



HINDUJA NATIONAL POWER CORPORATION LIMITED

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CIN : U40109TG1994PLC017199

HNPCL/VSKP/APPCB/156/2025-26/291225

Date: 29 Dec' 2025

To

Regional Directorate - Bengaluru
A – Block, Nisarga Bhavan,
1st and 2nd Floors,
7th D Cross, Thimmaiah Road,
Shivanagar,
Bengaluru-560079

Dear Sir,

Sub: HNPCL – 2X520MW TPP Submission of compliance status report from April 2025 - Sept 2025

Ref: E C Letter No. J-13011/11/90-IA-II(T) dated 3rd September, 1996 &
Letter No: J-13012/92/2008-IA.II(T) dated 10th June, 2010

Hinduja National Power Corporation Ltd. here with submitting half-yearly EC compliance report for the period from April 2025 - September 2025 for your kind perusal.

Thanking you,

Yours faithfully,
For Hinduja National Power Corporation Limited



Sabyasachi Mukherjee
Sr. Vice President

Encl: as above



ENVIRONMENTAL COMPLIANCE STATUS REPORT
FOR
1040 MW (2 x 520 MW) THERMAL POWER PLANT
VISAKHAPATNAM, ANDHRA PRADESH

APRIL - SEPTEMBER 2025

Sponsor:



HINDUJA NATIONAL POWER CORPORATION LIMITED
VISAKHAPATNAM, ANDHRA PRADESH

Prepared by:



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PREFACE

HINDUJA NATIONAL POWER CORPORATION LIMITED

ENVIRONMENTAL COMPLIANCE STATUS REPORT FOR 1040 MW (2 x 520 MW) THERMAL POWER PLANT VISAKHAPATNAM, ANDHRA PRADESH

APRIL - SEPTEMBER 2025

For and on behalf of VIMTA Labs Limited

Approved by : **M. Janardhan**

Signed : 

Designation : **Head & Vice President (Environment)**

Date : **29th December, 2025**

This report has been prepared by **Vimta Labs Limited** with all reasonable skill, care and diligence within the terms of the contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

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Chapter-1
Introduction

1.0 INTRODUCTION

1.1 The Background

Hinduja National Power Corporation Limited (HNPCL) is part of Hinduja Group to realize the ambitions of the Group in Power Sector. HNPCL is planning to create a power generation capacity of 10,000 MW over the next ten years at an expected investment of over \$10 billion across India. The total projected capacity will be a mix of thermal, hydro, nuclear and renewable energy.

As a first step in power sector, HNPCL is setting up a 1,040 MW coal based merchant power plant and is located on the coast of the Bay of Bengal at Palavalasa, Pedagantyada Mandal, Visakhapatnam District in the State of Andhra Pradesh, India. The project configuration is 2x520 MW.

The earlier Environmental Clearance (EC) has been confirmed from Ministry of Environment & Forests, Consent for Establish (CFE) and Consent for Operation (CFO) from Andhra Pradesh Pollution Control Board (APPCB) has been obtained.

Hinduja National Power Corporation Limited (HNPCL) has retained M/s **VIMTA LABS LIMITED, Hyderabad** to undertake Environmental Data Generation for various environmental factors on monthly and seasonal basis, which may be affected due to the likely impact arising out of the existing Power plant. Environmental data has been collected for various environmental components viz. Air, water, Noise and Soil quality during April - September 2025 and prepared compliance to Environmental clearance involved by MOEF vide Letter No:J-13011/11/90-IA-II(T) dated 3rd September, 1996, No: J-13012/92/2008.IA.II(T) dated 4th March 2009, No. J 13012/92/2008-IA.II(T) dated 10th June 2010 and CRZ Clearance vide letter F. No 11-58/2011-1A-III dated 3rd January 2014, F. No: 11-58/2011-IA-III dated 17/19th March, 2015, Letter No: 245/Env/CZMA/2015, dated 05th June, 2015, F. No: 11-58/2011-IA-III dated 01th October, 2015, F. No: 11-58/2011-IA-III dated 01th 2019, 2015 (Amendment), CFO No: APPCB/VSP/VSP/19/HO/CFO/2020, dated 06th March, 2020.

1.2 Project Setting

The existing plant is located in Palavalasa, Pedagantyada Mandal, Visakhapatnam District of Andhra Pradesh and the same is identified on the survey of India toposheet no 65 O/2, O/6 at the Latitude 17°34'30" North and Longitude 83°07'30" East at an elevation of 8.5 m above Mean Sea Level (MSL).

The present study of various environmental attributes establishes the post operational characteristics and this will help in identifying the incremental concentrations if any, due to the operation of the existing plant.

The geographical location of the plant is shown in **Figures-1.1**. The topographical features of the project area (within 10 km radius of plant site) are depicted in **Figures-1.2**.

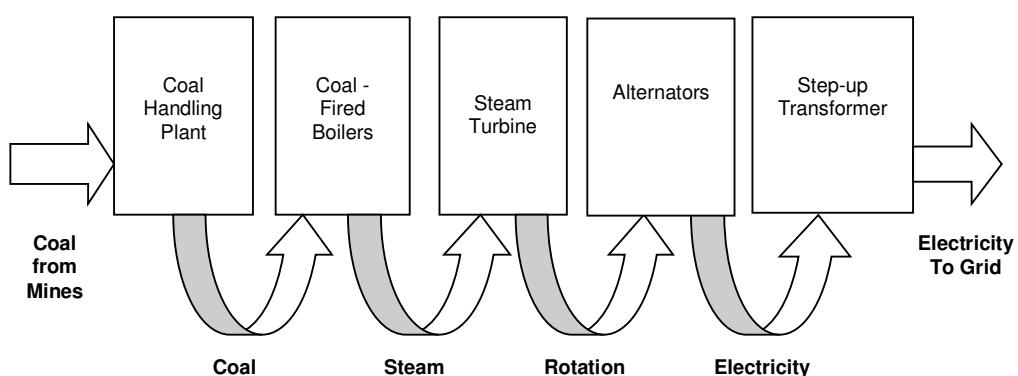
The long-term data recorded at India Meteorological Center at Visakhapatnam indicates temperature in the range of 15.8°C to 37.7°C. The mean total rainfall is about 1300 mm for the whole year. The relative humidity is generally high during the period from September to January and is least during the summer afternoons.

The predominant wind direction and wind speed as recorded by IMD Visakhapatnam during the winter season are E (32.4%) followed by ESE (19.9 %) and during the Pre monsoon season are SW (42.5%) followed by SSW (35.8%). This variation in wind pattern can be attributed to the hilly terrain prevailing in the region. The Relative Humidity was observed to be in the range of 63 to 80% during the winter and Pre monsoon seasons.

1.3 Process Description

Each of the coal-fired power projects currently in development would employ pulverized coal combustion (PCC) technology. In the PCC process, the coal-handling plants receive coal, crush it to the required size and feed it to the boiler plants. The boiler plants then use coal pulverisers to grind the coal to a finer size before it is fed to the boiler furnace. The boilers are enclosures encased by tubes filled with flowing water. As the boiler furnace heats, the water flowing in the boiler tubes is converted into high pressure and high temperature steam. This steam is conveyed to the turbine through steam pipelines. The steam produced in the boiler drives steam turbines, making the turbines' rotors rotate at high speeds. Alternators are coupled to the steam turbines and rotate with the turbines' rotors. The alternators convert the energy generated by the rotation of the turbines' rotors into electricity. Step-up transformers then step up the voltage of generated electricity before it is fed to the grids for transmission. Transmission of electricity is done at very high voltage to minimize transmission losses.

The coal-fired power process is illustrated below:



The process of generation of power from coal (water steam cycle) essentially entails two main stages. In the first stage, the chemical energy stored in coal is converted into heat energy in the coal-fired boilers. In the second stage, the high-pressure steam, which is generated in the boilers, is passed through turbines (conversion of heat energy into mechanical energy) which in turn is coupled to generators (conversion of mechanical energy into electrical energy), thereby generating electricity.

The water steam cycle essentially contains the coal fired steam generator, the steam turbine with condenser, feed-water tank, low-pressure (LP) heaters and high-pressure (HP) heaters and the connecting pipelines. The superheated steam produced in the steam generator is supplied to the steam turbine, which drives the three-phase AC generator. After leaving the HP turbine, the steam is reheated in the steam generator and fed to the Intermediate Pressure (IP) turbine. In the LP turbine the steam coming directly from the IP turbine expands to condenser pressure and is condensed in the condenser.

Once through system is used for cooling of the condenser. The condensate collected in the condenser hot well is discharged by the condensate pumps and supplied via the LP condensate heaters into the feed water tank. The feed water is further heated by bled steam from turbine and dissolved gases from the feed-water are liberated. The boiler feed pumps discharge feed water from the feed-water tank via the HP heaters to the economizer. Steaming starts from this point onwards. The high temperature steam-water mix is further converted into steam in water walls and finally passed through the super heaters sections for converting the saturated steam into superheated steam.

