

P.  Anand

k.  Saijesh

R.  pydikot

B. Leela

 P.  Lakshmi

P.  Simha

P.  Ramulu

R.  Malaxmi

R.  Demuli



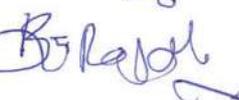
K.  Pydikot





B. 

B. 



B. Kitha

B. Sasi Prasad

R. Saji

P. RAVANAMMA

B. Sasi Priya

R. Sasi Prasad

P. Sasi Prasad

P. Sasi Prasad

P. Sasi Prasad

P. Sasi Prasad

G. Kalyan (G.A. Reddy)

G. Kalyan

M. Srinivas

M. Srinivas

P. Srinivas Kumar

P. Konda Babu

M. Srinivas

M. Srinivas

G. Kalyan

B. Srinivasamma

R. Srinivasamma

B. Srinivasamma

P. Tata Reddy

Ch nalka Reddy
B.Py di Reddy

P. Simhachalam


P. Lakshmi

K. Laxmi

M. Bhawan

S. Adilaxmi

B. J. S.

P. S. S. S.

S. Varsha

D. E. S.

S. S.

Ramesh

R. S.

A. RAMANA

D. Appala Reddy



G. S. S.

D. D. Reddy

R. Lakshmi

A. Rama

B. Sanyasi Rao

3
N. Vayy
P. ramanma
P. Divya

No Laxmi

D. Raj Kumar

2) D. APPALA Swami

3) R. Pydi RAJU

4) A. Anala Reddy

పరవాడ,
29.12.2021.

మహారాజ(శ్రీ) గౌరవనయురైన జిల్లా కలెక్షర్ గారి,
ముత్త్యలమ్మపాలెం మండల ప్రాధికార సంస్థయైన (MPTC)
బాంధ. దేవి ల/ం రం నమస్కరించి ప్రస్తుత విషయం.

తయ్యో!

విషయం:- NTPC కాలనీయం మరియు మత్స్యకార ఉపాధి కారకు.

వికాసపట్టణం జిల్లా, పరవాడ మండలం, ముత్త్యలమ్మపాలెం

-లో గల ఉప్పుతర్రుల నుండి NTPC క్లెయిమ్స్ ను సమీక్షించుటకు
పంపిస్తున్నాను. ఈ క్లెయిమ్స్ వలన ఉప్పుతర్రుల మొత్తం పూడికపో
ఉప్పుతర్రులలో గల జలజీవరాసులు కాలనీయం నుండి పరివహింపబడు
ఉప్పుతర్రులపై నిధారపడి, జీవనాధార మత్స్యకారులు ఉపాధి
వేక ఇబ్బందులకు గురౌతున్నారు.

అలాగే NTPC నుండి విడుదలయిన వ్యర్థాలతో
కూడిన వేడినీరు సమీక్షించుటకు విడుదల చేయటం వలన
మత్స్యసంపద నశించి, స్థానిక మత్స్యకారులకు ఎటువంటి
ఉపాధి తారకటం వేరు.

NTPC వలన ఉపాధిని కల్పించిన మేము గతంలో చాలా
ధర్మాలు చేసిన 2012లో 63 మందికి ఉపాధి కల్పిస్తామని
లిఖిత పూర్వక హామీ ఇచ్చియున్నారు. కానీ ఇప్పటి వరకు
ఎటువంటి ఉపాధిని కల్పించలేదు.

కావున క్రింది వలె యందు దయచేసి,
ఉప్పుతర్రులలో పూడిక పోయిన క్లెయిమ్స్ ను Dredging చేసి,
స్థానిక మత్స్యకారులకు NTPC లో ఉపాధి కల్పించి, వలె
మత్స్యకారులకు స్వయం చేయవలసిగా కారుచున్నారు.

ధన్యవాదములు.

ఇట్లు
బాంధ. దేవి

ముత్త్యలమ్మపాలెం MPTC
Ph: 9701730683 85

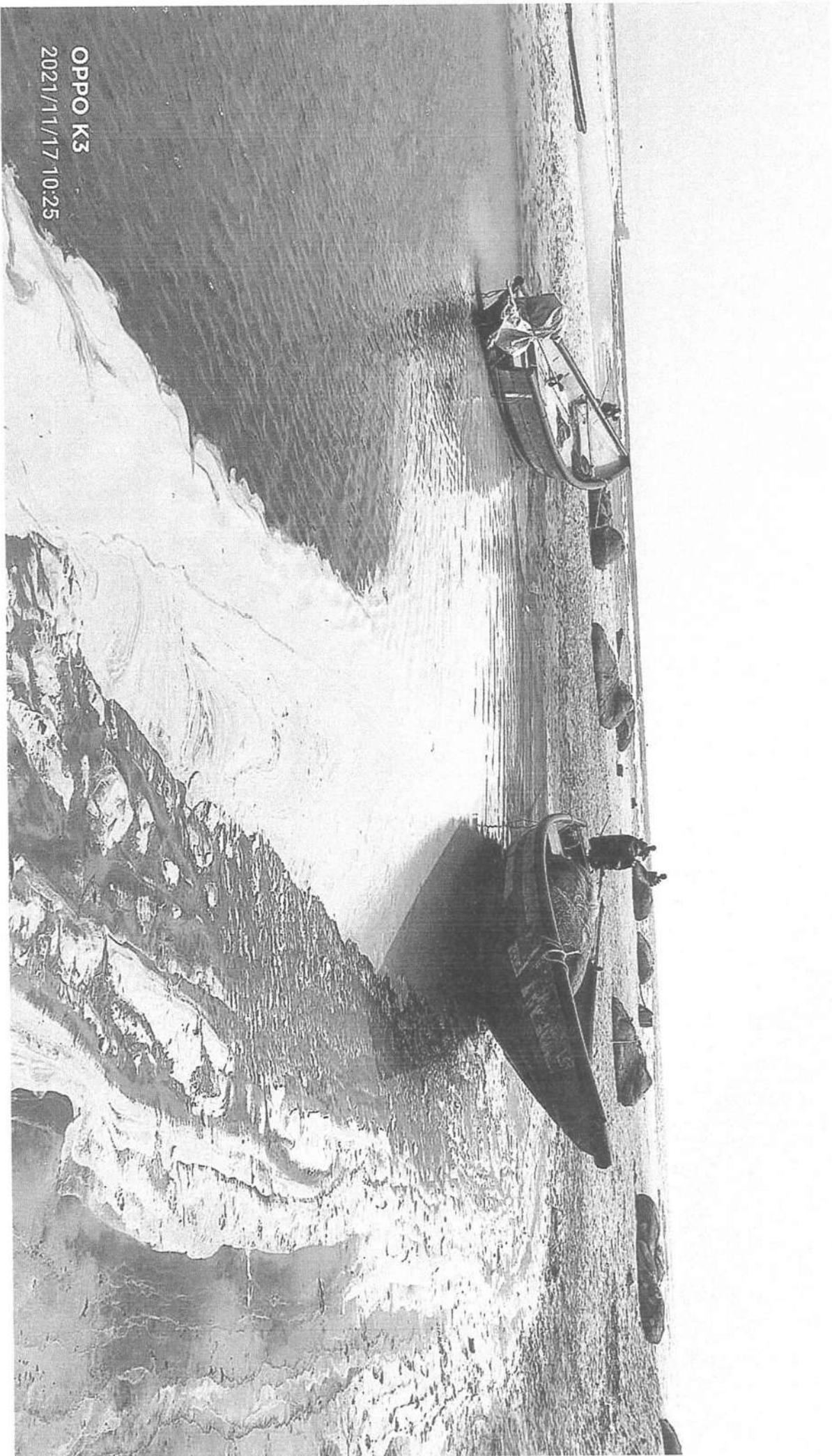
SAMPLE COLLECTION POLLUTION ENGINEER

Mr. SHAYAM.



OPPO K3
2021/11/17 15:18





OPPO K3
2021/11/17 10:25

DUE TO ASH PUMPING THROUGH UPPER TUBE SUFFERING BY FISHERMAN.

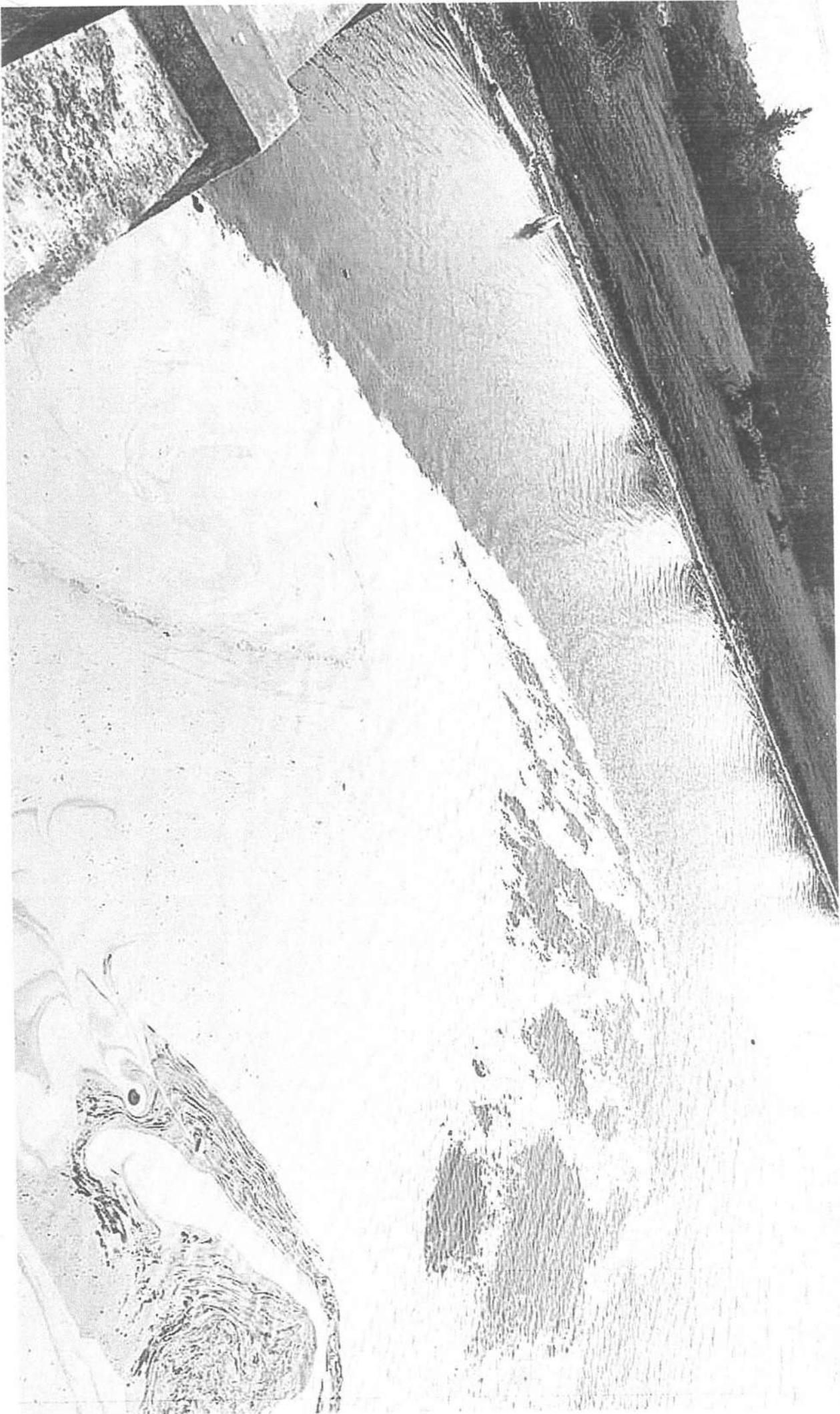


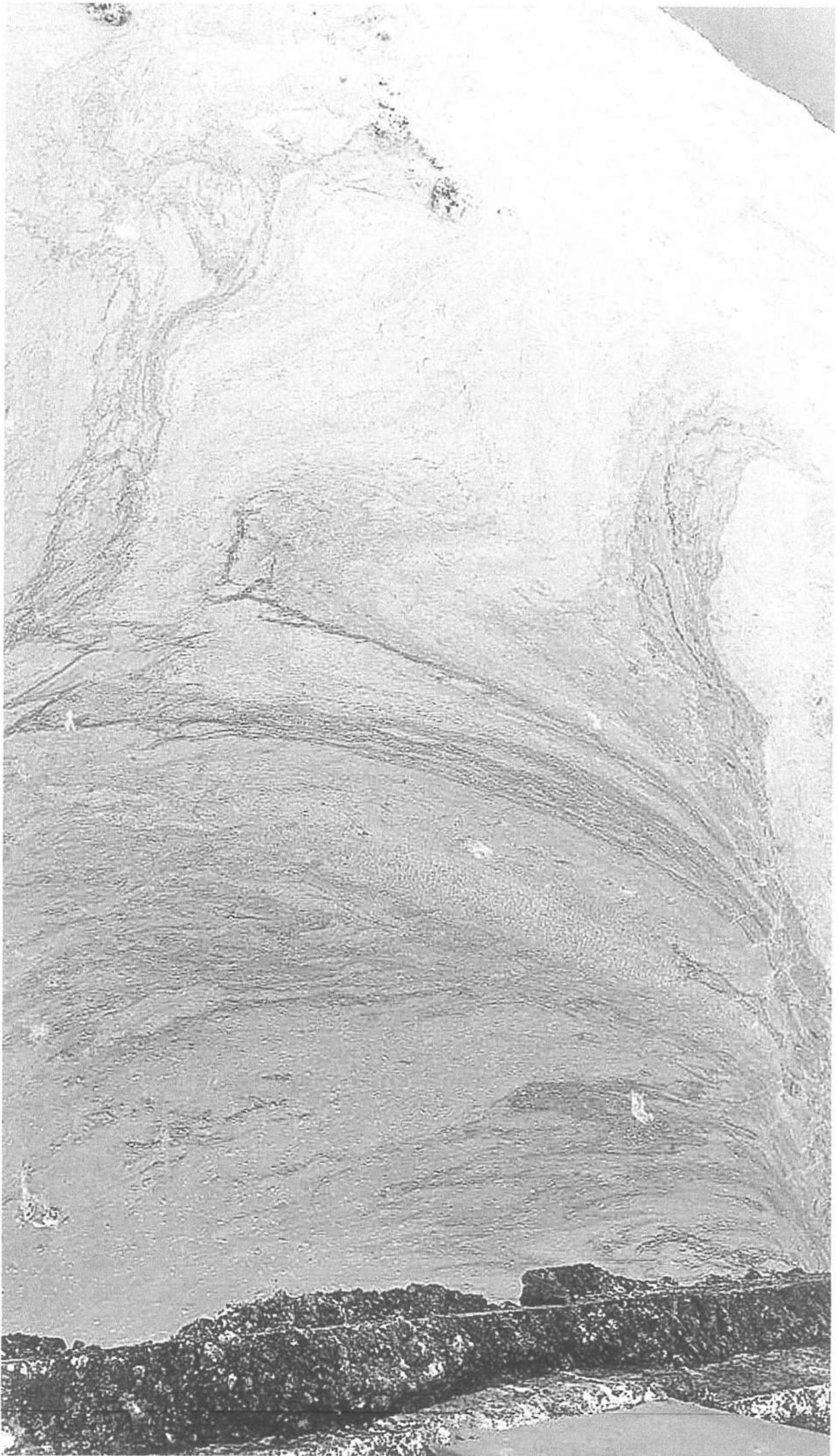


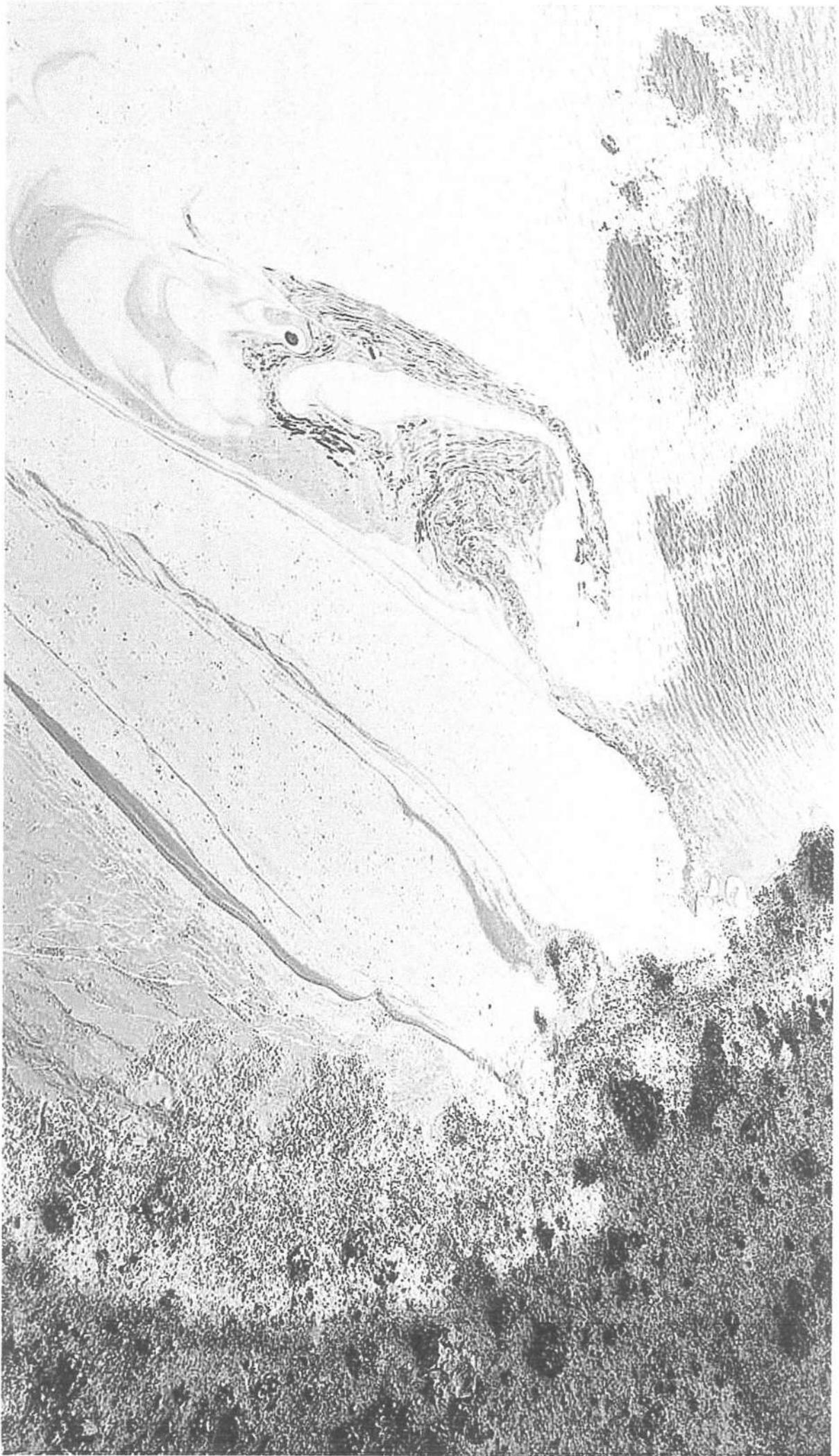
FISH DIED DUE ASH POLLUTION.