The power station would be designed with two power generating units of 520 MW each, along with the auxiliaries and common utility services like plant water system, coal handling system, ash handling plant, and switchyard for power evacuation, plant electrical system and workshop.

The main sections of the power generating unit include Steam Generator along with milling system and electrostatic precipitator, integral piping, integral control system, turbine and generator unit, boiler feed pump, regenerative heaters, condensate extraction pump, circulating and auxiliary cooling water pumps and the generator transformer with bus duct. The main sections of the utility system are the coal handling system, ash handling system, fire fighting system, AC & Ventilation system, switchyard and the plant water system. The power generated at lower voltage of 21 KV would be stepped up to 400 KV and will be connected to the proposed 400 KV switchyard for dispatch.

The plant layout is shown in **Figure-1.3**.

1.4 Scope of the Study

Under the scope of the study, an area of 10 km radius from the centre of the existing plant was covered in detail for various environmental components viz Air, water, Noise and Soil based on the guidelines of Ministry of Environment and Forests, Government of India.

1.4.1 Micrometeorological data

The meteorological and micro-climatic parameters were also recorded simultaneously using automatic weather station located within the plant site. Wind speed, Wind Direction, Relative Humidity and Rainfall were recorded on hourly basis during the study period. Minimum and maximum temperatures were also recorded.

1.4.2 Air Environment

The baseline status of the existing ambient air quality within the study region has been assessed through a monitoring network of Eight Ambient Air Quality (AAQ) sampling stations during study period (April – September 2025). The monitoring network has been established depending on the available climatological norms of predominant wind directions and wind speeds of the study region in the Post monsoon, winter and part of Pre monsoon season. The baseline status of air environment was monitored for Fine Respirable Particulate Matter (PM2.5), Respirable particulate matter PM10 (RPM) and gaseous pollutants like Sulphur dioxide (SO₂), Nitrogen dioxide (NO₂) and Carbon monoxide (CO), Ammonia (NH₃), Ozone (O₃), Benzene (C₆H₆) and metals like Benzo(a)pyrene, Lead (Pb), Arsenic (As) and Nickel (Ni).

1.4.3 Fugitive Dust Emission Monitoring

Fugitive dust emission monitoring was carried out at 5 locations within the plant site to assess the uncontrolled emissions from the sources like dust handling areas, construction areas and roads etc.

1.4.4 Water Quality

Information on water resources (ground) was collected during the study period. The parameters of prime importance were selected under physical, chemical, inorganic, chemical organic and heavy metal groups. Samples were collected for basic nutrient demand; toxic parameters and baseline data on bacteriological aspects were also collected from the existing dug and bore wells. Open well and bore well samples were collected within 10 Km around the existing site.

1.4.5 Noise Quality

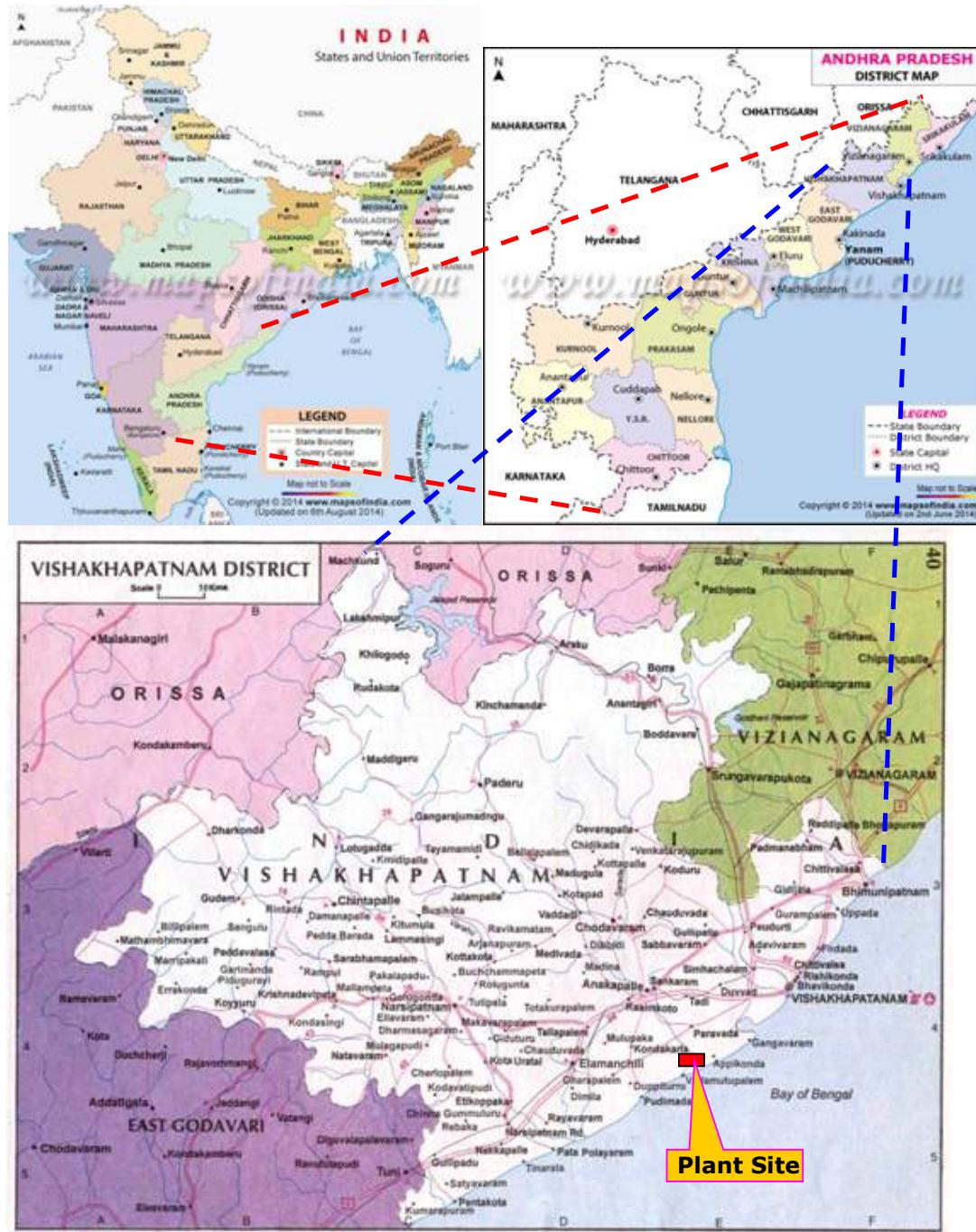
A detailed survey on noise environment was carried out in and around the project site to study the levels of noise, as the high dB (A) levels may cause adverse effect on human beings and associated environment. Spot noise levels were measured using a precision noise level meter, at residential areas, schools, hospitals, bus stands and commercial centers etc. The major noise generating sources were identified in the existing plant and were monitored to study noise environment. Ambient noise levels were measured at 8 locations in 5 Km radial distance.

1.5 Compliance to Environmental Clearance

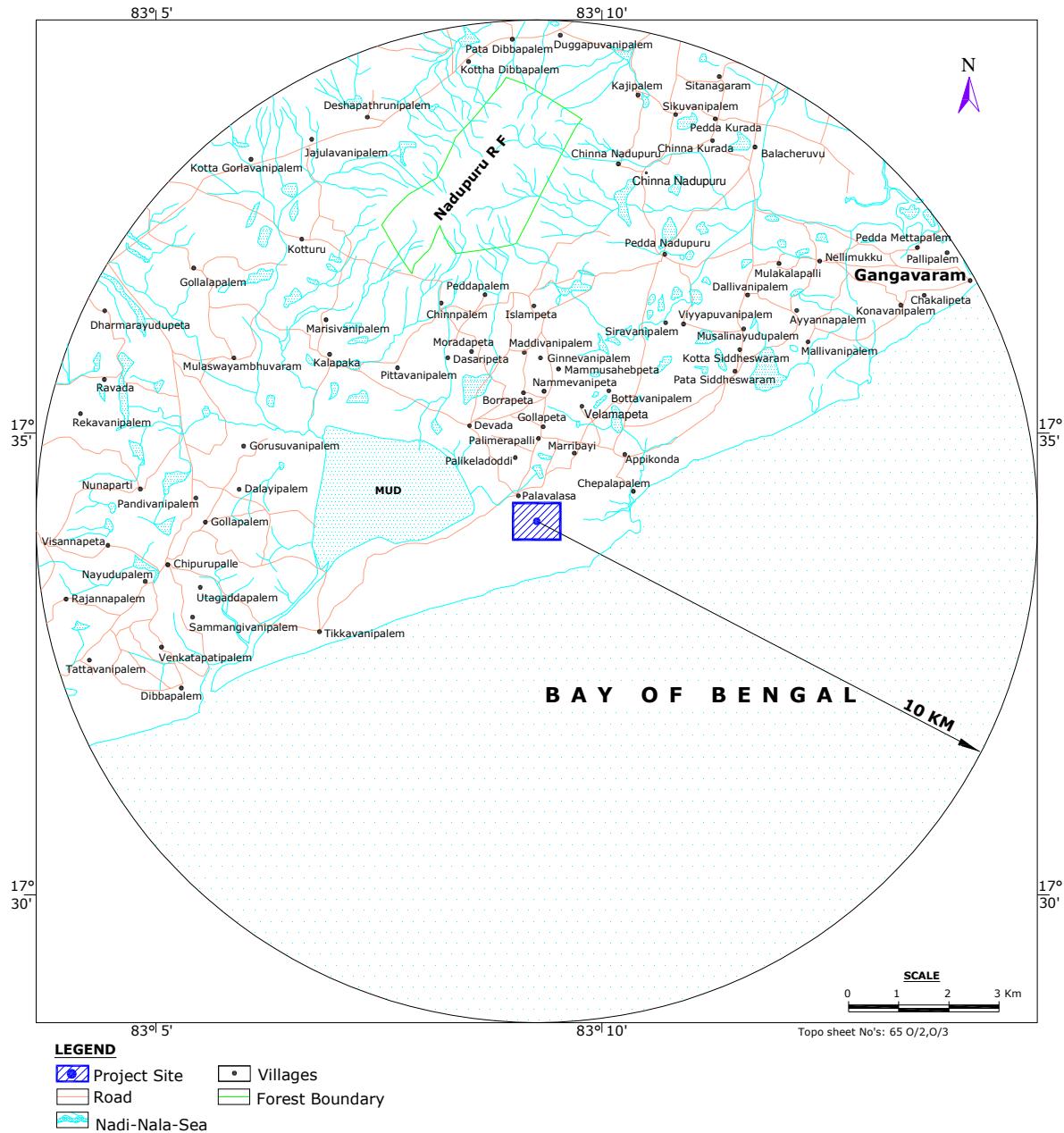
Compliance to Environmental Clearance obtained for 2x520 MW Thermal Power Plant near Visakhapatnam. **Vide Letter No: J-13011/11/90-IA-II (T) dated 3rd September, 1996 and**

CRZ Clearance for the Seawater intake & outfall system and Rail line for Coal transport at palavalasa, Visakhapatnam **Vide Letter F.No: 11-58/2011-IA-III dated 3rd January, 2014 and 17/19th March, 2015.**

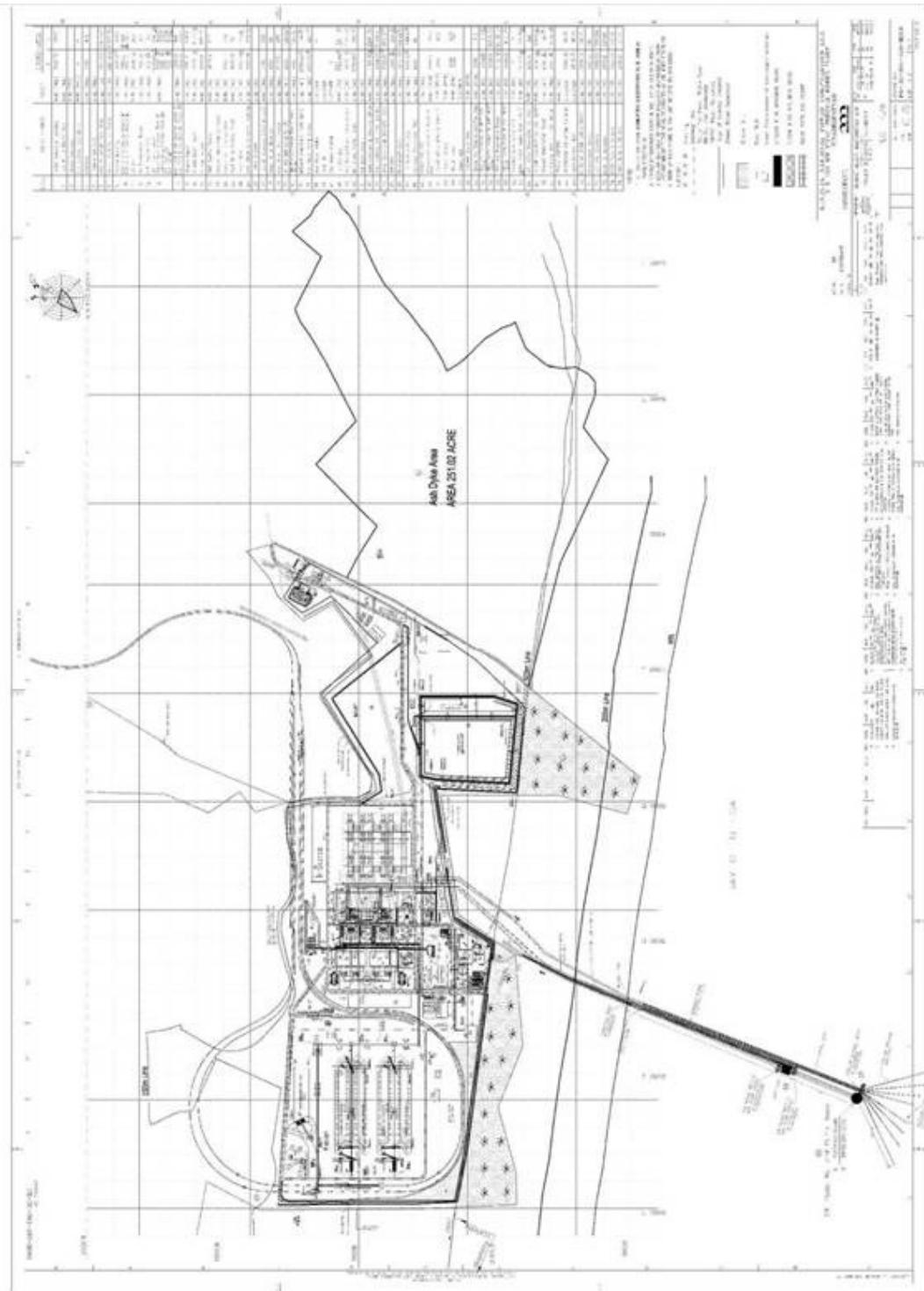
Consent Order **No: APPCB/VSP/19/HO/CTO/2016**, dated: **21st March, 2023**. A compliance Status Report is prepared for 6 months' period from **April-September 2025** is given in **Chapter-2**.



**FIGURE-1.1
GEOGRAPHICAL LOCATION MAP**



**FIGURE-1.2
LOCATION MAP-10KM RADIUS**



**FIGURE-1.3
PLANT LAYOUT FOR HNPL'S 2 X 520 MW THERMAL POWER PLANT AT VISHAKAPATNAM**

Chapter-2
Compliance Status Report

COMPLIANCE STATUS REPORT APRIL TO SEPTEMBER 2025

Ref: Environment Clearance & Amendments to Environment Clearance Letter and Consent for Operation as mentioned below:

1. Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996
2. Letter No: J-13011/11/90-IA-II(T) dated 10th September, 1996
3. Letter No: J-13011/11/90-IA.II dated 15th November, 1996
4. Letter No: J-13011/11/90-IA.II(T) dated 20th April, 1999
5. Letter No: J-13012/92/2008.IA.II(T) dated 4th March, 2009
6. Letter No: J-13012/92/2008-IA.II(T) dated 10th June, 2010
7. F. No: 11-58/2011-IA-III dated 3rd January, 2014
8. F. No: 11-58/2011-IA-III dated 17/19th March, 2015
9. Letter No: 245/Env/CZMA/2015, dated 05th June, 2015
10. F. No: 11-58/2011-IA-III dated 01st October, 2015
11. Consent Order No: APPCB/VSP/19/HO/CTO/2016- dated :21st March, 2023

Sr. No.	Condition (Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996)	Status
Specific Conditions		
i)	All the conditions stipulated by Andhra Pradesh Pollution Control board vide their letter No.19/PCB/C.Estt./RO/VSP/AEE/V111/95-4433 dated 13 th November, 1995 should be strictly implemented	Noted. Complied as applicable. A monthly environmental monitoring report is being submitted to APPCB every month.
ii)	A bi-flue stack of 275 m with continuous stack monitoring system should be installed.	Complied. A bi-flue stack of 275 m has been constructed with continuous stack monitoring system.
iii)	Electrostatic precipitator having efficiency of not less than 99.8% should be installed and it should be ensured that particulate emissions would not exceed the prescribed limit of 150 mg/Nm3.	Complied. An ESP with 99.8% efficiency has been installed to control the Particulate matter emissions below 50 mg/Nm3.
iv)	Once through cooling system should be provided and the rise in temperature should be maintained within 7 degrees centigrade of the ambient water. The proposed pipeline for sea water intake and outlet should conform to the regulations of the coastal zone notification of February, 1991. Desalination plant should be provided for meeting the water requirement of the power project and other auxiliary activities.	Complied. Water balance of the power plant enclosed as Annexure-II . We have obtained the CRZ clearance from MoEF and also for sea water intake//outfall system. Once through cooling system has been designed to maintain temperature differential within 7 deg centigrade over and above the ambient temperature of receiving water body and also maintained the same during operation of the Plant.