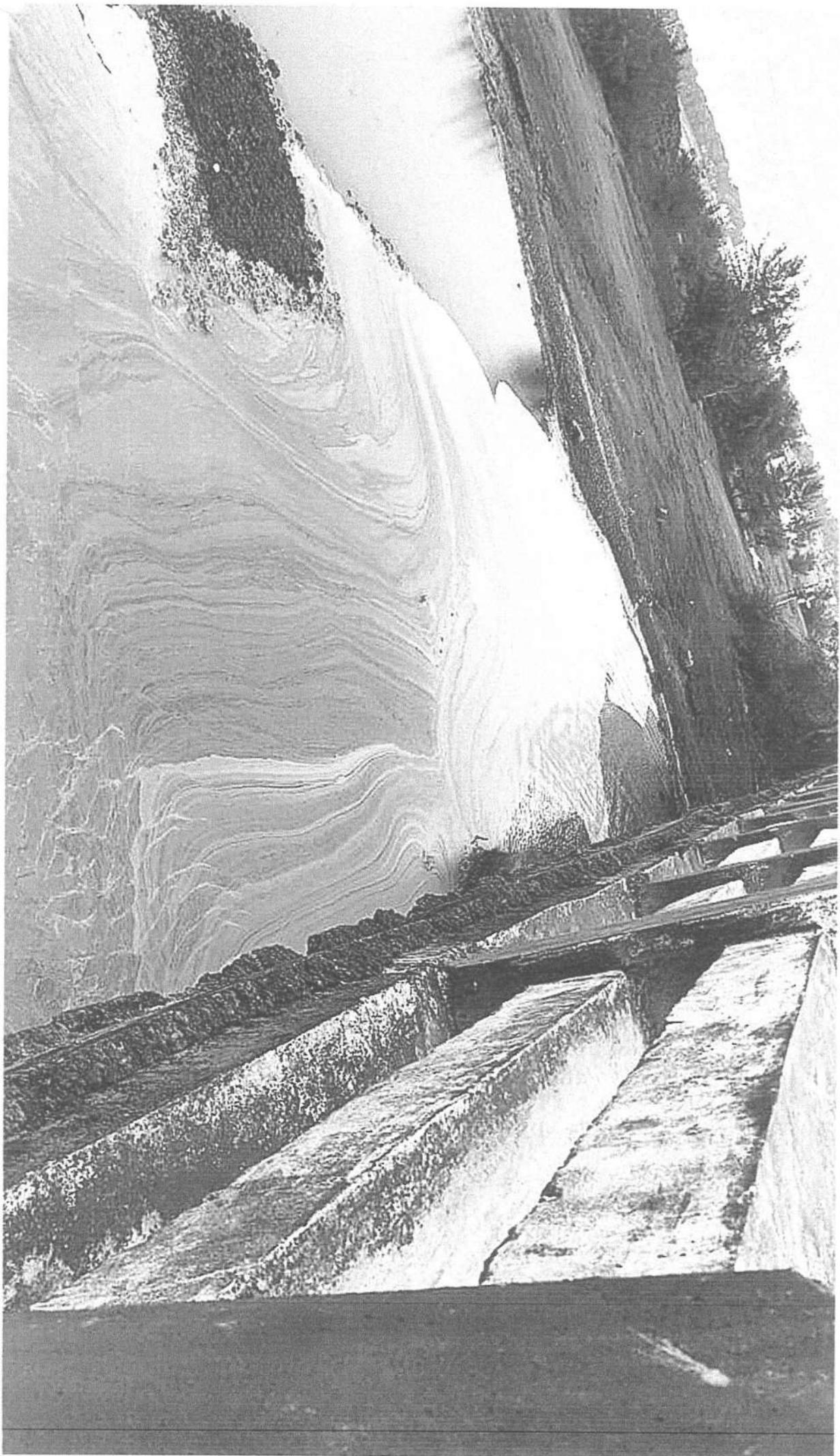




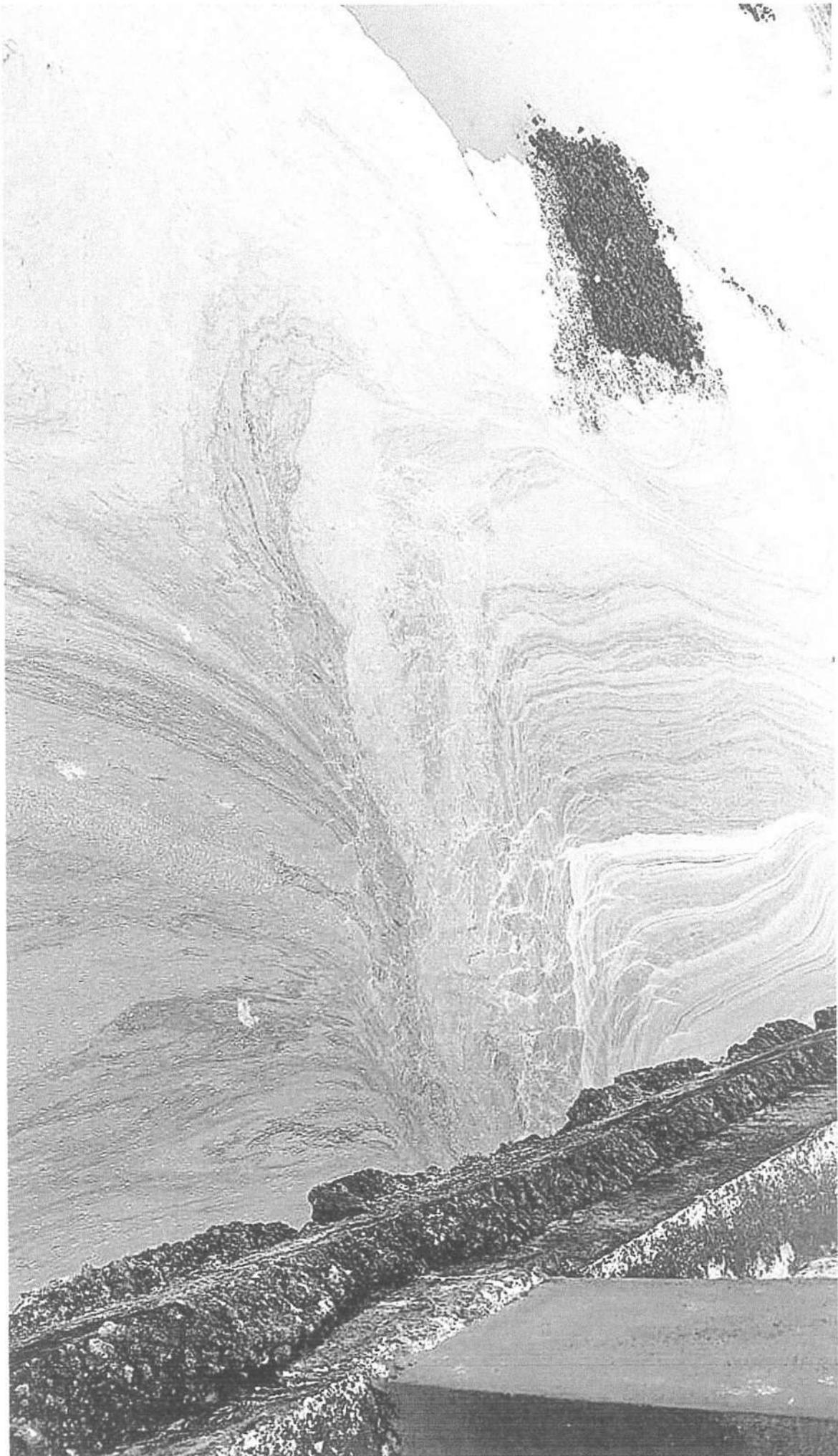


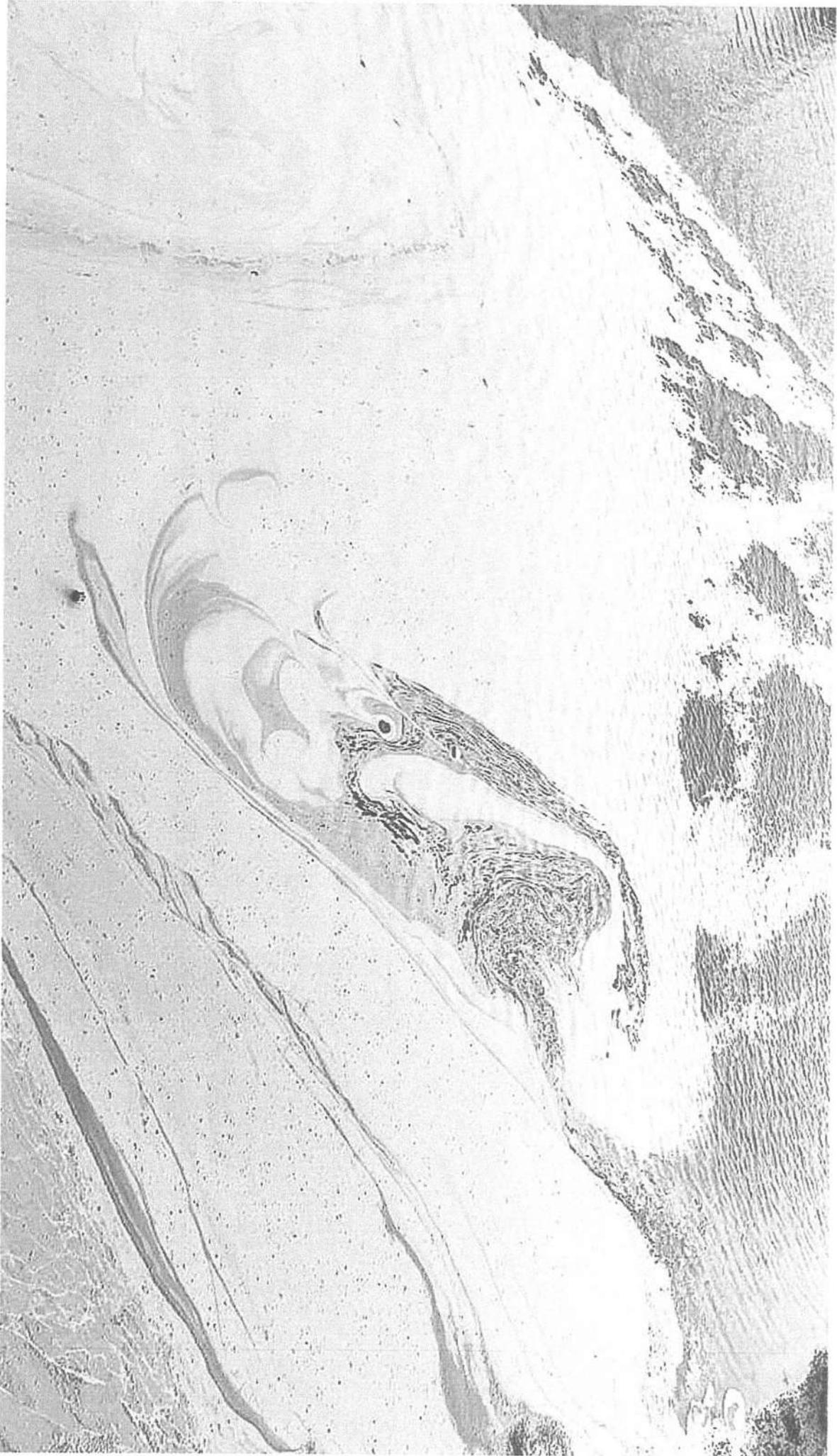




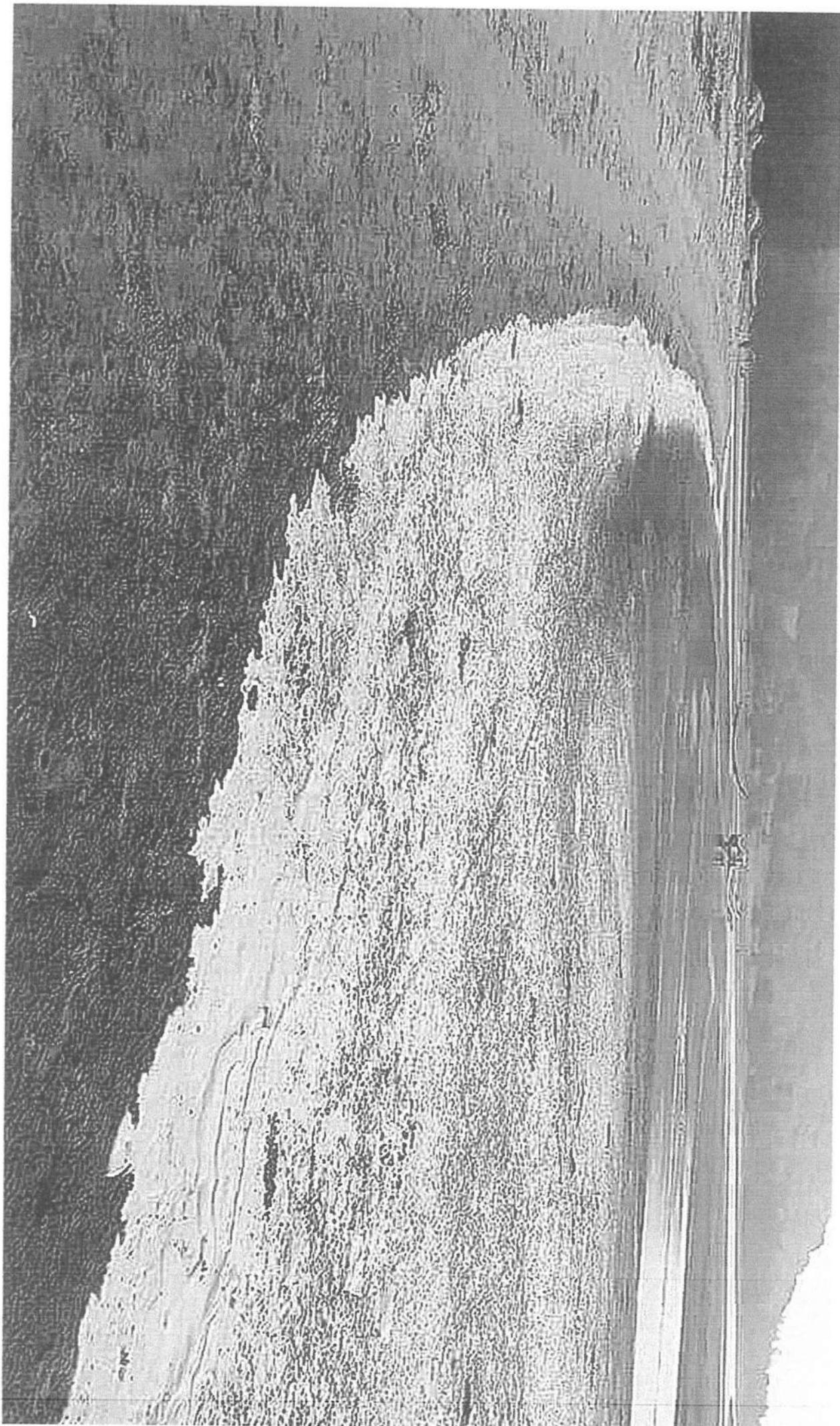


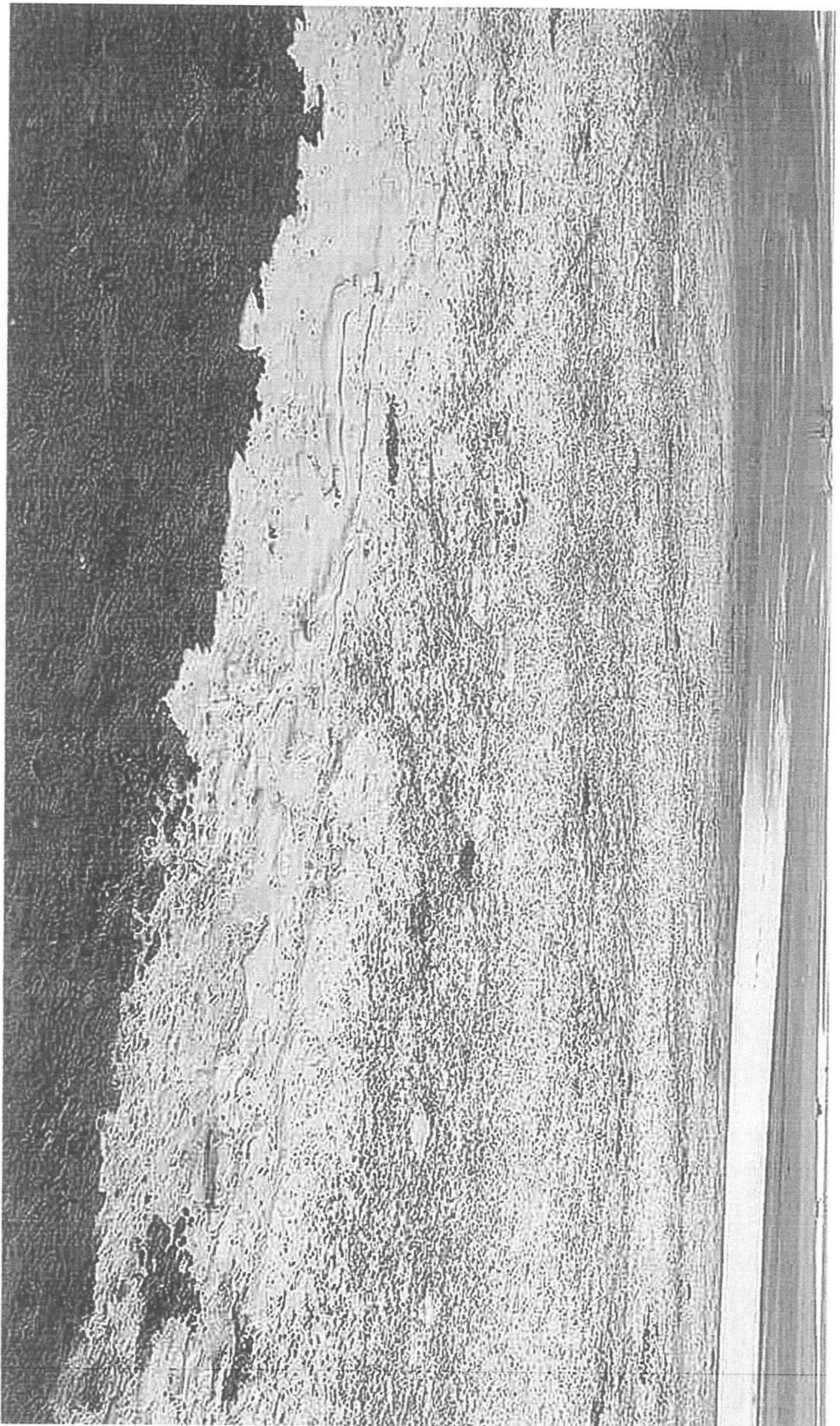




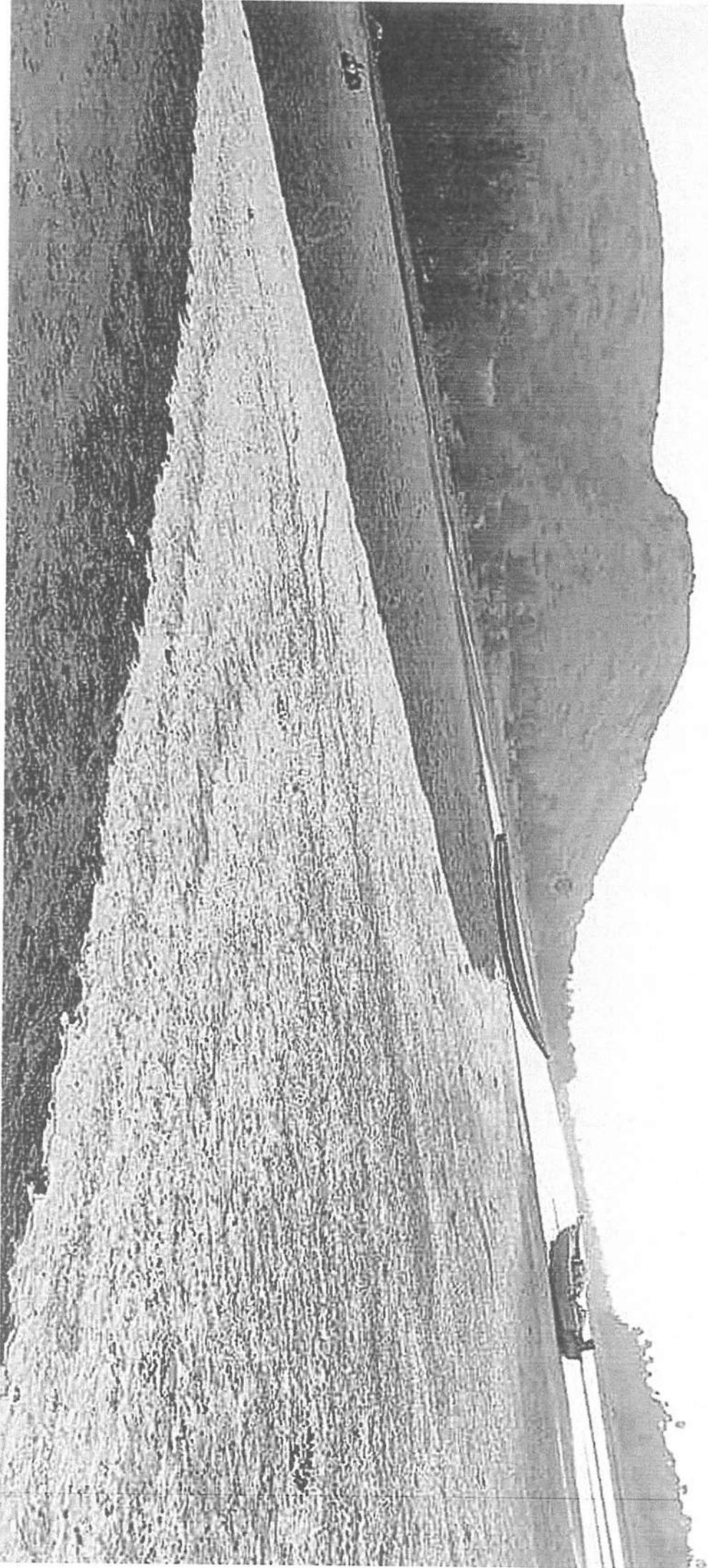


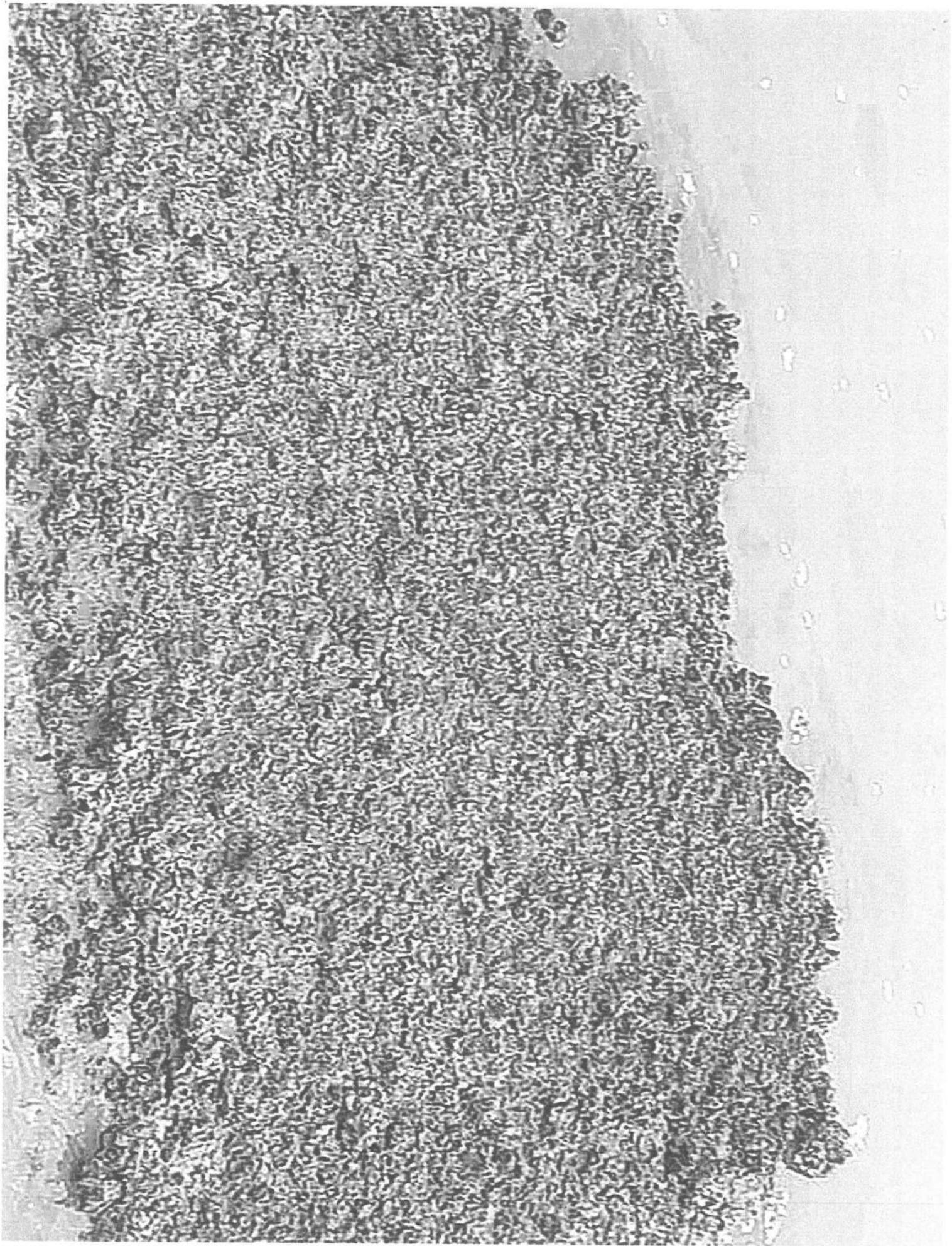










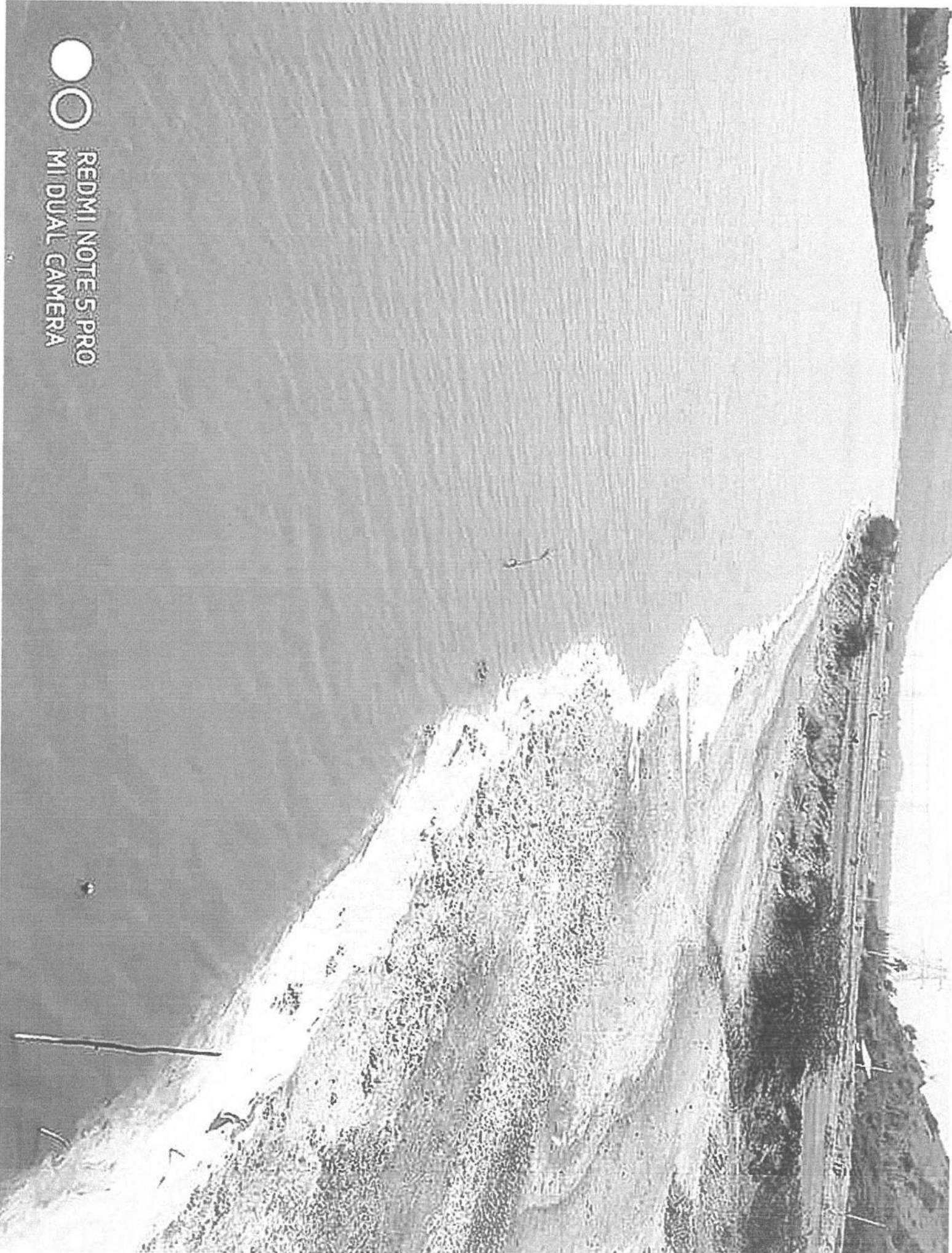


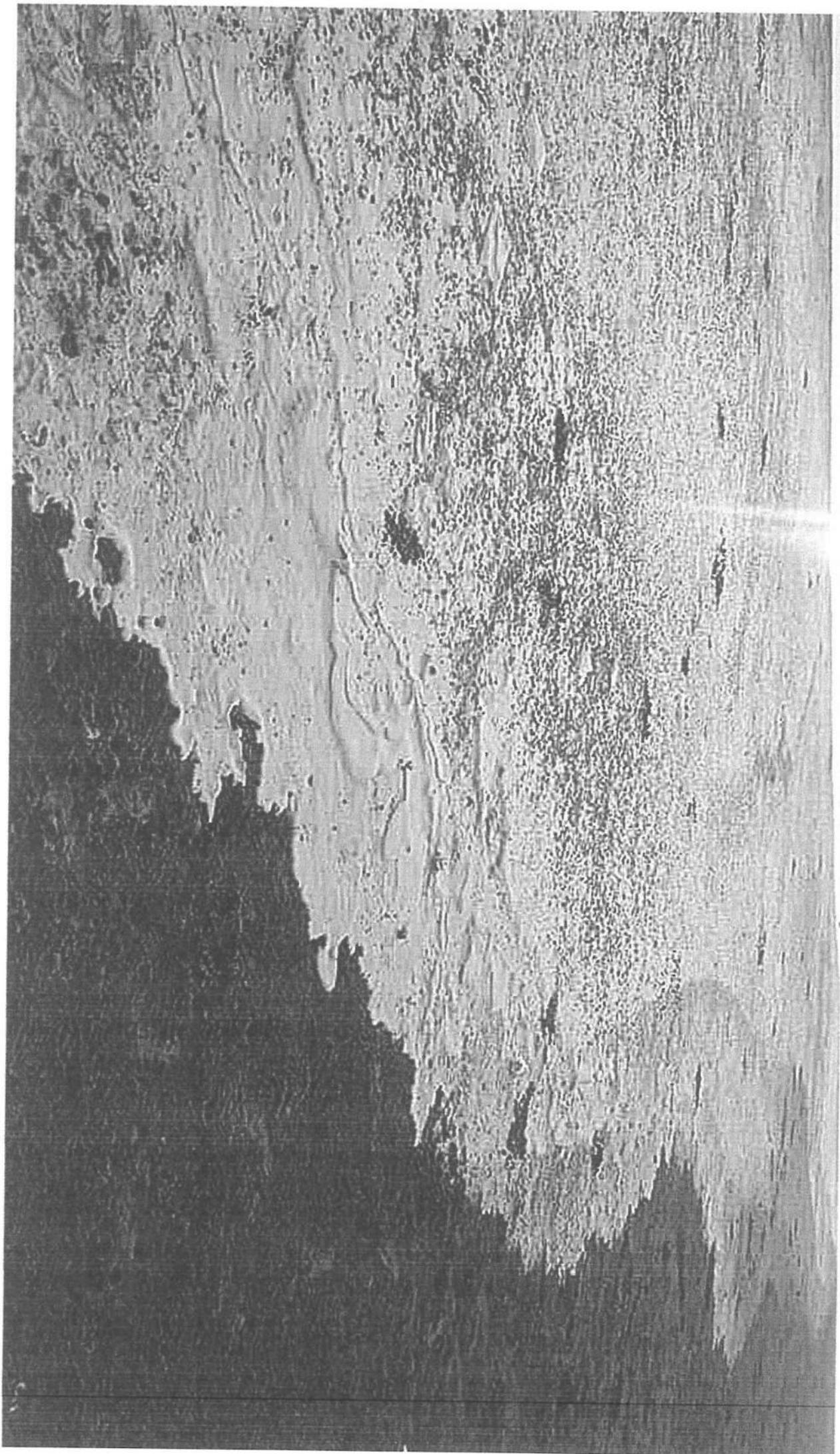


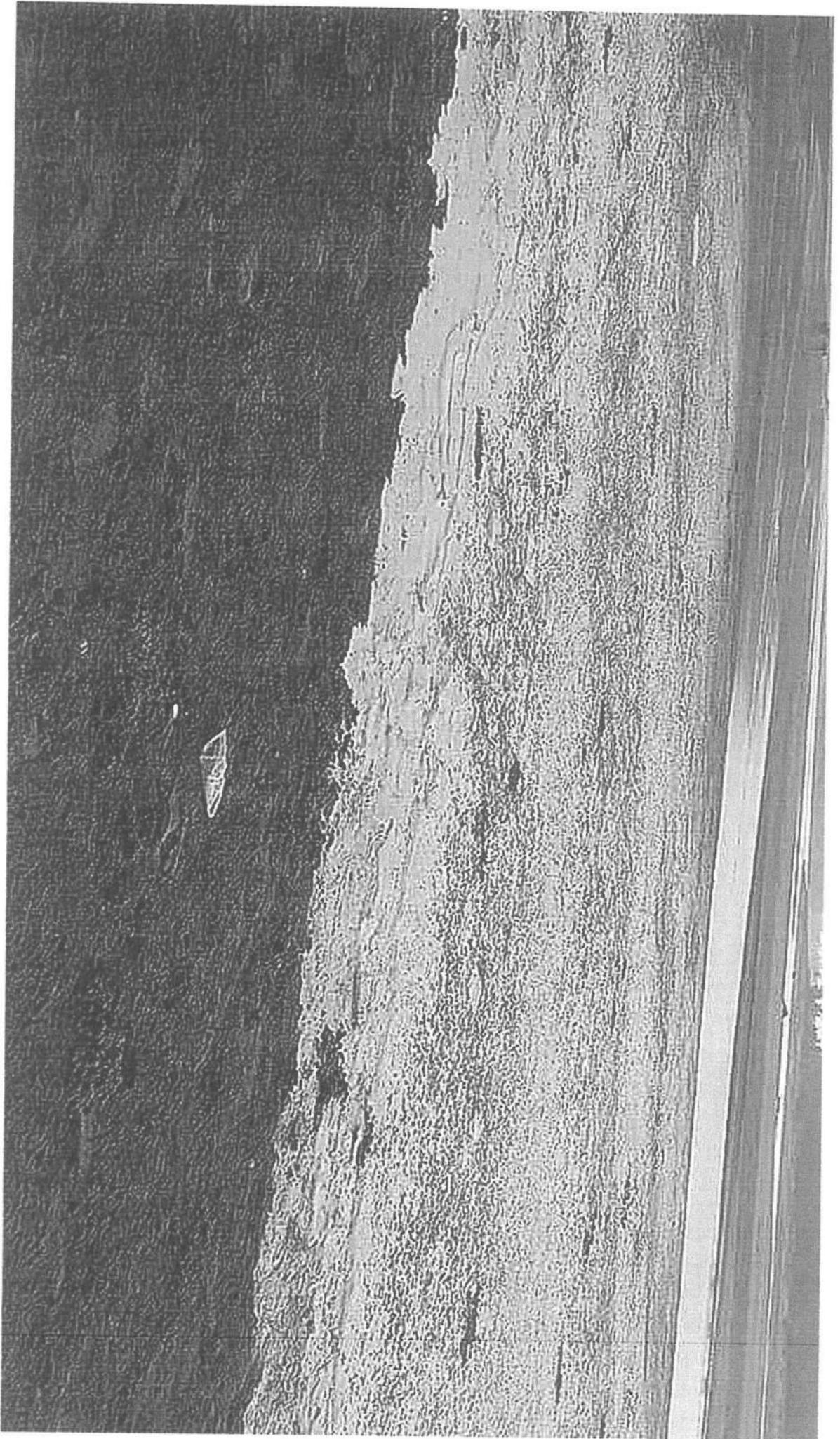
RED MOUNTAIN PRO
CAMERA



REDMI NOTE 5 PRO
MI DUAL CAMERA









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



Joint Committee at Pittavanipalem Village



Joint Committee at Marada Dasaripeta



Joint Committee at Devada village



Joint committee inspection at Ash Pond area



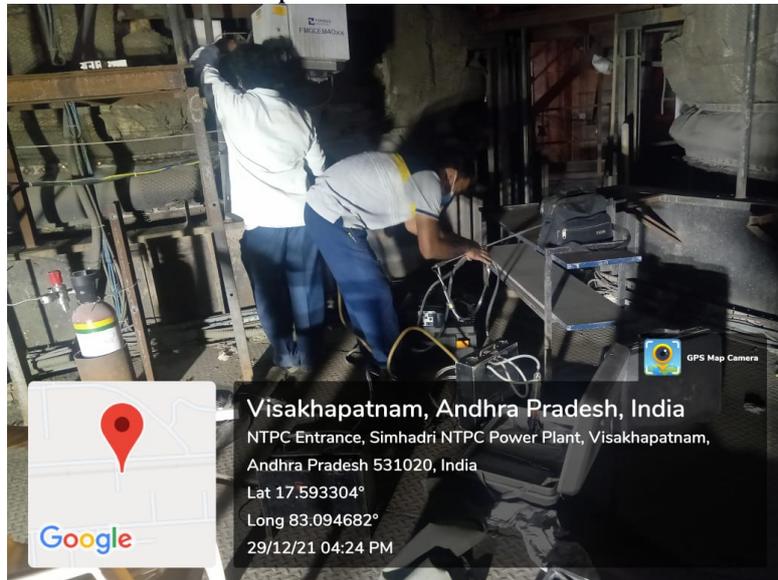
Excavation activity in Ash Pond



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



ANDHRA PRADESH POLLUTION CONTROL BOARD

ZONAL LABORATORY, VISAKHAPATNAM

Behind RTA Office, Madhavadar VUDA Colony
Visakhapatnam – 530 018.