Sr. No.	Condition (Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996)	Status
		Desalination plant with a capacity of 12.5 MLD has been installed to meet the sweet water requirement.
v)	Adequate space should be provided for installation of flue gas desulphurization plant in future for control of Sulphur dioxide.	Complied. Space provision for installing FGD if required, has been provided in the plant layout for controlling Sulphur dioxide.
vi)	Acquisition of land should be restricted to 2682 acres including 890 acres for ash disposal.	Complied. The plant has been established in an area of 723 acres including ash pond.
vii)	Only beneficiated coal to the tune of 16080 MT/day should be used with ash content not exceeding 34%. Fly ash generated should be collected in dry form in silos and fully utilized in a phased manner. As indicated in the Environmental Management plan, increase in the dyke height above 8 m should be undertaken through use of fly ash. For avoiding contamination of ground water, ash pond area should be suitably lined and dyked. As provided in the layout, adequate space should be earmarked for getting up of ash user plants to avoid long distance transportation to fly ash.	<p>The coal supply for the plant is from Mahanadi coal field (MCL). the quality of the coal received at plant is having lower calorific value and higher ash content ranging from 38% to 42%.</p> <ul style="list-style-type: none"> • Due to the high content of ash in the coal, disposal of ash is becoming a concern. Nearly about 75% of ash is being disposed of with the following agencies. <p>25% accumulated ash in the ash pond is being explored for further disposal.</p> <ul style="list-style-type: none"> • Pond ash and Fly ash will be utilized by the following Agencies: <ol style="list-style-type: none"> 1) Simhadri Constructions. 2) Ramco cements 3) My home cements 4) Sagar cements 5) Vipasana 6) Sri Sai Ganesh Transporter 7) Chettinad cements 8) Nagarjuna cements 9) Ultra tech cements 10)Brick industries. 11)Haricharan Logistics- high ways 12)RMR transporter <ul style="list-style-type: none"> • Ash pond is being lined with HDPE to prevent contamination of ground water. Further the Ground water monitoring is being undertaken by a third party on Monthly basis as per the monitored data the levels are within permissible limits.
viii)	Noise level should be limited to 85 dBA	Complied.

Compliance Status Report to Environmental Clearance of M/s Hinduja National Power Corporation Limited vide Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996 and F. No: 11-58/2011-IA-III dated 3rd January, 2014, 17/19th March, 2015 and CFO No: APPCB/VSP/19/HO/CTO/2016 dated 21st March, 2023	Compliance Status Report
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Sr. No.	Condition (Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996)	Status
	and regular maintenance of equipments be undertaken. For people working in the area of generator halls and other high noise areas, ear plugs should be provided.	Noise levels are being monitored by third party at locations within the plant area and the results are within prescribed limits. Requisite personnel protective equipment has already been provided to people working in high noise areas like earplugs and earmuffs
ix)	For controlling fugitive dust, regular sprinkling of water in coal handling and other vulnerable areas of the plant should be ensured.	Complied. Dust Suppression system installed and regular sprinkling of water on coal in stock yard and conveyors is being ensured.
x)	Afforestation plan should be formulated in consultation with the local DFO and implemented by creating a greenbelt of 500 m along the sea side from High Tide Line. A strip of greenbelt of 150-200 m should also be created along the ash pond area and about 100 m in available spaces within the colony along the road etc. A norm of 1500-2000 trees per ha should be followed and aftercare and monitoring should also be ensured.	Complied. The power project including ash pond is restricted to 723 acres. Presently green belt is being developed in and around the power project area and an area of 252 acres has already been developed and achieved more than 33%.
xi)	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.	Complied. Continuous ground water monitoring is being carried out at seven locations on Monthly basis and the monthly data is being submitted to APPCB. As per the results, the limits are within the prescribed norms. The same is enclosed in Chapter-3, Section-3.5 .
xii)	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.	Complied. All the effluents generated are being treated in the Effluent Treatment Plant (ETP). The outflow is being monitored by continuous monitoring system. Zero discharge has been adopted to the maximum possible extent.
xii)	Keeping in view the fact that 2x500 MW thermal power plant by M/s. National Thermal Power Corporation limited proposed in the vicinity of 1040 MW thermal power project, common facilities for coal transportation, laying of rail lines etc. should be worked out with mutual consultation to avoid duplication of facilities and acquisition of additional land.	NTPC has declined to use their railway line for HNPL coal supply. Therefore, left with no choice HNPL is undertaking the construction of new railway line adjacent to NTPC line under the Indian railways GATI Shakthi scheme. The DPR has been developed by RITES and it is with Indian railways for their approval.

Compliance Status Report to Environmental Clearance of M/s Hinduja National Power Corporation Limited vide Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996 and F. No: 11-58/2011-IA-III dated 3rd January, 2014, 17/19th March, 2015 and CFO No: APPCB/VSP/19/HO/CTO/2016 dated 21st March, 2023	Compliance Status Report
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Sr. No.	Condition (Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996)	Status
xiv)	A financial provision of Rs. 250 crores should be provided for implementation of environmental mitigative measures with adequate scope for its enhancement in future. These funds should not be diverted for any other activities and separate account should be maintained.	<p>Complied.</p> <p>Separate funds for the implementation of environmental development/mitigation/protection measures were allocated as part of project cost.</p> <p>As part of environmental management plan, HNPCL has utilized the funds for implementing the below pollution control equipment:</p> <ol style="list-style-type: none"> 1. Air pollution equipment <ol style="list-style-type: none"> a. Stack and stack emission monitoring equipment b. ESP's c. CAAQMS & CEMS monitoring Systems 2. Water pollution equipment <ol style="list-style-type: none"> a. Cooling water system. b. Ash water recovery system. c. Desalination system. d. Industrial effluents., (ETP& STP) e. Domestic and storm water systems 3. Ash pollution equipment <ol style="list-style-type: none"> a. Bottom ash system b. Fly ash system c. Ash pond d. Ash slurry system e. Ash utilization plan implementation. 4. Noise pollution equipment <ol style="list-style-type: none"> a. Acoustic enclosures. b. Silencers., etc.. 5. Green belt development.
xv)	Regular monitoring for SPM, SO ₂ and NO _x around the power plant may be carried out and records maintained. The data also collected should be properly analysed and submitted to the Ministry every six months.	<p>Complied.</p> <p>Monitoring is being carried out at eight Ambient Air quality-monitoring stations within the 10 km radius.</p> <p>Data on ambient air quality is being submitted to APPCB on monthly basis. As per the AAQ data, the results are within limits. The same is enclosed in Chapter-3, Section-3.2.</p>
xvi)	Full cooperation should be extended to the Scientists/officers from the Regional Office of the Ministry at Bangalore and also to the State Pollution Control Board	<p>Being followed.</p> <p>Full cooperation is being extended to the Scientists and officers of Regional Office of MOEF&CC.</p>

Compliance Status Report to Environmental Clearance of M/s Hinduja National Power Corporation Limited vide Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996 and F. No: 11-58/2011-IA-III dated 3rd January, 2014, 17/19th March, 2015 and CFO No: APPCB/VSP/19/HO/CTO/2016 dated 21st March, 2023	Compliance Status Report
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Sr. No.	Condition (Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996)	Status
	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.	EIA report and EMP have been submitted to Regional Office of MOEF&CC.
xvii)	Monitoring committee should be constituted for reviewing the compliance to various safeguard measures by involving recognized local NGOs, Pollution Control Board experts etc.	Internal Environmental Monitoring Committee is in place. The Committee conducts meetings regularly to review the Environmental safeguards and compliance measures ensures that necessary actions have been taken up by HNPL
3	The Ministry reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry	Noted.
4	For 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.	Not applicable.
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.	Noted.