Annexure-V

M.RAVI, M.Sc.,
SENIOR ENVIRONMENTAL SCIENTIST

Ph : 0891-2719380/481
e-mail: zovsplab-ses2@ appcb.gov.in

FORM – IV

REPORT BY THE STATE BOARD ANALYST

[See Rule-14]

Report No. 2021 – 12 – A – 006

Date:06.01.2022

I hereby certify that I M. Ravi State Board Analyst duly appointed under sub-section (3) of Section 26 of the Air (Prevention and Control of Pollution) Act, 1981, received on the day of 22.09.2021 from Junior Scientific Officer, Central Laboratory, Vijayawada, the following Ambient Air Quality Monitoring conducted on the top of storage building of M/s Simhadri Super Thermal Power Project, NTPC Ltd., Parawada, Visakhapatnam District collected on 29.12.2021 for analysis.

I further certify that I have analyzed the above mentioned sample from 31.12.2021 to 06.01.2022 and declare the results of the analysis to be as follow: -

S.No.	Sample No.	Unit	PM ₁₀	SO ₂	NO ₂	NH ₃
1.	2021-12-A-006	µg/m ³	138.0	21.0	18.0	24.0
NAAQ Standard (24 Hr. Avg)			100.0	80.0	80.0	400.0

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

Signed this on:06.01.2022

Address:

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

SIGNATURE OF THE STATE BOARD ANALYST



ANDHRA PRADESH POLLUTION CONTROL BOARD

ZONAL LABORATORY, VISAKHAPATNAM

Behind RTA Office, Madhavadhara VUDA Colony

Visakhapatnam – 530 018.

Ph: 0891-2719480/380/481

e-mail:zovsplab-ses2@appcb.gov.in

M. RAVI, M.Sc

SENIOR ENVIRONMENTAL SCIENTIST

AMBIENT AIR QUALITY MONITORING REPORT

Analysis Report No. : 2021 – 12 – A – 007

Monitoring Location : On the terrace of complainant's house,
Sri S. Brahmam, D.No. 6-7, Pittavanipalem (V),
Kalapaka (P), Parawada (M), Visakhapatnam District.

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

Results:-

S.No.	Date of monitoring	Parameters (24 Hrs Avg.)			
		PM ₁₀ ($\mu\text{g}/\text{m}^3$)	SO ₂ ($\mu\text{g}/\text{m}^3$)	NO ₂ ($\mu\text{g}/\text{m}^3$)	NH ₃ ($\mu\text{g}/\text{m}^3$)
1.	29.12.2021 to 30.12.2021	116.0	11.0	16.0	22.0
Standards(24 hrs average)		100.0	80.0	80.0	400.0


SENIOR ENVIRONMENTAL SCIENTIST



ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY, VISAKHAPATNAM

D.No.39-33-20/4, Behind RTA Office, Madhavadhara VUDA Colony,
Visakhapatnam – 530 018.

M. RAVI, M.Sc
SENIOR ENVIRONMENTAL SCIENTIST

Ph : 0891-2719380/ 481
e-mail:zovsplab-ses2@appcb.gov.in

FORM – IV
REPORT BY THE STATE BOARD ANALYST

[See Rule-14]

Report No. 2021 – 12 – ST – 008

Date:06.01.2022

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, NTPC Ltd., Parawada (M), Visakhapatnam District** collected from the **Stack attached to 1 X 1675 TPH Coal Fired Boiler (Unit-II) (ST-008)** collected on **29.12.2021** and received on the day of **30.12.2021** 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 **30.12.2021 to 06.01.2022** and declare the result of the analysis to be as follows: -

S.No.	Sample No.	Values	Values		
		Particulate Matter (PM)	SO ₂ (mg/Nm ³)	NO _x (mg/Nm ³)	Hg (mg/Nm ³)
1	Stack attached to 1 X 1675 TPH Coal Fired Boiler (Unit-II)	74.6	1095.0	392.0	0.002
Standard (mg/Nm ³)		115.0	--	--	--

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

Remarks: Standards are not prescribed for SO₂, NO_x & Hg in the CFO issued by APPCB.

Signed this:06.01.2022

Address:

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


SIGNATURE OF THE STATE BOARD ANALYST



ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY, VISAKHAPATNAM

D.No.39-33-20/4, Behind RTA Office, Madhavadhara VUDA Colony,
Visakhapatnam – 530 018.

M. RAVI, M.Sc
SENIOR ENVIRONMENTAL SCIENTIST

Ph : 0891-2719380/ 481
e-mail:zovsplab-ses2@appcb.gov.in

FORM – IV
REPORT BY THE STATE BOARD ANALYST

[See Rule-14]

Report No. 2021 – 12 – ST – 009

Date: 06.01.2022

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, NTPC Ltd., Parawada (M), Visakhapatnam District** collected from the **Stack attached to 1 X 1675 TPH Coal Fired Boiler (Unit-IV) (ST-009)** collected on **29.12.2021** and received on the day of **30.12.2021** 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 **30.12.2021 to 06.01.2022** and declare the result of the analysis to be as follows: -

S.No.	ample No.	Values	Values		
		Particulate Matter (PM)	SO ₂ (mg/Nm ³)	NO _x (mg/Nm ³)	Hg (mg/Nm ³)
1	Stack attached to 1 X 1675 TPH Coal Fired Boiler (Unit-IV)	59.3	1188.0	364.0	0.001
Standard (mg/Nm ³)		100.0	--	--	--

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

Remarks: Standards are not prescribed for SO₂, NO_x & Hg in the CFO issued by APPCB.

Signed this: 06.01.2022

Address:

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


SIGNATURE OF THE STATE BOARD ANALYST

रजिस्ट्री सं० डी० एल०-33004/99

REGD. NO. D. L.-33004/99


भारत का राजपत्र
The Gazette of India

असाधारण

EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (ii)

PART II—Section 3—Sub-section (ii)

प्राधिकार से प्रकाशित

PUBLISHED BY AUTHORITY

सं. 2620]

नई दिल्ली, मंगलवार, दिसम्बर 8, 2015/अग्रहायण 17, 1937

No. 2620]

NEW DELHI, TUESDAY, DECEMBER 8, 2015/AGRAHAYANA 17, 1937

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 7 दिसम्बर, 2015

का.आ. 3305(अ).—केंद्रीय सरकार, पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 6 और धारा 25 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए पर्यावरण (संरक्षण) नियम, 1986 का और संशोधन करने के लिए निम्नलिखित नियम बनाती है, अर्थात् :—

1.(1) इन नियमों का संक्षिप्त नाम पर्यावरण (संरक्षण) संशोधन नियम, 2015 है।

(2) ये उनके राजपत्र में प्रकाशन की तारीख को प्रवृत्त होंगे।

2. पर्यावरण (संरक्षण) नियम, 1986 की अनुसूची 1 में,—

(क) क्रम सं. 5 और उससे संबंधित प्रविष्टियों के स्थान पर निम्नलिखित क्रम सं. और प्रविष्टियां अंतःस्थापित की जाएंगी, अर्थात् :—

क्रम सं.	उद्योग	मापदंड	मानक
1	2	3	4.
5क	ताप विद्युत संयंत्र (जल उपभोग सीमा)	जल उपभोग	I. एक बार शीतलन (ओटीसी) के माध्यम से सभी संयंत्र शीतलन टावरों (सीटी) को प्रतिष्ठापित करेंगे और अधिसूचना की तारीख से दो वर्ष की अवधि के भीतर अधिकतम 3.5m ³ /MWh के विनिर्दिष्ट जल उपभोग को हासिल करेंगे।

.5113 GI/2015

(1)

			<p>II. सभी विद्यमान सीटी-आधारित संयंत्र 3.5m³/MWh इस अधिसूचना के प्रकाशन की तारीख से दो वर्ष के भीतर अधिकतम 3.5m³/MWh तक के विनिर्दिष्ट जल उपभोग को कम करेंगे।</p> <p>III. जनवरी, 2017 के पश्चात् प्रतिष्ठापित किए जाने वाले नए संयंत्र अधिकतम 2.5 m³/MWh तक के विनिर्दिष्ट जल उपभोग को पूरा करेंगे और शून्य जल दुर्व्यय को हासिल करेंगे।</p>
--	--	--	--

(ख) क्रम सं. 25 और उससे संबंधित प्रविष्टियों के पश्चात् निम्नलिखित क्रम सं. और प्रविष्टियां रखी जाएंगी, अर्थात् :—

क्रम सं.	उद्योग	मापदंड	मानक
1	2	3	4
		विवक्त पदार्थ	100 mg/Nm ³
		सल्फर डायोक्साइड (SO ₂)	600 mg/Nm ³ (500 मेगावाट से कम क्षमता की इकाईयों से लघु इकाईयां) 200 mg/Nm ³ (500 मेगावाट और उससे अधिक क्षमता की इकाईयां)
		नाइट्रोजन के आक्साइड (NO _x)	300 mg/Nm ³
		पारा (Hg)	0.03 mg/Nm ³ (500 मेगावाट और उससे अधिक क्षमता की इकाईयां)
		1 जनवरी, 2003 के पश्चात् 31 दिसंबर, 2016 तक प्रतिष्ठापित टीपीपी (इकाईयां)	
		विवक्त पदार्थ	50 mg/Nm ³
		सल्फर डायोक्साइड (SO ₂)	600 mg/Nm ³ (500 मेगावाट से कम क्षमता की इकाईयों से लघु इकाईयां) 200 mg/Nm ³ (500 मेगावाट और उससे अधिक क्षमता की इकाईयां)
		नाइट्रोजन के आक्साइड (NO _x)	300 mg/Nm ³
		पारा (Hg)	0.03 mg/Nm ³
		1 जनवरी, 2017 से प्रतिष्ठापित टीपीपी (इकाईयां)	
		विवक्त पदार्थ	30 mg/Nm ³
		सल्फर डायोक्साइड (SO ₂)	100 mg/Nm ³
		नाइट्रोजन के आक्साइड	100 mg/Nm ³

	(NOx)	
	पारा (Hg)	0.03 mg/Nm ³

- * टीपीपी (इकाईयां) इस अधिसूचना के प्रकाशन की तारीख से दो वर्ष के भीतर परिसीमाओं को पूरा करेंगी।
 ** इसके अंतर्गत सभी टीपीपी (इकाईयां) हैं, जिन्हें पर्यावरणीय निकासी प्रदान की गई है और संनिर्माण के अधीन है।

[फा. सं. क्यू-15017/40/2007-सीपीडब्ल्यू]

डा. राशिद हसन, सलाहकार

टिप्पण :- मूल नियम भारत के राजपत्र, असाधारण, भाग II, खंड 3, उपखंड (ii) में सं. का.आ. 844(अ) 19 नवंबर, 1986 द्वारा प्रकाशित किए गए थे और उनका पश्चातवर्ती का.आ. 433(अ) तारीख 18 अप्रैल, 1987 ; सा.का.नि 176(अ) तारीख 2 अप्रैल, 1996; सा.का.नि. 97 (अ), तारीख 18 फरवरी, 2009 ; सा.का.नि 149(अ) तारीख 4 मार्च, 2009 ; सा.का.नि. 543(अ) तारीख 22 जुलाई, 2009 ; सा.का.नि. 739(अ) तारीख 9 सितम्बर, 2010 ; सा.का.नि. 809(अ) तारीख 4 अक्टूबर, 2010, सा.का.नि. 215(अ) तारीख 15 मार्च, 2011 ; सा.का.नि. 221(अ) तारीख 18 मार्च, 2011 ; सा.का.नि. 354(अ) तारीख 2 मई, 2011 ; सा.का.नि. 424(अ) तारीख 1 जून, 2011 ; सा.का.नि. 446(अ) तारीख 13 जून, 2011 ; सा.का.नि. 152(अ) तारीख 16 मार्च, 2012 ; सा.का.नि. 266(अ) तारीख 30 मार्च, 2012 ; सा.का.नि. 277(अ) तारीख 31 मार्च, 2012; सा.का.नि. 820(अ) तारीख 9 नवम्बर, 2012 ; सा.का.नि. 176(अ) तारीख 18 मार्च, 2013 ; सा.का.नि. 535(अ) तारीख 7 अगस्त, 2013 ; सा.का.नि. 771(अ) तारीख 11 दिसम्बर, 2013 ; सा.का.नि. 2(अ) तारीख 2 जनवरी, 2014 ; सा.का.नि. 229(अ) तारीख 28 मार्च, 2014 ; सा.का.नि. 232(अ) तारीख 31 मार्च, 2014 ; सा.का.नि. 325(अ) तारीख 7 मई, 2014, सा.का.नि. 612(अ) तारीख 25 अगस्त, 2014 और अन्तिम संशोधन सा.का.नि. 789(अ) तारीख 11 नवम्बर, 2014 किया गया था।

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 7th December, 2015

S.O. 3305(E).— In exercise of the powers conferred by sections 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely:—

1. (1) These rules may be called the Environment (Protection) Amendment Rules, 2015.
 (2) They shall come into force on the date of their publication in the Official Gazette.
2. In the Environment (Protection) Rules, 1986, in Schedule – I, -
 (a) after serial number 5 and entries relating thereto, the following serial number and entries shall be inserted, namely:—

Sr. No.	Industry	Parameter	Standards
1	2	3	4
5A.	Thermal Power Plant (Water consumption limit)	Water consumption	I. All plants with Once Through Cooling (OTC) shall install Cooling Tower (CT) and achieve specific water consumption upto maximum of 3.5m ³ /MWh within a period

			<p>of two years from the date of publication of this notification.</p> <p>II. All existing CT-based plants reduce specific water consumption upto maximum of 3.5m³/MWh within a period of two years from the date of publication of this notification.</p> <p>III. New plants to be installed after 1st January, 2017 shall have to meet specific water consumption upto maximum of 2.5 m³/MWh and achieve zero waste water discharged”;</p>
--	--	--	---

(b) for serial number 25, and the entries related thereto, the following serial number and entries shall be substituted, namely:-

Sr. No.	Industry	Parameter	Standards
1	2	3	4
25.	Thermal Power Plant	TPPs (units) installed before 31 st December, 2003*	
		Particulate Matter	100 mg/Nm ³
		Sulphur Dioxide (SO ₂)	600 mg/Nm ³ (Units Smaller than 500MW capacity units) 200 mg/Nm ³ (for units having capacity of 500MW and above)
		Oxides of Nitrogen (NO _x)	600 mg/Nm ³
		Mercury (Hg)	0.03 mg/Nm ³ (for units having capacity of 500MW and above)
		TPPs (units) installed after 1 st January, 2003, upto 31 st December, 2016*	
		Particulate Matter	50 mg/Nm ³
		Sulphur Dioxide (SO ₂)	600 mg/Nm ³ (Units Smaller than 500MW capacity units) 200 mg/Nm ³ (for units having capacity of 500MW and above)
		Oxides of Nitrogen (NO _x)	300 mg/Nm ³
		Mercury (Hg)	0.03 mg/Nm ³
		TPPs (units) to be installed from 1 st January, 2017**	
		Particulate Matter	30 mg/Nm ³
		Sulphur Dioxide (SO ₂)	100 mg/Nm ³
		Oxides of Nitrogen (NO _x)	100 mg/Nm ³
		Mercury (Hg)	0.03 mg/Nm ³

*TPPs (units) shall meet the limits within two years from date of publication of this notification.

**Includes all the TPPs (units) which have been accorded environmental clearance and are under construction”.

[F. No. Q-15017/40/2007-CPW]

Dr. RASHID HASAN, Advisor

Note: - The principal rules were published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (i) *vide* number S.O. 844(E), dated the 19th November, 1986 and subsequently amended *vide* the following notifications:—
S.O. 433(E), dated 18th April 1987; G.S.R. 176(E) dated 2nd April, 1996; G.S.R. 97(E), dated the 18th February, 2009; G.S.R. 149(E), dated the 4th March, 2009; G.S.R. 543(E), dated 22nd July, 2009; G.S.R. 739(E), dated the 9th September, 2010; G.S.R. 809(E), dated, the 4th October, 2010; G.S.R. 215(E), dated the 15th March, 2011; G.S.R. 221(E), dated the 18th March, 2011; G.S.R. 354(E), dated the 2nd May, 2011; G.S.R. 424(E), dated the 1st June, 2011; G.S.R. 446(E), dated the 13th June, 2011; G.S.R. 152(E), dated the 16th March, 2012; G.S.R. 266(E), dated the 30th March, 2012; and G.S.R. 277(E), dated the 31st March, 2012; and G.S.R. 820(E), dated the 9th November, 2012; G.S.R. 176(E), dated the 18th March, 2013; G.S.R. 535(E), dated the 7th August, 2013; G.S.R. 771(E), dated the 11th December, 2013; G.S.R. 2(E), dated the 2nd January, 2014; G.S.R. 229(E), dated the 28th March, 2014; G.S.R. 232(E), dated the 31st March, 2014; G.S.R. 325(E), dated the 07th May, 2014, G.S.R. 612(E), dated the 25th August, 2014 and lastly amended *vide* notification G.S.R. 789(E), dated 11th November, 2014.


सत्यमेव जयते

भारत का राजपत्र

The Gazette of India

असाधारण

EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (ii)

PART II—Section 3—Sub-section (ii)

प्राधिकार से प्रकाशित

PUBLISHED BY AUTHORITY

सं. 590]

नई दिल्ली, सोमवार, मार्च 7, 2016/फाल्गुन 17, 1937

No. 590]

NEW DELHI, MONDAY, MARCH 7, 2016/ PHALGUNA 17, 1937

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

शुद्धिपत्र

नई दिल्ली, 7 मार्च, 2016

का.आ. 682(अ).—भारत के राजपत्र में प्रकाशित पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अधिसूचना सा.का.नि. 3305(अ) तारीख 7 दिसंबर, 2015 द्वारा अधिसूचित पर्यावरण (संरक्षण) संशोधन नियम, 2015 के अंतर्गत आने वाली नीचे उल्लिखित प्रविष्टियों को निम्न पढ़ें:

1. पृष्ठ सं. 2, क्रम सं. 25, पंक्ति सं. 2 के नीचे सारणी में स्तम्भ 3 और 4 में "31 दिसंबर, 2003 से पहले संस्थापित टीपीपी (इकाईयां)"
2. पृष्ठ सं. 2, क्रम सं. 25, पंक्ति सं. 6 की सारणी के स्तम्भ 4 में "300 mg/Nm³" के स्थान पर "600 mg/Nm³" पढ़ें
3. पृष्ठ सं. 2, क्रम सं. 25, पंक्ति सं. 8 की सारणी के स्तम्भ 3 और 4 में "1 जनवरी, 2003" के स्थान पर "1 जनवरी, 2004" पढ़ें

[फा.सं. क्यू.15017/40/2007-सीपीडब्ल्यू]

डा. राशिद हसन, सलाहकार

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE**CORRIGENDUM**

New Delhi, the 7th March, 2016

S.O. 682(E).—In the notification of the Government of India in the Ministry of Environment, Forest and Climate Change vide number S.O. 3305(E), dated the 7th December, 2015, published in the Gazette of India, Part II, Section 3, Sub-section (ii), in page 4, in the Table, against serial number 25, for “1st January, 2003” substitute “1st January, 2004”.

[F.No. Q-15017/40/2007-CPW]

Dr. RASHID HASAN, Advisor



भारत का राजपत्र The Gazette of India

असाधारण

EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (i)

PART II—Section 3—Sub-section (i)

प्राधिकार से प्रकाशित

PUBLISHED BY AUTHORITY

सं. 435]

नई दिल्ली, शुक्रवार, जून 29, 2018/आषाढ़ 8, 1940

No. 435]

NEW DELHI, FRIDAY, JUNE 29, 2018/ASHADHA 8, 1940

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 28 जून, 2018

सा.का.नि. 593 (अ).— भारत के राजपत्र, असाधारण में भारत सरकार, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की दिनांक 16 अक्टूबर, 2017 की अधिसूचना संख्या सा.का.नि. 3337 (अ) के द्वारा एक प्रारूप अधिसूचना प्रकाशित की गई थी जिसमें उन सभी व्यक्तियों, जिनके उससे प्रभावित होने की संभावना थी, से उस तारीख से जिसकी उक्त अधिसूचना की राजपत्र की प्रतियां जन-साधारण को उपलब्ध कराई गई थीं, साठ दिन की अवधि के भीतर आपत्तियां और सुझाव मांगे गए थे।

और, राजपत्र की प्रतियां दिनांक 16 अक्टूबर, 2017 को जन-साधारण को उपलब्ध कराई गई थीं।

और, केंद्र सरकार द्वारा इस प्रारूप अधिसूचना के प्रत्युत्तर में सभी व्यक्तियों और पक्षों से प्राप्त सभी आपत्तियों और सुझावों पर विधिवत् रूप से विचार किया गया है।

अतः अब, पर्यावरण (संरक्षण) नियम, 1986 के नियम (5) के उप नियम (3) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 6 और 25 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, केंद्र सरकार, एतद्वारा पर्यावरण (संरक्षण) नियम, 1986 में और संशोधन करने के लिए निम्नलिखित संशोधन करती है, अर्थात्:—

1. (1) इन नियमों का संक्षिप्त नाम पर्यावरण (संरक्षण) संशोधन नियम, 2018 है।

(2) ये राजपत्र में प्रकाशन की तारीख को प्रवृत्त होंगे।

2. पर्यावरण (संरक्षण) नियम, 1986 की अनुसूची 1 में,—

(क) स्तंभ 4 में क्रम संख्या 5क के सामने, मद 3 के स्थान पर निम्नलिखित मद रखी जाएगी, अर्थात्:—

“III. विनिर्दिष्ट जल उपभोग, तारीख 1 जनवरी, 2017 के पश्चात् संस्थापित किए गए नए संयंत्र के लिए 3.0 मी³/एमडब्ल्यूएच से अधिकतम नहीं होगा और ये संयंत्र शून्य अपशिष्ट जल बहाव को हासिल करेंगे।”

(ख) क्रम संख्या 5 क और उससे संबंधित प्रविष्टियों के पश्चात् निम्नलिखित क्रम संख्या और प्रविष्टियों को अंतःस्थापित किया जाएगा, अर्थात्:-

क्रम सं	उद्योग	पैरामीटर	मानक
1	2	3	4
"5ख	तापीय विद्युत संयंत्र (जल उपभोग सीमा समुद्री जल का प्रयोग)	जल उपभोग	उपरोक्त क्रम सं 5क में स्तंभ 4 में मद I से III समुद्री जल का प्रयोग करने वाले तापीय विद्युत संयंत्र पर लागू नहीं होगा";

(ग) क्रम सं 25 में, निम्नलिखित टिप्पण अंतःस्थापित किया जाएगा, अर्थात्:—

"टिप्पण : सल्फर डाइआक्साइड, नाइट्रोजन और धूल-कण के लिए सभी मानीटर किए गए मान को शुष्क आधार पर 6% आक्सीजन के लिए संशोधित किया जाएगा।";

(घ) क्रम सं 33 और उससे संबंधित प्रविष्टियों के पश्चात् निम्नलिखित क्रम संख्या और प्रविष्टियों को अंतःस्थापित किया जाएगा:-

क्रम सं	उद्योग	पैरामीटर	मानक
1	2	3	4
"33क	आर्द्र-फ्लू गैस डीसल्फयुराईजेशन (एफजीडी) के साथ तापीय विद्युत संयंत्र	चिमनी की ऊंचाई/मीटर में सीमा	विद्युत उत्पादन क्षमता: 100 मेगावाट और अधिक एच= 6.902 (क्यू x 0.277) ^{0.555} अथवा 100 मीटर न्यूनतम 100 मेगावाट से कम एच= 6.902 (क्यू x 0.277) ^{0.555} अथवा 30 मीटर जो भी अधिक हो"; क्यू=सल्फर डाइआक्साइड की कि.ग्रा./उत्सर्जन दर एच= मीटर में भैतिक स्टाक ऊंचाई।" चिमनी से जुड़ी सभी यूनिटों का योग टिप्पणी : ये मानक कोयला/लिग्नाइट आधारित तापीय विद्युत संयंत्रों पर लागू होंगे।

[फा. सं. क्यू-15017/40/2007-सीपीडब्ल्यू]

डॉ. ए. सेंथिल वेल, वैज्ञानिक 'जी'

टिप्पण : मूल नियम के राजपत्र असाधारण, भाग II, खंड 3, उपखंड (i) का.आ. 844 (अ) तारीख 19 नवम्बर, 1986 द्वारा प्रकाशित किया गया था और पिछली बार अधिसूचना सा.का.नि. 568 (अ) दिनांक 18 जून, 2018 के द्वारा संशोधित किया गया।

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 28th June, 2018

G.S.R. 593 (E).—Whereas, a draft notification, for Thermal Power Plants was published in the Gazette of India, Extraordinary, vide notification of the Government of India in the erstwhile Ministry of Environment, Forest and Climate Change number G.S.R. 3337(E), dated the 16th October, 2017, inviting objections and suggestions from all persons likely to be affected thereby within a period of sixty days from the dated on which copies of the Gazette containing the said notification were made available to the public;

And Whereas, copies of the Gazette were made available to the public on the 16th October, 2017;

And Whereas, all objections and suggestions received from all persons and stakeholders in response to the draft notification have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sections 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986) read with sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely:-

1. (1) These rules may be called the Environment (Protection) Amendment Rules, 2018.
(2) They shall come into force on the date of their publication in the Official Gazette.
2. In the Environment (Protection) Rules, 1986, in Schedule-I,-
(a) against serial number 5A, in column 4, for item III, the following item shall be substituted, namely:-
“III. Specific water consumption shall not exceed maximum of 3.0 m³/MWh for new plants installed after the 1st January, 2017 and these plants shall also achieve zero waste water discharge.”;
(b) after serial number 5A and the entries relating thereto, the following serial number and entries shall be inserted, namely:-

Sl. No.	Industry	Parameter	Standards
1	2	3	4
“5B.	Thermal Power Plant (water consumption limit) using sea water	Water consumption	Items I to III in column 4 in serial number 5A above shall not be applicable to the Thermal Power Plants using sea water”;

- (c) in serial number 25, the following Note shall be inserted, namely:—

“**Note:** All monitored values for SO₂, NO_x and Particulate Matter shall be corrected to 6% Oxygen, on dry basis”;

- (d) after serial number 33 and the entries relating thereto, the following serial number and entries shall be inserted, namely:—

Sl. No.	Industry	Parameter	Standards
1	2	3	4

“33A.	Thermal Power Plants with wet Flue Gas Desulphurization (FGD)	Stack Height/Limit in Meters	Power generation capacity: 100 MW and above $H=6.902(QX0.277)^{0.555}$ or 100 m minimum Less than 100 MW $H=6.902(QX0.277)^{0.555}$ or 30 m whichever is more”; Q = Emission rate of SO ₂ in kg/hr* H = Physical stack height in meter *total of the all Unit’s connected to stack Note: These standards shall apply to coal / lignite based Thermal Power Plants.”.
-------	---	------------------------------	--

[F. No. Q-15017/40/2007-CPW]
 DR. A. SENTHIL VEL, Scientist ‘G’

Note: The principal rules were published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (i) *vide* number S.O. 844 (E), dated the 19th November, 1986 and last amended *vide* notification number G.S.R. 263(E), dated the 22nd March, 2018.

RAKESH
 SUKUL

Digitally signed by RAKESH
 SUKUL
 Date: 2018.07.03 20:39:18
 +05'30'

SPEED POST

B-33014/07/2017-18/IPC-II/TPP/

December 11, 2017

To

The General Manager
 Simhadri Thermal Power Station
 NTPC, Simhadri, Vishakhapatnam - 531 020
 Andhra Pradesh

Sub: Directions under Section 5 of the Environment (Protection) Act, 1986 regarding compliance of emission limit notified vide notification No.S.O.3305 (E) dated 07.12.2015 - reg.

WHEREAS, taking into consideration pollution from thermal power plants, Ministry of Environment, Forest & Climate Change had issued notification in the year 1984 laying out standards for thermal power plants. Further, the stack height regulation was notified in the year 1989 and effluent standard for thermal power plants was notified in the year 1986. The revised temperature limit of discharge of cooling water from the plants was notified in the year 1999 and thereafter use of beneficiated coal in the plants was issued in June 2002. The fly ash utilization notification was also issued on 14th September, 1999 and amended in the year 2003 and 2009. Thereafter, MoEF&CC vide Notification No. S.O.3305(E) dated 07.12.2015 has amended emission limit for particulate matter and notified new limits for Sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x) and mercury emission, and water consumption limit for coal/lignite based thermal power plants. As per the notification dated 07.12.2015, thermal power plants are required to achieve the notified limit within two years from the date of the notification i.e. by 07.12.2017;

WHEREAS, with the implementation of the amendment dated 07.12.2015, it is expected that there would be reduction in emission of PM, Sulphur dioxide and oxide of Nitrogen, which in turn will help in improvement in Ambient Air Quality in and around thermal power plants, besides reduction of mercury emission and water use in the thermal power plants will reduce;

WHEREAS, in the meeting on Coal Washeries (Environment & Forest Clearances) and Emission Norms for Thermal Power Plants chaired by the Hon'ble Minister of Environment, Forest & Climate Change and Minister of Power, Coal & Renewable Energy on June 08, 2016, it was decided that a committee comprising representatives from MoEF & CC, Ministry of Power (MoP), Central electricity Authority (CEA), Ministry of Coal (MoC), Power Grid Corporation of India Limited (PGCI) and Central Pollution Control Board (CPCB) may be constituted to look into the all issues related to implementation of norms;

WHEREAS, following decisions were taken in the meeting:

1. MoP/CEA shall submit action plan by December 2016 for phasing out of the power plants commissioned before December, 2003.
2. MoP / CEA shall submit action plan by December, 2016 in respect of power plants commissioned during January, 2004 to December, 2016 indicating unit wise retrofit / renovation for each power plant. The implementation of action plan shall be taken up in backward manner starting from the plants commissioned in the 2015 and the shall be completed by 15.08.2022
3. MoP and CEA shall coordinate with each State Public Sector Undertakings separately for submission of action plan by December, 2016 for all the power plants.

WHEREAS, it was further decided that MoP shall take action for installation of Flue gas Desulphurisation (FGD) if needed to achieve prescribed SO₂ norms based on the SO₂ emission levels from power plants;

WHEREAS, it was also pointed out that NO_x control technology in case of Indian coal is not established. Selective Catalytic Reduction (SCR) technology is used for NO_x control, however, its feasibility for Indian coal needs to be established. MoP suggested that Pilot studies may be taken up in two plants and based on the results, further action plan to be drawn regarding retrofitting of SCR in plants to achieve prescribed NO_x norms;

WHEREAS, the MoP constituted a committee under the Chairmanship of Chairman, Central Electricity Authority (CEA) on 21.09.2016 to prepare an action plan for implementation of new emission limits;

WHEREAS, to ensure compliance of the new emission norms the MOEF&CC convened a meeting on 23.05.2017 in which CEA, NTPC and the Central Pollution Control Board participated;

WHEREAS, the MOEF&CC received a letter from Secretary Ministry of Power *vide* their D.O. letter No. FU-1/2016-IPC dated 30th June, 2017 indicating the concerns of various thermal power plants in the country with regard to the compliance with the new emission norms for the thermal power plants notified on 7.12.2015 particularly w.r.t. Particulate Matter (PM), Sulphur dioxide (SO₂) & Oxides of Nitrogen (NO_x);

WHEREAS, it was noted that out of present 196667 MW installed capacity, about 60 % capacity (1,15,214 MW) meets the new PM norms with existing ESP installations. Remaining capacity of 64,334 MW which does not meet the new environmental norms regarding PM, requiring retrofitting additional fields in Electrostatic Precipitator (ESP)/replacement of ESP in existing plants to meet the new emission norms of PM;

WHEREAS, Ministry of Power after consultation with Central electricity Authority informed that retrofitting additional fields in

ESP/replacement of ESP in existing plants will need complete shutdown of 4-6 months for each unit;

WHEREAS, in order to meet SO₂ emission norms, FGD system shall be required to be installed in all plants. MoP informed that about 30-36 months required for design & engineering, approvals, funds arrangements, tendering, erection and commissioning of FGD. Besides, planned shutdown will be required as all plants cannot be shut down simultaneously. Another challenge highlighted for installation of FGD was availability of technologies/suppliers. In addition, issues relating to availability of good quality lime stone for operation of FGD and disposal of Gypsum to run the FGD in existing plants were also taken note of;

WHEREAS, the standard of 300 & 100 mg/NM³ would require installation of Selective Non Catalytic Reduction (SNCR) or Selective Non Catalytic Reduction (SCR). While these technologies are established globally, these are not established for Indian Coal, which has high ash content. Therefore, it was decided to engage various technology vendors to run pilots at NTPC stations to validate technology of SNCR/SCR system for Indian coal;

WHEREAS, the Ministry of Power in the letter dated 30.06.2017 enclosed the report outlining the plan of action for implementation of the new norms keeping in mind the techno-economic feasibility and ensuring availability of power to all at affordable cost without any disruption;

WHEREAS, as per the phasing plan proposed by MOP after consultation with CEA and Regional Power Committees, out of the installed capacity of 1, 87,162 MW (as on December, 2016), 8217 MW have been identified for retirement/already retired. Further, 12,974 MW of capacity already have either CFBC boilers or FGDs.

WHEREAS, a phasing plan was proposed for the balance 165971 MW of coal based thermal capacity for achieving compliance with 145977 MW capacity proposing installation of FGDs within a period of 7 years to be undertaken in a phased manner. About 3205 MW of coal based capacity was stated to be compliant with revised norms of SO₂ emission;

WHEREAS, it was further noted that approximately about 16789 MW would not be able to install FGDs due to various constraints which include lack of space, etc.;

WHEREAS, CEA has worked out the requirement of capacity of coal based thermal power plants including hydro, wind, solar, gas based units to meet the estimated peak demand of 225 GW in 2021-22;

WHEREAS, MoP suggested that the compliance period of PM for the plants installing FGD may be kept same as per the FGD phasing plan;

WHEREAS, it was requested that for implementation of NO_x norms in the plants installed before 31.12.2003 a period of three years may be

permitted to achieve specified standards of 600 mg/Nm³. For other plants a relaxation of 600 mg/Nm³ in place of 300 and 100 mg/Nm³ for a period of 3 years was also requested;

WHEREAS, taking into account the issues/concerns raised by the MoP and the sensitivity involved in the matter as it relates to general public of the country, the Ministry undertook detailed analysis of each of the issues in the meetings held on 06.07.2017, 27.07.2017, 11.08.2017 and 01.09.2017. These meetings were also attended by the various stakeholders including Ministry of Power, CEA, NTPC etc.;

WHEREAS, MOEF & CC in the meeting with MoP, CEA, NTPC & CPCB etc. held on September 1, 2017 decided that the action plan submitted by MoP for 7 years i.e. up to 2024 was too long and it should instead commence from 2018 and implemented by 2022 with respect to all pollutants. It was further suggested that action plan should be revised prioritising the plants located in critically polluted area /close to habitation /urban area. Based on the decisions taken in the meeting Ministry of Power vide letter No. FU-1/2017-IPC dated 13.10.2017 submitted the revised action plan, to implement/phasing FGD installation/ ESP upgradation to meet new emission norms for thermal power plants;

WHEREAS, as per the revised plan submitted by the MoP vide letter dated 13.10.2017, 650 units comprising 196667 MW need to meet the new emission limits. Out of 650 units, FGD will be installed to achieve the emission limit of SO₂ by the year 2022 in all 415 units comprising 161522 MW (01 unit by 2018, 08 units by 2019, and 55 units by 2020, 172 units by 2021 and 178 units by 2022, for 01 units with 150 MW capacity plan is not received). Remaining 235 units comprised of 35145 MW either complying with SO₂ emission limits or planned for phasing out;

WHEREAS, ESP upgradation to achieve emission limit of particulate matter will be completed by the year 2022 in PM for 231 units comprising of 65925 MW capacity out of 650 units (01 unit by 2018, 02 units by 2019, 28 units by 2020, 97 units by 2021 and 94 units by 2022, for 09 units of 1400 MW capacity plan by 2022);

WHEREAS, with regard to compliance of emission limit of NO_x, it is suggested that pre combustion modification such as in situ modification in boiler, installation of Low NO_x burners and Over Fire Air shall be adopted besides installation of SCR/SNCR systems wherever needed by the year 2022;

WHEREAS, electricity is cleanest form of energy which helps in mitigating house hold air pollution which is matter of concern;

WHEREAS, there is need to provide electricity supply to people who do not yet have access to it;

WHEREAS, taking into consideration the technical challenges and time requirements for installation of FGD and other technologies to meet the new

emission limits, the MoEF&CC vide its letter F. No. Q-15017/40/2007-CPW dated 07.12.2017 has directed CPCB to direct all the thermal power plants to ensure compliance with the norms laid down in the 07.12.2015 notification in accordance with the revised Plan submitted by the Ministry of Power letter dated 13.10.2017 as well as NOx by 2022;

WHEREAS, the Ministry of Environment, Forest & Climate Change, Government of India, vide Notifications No. S. O. 157 (E) of 27.02.1996 and S. O. 730 (E) dated 10.07.2002, has delegated the powers vested under Section 5 of the Environment (Protection) Act, 1986 (29 of 1986) to the Chairman, Central Pollution Control Board, to issue directions to any industry or any local body or any other authority for violations of the standards and rules notified under the Environment (Protection) Rules, 1986 and amendment thereof.

NOW, THEREFORE, taking into consideration all material facts including environmental concerns and ensuring stability of power supply and need for phasing the implementation, in exercise of powers vested under Section 5 of the Environment (Protection) Act, 1986, following directions are issued to M/s Simhadri Thermal Power Station, NTPC, Ltd.:

- i. That plant shall install/retrofit Electrostatic Precipitators (ESP) by September 30, 2022 & December 31, 2022 in unit 3 &4 respectively so as to comply PM emission limit
- ii. That plant shall install FGD by March 31, 2022, June 30, 2022, September 30, 2022 & December 31, 2022 in unit 1,2,3 &4 respectively so as to comply SO₂ emission limit
- iii. That plant shall take immediate measure like installation of low NOx burners, providing Over Fire Air (OFA) etc. and achieve progressive reduction so as to comply NOx emission limit by the year 2022

The time line mentioned above (i to iii) for compliance of PM, SO₂ & NOx emission limits shall be reviewed by CPCB within a period of three months and shall be brought down further considering the location specificity of the plant such as critical polluted area/ closeness to habitation/ urban area.

The time line for compliance of water consumption limit shall also be finalised in consultation of plants

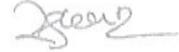
M/s Simhadri Thermal Power Station shall ensure compliance of directions mentioned above (i to iii) failing which action will be taken under the appropriate provisions of the Environment (Protection) Act, 1986.


(A.K. Menta)
Chairman



Copy to:

1. The Chairman
Andhra Pradesh Pollution Control Board
Paryavaran Bhavan, A-III,
Industrial Estate, Sanathnagar,
Hyderabad - 500 018
2. The Joint Secretary (CP Division)
Ministry of Environment, Forests and Climate Change
Prithvi Wing, 2nd Floor, Room No. 216
Indira Paryavaran Bhawan, Aliganj,
Jor Bagh Road, New Delhi - 110003
3. The Joint Secretary (Thermal)
Ministry of Power
Shram Shakti Bhawan, Rafi Marg
New Delhi
4. The Regional Director,
Central Pollution Control Board
1st & 2nd Floors, Nisarga Bhavan, A-Block,
Thimmaiah Main Road, 7th D Cross,
Shivanagar, Bengaluru -560 079
- ✓ 5. The Divisional Head - IT, CPCB



(A. Sudhakar)
Member Secretary



ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY:: VISAKHAPATNAM

D.No.39-33-20/1/4, Madhavadhara VUDA Colony, Visakhapatnam - 530018.

Annexure-VIII

M.RAVI, M.Sc.,
SENIOR ENVIRONMENTAL SCIENTIST

Ph : 0891-2719380/481
e-mail:zovsplab-ses2@ appcb.gov.in

ANALYSIS REPORT

Sample No. : 2021- 12 - E- 312
Sample location/Address : M/s Simhadri Super Thermal Power Project,
NTPC Ltd., Parawada, Visakhapatnam.
Sample Source : Outlet of EDP-1
Sample collected on : 30.12.2021
Sample received on : 30.12.2021
Sample collected by : Junior Scientific Officer, Zonal Laboratory, Visakhapatnam
along with NGT Committee

S.No.	Parameter	Values	Standard (mg/L)
1.	pH	7.80	5.5-8.5
2.	Total Suspended Solids at 105 ⁰ C	17	100 mg/l
3.	Phosphates (as P)	0.09	20 mg/l
4.	Oil & Grease	<1	20 mg/l
5.	Chloride (as Cl)	21272	--
6.	Chromium (as Cr)	0.001	0.2 mg/l
7.	Copper (as Cu)	0.009	1.0 mg/l
8.	Zinc (as Zn)	0.007	1.0 mg/l
9.	Iron (as Fe)	0.126	1.0 mg/l

Note: - All values are expressed in mg/l except pH


SENIOR ENVIRONMENTAL SCIENTIST



ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY:: VISAKHAPATNAM

D.No.39-33-20/1/4, Madhavadhara VUDA Colony, Visakhapatnam - 530018.

M.RAVI, M.Sc.,
SENIOR ENVIRONMENTAL SCIENTIST

Ph : 0891-2719380/481
e-mail:zovsplab-ses2@ appcb.gov.in

ANALYSIS REPORT

Sample No. : 2021- 12 - E- 314 to 317
Sample location/Address : M/s Simhadri Super Thermal Power Project,
NTPC Ltd., Parawada, Visakhapatnam.
Sample Source : E-314: Township STP Inlet
E-315: Township STP Outlet
E-316: Plant STP Inlet
E-317: Plant STP Outlet
Sample collected on : 30.12.2021
Sample received on : 31.12.2021
Sample collected by : Analyst (OS), Zonal Laboratory, Visakhapatnam

S. No.	Parameter	E-314	E-315	E-316	E-317	Standard (mg/L)
1.	pH	6.60	6.62	6.69	7.11	5.5-9.0
2.	Total Suspended Solids at 105 ^o C	278	20	123	17	200 mg/L
3.	Chemical Oxygen Demand	424	32	172	28	250 mg/L
4.	Biochemical Oxygen Demand	160	8	54	7	100 mg/L
5.	Oil & Grease	<1	<1	<1	<1	20 mg/L

Note: - All values are expressed in mg/l except pH


SENIOR ENVIRONMENTAL SCIENTIST

Annexure-IX

Rc. No. 953 /T/2021

Date: 31-01-2022

From,
Deputy Director,
Ground Water & Water Audit Department,
Visakhapatnam

To,
The Joint Collector,
Visakhapatnam

Sir,

Sub:- APPCB- Hon'ble NGT, Chennai Lr dt. 23.11.2021 in DA No. 227 of 2021(SZ)-
Inspection of M/s National Thermal Power Corporation Ltd (NTPC), Simhadri
Power Plant, Visakhapatnam – Inspection report of Deputy Director, Ground
Water & Water Audit Department, Visakhapatnam. Submitted – Reg.

Ref:-1. Lr. No.3841/PCB/RO-VSP/2021-1044 Date 13/12/2021 Andhra Pradesh Pollution
Control Board, Regional Office, Visakhapatnam
2. Meeting with Joint Collector, Visakhapatnam Date 28-12-2021

>><<

I invite kind attention to the subject and reference cited. As per the instructions issued by the Hon'ble NGT, District Collector and Magistrate , Visakhapatnam and Joint Collector in the meeting with committee members on 28.12.2021 the constituted committee has conducted inspection on non –compliance of the conditions imposed in the Environmental Clearance (EC) and consents granted M/s National Thermal Power Corporation Ltd. (NTPC), M/s Simhadri Power plant in Visakhapatnam on date 29-12-2021.

According the orders of the Hon'ble NGT, District Collector and Magistrate , Visakhapatnam and Joint Collector, Visakhapatnam conducted detailed ground water surveys in between 1. Pattivanipalem Village 2. Maradi Dasaripeta 3. T. Devada of Pedagantyada and Ash pond, on ground water pollution well on account of non-maintenance of the ash ponds by NTPC Corporation Ltd in the Simhadri Thermal Power plant and submit here with detailed inspection report for kind perusal and necessary action.

Encl: Inspection report.

o/c

Yours Faithfully,


31.01.2022
Deputy Director

Copy submitted to the Executive Engineer, Pollution Control Board,
Visakhapatnam, for favour of information.

**GOVERNMENT OF ANDHRA PRADESH
GROUND WATER AND WATER AUDIT DEPARTMENT,
SECTRO – 5, MVP COLONY, VISAKHAPATNAM DISTRICT.**

Honorable National Green Tribunal Southern Zone, Chennai Original application No (OA): 227 of 2021 (SZ) (Through video conference) dated of hearing 23.11.2021.

As per the orders of the Hon'ble NGT, the District Collector and Magistrate, Visakhapatnam had directed the Joint Collector to fix the meeting with the committee members on 28.12.2021 at 3.00 PM in the Chambers of the Join Collector and Committee inspection of M/s Simhadri Power plant to be conducted on 29.12.2021. Visakhapatnam.

Joint inspection report on NATIONAL THERMAL POWER CORPORATION LTD, Simhadri plant, Parawada Visakhapatnam maintained as directed by the Andhra Pradesh Pollution Control Board to avoid percolation of the fly ash to contaminate the ground water in Pittavanipalem Village of Pedagantyada (M) Visakhapatnam District.

I submit that according the orders of the Hon'ble NGT, District Collector & Magistrate, Visakhapatnam and Joint Collector, Visakhapatnam District conducted detailed ground water surveys in between 1. Pittavani palem village of Pedagantyada and Flay Ash pond 2. Maradi Dasaripeta of Pedagantyada and Ash pond and 3. T. Devada of Pedagantyada and Ash pond, where as the complaint raised on ground water Pollution well on account of non-maintance of the Ash ponds by the National Thermal Power Corporation Ltd (NTPC) in the Simhadri Thermal Power plant on 29.12.2021.

In this regard, I submit that detailed investigations were conducted in these villages wise where as complaints raised on pollution of ground water by percolation of Ash ponds on account of management of fly ash generated by the Firm in the area. The Pittavani palem village is one of the coastal village lies North latitudes 17.598016 East Longitudes 83.126923 which are falls in survey of India Topo sheet No.65 O/2. The area is having coastal plain to undulating topography generally trending towards south and bay of Bangal. Pittavani palem village lies on upstream side at 100m north of Flay ash pond bearing No.1 Maradi Dasaripeta 1.5km North east of Flay ash pond bearing No.1 and 2, and T. Devada at 0.50 km East of flay ash pound bearing No.2 in the area under study. The investigated area consisting with clay and mud predominantly with 15m thickness underlain by sticky clay and Khondalites of Archean Age.

During the course of inspection inventoried 8 No.s of Bore wells and 5 No.s of Dug wells in Pittavanipalem (V), 3 No.s of Bore wells and 2 No.s Dug wells in Marda Dasavipeta village and 7 no.s of bore wells and one dug well in T. Devada village of Pedagantyada mandal, Visakhapatnam district. Bore wells total depth ranges from 35.00 to 60.00 bgl with 165mm dia inserted PVC casing with complete depth which is most essential to arrest the loose and clay formation at depth in the area. Dug well total depth ranges from 6.00m to 10.00m bgl with 3 to 5m dia with complete straining .

15 no.s of bore wells fitted with hand pump sets one bore well fitted with jet motor and another one with generator are functioning for domestic purpose. Two no.s of bore wells drilled by NTPC authority and energized it with submersible pumpsets for scatter the drinking water through R.O Plant to the Pittavanipalem and T. Devada such units are not working due to mechanical repairs . Balance of two existing dug wells utilized for domestic purpose only in these villages. All these existing inventoried ground water extraction structures lies in and other side of the villages. Further, inspected that the flay ash ponds No.1,2,3 and 4 established at Geographically located at low laying area where as discharging the flay ash by NTPC Simhardi power plant. All these 4 No.s of ash pound are constructed at downstream side and away from the Pittavani palem village of Pedagantyada Mandal of Visakhapatnam District. The area situated on lowlying area which lies in between salt fans and creaks which is very nearer to Bay of Bengal. Mud and clayea soils are predominantly consisting with the thickness of > 15m under lained by khondalite rock of arachean age. It is observed that, water guns (i.e rain guns) and sprinklers established by the NTPC which are functioning entire ash pounds for wetting the flay ash round the clock for controlling the fugitive dust. Further it is observed that total 41 no.s of water samples were collected form inventoried ground water extraction structures and form ash pound and NTPC staff to know the quality of ground water in these villages. Details of Chemical analysis data results and its discussions here with enclosed for ready reference.

It is submitted that 41 no. of water samples are received from NTPC power plant Ltd., Parawada and between adjacent villages of Visakhapatnam district. The same were analysed in Water Quality Lab Level – II of the parameters available and following are the results (3 samples of Ash pond fall under over grade)

Bureau of Indian standards has prescribed limits for various chemical parameters for drinking purpose and have extended to maximum permissible levels,

uses of these waters re permitted only in the absence of an alternative source with desirable concentrations.

pH : All samples fall within the range between 6.5 to 8.5 except on sample i.e., D. Tata Rao, Dasaripeta village of Parawada mandal is 8.97.

TDS : Only 2 samples fall in acceptable limit, 32 samples fall under permissible limit (can be used in absence of alternative source) and 7 samples ie Ash pond (OFLI) – 22400, Ash pond – 21984, Ash pond Trench – 22115. Palavala – 2085, P. Nagaraju Pittavanipalem – 2586, Devada Hand Bore – 2625 and B. Tata redid Pittavanipalem - 3345

Chloride : 27 samples fall under acceptable limit and all 9 samples fall within permissible limits and 2 samples beyond permissible limit i.e P. Nagaraju, Pittavanipalem.

Sulphate : 35 samples fall under acceptable limit and other samples fall within permissible limits.

Fluoride : 34 Samples are within acceptable limits and 4 samples fall in permissible limits.

Nitrate – N : 36 samples are within acceptable limits and 2 samples fall in permissible limits.

Calcium ; 20 samples are within acceptable limits and remaining samples are within permissible limits.