Ref Letter No J-13012/ 92/2008. IA.II (T) dated 4th March, 2009		
S.No.	Conditions	Compliance status
6	Map indicating CRZ area duly certified by the approved agency and authenticated by the state coastal zone management authority may be submitted on Top priority.	Map has already been submitted to MOEF,
7	Compliance status w.r.to stipulated EC conditions should be uploaded in the	Six monthly compliance reports are being regularly uploaded on the company web site

Compliance Status Report to Environmental Clearance of M/s Hinduja National Power Corporation Limited vide Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996 and F. No: 11-58/2011-IA-III dated 3rd January, 2014, 17/19th March, 2015 and CFO No: APPCB/VSP/19/HO/CTO/2016 dated 21st March, 2023

Compliance Status Report

Ref Letter No J-13012/ 92/2008. IA.II (T) dated 4th March, 2009

S.No.	Conditions	Compliance status
	company web site and updated twice in a year and the same will also be sent by e-mail to the MOEF regional office located at Bangalore.	and the same is being sent to MOEF&CC Regional office. The link is as below. http://www.hindujanationalpower.com/images/compliance-status April - September 2025 - website-version.pdf
8	The ambient levels of criteria pollutants (SO2, NOX & SPM) should be uploaded and displayed on your website and also at a convenient place in the plant premises periodically.	The monitoring parameters are also made available online and linked to server of APPCB/CPCB. Display is kept at the Main entrance of power project.

Sr. No	Condition (Letter No: 11/58/2011 IA.III dated 3 rd January, 2014)	Compliance Status
SPECIFIC CONDITIONS		
(i)	"Consent for Establishments" shall be obtained from State Pollution Control Board under Air and Water Act and a copy shall be submitted to the Ministry before start of any construction work at the site.	Complied. "Consent for Establishment" was issued by state pollution control board vide their order no 19/PCB/C.ESTI/RO/VSPI AEE- VIII/95 -4433 signed dated 13/11/1995.
(ii)	Shall maintain the existing vegetation cover in the area between HTL and 500m line which is approximately 180 acres, belonging to government, located adjacent to the project area, in consultation with the State Government and there shall be no industrial development with in this area as committed.	Complied. Existing plantation is being maintained between HTL and 500 m line.
(iii)	The railway line has been shifted from mud flat area and as per the modified line only 160m is with in mud flat area as against the original plan on 1500m. Railway line in CRZ area shall be on silt.	Once railway line gets completed. we will take fresh approval for a change.
(iv)	There shall be no construction in mudflat except part of railway line on stilt as committed.	Noted.
(v)	Adequate spare diffuser arms for operation and maintenance of the marine outfall systems shall be Provided.	Noted
(vi)	Pipelines shall be laid with more care to minimize the impact to sand dunes	Followed.
(vii)	The double story switchgear, electro chlorination building and two numbers of storage tanks Proposed between 200 and 500 m from HTL shall be located beyond 500 m from HTL as committed.	Complied. The electro chlorination building and the storage tanks have been constructed beyond

Compliance Status Report to Environmental Clearance of M/s Hinduja National Power Corporation Limited vide Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996 and F. No: 11-58/2011-IA-III dated 3rd January, 2014, 17/19th March, 2015 and CFO No: APPCB/VSP/19/HO/CTO/2016 dated 21st March, 2023	Compliance Status Report
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Sr. No	Condition (Letter No: 11/58/2011 IA.III dated 3rd January, 2014)	Compliance Status
		500 m from the HTL with in the plant premises.
(viii)	Periodic monitoring of water quality in terms of temperature chlorine content if applicable, salinity etc at the outfall locations shall be carried out. If the impact of temperature and salinity is found significant in future, necessary remediation measures shall be taken by extending the outfall as well as the intake lines and/or providing augmentation in inland cooling facilities.	Complied. Periodic monitoring of water quality being done at outfall location and the parameters are within the limits.
(ix)	Installation of trash bar/screens shall be put in place at the intake well to avoid fish entrapment	Complied. Trash rack has been installed.
(x)	All the conditions laid by the SCZMA shall be strictly adhered to.	Noted.
(xi)	Construction activity shall be carried out strictly as per the provisions of CRZ Notification, 2011. No construction work other than those permitted in Coastal Regulation Zone Notification shall be carried out in Coastal Regulation Zone area.	Complied. The CRZ area clearance was obtained from MOEF&CC, vide letter dated 01.10.2015.
(xii)	The project shall be executed in such a manner that there shall not be any Disturbance to the fishing activity.	Complied. There is no disturbance to fishing activity
	It shall be ensured that there is no displacement of people, houses or fishing activity as a result of the project	Complied. No displacement of people, houses or fishing activity taken place.
(xiii)	The project proponents shall set up separate Environment management cell for effective implementation of the stipulated environmental Safeguard under the supervision of a Senior executive.	Complied. Environment management cell is in place to monitor the implementation of environmental safeguards on continuous basis.
	The funds earmarked for environment management shall be included in the budget and this shall not be diverted for any other purposes.	Being Followed.
General Conditions		
Sr.No	Condition (Letter F.No: 11-58/2011-IA-III dated 3rd January, 2014)	Compliance Status
(i)	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality.	Being followed.
(ii)	Full supports shall be extended to the officer of this Ministry/Regional office at Bengaluru by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in respect of mitigation measures and other environment protection activities.	Being followed. Full cooperation is being extended to the Ministry/Regional office during inspection of the project site.
(iii)	A six-Monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry at Bengaluru regarding the implementation of the stipulated Conditions.	Complied. The six-Monthly monitoring report being submitted regularly as per stipulation.
(iv)	Ministry of Environment & Forests or any other	Agreed.

Compliance Status Report to Environmental Clearance of M/s Hinduja National Power Corporation Limited vide Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996 and F. No: 11-58/2011-IA-III dated 3rd January, 2014, 17/19th March, 2015 and CFO No: APPCB/VSP/19/HO/CTO/2016 dated 21st March, 2023	Compliance Status Report
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Sr. No	Condition (Letter No: 11/58/2011 IA.III dated 3rd January, 2014)	Compliance Status
	competent authority may stipulate any additional conditions or modify the existing ones, if necessary, in the interest of environment and the same shall be complied with.	
(v)	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of the Ministry.	Agreed.
(vi)	In the event of a change in project profile or change in the implementation agency, fresh references shall be made to the Ministry of Environment and Forests.	Noted.
(vii)	The project proponent shall inform the regional office as well as the Ministry, the date-of financial closure and final approval of the project by the concerned Authorities and the date of start of land Development work.	Complied.
(viii)	A copy of the clearance letter shall be marked to concerned Panchayat/local NGO, if any, from whom any suggestion /representation has been Made received while processing the Proposal.	Agreed.
(ix)	State Pollution Control Board shall display a copy of the clearance letter at the Regional Office, District Industries Center and Collector's Office/ Tehsildar's office for 30 days.	NA

Sr. No.	Condition (Letter No: F.NO. 11-58/ 2011-IA.III dated 17/19th March 2015)	Compliance Status
(i)	Railway line, in the CRZ, shall be on embankment with clear openings or on stilt so as to ensure free flow of water.	Noted.
(ii)	PP shall get an expert opinion on the design of alignment on CRZ area on embankment with clear openings or on stilt so as to ensure free flow of water and submit to Ministry prior to commencement of Railway line work in CRZ area.	Noted.
(iii)	The water bodies present adjacent to the proposed to the Railway alignment shall not be disturbed.	Noted.

Sr. No.	Condition (Letter No: F.NO. 11-58/ 2011-IA-III dated 01th October 2015) (Amendment in CRZ Clearance-reg)	Compliance Status
(i)	All the conditions/recommendation stipulated by Andhra Pradesh Coastal zone Management Authority (APCZMA) vide letter No.245/Env/CZMA/2015 dated 05.06.2015 shall strictly be complied with	Noted.
(ii)	All the condition stipulated in the clearance vide letter No.11-58/2011-IA-III dated 3 rd January, 2014 and subsequent amendment dated 17 th March, 2015 shall remain unchanged.	Noted and complied as detailed above

Compliance Status Report to Environmental Clearance of M/s Hinduja National Power Corporation Limited vide Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996 and F. No: 11-58/2011-IA-III dated 3rd January, 2014, 17/19th March, 2015 and CFO No: APPCB/VSP/19/HO/CTO/2016 dated 21st March, 2023	Compliance Status Report
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Sr. No.	Condition (Letter No: F.NO. 11-58/ 2011-IA-III dated 01th October 2015) (Interim arrangement for the sea water intake and outfall system-reg)	Compliance Status
(i)	All the conditions/recommendation stipulated by Andhra Pradesh Coastal zone Management Authority (APCZMA) vide letter No.245/Env/CZMA/2015 dated 06.07.2015 shall strictly be complied with	Noted.
(ii)	All the condition stipulated in the clearance granted by this Ministry vide letter No.11-58/2011-IA-III dated 3 rd January, 2014 and subsequent amendment dated 17 th March, 2015 shall remain unchanged.	Noted
(iii)	The PP shall use multi diffuser in the outfall. As suggested by NCSCM, the thermal water shall be release at 10 m depth from the 8 diffuser.	Complied.
(iv)	A monitoring system shall be deployed by the PP to assess the movement of thermal plume in and around the outfall coolant water jetty due to the occurrence of thermal plume oscillation in south-north direction during monsoon and also to monitor the impact of hot water discharge in to the sea water flora and fauna. The PP shall comply with at the direction of the APCZMA and take necessary corrective measures wherever required.	Complied. Hydro dynamic and dispersion modeling studies for Intake and Outfall discharge are being carried out by Environ software(P) Ltd and the same is submitting to the concerned parties
(v)	The PP shall take all necessary clearance from the concerned authorities viz-a-viz from the concerned State Pollution Control Board	Being complied with
(vi)	Care should also be taken to ascertain minimal impact on the shore line change due to construction of coastal structures. For this purpose, shoreline change shall be monitored using the satellite imaginary and by beach profile studies at regular intravels.	Being complied. shoreline monitoring being done by using the satellite imaginary and also beach profile studies carried out at regular intervals.