Magnesium : 15 samples are within acceptable limits, 20 samples are within permissible limits while 3 samples, P. Nagaraju, Pittavanipalem – 136, T. Devada Hand bore – 179.8, B. Tata redid, Pittavanipalem – 194.4

Total Hardness : 15 samples are within acceptable limits, 20 samples are with in permissible limits and 3 samples P. Naga raju, Pittavanipalem-1060, Devada Hand bore – 1100, b. Tata redid, Pittavanipalem – 1140.

Geo-Hydrologically established one Piezometers net work station with digital water level recorder at T. Devada village to monitor the water level sinario from month to month, season to season and to collect water samples during the pre monsoon (May) & post monsoon season (November) for chemical analysis purpose in the area. The results of chemical analysis of existing Piezometer water for last 5 seasons copy enclosed.

Based on the results of the above chemical analysis data reveals that the quality of ground water in general is suitable for domestic purpose in the area under study.

In view of the above filed findings and interpretation results of the Geo – Hydrogeological conditions in and around the villages and Flay Ash ponds the following conclusions are made.

1. The Flay Ash ponds 1,2,3 and 4 and around the area consisting with mud and clay soils with more than 15m thickness underlined by sticky white clay and Khondalite rock at depth.

The mud and clay soils having poor infiltration (1-4 mm/hrs) low porosity and impermeable (1 gpd/sq.ft) characherities such type of soils act as horizontal mud dyke which is not permitting the percolation of Flay ash to the contamination of ground water in the area. Even if it seeps it will be flows towards Bay of Bengal due to natural gradient where enormous diluting capacity is available.

2. All these inventoried ground water extraction structure are existing in and other side of the Pittavanipalem, T. Devada and Maradi Dasaripalem villages of Pedagantyada mandal, Visakhapatnam District. Most of the existing bore wells and dug wells are energized and utilized for their domestic and Agriculture and Horticulture development without any crop damaged and adverse impact by existing Fly ash pounds in the area.

3. (a) 41 water samples were collected from the existing bore wells and dug wells covered three villages including 3 samples from Fly ash ponds and trenches and analysed the samples in water quality lab level – II for the parameters available .

(b) 3 No.s of water samples of Ash ponds & Trenches fall under over grade.

(c) Remaining 38 No's of water samples chemical analysis results reveals that 36 samples falls in acceptable limits and balance 2 No's of samples under permissible limits which are suitable for domestic purpose as per Bureau of Indian standards.

4. Further, It is to submit that one Piezomerer net work station with digital water level recorder established by this department at T. Devada village to monitor the water levels from month to month, season to season and to study the quality of ground water from pre- monsoon (i.e May) and post – monsoon (November) in every year. After careful observation of the chemical analysis of water samples of last five years data reveals that quality of ground water in the area in potable.

5. NTPC should be arranged to removed the discharged Flay ash from the dykes from time to time for controlling the fugitive dust in and around the area.

6. In addition to the existing plantation NTPC should be create green belt around the Flay ash ponds for controlling the fugitive dust.

7. NTPC should attend the repairs whereas RO plants and bore wells are under mechanical problem and then restore the units and bore wells to scatter the drinking water to the Pittavanipalem and T. Devada villages properly.

8. NTPC should ensure to establish the Piezometers with digital water level recorder at maximum number of locations to represent the villages and ash ponds based on Geo-Hydrological conditions for regular monitoring of water levels from month to month, season to season and collect the water samples in pre-monsoon (i.e May) and in post monsoon (i.e in November) such water levels data and chemical analysis report should be sent to the ground water department for further course of studying purpose.


21-01-2022
DEPUTY DIRECTOR
Deputy Director
Ground Water and Water
Audit Department
Visakhapatnam

Statement showing the details of Well inventoried Pittavanipalem village of Pedgantyada Mandal and Ashponds of NTPC limited , Simhadri Power plant Parawada mandal, Visakhapatnam District.

Sl. No.	Name of the Owner	Co-ordinates	Structure type	Depth of well in m	Drilled Dia in mm	Casing pipe length in m	Mode of lift with HP	Yield in lph	Water Sample No	Lithology	Purpose of usage	Present working status
1	NTPC	N 17.587967° E 83.118609°	Ash pond (OFL 1)	--	--	--	--	--	17	Mud/clay	Storage of Fly ash	
2	NTPC	N 17.587766° E 83.121932°	Ash pond	--	--	--	--	--	117	Mud/clay	Storage of Fly ash	
3	NTPC	N 17.587199° E 83.12158790°	Trench	--	--	--	--	--	128	Mud/clay	Storage of Fly ash	
4	GVMC	N 17.597847° E 83.119493°	Bore well	35	165	30	Fitted with hand pump	1000-1500	53	up to 15 m clay 15 to 35 m weathered Khondalite	Domestic	Fuctioning
5	P.Nagaraju	N 17.596015° E 83.125911°	Bore well	35	165	30	--	--	102	up to 15 m clay 15 to 35 m weathered Khondalite	Domestic	Not working
6	P.Nagaraju	N 17.595593° E 83.125492°	Dug well	10	3 m	--	--	20000-25000 lpd	72	clay	Domestic	Fuctioning
7	B.Appalareddi	N 17.596549° E 83.12574	Dug well	6	3 m	--	--	20000-25000 lpd	25	clay	Domestic	Fuctioning
8	B.Tatareddi	N 17.5958° E 83.124865°	Dug well	7	3 m	--	--	20000-25000 lpd	85	clay	Domestic	Fuctioning
9	B.Srinu	N 17.59658° E 83.126491°	Dug well	10	3 m	--	--	20000-25000 lpd	98	clay	Domestic	Fuctioning
10	B.Sanyasirao	N 17.597049° E 83.126442°	Dug well	10	3 m	--	--	20000-25000 lpd	11	clay	Domestic	Fuctioning
11	NTPC RO plant	N 17.598016° E 83.126923°	Bore well	45	165	30	3 HP submersible Not working	--	36	up to 15 m clay 15 to 45 m weathered Khondalite	Domestic	Not working
12	GVMC	N 17.600864° E 83.128296°	Bore well	35	165	30	Fitted with hand pump	1000-1500	113	up to 15 m clay 15 to 35 m weathered Khondalite	Domestic	Fuctioning

Statement showing the details of Well inventoried and the area under investigation in T.Devada village, Pedgantyada Mandal, Visakhapatnam District.

Sl. No.	Name of the Owner	Village	Co-ordinates	Structure type	Depth of well in m	Drilled Dia in mm	Casing pipe length in m	Mode of lift with HP	Yield in lph	Water Sample No	Lithology	Purpose of usage	Present working status
1	GVMC	T.Devada	N 17.58999° E 83.03971°	Bore well	35	165	30	Fitted with hand pump	1000-1500	P-21	up to 10 m clay 10 to 35 m weathered Khondalite	Domestic	Fuctioning
2	PHC	T.Devada	N 17.590223° E 83.139124°	Bore well	35	165	30	No	--	6	up to 10 m clay 10 to 35 m weathered Khondalite	Domestic	Not working
3	NTPC RO plant	T.Devada	N 17.588075° E 83.138929°	Bore well	35	165	30	3 HP submersible pump set	5500-6000	100	up to 10 m clay 10 to 35 m weathered Khondalite	Domestic	Fuctioning
4	GVMC	T.Devada	N 17.597145° E 83.138752°	Dug well	8	7	--	--	25000-30000 lpd	108	Clay	Domestic	Fuctioning
5	GVMC	T.Devada	N 17.55451° E 83.140013°	Bore well	35	165	30	Fitted with hand pump	1000-1500	59	up to 10 m clay 10 to 35 m weathered Khondalite	Domestic	Fuctioning
6	GVMC	T.Devada	N 17.585836° E 83.14012°	Bore well	35	165	30	Fitted with hand pump	1000-1500	44	up to 10 m clay 10 to 35 m weathered Khondalite	Domestic	Fuctioning
7	GVMC	T.Devada	N 17.583012° E 83.140759°	Bore well	35	165	30	Fitted with hand pump	1000-1500	79	up to 10 m clay 10 to 35 m weathered Khondalite	Domestic	Fuctioning
8	GVMC	T.Devada	N 17.582838° E 83.140223°	Bore well	35	165	30	Fitted with hand pump	1000-1500	24	up to 10 m clay 10 to 35 m weathered Khondalite	Domestic	Fuctioning


Signature of the Officer


Deputy Director
GW&WAD
VISAKHAPATNAM

21-01-2022

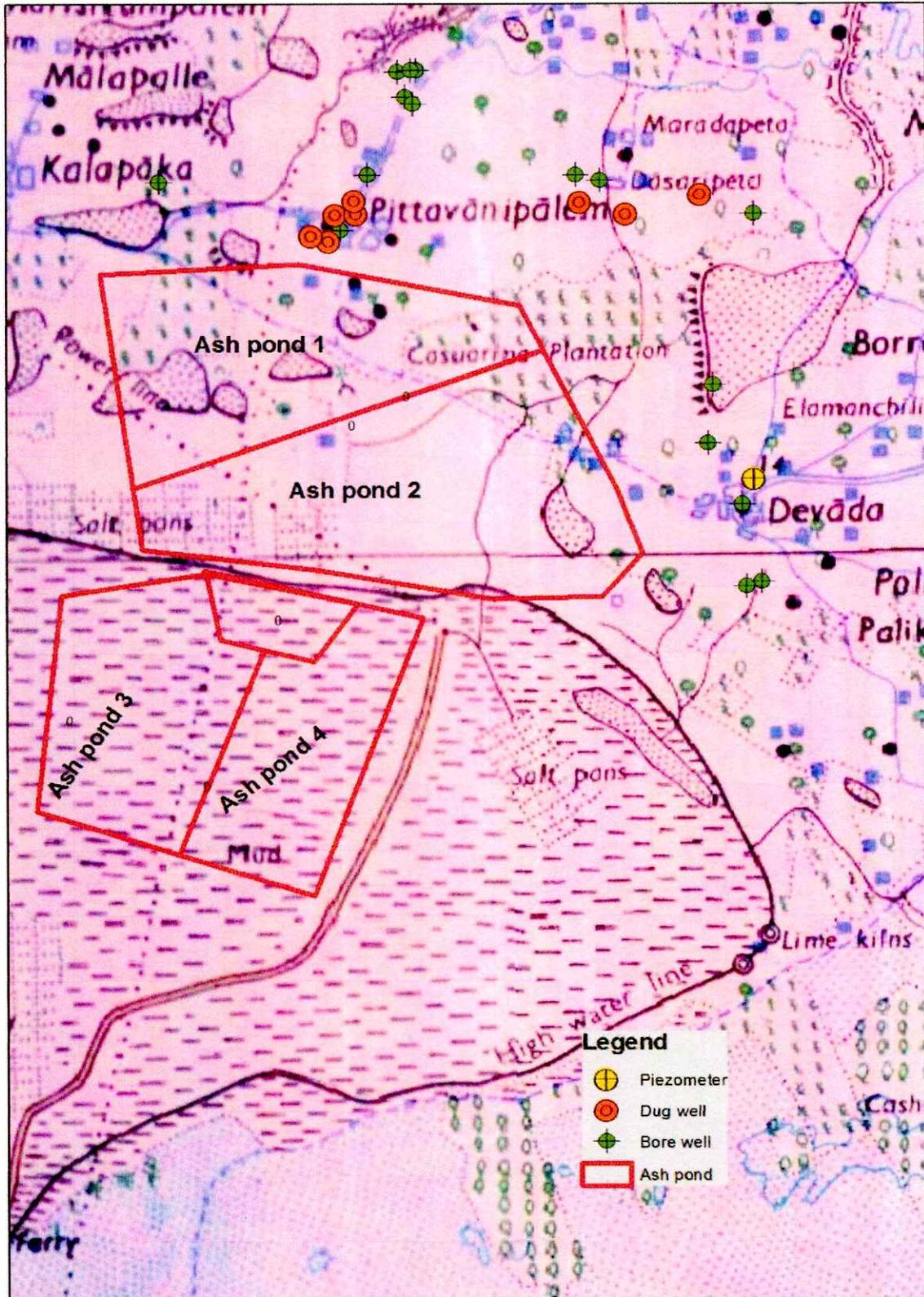
Statement showing the details of Well inventoried and the area under investigation in Marda Dasaripeta village, Pedgartyada Mandal, Visakhapatnam district.

Sl. No.	Name of the Owner	Co-ordinates	Structure type	Depth of well in m	Drilled Dia in mm	Outer Casing in m	Mode of lift with HP	Yield in lph	Water Sample No	Lithology	Purpose of usage	Crop	Present working status
1	GVMC	N 17.597736° E 83.135196°	Bore well	35	165	30	Fitted with hand pump	1000-1500	5	up to 15 m clay 15 to 45 m weathered Khondalite	Domestic	--	Fuctioning
2	MPP School	N 17.597931° E 83.13434°	Bore well	35	165	35	Fitted with hand pump	1000-1501	2	up to 15 m clay 15 to 45 m weathered Khondalite	Domestic	--	Fuctioning
3	Relangi Murali	N 17.596904° E 83.134461°	Dug well	7	5 m	--	--	25000-30000 lpd	72	up to 15 m clay 15 to 45 m weathered Khondalite	Agriculture	ID crops	Fuctioning
4	Dasri Gurumurt hi	N 17.596473° E 83.1361°	Dug well	7	5 m	--	--	25000-30000 lpd	41	up to 15 m clay 15 to 45 m weathered Khondalite	Agriculture	ID crops	Fuctioning
5	Dasri Tatarao	N 17.596443° E 83.140657°	Bore well	60	165	40	Genarator	4500-5000	29	up to 15 m clay 15 to 40 m weathered Khondalite 40 to 60 m Khondalite	Horticulture	Mango	Fuctioning


Signature of the Officer


Deputy Director
GW&WAD
VISAKHAPATNAM

NTPC Simhadri Power plant – Ash Ponds, Parawada mandal,
Visakhaptnam District



Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
4	5	pH	7.31	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1770	250	2250	
		TDS	1133	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	500			
		Cl Chloride mg/l	170	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	102.5	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.75	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	11.06	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	192	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	8.8	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	88	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	58.3	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	460	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
5	2	pH	7.35	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1067	250	2250	
		TDS	683	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	240			
		Cl Chloride mg/l	140	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	57.4	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.66	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	8.19	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	86	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	35.01	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	64	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	34.03	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	300	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
6	72	pH	7.74	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1886	250	2250	
		TDS	1207	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	370			
		Cl Chloride mg/l	260	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	123.5	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.8	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	20.72	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	231	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	15.3	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	64	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	63.21	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	420	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
7	41	pH	7.61	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1600	250	2250	
		TDS	1024	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	300			
		Cl Chloride mg/l	200	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	125	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.52	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	21.7	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	175	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	11.8	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	80	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	48.62	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	400	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
8	29	pH	8.97	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1567	250	2250	
		TDS	1003	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	200	200	600	
		HCO ₃ as CaCO ₃ mg/l	230			
		Cl Chloride mg/l	150	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	100	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	1.21	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	9.64	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	207	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	27.1	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	56	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	38.9	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	300	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
9	P-21	pH	7.76	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1800	250	2250	
		TDS	1152	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	420			
		Cl Chloride mg/l	210	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	132.5	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.9	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	10.15	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	254	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	1.7	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	48	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	53.48	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	340	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
10	6	pH	7.96	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1655	250	2250	
		TDS	1059	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	250			
		Cl Chloride mg/l	300	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	126.4	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.28	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	2.81	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	175	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	14.1	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	104	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	38.9	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	420	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
11	100	pH	7.30	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1256	250	2250	
		TDS	804	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	320			
		Cl Chloride mg/l	130	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	112.3	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.38	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	0.75	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	147	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	3.91	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	72	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	29.17	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	300	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
12	108	pH	7.92	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1227	250	2250	
		TDS	785	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	270			
		Cl Chloride mg/l	150	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	95	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.38	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	9.54	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	102	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	42.75	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	80	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
Mg Magnesium mg/l	34.03	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.		
Total Hardness	340	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
13	59	pH	7.31	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1500	250	2250	
		TDS	960	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	260			
		Cl Chloride mg/l	180	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	115.4	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.3	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	30.12	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	170	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	12.73	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	112	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	19.45	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	360	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
14	44	pH	7.44	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1800	250	2250	
		TDS	1152	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	310			
		Cl Chloride mg/l	230	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	126.4	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.46	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	33.89	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	195	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	114.40	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	88	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	24.31	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
		Total Hardness	320	300	600	Causes scaling, excessive soap consumption, calcification of arteries.

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
15	79	pH	7.27	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	2388	250	2250	
		TDS	1528	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	300			
		Cl Chloride mg/l	480	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	173	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.36	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	6.71	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	212	No guide lines	No guide lines	Harmful to persons suffering from cardiac, renal & circulatory diseases.
		K Potassium mg/l	205.00	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	136	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	29.17	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	460	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
16	24	pH	7.21	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	4102	250	2250	
		TDS	2625	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	350			
		Cl Chloride mg/l	1000	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	231.4	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.28	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	8.43	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	415	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	30.00	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	144	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	179.8	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	1100	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
17	53	pH	7.34	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1317	250	2250	
		TDS	843	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	270			
		Cl Chloride mg/l	200	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	75.5	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.25	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	5.94	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	172	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	15.05	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	72	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	18.45	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	260	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
18	102	pH	7.71	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	2210	250	2250	
		TDS	1414	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	230			
		Cl Chloride mg/l	400	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	156.4	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.49	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	37.26	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	235	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	97.40	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	96	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
Mg Magnesium mg/l	53.4	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.		
Total Hardness	460	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
19	72	pH	7.97	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	4040	250	2250	
		TDS	2586	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	250			
		Cl Chloride mg/l	1050	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	256.4	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.21	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	4.62	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	420	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	34.50	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	200	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	136.14	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	1060	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
20	25	pH	8.00	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1750	250	2250	
		TDS	1120	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	340			
		Cl Chloride mg/l	230	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	100	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.31	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	27.9	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	148	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	178.10	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	56	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
Mg Magnesium mg/l	43.76	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.		
Total Hardness	320	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
21	85	pH	8.00	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	5227	250	2250	
		TDS	3345	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	200			
		Cl Chloride mg/l	146	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	304.5	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.34	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	2.84	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	650	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	31.50	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	136	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	194.4	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	1140	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
22	98	pH	7.72	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1985	250	2250	
		TDS	1270	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	310			
		Cl Chloride mg/l	250	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	135.4	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.24	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	49.79	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	195	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	173.00	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	56	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	48.62	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	340	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
23	11	pH	7.37	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1347	250	2250	
		TDS	862	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	290			
		Cl Chloride mg/l	140	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	94.7	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.22	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	22.85	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	167	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	19.87	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	80	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	19.45	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	280	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
24	36	pH	7.34	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1112	250	2250	
		TDS	712	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	220			
		Cl Chloride mg/l	150	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	100	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.33	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	5.47	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	60	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	67.60	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	32	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	63.21	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	340	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
25	113	pH	7.71	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1916	250	2250	
		TDS	1226	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	300			
		Cl Chloride mg/l	350	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	136.4	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.51	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	2.84	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	256	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	9.30	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	56	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	58.34	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	380	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
26	112	pH	7.72	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1212	250	2250	
		TDS	776	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	280			
		Cl Chloride mg/l	150	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	85.5	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	1.00	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	5.57	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	140	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	3.33	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	64	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	34.03	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	300	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
27	15	pH	7.73	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1177	250	2250	
		TDS	753	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	320			
		Cl Chloride mg/l	130	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	56.4	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	1.07	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	4.19	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	128	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	2.67	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	64	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	34.03	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	300	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
28	23	pH	7.72	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1238	250	2250	
		TDS	792	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	240			
		Cl Chloride mg/l	200	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	77.7	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	1.02	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	3.14	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	135	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	2.94	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	48	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	48.62	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	320	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
29	58	pH	7.42	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1500	250	2250	
		TDS	960	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	350			
		Cl Chloride mg/l	200	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	100	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.42	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	2.77	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	223	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	5.88	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	64	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
Mg Magnesium mg/l	24.31	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.		
Total Hardness	260	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
30	38	pH	7.22	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1623	250	2250	
		TDS	1039	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	300			
		Cl Chloride mg/l	220	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	96.4	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.38	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	27.12	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	185	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	56.70	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	96	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	24.31	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	340	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
31	4	pH	7.64	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	2040	250	2250	
		TDS	1306	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	320			
		Cl Chloride mg/l	250	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	156.4	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.28	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	47.4	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	175	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	181.80	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	128	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	19.45	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	400	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
32	34	pH	7.32	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1250	250	2250	
		TDS	800	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	170			
		Cl Chloride mg/l	220	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	88.8	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.28	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	12.44	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	165	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	17.70	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	72	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	14.59	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	240	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
33	N-33	pH	6.87	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1150	250	2250	
		TDS	736	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	200			
		Cl Chloride mg/l	180	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	76.2	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.12	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	9.71	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	137	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	9.75	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	80	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	14.59	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	260	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
34	N-34	pH	6.91	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1462	250	2250	
		TDS	936	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	200			
		Cl Chloride mg/l	290	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	65.5	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.32	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ ⁻ N mg/l	15.27	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	169	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	4.92	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	96	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
Mg Magnesium mg/l	29.17	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.		
Total Hardness	360	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
35	N-35	pH	7.31	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1232	250	2250	
		TDS	788	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	300			
		Cl Chloride mg/l	150	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	75.4	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.28	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	7.76	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	165	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	16.37	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	80	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	9.72	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	240	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
36	N-36	pH	7.55	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1744	250	2250	
		TDS	1116	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	330			
		Cl Chloride mg/l	260	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	115.5	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.79	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	13.21	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	237	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	8.80	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	48	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	53.48	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	340	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
37	N-37	pH	7.36	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1052	250	2250	
		TDS	673	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	200			
		Cl Chloride mg/l	160	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	60	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.63	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	9.64	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	100	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	5.85	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	40	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	48.62	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	300	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
38	N-38	pH	7.61	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	3528	250	2250	
		TDS	2085	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	230			
		Cl Chloride mg/l	840	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	172.5	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.93	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	8.19	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	465	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	14.20	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	160	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	48.62	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	600	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
39	N-39	pH	6.95	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	737	250	2250	
		TDS	472	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	150			
		Cl Chloride mg/l	100	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	46.4	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.33	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	7.29	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	75	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	2.32	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	56	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
Mg Magnesium mg/l	14.59	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.		
Total Hardness	200	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No.	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
40	N-40	pH	7.21	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	1597	250	2250	
		TDS	1022	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	330			
		Cl Chloride mg/l	250	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	90.4	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.43	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ - N mg/l	3.51	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	225	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	4.22	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	56	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	38.9	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	300	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Test Report on Chemical Analysis of Water sample collected from Bore well in Dasari peta village near Ash pond pertaining to NTPC Simhadri Power Ltd, Parawada Mandal, Visakhapatnam District.

S.No	Sample Code	Parameters	Result	Prescribed Limits		Remarks
				Desirable	Permissible	
41	N-41	pH	7.41	6.50	8.50	Affects taste, corrosivity & supply system.
		Sp.Cond. At 25° C Micro Siemens	664	250	2250	
		TDS	425	500	2000	May cause gastro-intestinal irritation, corrosion and laxative effect to new users.
		CO ₃ as mg/l	0	200	600	
		HCO ₃ as CaCO ₃ mg/l	170			
		Cl Chloride mg/l	70	250	1000	May be injurious to heart or kidney patients. Taste, indigestion, corrosion & Palatability are affected.
		SO ₄ Sulphate mg/l	34.2	200	400	Causes gastro-intestinal irritation. Along with Mg or Na can have a cathartic effect. Concentration more than 750 mg/l may have laxative effect.
		F Fluoride mg/l	0.18	1	1.5	Reduces dental carries, very high concentration may cause crippling skeletal fluorosis.
		NO ₃ ⁻ N mg/l	6.81	45	100	Causes infant methaemoglobinaemia, at very high concentration causes gastric cancer and effects central nervous & cardiovascular system.
		Na Sodium mg/l	52	No guide lines	No guide lines	Harmful to persons sufferieng from cardiac, renal & circulatory diseases.
		K Potassium mg/l	12.82	No guide lines	No guide lines	Essential nutrition element but excessive amounts is cathartic.
		Ca Calcium mg/l	40	75	200	Excessive Cause incrustation, deficiency causes rickets, essential for nervous, muscular, cardiac functions and in coagulation of blood.
		Mg Magnesium mg/l	24.31	30	100	Its salts are cathartics and diuretic. Excessive may cause laxative effect; deficiency causes structural and functional changes.
Total Hardness	200	300	600	Causes scaling, excessive soap consumption, calcification of arteries.		

Analytical data of T.Devada(V), Parawada(M) of Visakhapatnam district

S.NO	VILLAGE	MANDAL	Year	pH	Sp.Cond. at 25 ⁰ C Micro Siemens	TDS	CO ₃ ⁻ as CaCO ₃ ppm	HCO ₃ ⁻ as CaCO ₃ ppm	Cl- Chloride ppm	F- Fluoride ppm	NO ₃ -N ppm	SO ₄ - Sulphate ppm	Na Sodium ppm	K Potassi um ppm	Ca Calcium ppm	Mg Magnesi um ppm	Total Hard ness ppm	SAR		RSC	
1	T.Devada	Parawada	May-16	8.31	740	474	20	100	141.84	0.24	1.13	23	45.7	8.62	20	18.0	200	7.91	C2S2	0.19	P.S
2	T.Devada	Parawada	Nov-16	6.83	730	467	0	180	106.4	0.37	7.45	54	10.2	3.76	40	24.3	300	0.31	C2S1	-0.40	P.S
3	T.Devada	Parawada	May-17	7.95	590	378	0	70	120.6	0.43	1.83	48	43.7	3.82	64	9.7	200	1.34	C2S1	-2.60	P.S
4	T.Devada	Parawada	Nov-17	7.42	1600	1024	0	300	248.5	0.48	9.64	121	140.0	8.20	40	97.2	500	0.96	C3S1	-4.00	P.S
5	T.Devada	Parawada	May-18	8.38	1113	712	40	180	177.5	0.41	2.80	53.25	120.0	12.60	32	43.8	260	1.14	C3S1	-0.80	P.S
6	T.Devada	Parawada	Nov-18	9.28	1661	1063	140	240	170.0	0.91	1.69	210.0	190.0	29.78	40	72.9	400	1.46	C3S1	-0.40	P.S
7	T.Devada	Parawada	May-19	8.55	1038	664	20	250	144.0	0.16	4.32	56.7	122.0	2.76	72	24.3	280	1.12	C3S1	-0.20	P.S
8	T.Devada	Parawada	Nov-19	8.37	830	531	20	50	133.0	0.22	6.56	124.7	85.3	6.50	48	24.3	220	0.88	C3S1	-3.00	P.S
9	T.Devada	Parawada	May-20	8.65	1050	672	80	250	95.0	0.15	0.45	56.6	95.1	14.77	80	24.3	300	2.39	C3S1	0.60	P.S



ANDHRA PRADESH POLLUTION CONTROL BOARD
ZONAL LABORATORY:: VISAKHAPATNAM
D.No.39-33-20/1/4, Madhavadhara VUDA Colony, Visakhapatnam - 530018.

Annexure-X

M.RAVI, M.Sc.,
SENIOR ENVIRONMENTAL SCIENTIST

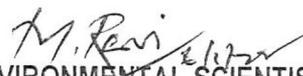
Ph : 0891-2719380/481
e-mail: zovsplab-ses2@ appcb.gov.in

ANALYSIS REPORT

Sample No. : 2021 - 12 - E - 308
Sample location/Address : M/s Simhadri Super Thermal Power Project,
NTPC Ltd., Parawada, Visakhapatnam.
Sample Source : Sample collected in the creek near ash pond
Sample collected on : 30.12.2021
Sample submitted on : 30.12.2021
Sample collected by : Junior Scientific Officer, Zonal Laboratory, Visakhapatnam
along with NGT Committee

S.No.	Parameter	Values
1.	pH	7.58
2.	Temperature	27
3.	Salinity	20.50
4.	Total Suspended Solids at 105 ^o C	35
5.	Total Dissolved Solids at 105 ^o C	27684
6.	Total Organic Carbon	28.52
7.	Nitrate Nitrogen (as NO ₃ -N)	5.75
8.	Ammonical Nitrogen (as NH ₃ -N)	0.36
9.	Phosphate (as P)	0.05
10.	Chromium (as Cr)	0.001
11.	Manganese (as Mn)	0.005
12.	Iron (as Fe)	0.182
13.	Nickel (as Ni)	0.001
14.	Copper (as Cu)	0.012
15.	Zinc (as Zn)	0.065
16.	Arsenic (as As)	0.009
17.	Cadmium (as Cd)	<0.001
18.	Mercury (as Hg)	<0.001
19.	Lead (as Pb)	<0.001

Note: - All values are expressed in mg/l except pH, Temperature & Salinity


SENIOR ENVIRONMENTAL SCIENTIST

From
Smt. G.S.N.S.Leelavathi, M.Sc(Ag),
Joint Director of Agriculture,
Visakhapatnam.

To
The Joint Chief Environmental Engineer
A.P. Pollution control board
Visakhapatnam

Sir,

File No.AGRI-CAI/ /2020-(T1)-AGRLVSKP, Dated 24.01.2022

Sub:- Disaster Management - M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited, Parawada (M), Visakhapatnam District and surroundings Agriculture department - submission of damage assessment report - Regarding.

- Ref:- 1. Watsapp message recieved from Pollution control Board, Executive Engineer dt.23.12.2021 for Joint Inspection.
2. RC.No. Tech.I (Soil samples)/2021-22, Dt.10/01/2022, ADA,STL, Anakapalli.
3. Report submitted by Horticulture officer and Agriculture officers

@@@

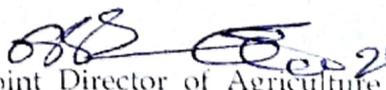
It is submitted that, as per the message received vide ref. 1st cited the team of Agriculture Department officials has participated in the joint inspection to the premises of M/s. Simhadri Super Thermal Power Project (Stage-I&II), NTPC Limited, Parawada (M), Visakhapatnam District and surroundings for assessment of damage, and soil samples were collected from 3 places in NTPC are being analysed and report submitted by the team vide ref. 2nd cited is herewith enclosed.

It is submitted that from the soil samples analysis results, except sample collected from dyke of ash pond located in the premises of factory showed slightly critical levels but other two samples collected from Coconut and Cashewnut Orchards of Pittavanivanipalem village indicated that no significant disastrous levels of the components analysed.

It is also submitted that major area of the villages area covered with horticulture crops like cashew and coconut, hence remarks on the yield parameters from horticulture department are taken (ref. 3rd cited) which has indicated that a chance of 20-30% reduction in yields of horticulture crops like cashew and coconut may be observed due to fly ash deposits on the leaves which hinders photosynthesis.

Hence the report is herewith submitted for necessary information.

Yours faithfully


Joint Director of Agriculture
Visakhapatnam

Encl:

1. Soil samples analysis report
2. Remarks of Horticulture Department

Copy submitted to the JC R&R, Visakhapatnam for favour of information

**GOVERNMENT OF ANDHRA PRADESH
DEPARTMENT OF AGRICULTURE**

From:
Sri. J. Prasad, M.Sc. (Ag.),
Assistant Director of Agriculture,
Soil Testing Laboratory,
Anakapalli – 531 001

To:
The Mandal Agriculture Officer,
Parawada

Rc. No. Tech. I (Soil Samples)/2021-22, Date: 10/01/2022

Madam,

Sub:- STL, AKP – Soil samples results of NTPC, Parawada - Sending of samples results –
Reg.

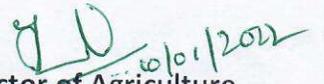
Ref:- 1. Your letter dated on 31-12.2021
2. Analysis results date on 07.01.2022 of the Senior Scientist (Soil Science),
Department of Soil Science and Agricultural Chemistry, RARA, Anakapalle.

* * * * *

As per the reference cited above, I am herewith enclosing the analysis results of three
soil samples of NTPC, Parawada for further necessary action at your end.

Encl : 03 no. of soil samples analysis data

Yours faithfully,


Asst. Director of Agriculture,
Soil Testing Laboratory,
Anakapalle.

Copy submitted to the Joint Director of Agriculture, Visakhapatnam for favour of information

SOIL SAMPLES ANALYSIS DATA OF NTPC, PARAWADA

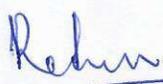
sl.no	Name of the mandal	village	colour	texture	pH		Ec		OC		Available N (kg/Ha)	range N	Available P		Available K ₂ O (kg/Ha)	range K ₂ O	Zn	range	Fe	range	Mn	Range
					Value	Range	Value	Range	Value	Range			Value	Range								
1	parawada	NTPC	LGBR	SCL	7.54	slightly alkaline	6.25	injurious	0.23	very low	223	low	30	Medium	540	High	1.84	above critical level	20	above critical level	70	above critical level
2		Pittavanivanipalem	LGBR	SCL	7.18	neutral	0.16	normal	0.51	medium	175	low	30	Medium	220	High	2.46	above critical level	3.2	below critical level	10.14	above critical level
3		Pittavanivanipalem	LGBR	SCL	6.05	acidic	0.14	normal	0.28	very low	210	low	187.5	High	156	High	1.56	above critical level	16.4	above critical level	84	above critical level


 Asst. Director of Agril.,
 Soil Testing Laboratory,
 Anakapalle.

DEPARTMENT OF SOIL SCIENCE AND AGRICULTURAL CHEMISTRY
REGIONAL AGRICULTURAL RESEARCH STATION, ANAKAPALLE

Analytical Report on soil available micronutrients (mg kg⁻¹)

S.No.	pH	EC	OC (%)	Available N (kg ha ⁻¹)	Available K ₂ O (kg ha ⁻¹)	Zn	Fe	Cu	Mn
1	7.54	6.25	0.23	223	540	1.84	20	3.42	70
2	7.18	0.16	0.51	175	220	2.46	3.2	2.46	10.14
3	6.05	0.14	0.28	210	156	1.56	16.4	0.76	84


Senior Scientist (Soil Science) 7/1/2022

Areas of Horticulture crops in
Pittavanipalem village of Pedagantyada mandal.

The entire Horticulture cropped area of Pittavanipalem (Devada Revenue village) village of Pedagantyada mandal belongs to government land only, (Given to WAQF Board) and so there will not be any proof of documents to the occupant/cultivating farmers there.

But as per physical verification, there will be nearly around 25 acres of Cashew orchards and 4 acres of coconut will be there in Pittavanipalem village of Pedagantyada mandal.

Radhika 29/1/22
Horticulture officer
Visakhapatnam (extn)

APPCB Monitoring Data (2019 to 2021):**APPCB Ambient Air Quality monitoring data during the period 2019 to 2021**

Sample Collected at	Date of Sampling	Parameters			
		PM _{2.5} (µg/m ³)	PM ₁₀ (µg/m ³)	SO ₂ (µg/m ³)	NO ₂ (µg/m ³)
Pump Station	16.12.2021 to 17.12.2021	72.0	131.0	80.0	23.4
Administration Building	17.12.2021 to 18.12.2021	63.0	126.0	33.7	19.8
Sarada Guest House, Town ship	18.12.2021 to 19.12.2021	70.0	118.0	26.3	22.6
Township (Southwest)	25.12.2020 to 26.12.2020	137.0	215.0	36.0	22.0
Administration Building(Northeast)	26.12.2020 to 27.12.2020	131.0	216.0	30.0	25.1
R&D Building(Southeast)	27.12.2020 to 28.12.2020	114.0	176.0	18.0	21.1
Deepanjali nagar	13.05.2019 to 15.05.2019	14.0	49.6	13.9	3.8
Administration Building	16.05.2019 to 18.05.2019	24.0	55.0	12.7	4.4
NAAQ Standards 24 Hrs		60.0	100.0	80.0	80.0

APPCB emission monitoring data (2019 to 2021)

Sample Collected at	Date of Sampling	Parameter	Value (mg/Nm ³)	Standard (mg/Nm ³)
Stack Attached To 1X1675TPH Coal Fired Boiler(Unit-I)	15.12.2021	Particulate matter	75.4	100.0
Stack Attached To 1X1675TPH Coal Fired Boiler(Unit-II)	15.12.2021		86.1	100.0
Stack Attached To 1X1675TPH Coal Fired Boiler(Unit-III)	15.12.2021		54.6	50.0*
Stack Attached To 1X1675TPH Coal Fired Boiler(Unit-IV)	15.12.2021		58.7	50.0*
Stack Attached To 1X1675TPH Coal Fired Boiler(Unit-III)	23.08.2018		58.2	50.0*

*The Central Pollution Control Board vide order dated:11.12.2017 issued following directions regarding compliance of emission limit notified under notification N.S.O.3305(E), dated 07.12.2015 that plant shall install/retrofit Electrostatic Precipitators (ESP) by 30.09.2022 & 31.12.2022 in unit 3 & 4 respectively so as to comply PM emission limit.

APPCB Water quality data of the outlet of Effluent Disposal Point (EDP) during the period 2019 to 2021:

Year-2021

Sl.NO	Parameter	Jan	Feb	Mar	Apr	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Standard (mg/l)
1	pH	8.09	7.75	7.90	7.39	7.68	7.58	7.67	7.46	7.41	7.65	7.89	5.5-8.5
2	TSS at 105 °C	36.0	56.0	48.0	40.00	56.0	63.00	48.0	17.0	23.00	42.0	156.0	100
3	Phosphates	0.1	0.38	0.160	0.24	0.28	0.52	0.39	0.1	0.04	0.1	0.2	20
4	Oil & Grease	BDL	<1	<1	<1	20							
5	Chlorides	---	---	---	---	---	---	---	20938.0	2161.0	23188.0	16949.0	---
6	chromium as Cr	BDL	BDL	BDL	BDL	0.0	0.0	0.0	0.0	<0.001	0.002	0.007	0.2
7	Copper as Cu	0.0	0.0	0.003	0.00	0.0	0.00	0.0	0.00	0.00	0.001	0.004	1.0
8	Zinc as Cu	0.0	0.0	0.007	0.00	0.008	0.00	0.000	0.029	0.035	0.032	0.032	1.0
9	Iron as Fe	0.064	0.058	0.069	0.05	0.074	0.02	0.008	0.176	0.115	0.145	0.154	1.0

Year-2020

S.No	Parameters	Feb	Mar	Jun	Jul	Aug	Sep	Oct	Nov	Standard (mg/l)
1	pH	8.20	7.96	7.41	8.16	8.43	7.31	8.09	7.45	5.5-8.5
2	TSS at 105 °C	143.0	82.0	38.0	96.00	159.0	42.0	5.00	8.0	100
3	Phosphates	0.09	0.080	BDL	0.15	0.12	0.0	0.08	0.0	20
4	Oil & Grease	BDL	20							
5	Chlorides	22200.0	25359.0	19951.0	25311.0	25263.0	19959.0	18051.0	19177.0	---
6	chromium as Cr	0.006	0.004	ND	ND	ND	ND	BDL	BDL	0.2
7	Copper as Cu	0.0	0.003	ND	ND	ND	ND	BDL	0.001	1.0
8	Zinc as Cu	0.0	0.006	0.001	0.001	0.002	0.008	0.007	0.005	1.0
9	Iron as Fe	0.126	0.138	0.078	0.064	0.082	0.074	0.084	0.069	1.0

Year-2019

S.No	Parameters	Jan	Feb	Mar	Apr	May	Jun	Aug	Sep	Oct	Nov	Dec	Standard (mg/l)
1	pH	8.33	8.15	7.88	7.93	7.74	8.00	7.59	7.71	7.62	8.30	8.40	5.5-8.5
2	TSS at 105 °C	187.0	213.0	199.3	238.0	66.0	73.0	45.0	68.0	80.0	64.0	15.0	100
3	Phosphates	0.3	0.16	0.120	0.11	0.06	0.02	0.03	BDL	BDL	0.3	0.17	20
4	Oil & Grease	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	20

5	Chlorides	2558 6	2847 2	2446 0	2323 7	2394 1	2623 5	2073 1	2173 5	2638 5	2275 6	2015 2	---
6	chromium as Cr	0.004	0.004	0.021	0.002	0.002	0.003	--	0.012	0.014	0.010	0.009	0.2
7	Copper as Cu	ND	ND	0.312	ND	ND	ND	--	0.063	0.075	0.064	0.049	1.0
8	Zinc as Cu	--	ND	0.014	ND	ND	ND	--	0.044	0.075	0.062	0.058	1.0
9	Iron as Fe	0.115	0.114	0.984	0.058	0.108	0.098	--	0.088	0.068	0.048	0.044	1.0

**APPCB Water quality data of the STP outlet (industry) during the period 2019 to 2021
Year-2021**

Sl.NO	Parameters	Jan- 21	Feb- 21	Mar- 21	Apr- 21	Jun- 21	Jul- 21	Aug- 21	Sep- 21	Oct- 21	Nov- 21	Dec- 21	Standards (mg/l)
1	pH	7.84	6.81	7.13	7.80	6.35	7.9	7.28	7.32	7.49	7.92	7.84	5.5-9.0
2	T S S at 105 °C	43.0	14.0	22.0	19.0	24.0	14.0	33.0	43.0	38.0	22.0	13.0	200
3	Chemical Oxygen Demand (COD)	32.0	48.0	36.0	12.0	28.0	16.0	76.0	48.0	64.0	28.0	40.0	250
4	Biochemical Oxygen Demand (BOD)	11.0	12.0	10.0	2.2	7.0	3.8	20.0	13.0	18.0	7.0	12.0	100
5	Oil & Grease	BDL	BDL	BDL	>1	>1	>1	>1	>1	>1	>1	>1	20.0

Year-2020

S. NO	Parameters	Feb- 20	Mar- 20	Jun- 20	Jul- 20	Aug- 20	Sep- 20	Oct- 20	Nov- 20	Standards (mg/l)
1	pH	8.08	8.12	7.90	7.1	8.80	7.30	7.16	7.16	5.5-9.0
2	T S S at 105 °C	40.0	52.0	45.0	28.0	57.0	47.0	34.0	10.0	200
3	Chemical Oxygen Demand (COD)	64.0	48.0	108.0	64.0	96.0	124.0	64.0	20.0	250
4	Biochemical Oxygen Demand (BOD)	17.0	12.0	27.0	12.0	28.0	37.0	18.0	7.0	100
5	Oil & Grease	BDL	20.0							

Year-2019

Sl.N O	Parame ters	Jan- 19	Feb- 19	Mar- 19	Apr- 19	May- 19	Jun- 19	Aug- 19	Sep- 19	Oct- 19	Nov- 19	Dec- 19	Standards (mg/l)
1	pH	8.33	8.15	7.88	7.93	7.74	8.00	7.59	7.71	7.62	8.30	8.40	5.5-8.5
2	TSS at 105 °C	187.0	213.0	199.3	238.0	66.0	73.0	45.0	68.0	80.0	64.0	15.0	100
3	Phospha tes	0.3	0.16	0.120	0.11	0.06	0.02	0.03	BDL	BDL	0.3	0.17	20
4	Oil & Grease	BDL	BDI	BDL	20								
5	Chloride s	2558 6.0	2847 2.0	2446 0.0	2323 7.0	2394 1.0	2623 5.0	2073 1.0	2173 5.0	2638 5.0	2275 6.0	2015 2.0	---
6	chromiu m as Cr	0.004	0.004	0.021	0.002	0.002	0.003	--	0.012	0.014	0.010	0.009	0.2
7	Copper as Cu	ND	ND	0.312	ND	ND	ND	--	0.063	0.075	0.064	0.049	1.0

8	Zinc as Cu	--	ND	0.014	ND	ND	ND	--	0.044	0.075	0.062	0.058	1.0
9	Iron as Fe	0.115	0.114	0.984	0.058	0.108	0.098	--	0.088	0.068	0.048	0.044	1.0

APPCB Water quality data of the STP outlet (Town Ship) during the period 2019 to 2021

Year-2021

S.No	Parameters	Jan-21	Feb-21	Mar-21	Apr-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Standards (mg/l)
1	pH	6.82	7.04	6.90	7.75	6.32	7.2	6.97	7.56	7.03	7.78	7.45	5.5-9.0
2	T S S at 105 °C	19.0	10.0	17.0	14.0	16.0	<10	21.0	24.0	27.0	14.0	10.0	200
3	Chemical Oxygen Demand (COD)	28.0	40.0	24.0	20.0	20.0	12.0	36.0	80.0	32.0	20.0	76.0	250
4	Biochemical Oxygen Demand (BOD)	8.4	10.0	6.0	5.0	4.6	2.6	8.0	52.0	7.5	5.0	20.0	100
5	Oil & Grease	BDL	BDL	BDL	>1	>1	>1	>1	>1	>1	>1	>1	20.0

Year-2020

S.No	Parameters	Feb-20	Mar-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Standards (mg/l)
1	pH	7.76	7.53	7.46	6.7	9.40	7.40	7.11	6.82	5.5-9.0
2	T S S at 105 °C	32.0	36.0	28.0	14.0	32.0	24.0	22.0	3.0	200
3	Chemical Oxygen Demand (COD)	56.0	60.0	72.0	20.0	48.0	36.0	56.0	4.0	250
4	Biochemical Oxygen Demand (BOD)	14.0	14.0	18.0	8.0	14.0	10.0	16.0	1.2	100
5	Oil & Grease	BDL	20.0							

Year-2019

S.NO	Parameters	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Standards (mg/l)
1	pH	8.20	8.96	8.18	7.66	6.99	7.38	7.50	6.73	6.68	7.87	8.33	5.5-9.0
2	T S S at 105 °C	8.0	12.0	10.0	10.0	12.0	8.0	22.0	12.0	14.0	14.0	17.0	200
3	Chemical Oxygen Demand (COD)	32.0	32.0	28.0	32.0	28.0	24.0	44.0	36.0	32.0	48.0	56.0	250
4	Biochemical Oxygen Demand (BOD)	12.0	6.0	5.0	10.0	8.0	7.0	13.0	7.0	6.8	10.5	15.0	100
5	Oil & Grease	BDL	20.0										

APPCB water quality monitoring data of borewell at Pittavanipalem Village during the period 2019-2021

Parameters	Values						IS10500: 2012 Limits
	Oct-2021	Apr-2021	Oct-2020	Apr-2020	Oct-19	Apr-19	
pH	7.57	6.66	7.61	7.15	7.19	7.67	6.5-8.5
Temperature O ^c	27	27	26	27	27	28	--
Dissolved Oxygen	4.2	5.2	3.8	5.6	3.3	5.8	--
Electrical Conductivity μS/cm	1983	1610	2350	3280	3543	4652	--
Total Dissolved Solids	1312	1120	1612	2216	2480	3024	1000mg/l
Fixed Dissolved Solids	1300	1112	1604	2198	2460	2994	
Total Suspended Solids	5	5	7	6	6	14	
Phenolphthalein alkalinity as CaCO ₃	0	60	0	0	0	0	
Total Alkalinity as CaCO ₃	220	220	200	220	268	304	600mg/l
Turbidity	0.7	1.21	2.12	2.18	0.82	1.79	
Chlorides (Cl ⁻)	421	377	547.9	675	993	910	1000mg/l
Sulphate (as SO ₄)	132.6	143.7	190.95	359	206	493.4	400mg/l
Phosphate (as P)	0.05	0.08	0.03	0.04	0.01	0.01	--
Fluoride (as F)	0.3	0.51	0.74	0.23	0.39	0.47	1.5mg/l
Hardness as CaCO ₃	420	560	592	852	1080	640	600mg/l
Calcium as CaCO ₃	292	304	372	452	504	420	
Magnesium as CaCO ₃	128	256	220	400	576	220	
Nitrate (as NO ₃)	18.8	2.52	5.87	4.42	10.92	18.05	45mg/l
Nitrite Nitrogen (NO ₂ -N)	0.03	0.11	1.6	0.02	0.37	5.8	--
Ammonical Nitrogen (NH ₃ -N)	0.05	0.06	0.03	0.1	0.01	0.01	0.5mg/l
Total Kjeldal Nitrogen	0.19	0.28	0.28	0.42	0.28	0.58	--
Chemical Oxygen Demand	8	6.4	2	4.8	3.2	20	
Biochemical Oxygen Demand	2.2	2.2	1	1.5	0.3	1.6	
Sodium (as Na)	219.4	111.8	276.3	350	343.75	685.6	--
Potassium (as K)	20.37	10.28	22	13.9	21.4	14.92	--
% Sodium	51.72	29.68	49.25	46.71	40.34	69.38	--
Sodium Absorption Ratio(SAR)	4.66	2.06	4.94	5.22	4.55	11.8	--
Fecal Coliform(MPN/100 ml)	3	4	4	9	9	15	--
Total Coliform (MPN/100 ml)	75	75	64	120	23	150	--
Arsenic (as As)	BDL		BDL	BDL	ND	ND	0.05mg/l
Cadmium(as Cd)	BDL		0.003	BDL	ND	ND	0.003mg/l
Copper(as Cu)	0.0015		BDL	BDL	ND	0.002	1.5mg/l
Lead (as Pb)	BDL		BDL	BDL	ND	ND	0.01mg/l
Chromium(as Cr)	BDL		BDL	BDL	ND	ND	0.05mg/l
Nickel(as Ni)	0.0005		0.002	BDL	0.002	0.005	0.02mg/l
Zinc (Zn)	0.0684		0.027	BDL	0.002	0.452	15.0mg/l
Mercury (as Hg)	0.0387		BDL	0.001		0.006	0.001mg/l
Iron (Total)(as Fe)	BDL		0.027	BDL	0.724	0.1	0.3mg/l

Step-1 (R.C)

तार :

Telegram : PARYAVARAN,
NEW DELHI

Annexure-XIII

No.J.13011/19/94-IA.II.

दूरभाष :

Telephone : 4360478

टेलिक्स (द्विभाषीय) :

Tolex : (bi-lingual) : W-66185 DOE IN

FAX : 4360678

भारत सरकार

पर्यावरण एवं वन मंत्रालय

GOVERNMENT OF INDIA

MINISTRY OF ENVIRONMENT & FORESTS

पर्यावरण भवन सी. जी. ओ. कॉम्प्लेक्स

PARYAVARAN BHAVAN, C.G.O. COMPLEX

लोदी रोड, नई दिल्ली-110003

LODHI ROAD, NEW DELHI-110003

July 23, 1996.

OFFICE MEMORANDUM

Subject : 2 x 500 MW Simhadri Thermal Power Project by National Thermal Power Corporation, Andhra Pradesh.

Reference is invited to letter No.CE(Gen)/EE/EC/F.14/50/95 dated 4th December, 1995 from Andhra Pradesh State Electricity Board and letters No.CEV-Simhadri-96 dated 3rd June, 1996 and 17th July, 1996 from National Thermal Power Corporation Ltd. regarding the above mentioned project.

2. The proposal for the setting up of the 1000 MW Coal Based Power Project has been examined and clearance is hereby accorded from environmental angle subject to effective implementation of the following conditions :-

- (i) The Consent Order No.20/PCB/C.Estt./RO-VSP/AEE-VIII/95 dated 13th. November, 1995 of Andhra Pradesh Pollution Control Board for establishment of Simhadri Thermal Power Project should be got transferred in favour of NTPC Limited, the executing agency. All the conditions stipulated by the State Pollution Control Board should be strictly implemented along with the additional ones, if stipulated during transfer of Consent Order.
- (ii) A Bi-flue of height 275 m with continuous stack monitoring facility should be installed.
- (iii) Electro-static-precipitator having efficiency of not less than 99.5% should be installed and it should be ensured that particulate emission would not exceed the prescribed limit of 150 ug/Nm³.
- (iv) A closed circuit cooling device should be provided. The water requirement should be limited to 600 CUM/hour from the Yellow Canal and 9100 CUM/hour from the sea. The proposed pipeline of 6 km for sea water intake should conform to the regulations of the Coastal Zone Notification of February, 1991.

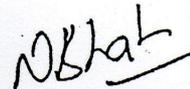
- (v) Adequate space should be provided for installation of flue gas desulphurisation plant in future for control of sulphur-di-oxide.
- (vi) Acquisition of land should be restricted to 2381.00 acres including the area of 630 acres for ash disposal.
- (vii) Only beneficiated coal to the tune of 14,844 tonnes/day should be used. Fly ash generated to the tune of 33.5 million CUM should be collected in dry form in silos and fully utilised in a phased manner. Presently, plan has been drawn for utilisation of 20% ash. A detailed scheme for full utilisation should be submitted to the Ministry by 31 December, 1996. For avoiding contamination of ground water, ash pond should be suitably lined and dyked.
- (viii) Noise level should be limited to 85 dBA and regular maintenance of equipments be undertaken. For people working in the area of generator halls and other high noise areas, ear pluggs should be provided.
- (ix) A Rehabilitation Master Plan covering details of the provisions made for rehabilitation of 150 families, compensation package, training facilities etc. should be submitted within four months i.e. by November, 1996. The plan should specifically indicate the schedule and implementation.
- (x) For controlling fugitive dust, regular sprinkling of water in coal handling and other vulnerable areas of the plant should be ensured.
- (xi) Afforestation should be undertaken covering an area of 292 acres and should be implemented in a phased manner. After care, gap filling and monitoring should also be ensured. A norm of 1500-2000 trees per ha should be followed. The afforestation plan may be submitted by November, 1996 and the schedule given in it is adhered to strictly.
- (xii) Continuous monitoring of ground water should be undertaken by establishing good network of observation wells in consultation with the Central Ground Water Board. Results and data collected should be analysed to ascertain the status of water quality and findings should be submitted for evaluation.
- (xiii) All effluents generated in various plant activities should be collected in the Central Effluent Treatment Plant and treated to ensure adherence to specified standards of discharge. The concept of zero discharge should be adopted to a maximum possible extent.
- (xiv) Keeping in view that 2 x 520 MW Thermal Power Plant by M/s Hinduja National Power Corporation Ltd. (HNPL) is proposed in the vicinity of Simhadri Project, common facilities for coal transportation, laying of rail line etc. should be worked out in mutual consultation to avoid duplication of the facilities and acquisition of additional area.

- (xv) A financial provision of Rs. 301.55 crores should be provided for implementation of environmental mitigative measures with adequate scope for its enhancement, if required, in future.
- (xvi) Regular monitoring for SPM, SO₂ and NO_x around the power plant may be carried out and records maintained. The data so collected should be properly analysed and submitted to the Ministry every six months.
- (xvii) Full cooperation should be extended to the Scientists/Officers from the Regional Office of the Ministry at Bangalore who would be monitoring the compliance of environmental status. Complete set of impact assessment report and the Management Plans should be forwarded to the Regional Office for their use during monitoring.
- (xviii) Monitoring Committee should be constituted for reviewing the compliance to various safeguard measures by involving recognised local NGOs, Pollution Control Boards, Institutions, Experts etc.