Sr. No.	Condition (Letter No: 245/Env/CZMA/2015, dated 05th June 2015)	Compliance Status
1	The proposed pipeline shall conform to the norms prescribed in the CRZ Notification issued by the Ministry of Environment and Forests, Government of India S. O. No.19(E), dated 06-01-2011	Complied
2	No activity on the ground shall be undertaken without obtaining Environmental Clearance from the Ministry of Environment and Forests, Government of India as per S. O. No.19(E), dated 06-01-2011 and the amendments issued thereof	Noted.
3	There shall be minimum disturbance to the sand dunes and other vegetation	Agreed.
4	On account of inversion process occurring along the Vizag coast, wherein the temperature profile gets reversed in such a way that bottom temperature tends to become higher than surface temperature on seasonal basis. Hence, it is suggested that a constant monitoring system shall be established to monitor the physical, chemical and biological activity near the outfall point and its surroundings. The industry shall	Temperature is Regularly monitoring at discharge points. All necessary measures have taken for safe discharge of sea water.

Sr. No.	Condition (Letter No: 245/Env/CZMA/2015, dated 05th June 2015)	Compliance Status
	take necessary steps to attain the safe diffusion of used ballast sea water discharged through outfall system	
5	Marker buoy and light indicators shall be established close to the intake and outfall points to avoid fishing net damage	Complied. Marker buoys and light indicators were installed.
6	Residual chlorine in the return water shall be kept at a very low concentration at discharge point. If possible, de-chlorination by hypo may be taken up before disposal of warm water into the sea	Complied. Residual chlorine is observed within limit. (<0.2ppm).
7	Additional diffusers shall be installed to enhance the dispersion of the hot water to facilitate the dissipation of temperature	Noted.
8	Regular monitoring of water quality at bottom and surface shall be carried out for pH, TSM, Salinity, DO, BOD, dissolved phosphate, nitrate, ammonia and PHC	Complied. Water quality monitoring for sea water is being carried out regularly.
9	Inter-tidal region shall be analyzed for texture, phosphorous, chromium, nickel, copper, cadmium, lead, mercury and PHC	Being complied with
10	Biological characteristics shall be assessed based on primary productivity, phytopigments, phytoplankton populations and their generic diversity, biomass, population and community diversity of benthos, fisheries composition and density as well as species diversity	Being complied with
11	Regular (seasonal) monitoring of temperature at the outfall to take necessary mitigation measures. Online monitoring of salinity and temperature may be implemented	being complied With.
12	Shoreline evolution to be predicted by using Mathematical Model preferably 'LITPACK of MIKE.21' due to the impact that may be caused by the piers constructed to carry intake and outfall pipelines	Being complied with. Shoreline evolution predicted by using Mathematical Modelling for Intake and Outfall pipeline discharges. studies are being carried out by Environ software(P) Ltd and the same is submitting to the CPCB/APPCB
13	Shoreline monitoring shall be carried out regularly by a reputed organization having requisite experience, in order to take up suitable preventive measures.	Being complied with The shoreline monitoring Being carried out regularly by competent party.
14	The geographical position of the present HTL, LTL and slope of the beaches shall be maintained i.e. any erosion that may occur need to be prevented. The beach front shall be restored to the normal condition by adopting suitable engineering and vegetative measures	Being followed.
15	The Ash generated shall be utilized as per the norms stipulated in Fly Ash Notification dated 14-09-1999	The coal supply for the plant is from Mahanadi coal field (MCL). the quality of the coal received at plant is having lower calorific value and higher ash content ranging from 38% to 42%. • Due to the high content of ash in the coal, disposal of ash is

Compliance Status Report to Environmental Clearance of M/s Hinduja National Power Corporation Limited vide Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996 and F. No: 11-58/2011-IA-III dated 3rd January, 2014, 17/19th March, 2015 and CFO No: APPCB/VSP/19/HO/CTO/2016 dated 21st March, 2023

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Sr. No.	Condition (Letter No: 245/Env/CZMA/2015, dated 05th June 2015)	Compliance Status
		becoming a concern. Nearly about 75% of ash is being disposed of with the following agencies. 25% accumulated ash in the ash pond is being explored for further disposal.
16	Environmental audit shall be taken up periodically by the independent agency and submit the report to the Regulatory Agencies	Complied. Form-V is being submitted Periodically.

Sr. No.	Condition (Consent Order No:APPCB/VSP/19/HO/CTO/2016, dated 21 st March 2023) for Unit - I & Unit - II	Compliance Status
SCHEDULE-A		
1	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.	Noted and shall be complied when such condition arises.
2	The industry should carryout analysis of wastewater discharges or emissions through chimneys for the parameters mentioned in this order on quarterly basis and submit to the Board.	Being complied with
3	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.	Noted
4	The industry shall ensure that there shall not be any change in the process technology, source & composition of raw materials and scope of working without prior approval from the Board	Noted
5	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	Being complied with.
6	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.	Being followed and complied
7	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.	Noted

Sr. No.	Condition (Consent Order No:APPCB/VSP/19/HO/CTO/2016, dated 21st March 2023) for Unit - I & Unit - II	Compliance Status	
8	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.	Noted	
9	The industry shall be liable to pay Environmental Compensation / Other Environmental Taxes, if any environmental damage caused to the surroundings, as fixed by the Collector & District Magistrate or any other competent authority as per the Rules in vogue.	Agreed.	
10	The industry may explore the possibility of tapping the solar energy for their energy requirements.	Noted.	
11	The industry should educate the workers and nearby public of possible accidents and remedial measures	Being followed.	
SCHEDULE - B			
The industry shall comply with the following conditions:			
1	The industry shall complete the installation of FGD by 31.12.2024 as per MoEF &CC G.S.R.No. 682 dated 05.09.2022	FGD completion time lines have been extended up to 31.12.2027.	
2	The industry shall transmit the data of CEMS connected to the Stacks to the APPCB website without interruption.	Online monitoring systems are available and connected to board servers through online website.	
WATER POLLUTION			
3	The effluent discharged shall not contain constituents in excess of the tolerance limits mentioned below	Complied. the effluent parameters are Within the prescribed limits	
	Outlet	Parameter	Limiting Standards
	1	pH	6.50 – 8.50
		Temperature-not more than 7°C higher than intake water per MoEF Communication dated 20.04.1999.	
		Total Suspended Solids(at 103–105° C)	100 mg/I
		Oil and Grease	20 mg/I
		Free chlorine	0.5 mg/I
		Phosphate as PO4	20 mg/I
		Chromium (Total)	0.2 mg/I
		Copper (Total)	1mg/I
		Iron	1 mg/I
		Zinc	1 mg/I
	2	pH	6.50 – 8.50
		Oil and Grease	10 mg/l
		BOD (3 days at 27 °C)	30 mg/l
		Total Suspended Solids	<100 mg/I
		Fecal Coliform (FC) (Most Probable Number per 100 milliliter, MPN/100ml	<1000MPN /100 ml

Sr. No.	Condition (Consent Order No:APPCB/VSP/19/HO/CTO/2016, dated 21st March 2023) for Unit - I & Unit - II	Compliance Status																																																					
4	<p>The industry water consumption shall not exceed the quantities mentioned below:</p> <table border="1"> <thead> <tr> <th>S.No</th><th>Purpose</th><th>Quantity (m3/hr)</th></tr> </thead> <tbody> <tr> <td>1</td><td>Condenser & Auxiliary Cooling Water System</td><td>175580</td></tr> <tr> <td>2</td><td>Ash water sump</td><td>2600</td></tr> <tr> <td>3</td><td>Dust Suppression system</td><td>220</td></tr> <tr> <td>4</td><td>For Desalination Plant feed</td><td>1600</td></tr> <tr> <td></td><td>Total</td><td>180000</td></tr> </tbody> </table> <p>Details of specific consumption:</p> <table border="1"> <thead> <tr> <th>4 A</th><th>From Desalination Plant to Reservoir</th></tr> </thead> <tbody> <tr> <td>4 A 1</td><td>From reservoir to UF/RO System</td><td>503</td></tr> <tr> <td>a</td><td>RO Plant to Boiler Make Up, CPU Regeneration & other utilities</td><td>110</td></tr> <tr> <td>b</td><td>Blow down Quenching</td><td>90</td></tr> <tr> <td>C</td><td>Domestic Water</td><td>30</td></tr> <tr> <td>d</td><td>HVAC & Ventilation</td><td>80</td></tr> <tr> <td>e</td><td>Seal Water</td><td>75</td></tr> <tr> <td>f</td><td>Service water</td><td>52</td></tr> <tr> <td>g</td><td>APH & ESP Wash (As and when required)</td><td>06</td></tr> <tr> <td>h</td><td>RO Plant to Clarifier</td><td>---</td></tr> <tr> <td>i</td><td>UF , RO & EDI reject</td><td>70</td></tr> <tr> <td>4 A B</td><td>Water remain in recovery</td><td>11</td></tr> </tbody> </table> <p>Separate meters with necessary pipe-line shall be maintained for assessing the quantity of water used for each of the purposes mentioned above for Cess assessment purpose.</p>	S.No	Purpose	Quantity (m3/hr)	1	Condenser & Auxiliary Cooling Water System	175580	2	Ash water sump	2600	3	Dust Suppression system	220	4	For Desalination Plant feed	1600		Total	180000	4 A	From Desalination Plant to Reservoir	4 A 1	From reservoir to UF/RO System	503	a	RO Plant to Boiler Make Up, CPU Regeneration & other utilities	110	b	Blow down Quenching	90	C	Domestic Water	30	d	HVAC & Ventilation	80	e	Seal Water	75	f	Service water	52	g	APH & ESP Wash (As and when required)	06	h	RO Plant to Clarifier	---	i	UF , RO & EDI reject	70	4 A B	Water remain in recovery	11	Complied. All are within the limits.
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5	The industry shall install and maintain digital electromagnetic flow meters with totalizers for Sea water drawl, water consumption and waste water generation for different streams of effluents and different categories of water usage stipulated in this order	Complied.																																																					
6	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. The run-off water from coal yard shall be treated to on land for irrigation standards before final disposal.	being complied with																																																					
7	The industry shall discharge the once through cooling water into sea through a suitable sub-marine pipeline. The industry shall discharge off once through cooling effluents from Unit - 1 & 2 at a distance of 900 mts from the shoreline	being complied with																																																					
8	The PP shall use multi diffuser in the outfall. As suggested by NCSCM, the thermal water release shall be release at 10 m depth from the 8 diffuse	being complied with																																																					
9	The industry shall monitor all ground water peizo wells and submit report to RO Visakhapatnam every three months indicating trends	being complied with The ground water peizo wells monitoring and submitting the report to RO Visakhapatnam regulary																																																					
10	The industry shall construct separate storm water drains and provide rainwater-harvesting structures. No effluents shall be discharged in to the storm water drains	No effluents are discharged into drains. Storm water drains are available in the plant.																																																					
11	The industry shall maintain Continuous Effluent Quality Monitoring Stations (CEQMS) for the parameters pH, TSS and Temperature data is transmitted to CPCB / APPCB on	Being Complied The Continuous Effluent Quality Monitoring Stations (CEQMS) data is																																																					

Sr. No.	Condition (Consent Order No:APPCB/VSP/19/HO/CTO/2016, dated 21st March 2023) for Unit - I & Unit - II	Compliance Status
	continuous basis.The industry shall comply with CPCB directions dated 05.02.2014 / 02.03.2015 and guidelines issued regarding online monitoring systems File No.APPCB/VSP/VSP/19/HO/CFO/2017 issued from time to time. The online monitoring system shall be calibrated periodically as per equipment supplier's manual / CPCB guidelines.	transmitted to CPCB / APPCB.
	AIR POLLUTION	
12	The emissions shall not contain constituents in excess of the prescribed limits mentioned below.	With regard to exceedance of SO2 stack emissions, it is observed that at times it goes beyond limit due to uneven load distribution and poor quality of coal received from MCL.HNPCL is continuously Monitoring the ground level emissions at about 8 locations in nearby villages and it is observed that the ground level concentration of SO2 is within permissible limits. However, HNPCL will improve the capture efficiency of ESP's while during the maintenance of the equipment.
13	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.	Being complied with. The DG sets are standby and used only in the absence of grid power supply.
14	The industry shall comply with ambient air quality standards of PM10 (Particulate Matter size less than 10 μ m) - 100 μ g/m ³ ; PM2.5 (Particulate Matter size less than 2.5 μ m)60 μ g/m ³ ; SO ₂ - 80 μ g/m ³ ; NO ₂ - 80 μ g/m ³ 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).	Complied. The Ambient air Quality and noise parameters are within the stipulated standards and reports are being submitted regularly
15	The industry shall provide a sampling port with removable dummy of not less than 15 cm diameter in the stack at a distance of 8 times the diameter of the stack from the nearest constraint such as bends etc. A platform with suitable ladder shall be provided below 1 meter of sampling port to accommodate three persons with	Complied

Sr. No.	Condition (Consent Order No:APPCB/VSP/19/HO/CTO/2016, dated 21st March 2023) for Unit – I & Unit – II	Compliance Status
	instruments. A 15 AMP 250 V plug point shall be provided on the platform	
16	The industry shall provide interlocking facility between APC equipment (ESP) and fuel feeding system, in such a way that the feeding of the fuel shall be stopped automatically, in case, the ESP fails/ tripping's are occurred.	Alarm system of ESP fields is hooked up to main plant control room for taking immediate corrective measures. (Interlocking facility is provided for all the units)
17	The industry shall maintain suitable control equipment facilities in the coal handling plant and dust suppression in all coal and material handling areas shall be achieved through appropriate methods	Noted and being complied
18	The industry shall maintain 3 CAAQM station at different locations and data File No.APPCB/VSP/VSP/19/HO/CFO/2017 transmitted to APPCB website	3 CAAQMS stations are being maintained.
19	The industry shall not exceed of emissions standards at any point of time. In case the industry exceeds the standards in the CEMS data, environmental compensation will be levied	Noted
GENERAL:		
20	The industry shall not increase the capacity beyond the permitted capacity mentioned in this order.	Noted
21	.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	Complied. Mobile water tankers are being used for water sprinkling on roads.
22	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	Being followed.
23	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.	HNPL is having only one operational ash pond having central bund divided into two parts, one for filling and one for evacuation. Ash pond for filling is maintained with water curtain and the one which is used for evacuation, is maintained with water sprinklers.
24	The industry shall achieve 100% utilization of fly ash as per the Fly Ash Notification	Noted.
25	The industry shall establish a dedicated Environmental cell for continuous monitoring of plant environment to ensure compliance of CFO conditions.	Dedicated Environment Management cell is in place to ensure compliance to CTO Conditions.
26	The industry shall maintain the following records and the same shall be made available to the Board Officials during the inspection. • Daily power generation details. • Quantity of Effluents generated and disposed.	Being Complied with

Sr. No.	Condition (Consent Order No:APPCB/VSP/19/HO/CTO/2016, dated 21st March 2023) for Unit – I & Unit – II	Compliance Status
	<ul style="list-style-type: none"> • Log Books for pollution control systems. • Daily Fly ash generated and disposed. 	
27	The industry shall provide truck-tyre washing facility near ash pond area to avoid dust emissions during the movement of the trucks.	Complied.
28	The industry shall dispose fly ash to cement / brick units and export, excess to ash pond	<p>Pond ash and Fly ash will be utilized by the following Agencies:</p> <ol style="list-style-type: none"> 1) Simhadri Constructions. 2) Ramco cements 3) My home cements 4) Sagar cements 5) Vipasana 6) Sri Sai Ganesh Transporter 7) Chettinad cements 8) Nagarjuna cements 9) Ultra tech cements 10) Brick industries. 11) Hari charan logistics- (highway work.) 12) RMR transporter. <p>Export Agencies :</p> <ol style="list-style-type: none"> 1).Jaycee build con.
29	The industry shall maintain water curtain in ash ponds as the fly ash is exposing to atmosphere and causing dust emissions during wind blow	being complied with.
30	Thick green belt shall be maintained by the industry covering an area of minimum 33% of total area.	Presently green belt has developed in and around the power project area of 252 acres and achieved 33% of total area.
31	A monitoring system shall be deployed by the industry to assess the movement of thermal plume in and around the outfall coolant water jetty due to the occurrence of thermal plume oscillation in south-north direction during monsoon and also to monitor the impact of hot water discharge into the Sea and the flora and fauna. The industry shall comply with at the directions of APCZMA and take necessary corrective measures wherever required	Being complied with
32	The industry shall maintain valid PLI policy which includes Environmental Relief Fund (ERF) and submit copy to RO, Visakhapatnam on yearly basis	Complied.
33	The industry shall comply with SoPs issued by CPCB time to time for all the wastes.	Being Complied
34	The industry shall install digital display boards at publicly visible places at the main gate indicating the products manufactured Vs permitted quantities, Treated effluent concentrations Vs discharge standards, Stack emission & AAQ concentrations Vs standards, hazardous waste generation, disposed, stock Vs permitted quantities and validity of CTO; and exhibit the CTO order at a prominent	<p>Complied.</p> <p>Display is kept at the entrance of power project.</p>