3. The Ministry reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry.

4. In case of any deviation or alteration in the project proposed from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the conditions imposed and to add additional environmental protection measures required, if any.

5. 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 Environment (Protection) Act, 1986 the Public Liability Insurance Act, 1991, the Impact Assessment Notification of January, 1994 and its amendments.



(Nalini Bhat)
Additional Director

Chairman and Managing Director,
National Thermal Power Corporation Ltd.,
NTPC Bhavan, SCOPE Complex,
Lodhi Road,
New Delhi-110003.

Copy for information to:-

1. The Secretary, Ministry of Power, Shram Shakti Bhavan, Rafi Marg, New Delhi.
2. The Chairman, Andhra Pradesh Pollution Control Board, 11th floor, HUDA Complex, Maitrivanam, Ammerpet, Hyderabad-35.

3. The Chairman, Central Electricity Authority, Sewa Bhavan, R.K. Puram, New Delhi.
4. The Chief Conservator of Forests, Regional Office, Bangalore.
5. The Chairman, Central Pollution Control Board, East Arjun Nagar, Delhi.
6. Guard File.

(Nalini Bhat)
Additional Director

संर

Telegram : PARYAVARAN,
NEW DELHI

दूरभाष :

Telephone :

टेलिक्स (द्विभाषीय) :

Telex : (bi-lingual) : W-66185 DOE IN

FAX : 4360678

भारत सरकार

पर्यावरण एवं वन मंत्रालय

GOVERNMENT OF INDIA

MINISTRY OF ENVIRONMENT & FORESTS

पर्यावरण भवन, सी० जी० ओ० कॉम्प्लेक्स

PARYAVARAN BHAWAN, CGO COMPLEX

लोदी रोड, नई दिल्ली-110003

LODHI ROAD, NEW DELHI-110003

Dated : 6.2.1998.

Subject:- 2 x 500 MW Simhadri Thermal Power Project
by National Thermal Power Corporation Ltd.,
Andhra Pradesh.

.....

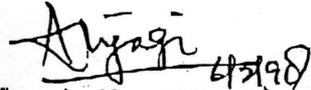
Reference is invited to communication No. 33/3/
9531(F-97)/3/004/D dated the 16th December, 1997 and dated
16th January, 1998 from National Thermal Power Corporation
Ltd. regarding the permission to use Raw Coal for Simhadri
Super Thermal Power Project, Andhra Pradesh.

2. Keeping in view the provision of Notification
No. G.S.R. 560 (E) dated the 19th September, 1997, the
Ministry has no objection in using the Raw Coal for the
proposed Simhadri Super Thermal Power Project. Accordingly,
the condition No. vii stipulated in our clearance letter
of even number dated 23rd July, 1996 may be read as under:-

" Use of coal should not exceed 16,800 tonnes
per day for 100 % PLF operation. Fly ash
should be collected in dry form and should
be fully used in a phased manner. Acquisition
of land for ash disposal should be restricted
to 630 acres. Presently, Plan has been drawn
for utilisation of only 20% ash. A detailed
Scheme should be drawn for full utilisation
and submitted by June, 1998. For avoiding
contamination of ground water, ash pond should
be suitably lined and dyked".

....2/-

3. All other conditions stipulated in our earlier clearance letter will remain unchanged.


(DR. A.K. TYAGI)
Joint Director

The Chairman and Managing
Director,
National Thermal Power Corpn. Ltd.,
Plot No. A-8A, Sector-24,
P.B. No. 13,
Noida (U) - 201 301.

Copy to:-

1. The Secretary, Ministry of Power Shram Shakti Bhawan,
Rafi Marg, New Delhi.
2. The Chairman, Andhra Pradesh Pollution Control Board,
IInd Floor, HUDA Complex, Maitrivanam, Ammerpet,
Hyderabad - 38.
3. The Chairman, Central Electricity Authority, Sewa
Bhawan, R.K. Puram, New Delhi.
4. The Chief Conservator of Forests, Regional Office,
Bangalore.
5. The Chairman, Central Pollution Control Board, East
Arjun Nagar, Delhi - 32.
6. Guard File.

(DR. A.K. TYAGI)
Joint Director

Date: -/ /

No.J.13011/19/94-IA.II(T)
Government of India/Bharat Sarkar
Ministry of Environment and Forests

Paryavaran Bhavan,
C.G.O. Complex, Lodi Road,
New Delhi-110003.

May 20, 2002.

Subject : 2x500 MW Simhadri Thermal Power Station, Andhra Pradesh of M/s National Thermal Power Corporation Limited - Waiver of condition reg.

This has reference to letter No.33/3-9531(F-98)/3/004/D dated 19th September and 20th November, 1998 and No.ESE.3520:2001.GEN.04D dated 27th December, 2001 from National Thermal Power Corporation Limited requesting waiver of stipulation of lining of ash pond area for the above mentioned project.

2. The project report of December, 2001 on "Hydro-Geological Investigations for Lining of Ash Pond at Simhadri Thermal Power Plant, Andhra Pradesh" by National Institute of Hydrology, Roorkee, has been examined in the Ministry for reviewing the request regarding waiver for lining of ash pond area of Simhadri Thermal Power Project. The following findings of the report have been noted.

- The hydraulic conductivity of the soils is quite low and will not allow appreciable seepage of contaminated water.
- Even if the contaminated water seeps, it will flow towards Bay of Bengal due to natural gradient where enormous diluting capacity is available.
- The quality of ground water in the area is saline and not good for domestic use.
- Most of the villages are on the other side of the isolated hills and will not be affected due to ash disposal area.
- Even if some clay material from the ash disposal area has been used for construction of starter dyke, the investigators have expressed that there is still adequate layer of loam/silty loam in the ash disposal area to serve as impermeable layer.

3. Keeping in view the findings of the study report and geo-hydrological conditions in the region, Ministry partially modifies condition No.2(viii) of the environmental clearance issued for the project vide its letter of even number dated 23rd July, 1996 regarding lining of ash pond. The ash disposal area identified for the project need not be lined. However, following mitigation measures should be ensured during operation of the plant.

- No earth/clay matter should be removed from the ash dyke henceforth for any activity related to the project.

ProSoc.

➤ Leachate collections should be undertaken through Lysimeter at 6-10 locations around the ash dyke and monitoring report should be regularly submitted along with its analysis for ascertaining its change in water quality. For facilitating comparison, continuous monitoring of ground water quality should be immediately initiated to serve as baseline data.

➤ In the initial period, only flay ash should be discharged in ash dyke due to its grain size being similar to soil profile.

➤ Green belt should be created around the ash dyke for controlling fugitive dust. A detailed proposal indicating area coverage and phased action plan should be submitted within three months.

4. N° PC should ensure strict implementation of all other environmental conditions stipulated in the clearance letter and its subsequent amendments.


(Nalini Bhat)
Director

Shri M.J . Rao,
DGM (Environmental Engineering),
National Thermal Power Corporation Ltd.,
Plot No. 1-8A, Sector-24, P.B.No.13,
NOIDA (U.P.)-201 301.

Copy for information to :

1. Chief Conservator of Forests Chief Conservator of Forests, Regional Office, Southern Region, Ministry of Environment and Forests, Kendriya Sadan, 4th Floor, &F Wings, 17th Main Road, IInd Block, Koramangala, Bangalore-560034.
2. Chairman, Andhra Pradesh Pollution Control Board, IInd Floor, Huda Complex, Maitrivanam, Ammerpet, Hyderabad 508.

(Nalini Bhat)
Director

2/2

001

For kindling pt.

GN (Simhadri)

Noted
02/08/07BY SPEED POSTRegional ED (South) - May like to
seeNo. J- 13011/11/2007-IA-II (T)
Government of India
Ministry of Environment & ForestsNoted
2/8/07Paryavaran Bhawan
CGO Complex, Lodi Road
New Delhi-110003Dated: 1st August, 2007

Copies: 1. Dir. Env. (EMD) (AU)

2. Atm (ES)

To 3. Janga (ES)

4. J. S. - Env. Dept.

Noted
2/8/07M/s National Thermal Power Corporation Ltd.
Plot No. A-8A, Sector 24,
Post Box No.13
Noida-201301,
Uttar Pradesh.**Sub: Simhadri Super Thermal Power Project, Stage-II (2x500 MW) at
Vizag, District Visakhapatnam, Andhra Pradesh by M/s NTPC Ltd
- Environmental Clearance - Regarding.** (EC)

Sir,

The undersigned is directed to refer to your communication no. CC:ESE: 3530:2006:07/GEN dated 23.02.2007 on the above mentioned subject. Subsequent information furnished vide letter dated 9th May, 2007 has also been considered.

2. It is noted that the proposal is for grant of environmental clearance under the provisions of EIA Notification, 1994 for setting up of a 2x500 MW power plant as stage-II expansion at Simhadri, Visakhapatnam District, Andhra Pradesh. The plant will be located within the premises of the existing stage-I power plant. No additional land will be acquired for the main plant, however, 400 acres of barren land for the ash pond and 75 acres of land for afforestation outside the plant premises will be acquired. The water requirement is estimated as 6740 m³/hr of sea water and 550 m³/hr of sweet water. The sweet water requirement will be met from Visakhapatnam Industrial Water Supply Project. The coal requirement is estimated as 18,000 TPD at 100% PLF. No National Park / Sanctuary are reported within 10 km of the project site. Public hearing was held on 9.01.2007. Total cost of the project will be Rs 4844.42 crores which includes Rs 270.42 crores for environmental protection measures.

3. The proposal has been considered by the Expert Appraisal Committee in accordance with para 12 of the EIA Notification dated 14th September, 2006 read with



2/6

para 2.2.1 (i) (a) of the Circular No. J-11013/41/2006-IA.II(I) dated 13.10.2006. Based on the recommendations of the Expert Appraisal Committee for Thermal Power and Coal Mine Projects, the Ministry of Environment & Forests hereby accords environmental clearance to the said project under the provisions of EIA Notification 2006, subject to implementation of the following terms and conditions:-

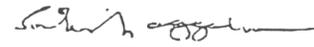
- (i) No activities in CRZ area shall be taken up without obtaining requisite prior clearance under the provisions of the CRZ Notification, 1991.
- (ii) Ash and sulphure content in coal to be used as fuel shall not exceed 45% and 0.6% respectively.
- (iii) Space provision shall be made for installation of FGD of requisite efficiency of removal of SO₂, if required at a later stage.
- (iv) A bi-flue stack of 275 m height with exit velocity of at least 22.2 m/s shall be provided with continuous online monitoring system.
- (v) High efficiency Electrostatic Precipitator (ESPs) having efficiency of 99.9% shall be installed so as to ensure that particulate emissions do not exceed 100 mg/Nm³.
- (vi) Closed Cycle Cooling system with natural draft cooling towers shall be provided.
- (vii) Treated effluents conforming to the prescribed standards shall be re-circulated and reused within the plant. The discharge, if any, into the sea shall be at ambient temperature from the cold water side.
- (viii) Rain water harvesting should be adopted. Central Groundwater Authority/ Board shall be consulted for finalization of appropriate rain water harvesting technology within a period of three months from the date of clearance.
- (ix) Fly ash shall be collected in dry form and its 100% utilization shall be achieved within 9 years in accordance with the notification on fly ash utilization SO 763 (E) dated 14th September, 1999 and the amendments made therein from time to time.
- (x) Regular monitoring of ground water quality including heavy metals shall be undertaken around ash dyke and the project area to ascertain the change, if any, in the water quality due to leaching of contaminants from ash disposal area.

- (xi) Noise levels shall be limited to 75 dBA. For people working in the high noise area, protective devices such as earplugs etc. shall be provided.
- (xii) In lieu of the 25 acres of greenbelt area to be utilized for the project, greenbelt shall be developed in an area of 10 acres between coal handling plant and cooling tower of stage-II. Additionally, afforestation shall be carried out in an area of 75 acres outside the plant premises in consultation with the State Forest Department.
- (xiii) Regular monitoring of the air quality shall be carried out in and around the power plant and records shall be maintained. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with State Pollution Control Board. Six monthly reports shall be submitted to this Ministry.
- (xiv) For controlling fugitive dust, regular sprinkling of water in vulnerable areas of the plant shall be ensured.
- (xv) The project proponent should advertise at least in two local newspapers widely circulated in the region around the project, one of which should be in the vernacular language of the locality concerned, informing that the project has been accorded environmental clearance and copies of clearance letters are available with the State Pollution Control Board/Committee and may also be seen in the Website of the Ministry of Environment and Forests in the <http://envfor.nic.in>.
- (xvi) A separate environment monitoring cell with suitable qualified staff should be set up for implementation of the stipulated environmental safeguards.
- (xvii) Half yearly report on the status of implementation of the conditions and environmental safeguards should be submitted stipulated to this Ministry, the Regional Office, CPCB and SPCB.
- (xviii) Regional Office of the Ministry of Environment & Forests located at Bangalore will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental Impact Assessment Report, Environment Management Plan and the additional information/clarifications submitted subsequently to this ministry should be forwarded to the Regional Office for their use during monitoring.
- (xix) Separate funds should be allocated for implementation of environmental protection measures along with item-wise break-up. These cost should be included as part of the project cost. The funds earmarked for the

environment protection measures should not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.

- (xx) Full cooperation should be extended to the Scientists/Officers from the Ministry and its Regional Office at Bangalore/the CPCB/the SPCB during monitoring of the project.
4. The Ministry reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry.
5. The environmental clearance accorded shall be valid for a period of 5 years to the start of production operations by the power plant.
6. In case of any deviation or alteration in the project proposed from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of the condition(s) imposed and to add additional environmental protection measures required, if any.
7. 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 Environment (Protection) Act, 1986 and rules there under, Hazardous Wastes (Management and Handling) Rules, 1989 and its amendments, the Public Liability Insurance Act, 1991 and its amendments.

Yours faithfully,



(Dr. S.K. Aggarwal)
Director

Copy to:-

1. The Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi-110001.
2. The Secretary, Environment & Forests Department, Govt. of Andhra Pradesh, Secretariat, Hyderabad-500 022.
3. The Chairman, Central Electricity Authority, Sewa Bhawan, R.K. Puram, New Delhi-110066.

5/6

4. The Chairman, Andhra Pradesh State Pollution Control Board, 2nd Floor, HUDA Complex, Maitrivaram, S. R. Nagar, Amarpet, Opp. Sarathi Studio, Hyderabad - 500038 - **with a request to display a copy of the clearance letter at the Regional Office, District Industries Centre and Collector's office for 30 days.**
5. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi-110032.
6. The Chief Conservator of Forests, Ministry of Environment & Forests, Regional Office(SZ), Kendriya Sadan, 4th Floor, E&F Wings, 17th Main Road, II-Block, Koramangla, Bangalore-560034.
7. The Director (EI), MOEF.
8. Guard file.
9. Monitoring file.


(Dr. S.K. Aggarwal)
Director



RED CATEGORY
RENEWAL OF CONSENT & AUTHORISATION ORDER
BY REGISTERED POST WITH ACKNOWLEDGEMENT DUE

Consent Order No : APPCB/VSP/VSP/12334/HO/CFO/2017-

Date: 31.07.2017

CONSENT is hereby granted for Operation under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Authorisation under Rule 6 of the Hazardous & Other Wastes (Management and Transboundary, Movement) Rules, 2016 and the rules and orders made there under (hereinafter referred to as 'the Acts', 'the Rules') to:

M/s. Simhadri Super Thermal Power Project (Stage-I&II),
NTPC Limited, Parawada,
Visakhapatnam District - 531 020
E-mail: ssrao01@ntpc.co.in / jithinabraham@ntpc.co.in

(Hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant to discharge the effluents from the outlets and the quantity of emissions per hour from the chimneys as detailed below:

i) Out lets for discharge of effluents:
Stage - I (Unit -1&2)- 1000 MW.

Outlet No.	Outlet Description	Max Daily Discharge (KLD)	Point of disposal
1.	D.M. Plant Regeneration effluent	3400	Reused for Ash Slurry preparation
2.	Boiler Blow Down and once through Cooling Water after treatment	1,03,900	Into Sea
3.	Ash Pond Effluent	9600	Reused for Ash Pumping
4.	Domestic	1790	After treatment in STP, onland for Plantation / Gardening.
Total		1,18,690	

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

Existing Outlet No.	Outlet Description	Max Daily Discharge (KLD)	Point of disposal
1.	Filter Back wash	240	Recycled to clarifier inlet
	CHP effluent	4800	Sedimentation, Treatment & Recycle
2.	DM Plant Regeneration Waste	240	Neutralization and disposal through Central Monitoring Basin (CMB) and excess treated effluents to Sea.
	Cooling Tower blow down	106320	Partial use and disposal through CMB and excess treated effluents to Sea.
	Boiler Blow down	1080	Disposal through CMB and excess treated effluents to Sea.
	Ash water Blow down	34320	Disposal through CMB and excess treated effluents to Sea.
3.	Clarifier Sludge	720	Disposed in ash pond
4.	Domestic	2400	Biological treatment & Onland for Plantation / Gardening
Total		1,50,120 (6255 m ³ /hr)	

ii) Emissions from chimneys:

Chimney No.	Description of Chimney	Quantity of Emissions in m ³ /hr. at peak flow
1.	Attached to 2 x1,675 TPH Coal Fired Boilers (Stage-I: 1000 MW)	28,51,560
2.	Attached to 2 x1,675 TPH Coal Fired Boilers	28,99,800

	(Stage-II: 1000 MW)	
3.	Attached to 6 x 1500 KVA D.G Sets	--

iii) **HAZARDOUS WASTE AUTHORISATION (FORM - II) [See Rule 6 (2)]:**

M/s. Simhadri Super Thermal Power Project, NTPC Limited, Stage-I&II, Parawada, Visakhapatnam District., is hereby granted an authorization to operate a facility for collection, reception, storage, treatment, transport and disposal of Hazardous Wastes namely:

• **HAZARDOUS WASTES WITH RECYCLING OPTION:**

S.No	Name of the Hazardous waste	Stream	Quantity of Hazardous waste	Disposal Option
1.	Used / Waste Lubricating oil	5.1 of Schedule - I	90 KL/Annum	Authorized Re-processors / Re-cyclers.

This consent order is valid for power generation with quantities indicated below:

S.No.	Product	Quantity
1	Electricity (Coal with maximum sulphur content of 0.6% and ash content of 45%)	2000 MW (Existing: Stage - I(Unit-1&2) - 1000 MW, Existing: Stage - II(Unit-3&4) - 1000 MW)

This order is subject to the provisions of 'the Acts' and the Rules' and orders made thereunder and further subject to the terms and conditions incorporated in the schedule A, B & C enclosed to this order.

This combined order of consent & Hazardous Waste Authorization shall be valid for a period ending with the 31st day of August, 2022.

Sd/-
MEMBER SECRETARY

To

M/s. Simhadri Super Thermal Power Project (Stage-I & II),
NTPC Limited, Parawada,
Visakhapatnam District - 531 020

// T.C.F.B.O. //

Wao 1/8/17

JT Joint Chief Environmental Engineer
Unit Head-IV

SCHEDULE - A

- Any up-set condition in any industrial plant / activity of the industry, which result in, increased effluent / emission discharge and/ or violation of standards stipulated in this order shall be informed to this Board, under intimation to the Collector and District Magistrate and take immediate action to bring down the discharge / emission below the limits.
- The industry should carryout analysis of waste water discharges or emissions through chimneys for the parameters mentioned in this order on quarterly basis and submit to the Board.
- All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991 should be followed as applicable.
- The industry should put up two sign boards (6x4 ft. each) at publicly visible places at the main gate indicating the products, effluent discharge standards, air emission standards, hazardous waste quantities and validity of CFO and exhibit the CFO order at a prominent place in the factory premises.
- Notwithstanding anything contained in this consent order, the Board hereby reserves the right and powers to review / revoke any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Acts by the Board.
- The industry shall file the water cess returns in Form-I as required under section (5) of Water (Prevention and Control of Pollution) Cess Act, 1977 on or before the 5th of every calendar month, showing the quantity of water consumed in the previous month along

with water meter readings. The industry shall remit water cess as per the assessment orders as and when issued by Board.

7. The applicant shall submit Environment statement in Form V before 30th September every year as per Rule No.14 of E(P) Rules, 1986 & amendments thereof.
8. The applicant should make applications through Online for renewal of Consent (under Water and Air Acts) and Authorization under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts and detailed compliance of CFO conditions for obtaining Consent & HW Authorization of the Board. The industry should immediately submit the revised application for consent to this Board in the event of any change in the raw material used, processes employed, quantity of trade effluents & quantity of emissions. Any change in the management shall be informed to the Board. The person authorized should not let out the premises / lend / sell / transfer their industrial premises without obtaining prior permission of the State Pollution Control Board.
9. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to Appellate authority constituted under Section 28 of the Water(Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air(Prevention and Control of Pollution) Act, 1981.

SCHEDULE - B

WATER POLLUTION:

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

Outlet	Parameter	Limiting Standards
2.	pH	6.50 - 8.50
	Temperature not more than 5°C higher than intake water.	
	Total Suspended Solids (at 103 - 105 ⁰ C)	100 mg/l
	Oil and Grease	20 mg/l
	Free chlorine	0.5 mg/l
	Phosphate as PO ₄	20 mg/l
	Chromium (Total)	0.2 mg/l
	Copper (Total)	1mg/l
	Iron	1 mg/l
	Zinc	1 mg/l
4.	pH	5.5 - 9.0
	Total Suspended Solids (at 103 - 105 ⁰ C)	200 mg/l
	Bio Chemical Oxygen Demand (BOD 3 at 27 ⁰ C)	100 mg/l
	Total Dissolved Solids	2100 mg/l

2. The industry shall take steps to reduce water consumption to the extent possible and consumption shall NOT exceed the quantities mentioned below:

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

S. No.	Purpose	Quantity in KLD
1.	Industrial Cooling (Makeup) - Sea water	2,16,000 KLD
2.	DM Plant	4,320 KLD
3.	Domestic (including Gardening / Irrigation)	4,080 KLD
Total		2,24,400 KLD

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

S. No.	Purpose	Quantity in KLD
1.	Industrial Cooling (Makeup) - Sea water	2,13,240 KLD
2.	DM Plant	13,200 KLD
3.	Domestic (including Gardening / Irrigation)	
Total		2,26,440 KLD

The industry shall maintain separate water meters for the above areas and maintain records. The source of water is Sea water (8885 cum/hr) from Bay of Bengal and 550 cum/hr from Yeleru left bank canal.

AIR POLLUTION:

3. The emissions shall not contain constituents in excess of the prescribed limits mentioned below.

Chimney No.	Parameter	Emission Standards
1	Particulate matter	115 mg/Nm ³
2	Particulate matter	100 mg/Nm ³

4. The industry shall comply with emission limits for DG sets of capacity upto 800 KW as per the Notification G.S.R.520 (E), dated 01.07.2003 under the Environment (Protection) Amendment Rules, 2003 and G.S.R.448(E), dated 12.07.2004 under the Environment (Protection) Second Amendment Rules, 2004. In case of DG sets of capacity more than 800 KW shall comply with emission limits as per the Notification G.S.R.489 (E), dated 09.07.2002 at serial No.96, under the Environment (Protection) Act, 1986.
5. The industry shall comply with ambient air quality standards of PM₁₀ (Particulate Matter size less than 10µm) - 100 µg/ m³; PM_{2.5} (Particulate Matter size less than 2.5 µm) - 60 µg/ m³; SO₂ - 80 µg/ m³; NO_x - 80 µg/ m³ outside the factory premises at the periphery of the industry.
Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009
Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)
Night time (10 PM to 6 AM) - 70 dB (A).

GENERAL:

6. The industry shall not increase the capacity beyond the permitted capacity mentioned in this order without obtaining CFE & CFO of the Board.
7. **The industry shall submit detailed action plan within one month for fly ash utilization as per the Fly Ash Notification on MoEF to the Board to achieve 100% utilisation of fly ash.**
8. The industry shall explore possibilities for disposal of 100 % fly ash generated to outside parties instead of dyke wall rising.
9. The industry shall maintain proper water curtains in the Ash ponds to avoid dust nuisance to the nearby villagers.
10. The industry shall maintain permanent mechanical sprinklers for suppression of dust on the haul roads in between the villages and report the compliance to RO-Visakhapatnam.
11. Refurbished Environment Management Team with dedicated man power shall be maintained for continuous monitoring of Plant environment to ensure compliance of CFO conditions.
12. The industry shall maintain 3 CAAQM stations connected to APPCB website and report the compliance to RO-Visakhapatnam.
13. The industry shall maintain online Stack and ambient monitoring systems with connection to the Board's website.
14. The industry shall maintain duly compacted soil cover of requisite thickness as per norms for the ash ponds to avoid dust pollution and report the compliance to RO-Visakhapatnam.
15. The industry shall submit Isotopic study final report of M/s. NEERI on impacts on ground water due to ash ponds and report the compliance to RO-Visakhapatnam. Continuous monitoring of the ground water quality in all sides of the plant shall be carried out.
16. The industry shall take necessary measures like Ammonia dosing to maintain ESPs attached to the Boilers so as to meet SPM standards all the time.
17. The industry maintain the data logging facility provided for storing online stack emission data properly, for retrieval as and when necessary. Industry shall submit monthly report to the RO Visakhapatnam.
18. The industry shall maintain water meters for recording consumption of Sea water / water from Yeleru canal and maintain proper records for daily water consumption and shall submit monthly reports to the RO, Visakhapatnam.
19. The industry shall maintain proper arrangements for collection of seepage from ash pond and pumped back into the ash water system, so as to avoid ground water pollution in the surrounding area.
20. The industry shall maintain 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.
21. Efforts shall be taken to dispose all fly ash in dry form as much as possible instead of diverting it to wet ash pond due to paucity of land available and due to lack of secured landfill arrangement in the ash pond. Dry ash collection systems of Stage-I & Stage - II shall be maintained properly.
22. The industry shall monitor all ground water peizo wells and submit report to RO-Visakhapatnam every three months indicating trends.

23. Garland canal shall be maintained around the fly ash pond to collect water that is expected to leach out and monitoring of such leachates shall be carried out.
24. After increase in the bund level and increase in the storage capacities due to the lateral pressures, the aquifer may be influenced due to the leachates. The industry shall maintain sufficient fresh water in the borrow pits to counter the lateral pressures and contain the leachates if any percolate into strata.
25. The industry shall act on pollution problems that arise out of the ash pond and shall take measures to contain by taking time to time action to dispel apprehensions by the residents of the villagers. If it is required, the industry shall take up the corrective measures like introducing geo-textiles vertically in the sub-surface levels in the detected areas of leaching.
26. The industry shall not use any fuels other than those permitted in this order without prior consent from the Board. They shall maintain log registers on type of fuels & daily consumption, ash content, sulphur content etc., and shall furnish consolidated records to R.O., Visakhapatnam for every three months.
27. The industry shall maintain interlocking facility between APC equipment (ESP) and fuel feeding system for all the units, so that the feeding of the fuel will be stopped automatically, in case, the ESP fails/ tripping's are occurred.
28. The industry shall maintain separate water meters to assess the quantity of water consumed at various sections. The industry shall provide separate water meters with necessary pipeline for assessing the quantity of water used for each of the purposes mentioned below:
 - a. Industrial cooling, boiler feed.
 - b. Domestic purposes.
 - c. Processing, whereby water gets polluted and pollutants are easily biodegradable.
 - d. Processing, whereby water gets polluted and pollutants are not easily biodegradable.
29. The industry shall maintain the following records and the same shall be made available to the Board Officials during the inspection.
 - a. Daily power generation details.
 - b. Quantity of Effluents generated and disposed.
 - c. Log Books for pollution control systems.
 - d. Daily Fly ash generated and disposed.
30. Green belt of adequate width and density shall be maintained along the boundary of the industry and around ash ponds with minimum area of 33% of total area and to protect surrounding Villages from fugitive dust.
31. The industry shall comply with directions issued by Board from time to time.
32. The industry shall comply with the MoEF, Gol notification dt.14.09.1999 and other directions issued time to time with regard to utilization of ash.
33. The industry shall take measures around the ash pond area to avoid entry of animals in order to prevent accidents, breakage of emergency ponds and protection of greenbelt.

SCHEDULE - C

[see rule 6(2)]

[CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]

1. All the rules and regulations notified by Ministry of Environment and Forests, Government of India under the E(P) Act, 1986 in respect of management, handling, transportation and storage of the Hazardous wastes should be followed.
2. The industry shall not store hazardous waste for more than 90 days as per the Hazardous & Other Wastes (Management and Transboundary Movement) Rules, 2016.
3. The industry shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal to the manufacturers / dealers on buyback basis.
4. The industry shall maintain 6 copy manifest system for transportation of waste generated and a copy shall be submitted to concerned Regional Office of APPCB. The driver who transports Hazardous Waste should be well acquainted about the procedure to be followed in case of an emergency during transit. The transporter should carry a Transport Emergency (TREM) Card.
5. The industry shall maintain proper records for Hazardous & other wastes stated in Authorization in FORM-3 i.e., quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form- 4 as per Rule 6 (5) of the

Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016 and amendments thereof.

6. The industry shall submit the condition wise compliance report of the conditions stipulated in Schedule A, B & C of this Order on half yearly basis to Board Office, Hyderabad and concerned Regional Office.

Sd/-
MEMBER SECRETARY

To
M/s. Simhadri Super Thermal Power Project,
NTPC Limited, Parawada,
Visakhapatnam District - 531 020

// T.C.F.B.O. //

11/09/17

Joint Chief Environmental Engineer
Unit Head-IV

Annexure-XIV

0042

No.J.13011/19/94-IA.II(T)
Government of India/Bharat Sarkar
Ministry of Environment and Forests

Paryavaran Bhavan,
C.G.O. Complex, Lodi Road,
New Delhi-110003.

May 20, 2002.

Subject : 2x500 MW Simhadri Thermal Power Station, Andhra Pradesh of M/s National Thermal Power Corporation Limited - Waiver of condition reg.

This has reference to letter No.33/3/9531(F-98)/3/004/D dated 19th September and 20th November, 1998 and No.ESE.3520:2001.GEN.04D dated 27th December, 2001 from National Thermal Power Corporation Limited requesting waiver of stipulation of lining of ash pond area for the above mentioned project.

2. The project report of December, 2001 on "Hydro-Geological Investigations for Lining of Ash Pond at Simhadri Thermal Power Plant, Andhra Pradesh" by National Institute of Hydrology, Roorkee, has been examined in the Ministry for reviewing the request regarding waiver for lining of ash pond area of Simhadri Thermal Power Project. The following findings of the report have been noted.

- The hydraulic conductivity of the soils is quite low and will not allow appreciable seepage of contaminated water.
- Even if the contaminated water seeps, it will flow towards Bay of Bengal due to natural gradient where enormous diluting capacity is available.
- The quality of ground water in the area is saline and not good for domestic use.
- Most of the villages are on the other side of the isolated hills and will not be affected due to ash disposal area.
- Even if some clay material from the ash disposal area has been used for construction of starter dyke, the investigators have expressed that there is still adequate layer of loam/silty loam in the ash disposal area to serve as impermeable layer.

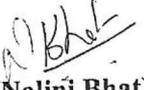
3. Keeping in view the findings of the study report and geo-hydrological conditions in the region, Ministry partially modifies condition No.2(viii) of the environmental clearance issued for the project vide its letter of even number dated 23rd July, 1996 regarding lining of ash pond. The ash disposal area identified for the project need not be lined. However, following mitigation measures should be ensured during operation of the plant.

- No earth/clay matter should be removed from the ash dyke henceforth for any activity related to the project.

0043

- Leachate collections should be undertaken through Lysimeter at 6-10 locations around the ash dyke and monitoring report should be regularly submitted along with its analysis for ascertaining its change in water quality. For facilitating comparison, continuous monitoring of ground water quality should be immediately initiated to serve as baseline data.
- In the initial period, only flay ash should be discharged in ash dyke due to its grain size being similar to soil profile.
- Green belt should be created around the ash dyke for controlling fugitive dust. A detailed proposal indicating area coverage and phased action plan should be submitted within three months.

4. NTPC should ensure strict implementation of all other environmental conditions stipulated in the clearance letter and its subsequent amendments.


(Nalini Bhat)
Director

Shri M.H. Rao,
DGM (Environmental Engineering),
National Thermal Power Corporation Ltd.,
Plot No.A-8A, Sector-24, P.B.No.13,
NOIDA (U.P.)-201 301.

Copy for information to :

1. Chief Conservator of Forests Chief Conservator of Forests, Regional Office, Southern Region, Ministry of Environment and Forests, Kendriya Sadan, 4th Floor, E&F Wings, 17th Main Road, IInd Block, Koramangala, Bangalore-560034.
2. Chairman, Andhra Pradesh Pollution Control Board, IInd Floor, Huda Complex, Maitrivanam, Ammerpet, Hyderabad-38.

(Nalini Bhat)
Director



No. 9/7/2011-S.Th.(Vol. IV)
Government of India
Ministry of Power

'F' Wing, Nirman Bhawan,
New Delhi, 22nd September, 2021

To,

1. CMDs/ MDs of coal / lignite based thermal power plants (Central/ State/ Private)
2. Principal Secretary (Power/ Energy) of All States/ UTs
3. Chairperson, Central Electricity Authority

Subject: Supply of Fly ash to the end users by the power plants to increase fly ash utilization

It is observed that the demand of Fly Ash has been increasing year on year basis contributing to increase in the Fly Ash utilization. Fly Ash is emerging as a valuable commodity. As the end users of Fly Ash like cement plants, brick kilns, road and construction agencies etc. are commercial ventures and all their input costs are accounted for, Fly Ash should invariably be auctioned through a transparent bidding process.

2. All Coal/lignite based power plants are hereby advised to provide fly ash to the end users for all new commitments for supply of fly ash based on the following guidelines:

2.1 The power plants shall provide the Fly Ash to end users through a transparent bidding process only.

2.2 If after bidding/ auction some quantity of Fly Ash still remains un-utilized, then only, as one of the options, it could be considered to be given free of cost on first come first served basis if the user agency is willing to bear transportation cost.

2.3 If ash remains unutilised even after the steps taken in Paras 2.1 and 2.2 above, TPP shall bear the cost of transportation of Fly Ash to be provided free to eligible projects.

2.4 The end users shall be obligated to source the fly ash from the nearest TPPs to reduce the cost of fly ash transportation. If the nearest TPP refuses to do so, the end user project shall approach Ministry of Power for appropriate directions.

2.5 The transportation cost wherever required to be borne as per provisions of MOEF&CC notification by the power plants, shall be discovered on competitive bidding basis only. Thermal Power Plants shall prepare a panel of transportation agencies every

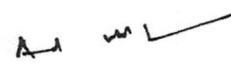
year based on competitive bidding for transportation in slabs of 50km which may be used for the period. The TPPs shall call for bids well in advance so, that a transportation panel is in place as soon as the previous panel expires. There should not be gap between the expiry of one panel and the finalization of the fresh panel.

2.6 The fly ash will be offered to the end users on the competing demand basis, i.e the end users who offer the highest price for fly ash and seek minimum support for transportation cost will be offered the same fly ash on priority. This will reduce the tariff of electricity and burden on the consumers.

2.7 The power plants may offer fly ash subject to their technical restrictions such as all precautions required for Dyke Stability and Safety etc. The power plants having lower ash utilizations shall make all out efforts to increase the fly ash utilization.

3. All concerned are requested to take necessary action in this regard.

4. This issues with the approval of the Hon'ble Minister of Power and NRE.


(Anand Upadhyay)

Deputy Secretary to the Govt. of India

Tel: 23062439

Copy to:

- i. Secretary (MOEF&CC), Government of India
- ii. Secretary (MoRTH), Government of India
- iii. Secretary (MoHUA), Government of India
- iv. Secretary, CERC
- v. Secretaries of all SERCs/ JERCs

Copy for kind information to:

PS to MOP, PS to MOSP, Sr. PPS to Secretary (Power), All Joint Secretaries/ EA/ CE (Thermal), Directors/DS, MOP

**OFFICE OF MEDICAL OFFICER
PRIMARY MEDICAL HEALTH CENTRE
PARAWADA, VISAKHAPATNAM**

Rc.No.MO/Parawada PHC/NTPC/2021

Datet : 03.01.2022

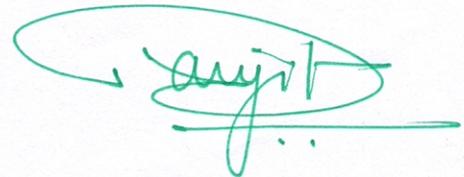
Sub : Report of treatments and data for the major diseases

The Medical Officer, Primary Health Centre, Parawada providing medical services to the villages of Parawada Mandal and conducting regular medical camps in the villages besides routine medical check-ups, treatment and distribution of medicines to the patients. Major diseases data observed in the purview of PHC, Parawada is provided hereunder:-

NATURE OF DISEASES	2018-19	2019-20	2020-21
INFANT MORTALITY RATE	03	2	01
MATERNAL MORTALITY RATE	0	0	0
UNDER 5 MORTALITY RATE	1	2	0
MALRIA	0	2	0
T.B.	08	04	2
ASTHMA	4	5	9
HIV	02	02	0
DERMATOLOGY	-	-	-
ANY OTHER (Pl.specify)	-	-	-

No. of Patients visited .- 28,832 33,072 22,467

The above is for information please.



Dr. I.R. RANJIT
Regd. No.82542
Civil Assistant Surgeon
Primary Health Centre
Parawada, Visakhapatnam Dist.

OFFICE OF MEDICAL OFFICER
PRIMARY MEDICAL HEALTH CENTRE
VADACHEEPURUAPLLI, VISAKHAPATNAM

Rc.No.MOVC/NTPC/2021

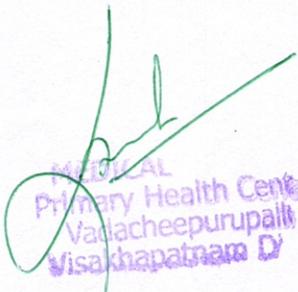
Dt. 03.01.2022

Sub : Report of treatments and data for the major diseases

The Medical Officer, Primary Health Centre, Vada Cheepurupalli conducting medical camps besides routine check-ups and providing treatment and medicines to the patients. The PHC is catering to the medical needs of the patients coming to our Primary Health Centre, Vadacheepurpalli from the nearby villages and the data on major findings of diseases are furnished below :-

NATURE OF DISEASES	2018-19	2019-20	2020-21
INFANT MORTALITY RATE	6.3	2	0
MATERNAL MORTALITY RATE	0	0	0
UNDER 5 MORTALITY RATE	1	2	0
MALRIA	2	2	0
T.B.	35	17	2
ASTHMA	5	5	0
HIV	0	0	0
DERMATALOGY	—	—	—
ANY OTHER (Pl. specify) ^{NCD/HTN/DM}	56	62	46
No. of Patients Visited (Approx.)	26000	22000	25000

The above data pertains to PHC-Vadacheepuruaplli for information.


 MEDICAL
 Primary Health Centre
 Vadacheepurupalli
 Visakhapatnam D

OFFICE OF MEDICAL OFFICER
PRIMARY MEDICAL HEALTH CENTRE
DEVADA, VISAKHAPATNAM

Rc.No.Spl./MO/NTPC/2021

Datet : 04.01.2022

Sub : Report of treatments and data for the major diseases

The Medical Officer, Primary Health Centre, Devada providing medical services to the Devada & surrounding villages of Pedagantyada Mandal, Visakhapatnam and conducting regular medical camps in the villages besides routine medical check-ups, treatment and distribution of medicines to the patients. Data on major diseases observed in the purview of PHC, Devada has been furnished below for information :-

NATURE OF DISEASES	2018-19	2019-20	2020-21
No.of Patients visited to PHC	13207	7693	7419
INFANT MORTALITY RATE	4.6%	4.6%	15.5 per 1000
MATERNAL MORTALITY RATE	- 0 -	- 0 -	- 0 -
UNDER 5 MORTALITY RATE	- 0 -	- 0 -	0.0008 per 1 lakh.
MALRIA	5	2	1
T.B.	9	2	1
ASTHMA	2	2	0
HIV	1	4	0
DERMATOLOGY	1035	357	267
ANY OTHER (Pl.specify)	-	-	-

The above is for information please.


 MEDICAL OFFICER
 PRIMARY HEALTH CENTER
 DEVADA, VSP (DT)



ANDHRA PRADESH POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN, A-3, INDUSTRIAL ESTATE,
SANATHNAGAR, HYDERABAD - 500 018.

Phone: 040-23887500
Fax: 040- 23815631
Grams : Kalusya Nivarana
Website :www.apspcb.org

Regd. Post With Ack Due

Order No.720/APPCB/UH-II/TF/VSP/2016-

Dt. 13.04.2017.

DIRECTIONS

Sub: PCB - TF-HO - M/s. Simhadri Super Thermal Power Project (Stage-I &II), NTPC Limited, Parawada, Visakhapatnam District – Non-Compliance of Board Directions - Legal hearing held on 03.03.2017 – **Directions – Issued – Reg.**

- Ref:**
1. Order No.720/APPCB/ZO-VSP/2003-533, Dt.05.10.2012.
 2. Consent Order No: APPCB/VSP/VSP/12334/HO/CFO/2014-, Dt.13.11.2014.
 3. Order No.720/APPCB/UH-II/TF/VSP/2016, dt.08.08.2016.
 4. Board officials inspected the industry on 10.11.2016 under randomized risk based inspections.
 5. External Advisory Committee (Task Force) Meeting held on 03.03.2017.

Whereas you are operating the industry in the name & style of M/s. Simhadri Super Thermal Power Project (Stage-I &II), (M/s. National Thermal Power Corporation Limited), Parawada, Visakhapatnam District with a power generation of 2000 MW (Existing: Stage-I (Unit-1 & 2) – 1000 MW, Existing: Stage-II (Unit-3 & 4) – 1000 MW).

Whereas vide reference 1st cited, the Board issued directions to the industry on 05.10.2012 for non-compliance of Board directions and Standards.

Whereas vide reference 2nd cited, the Board issued Consent for Operation and Hazardous Waste Authorization order vide dt.13.11.2014 which is valid upto 31.08.2017.

Whereas vide reference 3rd cited, the Board has reviewed before External Advisory Committee (Task Force) meeting is held on 15.07.2016 and issued following directions to the industry on 08.08.2016:

1. The industry shall carryout long term monitoring on the impact of ash ponds on ground water quality in the surrounding villages as per recommendations of the NEERI report.
2. The industry shall carry out performance evaluation of the STPs and take necessary action as per the recommendations of the evaluation report to augment the operations of STP.
3. Standard Operating Procedures may be placed at the STPs with proper training to the operators.
4. The industry shall maintain permanent mechanical sprinklers for suppression of dust on the haulge roads in between the villages.
5. The industry shall achieve 100% ash utilization as per the recent fly ash notification of MoEF, Gol. Which includes the transport of fly ash by NTPC to the sites of fly ash consumption within 100 KM. Separate Financial Budget provision to be made by NTPC.
6. The industry shall ensure the validity of CFO of the Board and ensure continuous compliance of the conditions issued by the Board.

Whereas vide reference 4th cited, The Board officials inspected the industry on 10.11.2016 under randomized risk based inspections and furnished observations is as follows:

W
G
DESPATCHED
ON 18.04.17

- The industry is not maintaining the water curtain in some parts of the ash pond – 1.
- The industry is not operating the water sprinklers at some parts in the ash pond – 2 wherein dyke wall rising works are going on.
- The industry has not initiated action on recommendations of the NEERI report.
- The industry is not meeting the Ambient Air quality standards in respect of PM10 & PM2.5 at Pittavanipalem (V) as well as within the industry premises.
- The industry has provided continuous online effluent monitoring system but not connected to CPCB server.
- The industry is not complying with the fly ash notification and is disposing the fly ash on an average 35% of its fly ash generation for the last five years.
- As per the report submitted for the period 01.04.2015 to 31.03.2016, the Ash utilization in 2015 – 16 is 10,33,470 Tons against generation of 2923413 Tons and the % of ash utilization is only 35.35%.
- As per the fly ash utilization report submitted by the industry, for the month of October-2016, the ash utilized is 165060 Tons against the generation of 267311 Tons. Hence the percentage for Ash utilization is only 61.75.
- At present, the total fly ash accumulated in the ash pond is more than 18.0 Million Tons.

Whereas vide reference 5th cited, legal hearing was conducted before the External Advisory Committee (Task Force) Meeting of A.P. Pollution Control Board on 03.03.2017. The representatives of the industry attended the legal hearing. The committee noted the non-compliance of CFO order conditions and the directions of the Board. The representative of the industry informed that the percentage of utilization of fly ash during the year 2016-17 has increased to 85%, due to various efforts. It was informed that they provided water sprinklers for suppression of dust along the haulage roads in between the villages. It was informed that the installation of piezo meters on each side of ash dyke on upstream and downstream of ash pond has been initiated as per recommendation of NEERI and procurement of piezo meters is in the process. Installation of piezo meters will be completed by the end of May, 2017.

They informed that pre-monsoon and post monsoon samples to be collected after installation of piezo wells and analyzed for major cations, anions and trace elements.

The Committee after detailed discussions, recommended to issue the following directions:

1. The industry shall maintain proper water curtain in the Ash pond to avoid dust nuisance to the surrounding villages within 15 days.
2. The industry shall take all necessary precautionary measures (sufficient water sprinklers, frequency of operations and exclusive man power) during dyke wall rising works at ash pond.
3. The industry shall achieve 100 % ash utilization as per the fly ash notification and amendments thereof within the time limits specified in Fly Ash Rules.
4. The industry shall submit Action Plan for long term monitoring on the impact of ash ponds on ground water quality in the surrounding villages as per recommendations of the NEERI report within one month
5. The industry shall comply all the directions issued by the Board vide order dt.08.08.2016.
6. The industry shall ensure continuous compliance of the conditions issued in the CFO & HWA order dt.13.11.2014.

The order is issued under Sec.31 (A) of Air (Prevention and Control of Pollution) Act, 1987 and under Sec.33 (A) of the Water (Prevention & Control of Pollution) Ambient Act, 1988.

You are hereby directed to note that, should you violate any one of the directions mentioned above, your unit will be closed under Sec.33(A) of Water (Prevention & Control of Pollution)

Amendment Act, 1988 and Sec.31 (A) of Air (Prevention & Control of Pollution) Amendment Act, 1987 without any further notice, in the interest of Public Health and Environment.

This Order comes into effect from today i.e., 13.04.2017

Sd/-
MEMBER SECRETARY

To
M/s. Simhadri Super Thermal Power Project (Stage-I &II),
NTPC Limited, Parawada,
Visakhapatnam District.

Copy to:

1. The Chief Environmental Engineer, APPCB, Visakhapatnam for information.
2. The Joint Chief Environmental Engineer, ZO, Visakhapatnam for information and necessary action.
3. The Environmental Engineer, Regional Office, Visakhapatnam for information and necessary action.

// T.C.F.B.O //

JOINT CHIEF ENVIRONMENTAL ENGINEER
UH-II

✓

**ANDHRA PRADESH POLLUTION CONTROL BOARD**

D.No.33-26-14D/2, Near Sunrise Hospital, Pushpa Hotel Center,
Chalamalavari Street, Kasturibaipet, Vijayawada – 520010
Phone: 0866-2463200, Website: <https://pcb.ap.gov.in>

Order No. 720/APPCB/UH-II/TF/VSP/2021-**21/12/2021****DIRECTIONS**

Sub: APPCB – HO - TF - M/s. Simhadri Super Thermal Power Project, NTPC Limited, Parawada, Visakhapatnam – Complaint filed by villagers / fishermen of Muthyalammapalem Gram Panchayat regarding discharge of ash from NTPC ash pond - Legal hearing held on 07.12.2021 - **Directions - Issued - Reg.**

- Ref:**
1. Order No. 720/APPCB/UH-II/TF/VSP/2016, dt:08.08.2016.
 2. Order No. 720/APPCB/UH-II/TF/VSP/2017, dt:13.04.2017.
 3. CFO & HWA order No. APPCB/VSP/VSP/12334/HO/CFO/2017, dated 31.07.2017.
 4. Review meeting conducted by the Hon`ble Minister for AH, DD & F, Government of Andhra Pradesh on 28.08.2021.
 5. Inspection of the Joint Inspection Committee on 03.09.2021.
 6. RO, Visakhapatnam received a complaint on 17.11.2021.
 7. Board Officials inspected the industry on 17.11.2021.
 8. Notice No. 1011/PCB/RO-VSP/ 2021, Date:17.11.2021.
 9. External Advisory Committee (Task Force) meeting held on 07.12.2021.

WHEREAS you are operating the industry in the name & style of M/s Simhadri Thermal Power Project, a unit of M/s. NTPC. The Power Plant is operating Unit – I & Unit – II under phase – I and Unit – III & Unit – IV under Phase - II generating 2000 MW of electricity. The Power Plant was established in an extent of 3384 Acres (Plant Area: 1976 Acres, Green Belt – 737 Acres, Reservoir of 45 days capacity: 200 Acres (approx.), Township: 311 Acres and Ash Pond: 605 Acres).

WHEREAS the Board vide reference 1st & 2nd cited, issued directions to the industry on 08.08.2016 & 13.04.2017 .

WHEREAS the Board vide reference 3rd cited, issued CFO & HWA order to the industry vide order dated 31.07.2017 to generate Electricity (Coal with maximum Sulphur content of 0.6% and ash content of 45%) – 2000 MW with certain conditions & standards valid up to 31.08.2022.

WHEREAS vide reference 4th cited, as per the directions of the Hon`ble Minister for AH, DD & F, Government of Andhra Pradesh during the review meeting held on 28.08.2021 at District Collectorate, Visakhapatnam, the Collector & District Magistrate appointed a committee vide proceedings dated 28.08.2021 to verify the impact on the lives of the fishermen specifically in terms of reduction of fish population due to industrial pollution.

WHEREAS vide reference 5th cited, the Joint inspection committee visited the surroundings of Mutyalapalem Village on 03.09.2021 and contacted the Fishermen & Villagers. During the

visit, they informed that the seepage from the ash pond of M/s. Simhadri Power plant (NTPC) entering into creeks, thereby causing pollution in water bodies.

WHEREAS vide reference 6th cited, the RO, Visakhapatnam received a complaint filed by Villagers / Fishermen of Muthyalammapalem Gram Panchayat on 17.11.2021 regarding ash from NTPC entering into salt lake (Brackish waters) of Muthyalammapalem leading to the sea thereby depleting fish catch and affecting their livelihood.

WHEREAS vide reference 7th cited, officials of RO, Visakhapatnam inspected the NTPC and surroundings on 17.11.2021 and observed that floating material/ash entered into the Upputeru at Muthyalammapalem thereby causing water pollution problems in surrounding area.

WHEREAS vide reference 8th cited, the RO issued a notice to the industry on 17.11.2021 and directed to submit the steps taken by the management along with action plan to avoid the entering of ash slurry into the Upputeru from the industry particularly during rainy season. In reply, the industry informed that the water level in the overflow lagoon (OFL) was increased and the cenosphere which is a very fine air trapped ash particle floating on the surface water entered into creek along with storm water and the cleaning of Upputeru was taken up on priority basis.

WHEREAS an OA was filed by Battu Satish Reddy against M/s.NTPC Simhadri & Ors before Hon'ble NGT, Southern Zone Bench for causing water and air pollution problems in surrounding areas. Simultaneously, the RO received a complaint filed by Sri B. Achiyya, Muthyalammapalem forwarded by Joint Director of Fisheries, Visakhapatnam wherein it stated that the effluents released from NTPC causes mass mortality of marine fish of nearby Muthyalammapalem and surrounding coastal waters and demanded immediate solution to the problem.

WHEREAS legal hearing was conducted before the External Advisory Committee (Task Force) of A.P. Pollution Control Board in its meeting held on 07.12.2021. The representative of the industry and the RO Visakhapatnam attended the meeting through VC.

After detailed review, the Committee recommended to allow one month time to the industry and directed the industry to take up all the necessary measures required on permanent basis to ensure that no cenosphere/ floating matter / ash slurry join into Upputeru. The committee opined to obtain suitable Bank Guarantee of Rs. 128 Lakhs. The industry shall also take all the necessary measures to ensure air emission from the stacks is within stipulated standards on continuous basis. The industry shall also take up measures for 100% collection and utilization of fly ash as per regulation and avoid disposal of fly ash into ash ponds. The industry shall also take immediate measures for dredging of Upputeru in consultation with local authorities. Accordingly, the Board hereby issues the following directions under Sec.33 (A) of Water (Prevention and Control of Pollution) Act, 1974 and under Sec.31 (A) of Air (Prevention & Control of Pollution) Act, 1981 and amendments thereof:

- 1. The industry shall take up all the necessary measures required on permanent basis to ensure that no cenosphere/ floating matter / ash slurry joins the Upputeru within one month time.**
- 2. The industry shall submit the Bank Guarantee of Rs. 128 Lakhs.**
- 3. The industry shall also take all the necessary measures to ensure air emission from the stacks is within stipulated standards on continuous basis.**
- 4. The industry shall also take up measures for 100% collection and utilization of fly ash as per the fly ash regulations and avoid disposal of fly ash into ash ponds.**

5. ***The industry shall also take immediate measures for dredging of Upputeru in consultation with local authorities.***

You are hereby directed to note that, should you violate any one of the directions mentioned above, action will be initiated under Sec.33 (A) of Water (Prevention & Control of Pollution) Amendment Act, 1988 and Sec.31(A) of Air (Prevention & Control of Pollution) Amendment Act, 1987 without any further notice, in the interest of Public Health and Environment.

This Order comes into effect from today i.e., 21/12/2021

**Vijay Kumar Gsrkr Ias
Secretary To Government**

**To
M/s. Simhadri Super Thermal Power Project,
NTPC Limited, Parawada,
Visakhapatnam.**

Copy to:

1. The Joint Chief Environmental Engineer, Zonal Office, Visakhapatnam for information and necessary action.
2. The Environmental Engineer, Regional Office, Visakhapatnam for information and necessary action.