Compliance Status Report to Environmental Clearance of M/s Hinduja National Power Corporation Limited vide Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996 and F. No: 11-58/2011-IA-III dated 3rd January, 2014, 17/19th March, 2015 and CFO No: APPCB/VSP/19/HO/CTO/2016 dated 21st March, 2023	Compliance Status Report
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Sr. No.	Condition (Consent Order No:APPCB/VSP/19/HO/CTO/2016, dated 21st March 2023) for Unit - I & Unit - II	Compliance Status
	place in the factory premises, as per Hon'ble Supreme Court order.	
35	The industry shall submit Half yearly compliance reports to all the stipulated conditions in Environmental Clearance (EC), Consent to Establishment (CTE) and Consent to Operation (CTO) through website i.e., https://pcb.ap.gov.in by 1st of January and 1st July of every year. The first half yearly compliance reports shall be furnished by the industry and second half yearly compliance reports shall be the audited through MoEF&CC recognized and National Accreditation Board for Laboratory Testing (NABL) accredited third party	being complied.
36	The industry shall comply with conditions stipulated in EC, CRZ, CFE orders & their amendments and Taskforce directions issued by the Board from time to time.	Being Complied
37	Any other directions / circulars / notices issued by CPCB, MoEF&CC and APPCB shall be followed from time to time.	Noted
38	The conditions stipulated are without prejudice to the rights and contentions of this Board in any Hon'ble Court of Law.	Noted
Special Conditions		
39	The industry shall possess a valid NOC issued by the Andhra Pradesh State Disaster Response and Fire Service Dept., (APSDRFS) at concerned Regional Office, APPCB.	Complied.
40	The industry shall prepare a safety report and carry out an independent safety audit report of the respective industrial activities including chemical storages / isolated storages by an expert not associated with such industrial activity as required under Rule 10 of MSIHC Rules, 1989 and get it approved by the Factories Dept., and submit the compliance along with copy of the safety report, safety audit report and safety certificate at concerned Regional Office, APPCB	being complied.
41	The industry shall extend training to the working personnel for the prevention of accidents and necessary antidotes to ensure safety, as per the MSIHC Rules, 1989.	being complied
42	The industry shall carryout calibration of safety equipment and leak detection systems at regular intervals and shall certify the same with the Factories Department. That File No. APPCB/VSP/VSP/19/HO/CFO/2017 certified copy shall be submitted to the APPCB, Regional Office	Being complied.
43	The industry shall install fluorescent Wind Vane at the highest point in the industry premises	Complied. Fluorescent windsocks are provided at 6 strategic locations.
44	The industry shall submit Risk analysis and risk assessment covering worst scenario clearly describing impact within the industry premises and outside the industry premises and emergency response system.	Complied. HARA report is available for entire plant and also for hydrogen plant.
45	The industry shall submit the copy of the safety audit report and On-Site / Off Site Emergency Plans as applicable after being certified by the Factories Department to the APPCB, Regional Office from time to time, if the storage quantity of hazardous chemicals is	Complied. Onsite emergency plan is available.

Compliance Status Report to Environmental Clearance of M/s Hinduja National Power Corporation Limited vide Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996 and F. No: 11-58/2011-IA-III dated 3rd January, 2014, 17/19th March, 2015 and CFO No: APPCB/VSP/19/HO/CTO/2016 dated 21st March, 2023

Compliance Status Report

Sr. No.	Condition (Consent Order No:APPCB/VSP/19/HO/CTO/2016, dated 21st March 2023) for Unit – I & Unit – II	Compliance Status
	equal to or, in excess of the threshold quantities specified in schedule 2 & 3 of MSIHC Rules, 1989	
SCHEDULE – C [see rule 6(2)]		
[CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]		
1	The authorized person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.	Noted and being complied with
2	The authorisation shall be produced for inspection at the request of an officer authorised by the State Pollution Control Board.	Noted
3	The person authorised shall not rent, lend, sell, transfer or otherwise transport the hazardous and other wastes except what is permitted through this authorization.	Being followed.
4	Any unauthorized change in personnel, equipment or working conditions as mentioned in the application by the person authorized shall constitute a breach of his authorization.	Noted
5	The person authorised shall implement Emergency Response Procedure (ERP) for which this authorisation is being granted considering all site-specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time;	Being complied with
6	The person authorized shall comply with the provisions outlined in the Central Pollution Control Board guidelines on "Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty".	Being complied with
7	It is the duty of the authorised person to take prior permission of the State Pollution Control Board to close down the facility.	Noted.
8	An application for the renewal of an authorization shall be made as laid down under these Rules.	Being complied
9	Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.	Noted
Specific Conditions:		
10	The industry shall comply with the provisions of HWM Rules, 2016 in terms of interstate transport of Hazardous Waste and manifest document prescribed Under Rule 18 and 19 of the HWM Rules, 2016.	Being complied
11	The industry shall not store hazardous waste for more than 90 days as per the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.	Being complied
12	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.	Being complied
13	The industry shall maintain 7 copy manifest system for transportation of waste generated and a copy shall be submitted to concern Regional Office of APPCB. The driver who transports Hazardous Waste should be well	Being complied

Compliance Status Report to Environmental Clearance of M/s Hinduja National Power Corporation Limited vide Letter No: J-13011/11/90-IA-II(T) dated 3rd September, 1996 and F. No: 11-58/2011-IA-III dated 3rd January, 2014, 17/19th March, 2015 and CFO No: APPCB/VSP/19/HO/CTO/2016 dated 21st March, 2023	Compliance Status Report
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Sr. No.	Condition (Consent Order No:APPCB/VSP/19/HO/CTO/2016, dated 21st March 2023) for Unit – I & Unit – II	Compliance Status
	acquainted about the procedure to be followed in case of an emergency during transit. The transporter should carry a Transport Emergency (TREM) Card.	
14	The industry shall maintain proper records for Hazardous and Other Wastes stated in Authorisation 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 20 (2) of the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.	Being complied
15	The industry shall route all the hazardous waste through M/s. APEMC	Being complied

Chapter-3
Description of the Environment

3.0 BASELINE ENVIRONMENTAL STATUS

3.1 Meteorology

Micro - Meteorological data within the project area during the air quality survey period is an indispensable part of the air pollution study. A meteorological station was installed on the top of Plant Security office, which is about 10 m height from the ground level in plant site free from obstructions to free flow of winds.

Wind speed and Wind direction data recorded during the study period are useful for the calculation of relative percentage frequencies of different wind directions and are plotted as wind roses of sixteen directions Viz. N, NNE, NE, ENE, E, ESE, SE, SSE, S, SSW, SW, WSW, W, WNW, NW and NNW for twenty-four hours' duration respectively.

Maximum and Minimum temperatures including the percentage relative humidity were also recorded simultaneously.

3.1.1 Wind Pattern during April – September 2025

The area is marked by high wind speeds in the range of calm to 19 KMPH winds. During the 00-24 hrs, the predominant wind directions were from SW (36.4%), SSW (18.4%), WSW (13.0%), W (9.3) %, S (6.9) %, SSE (3.2%) & SE (1.7%) of the total time. The calm conditions prevailed for 4.1% of the total time. The winds prevailed for 7.0 % of the total time in other directions. The average wind rose for the study period is shown in **Figure-3.1**.

- Temperature and Relative Humidity Levels during April – September 2025***

Maximum and minimum temperatures recorded during the study period were 38.0 °C and 21.9°C respectively. Maximum and minimum relative humidity recorded during the study period was 99 and 40 % respectively. Rainfall was observed during the study period is about 660.6 mm which is given in **Table-3.1**.

**TABLE-3.1
METEOROLOGICAL DATA GENERATED AT PROJECT SITE**

Sr. No	Parameters	April – September 2025	
		Min	Max
1	Temperature (°C)	21.9	38.0
2	Relative humidity (%)	40	99
63	Atmospheric Pressure (mb)	994.2	1013.8
4	Rainfall (mm)		660.6

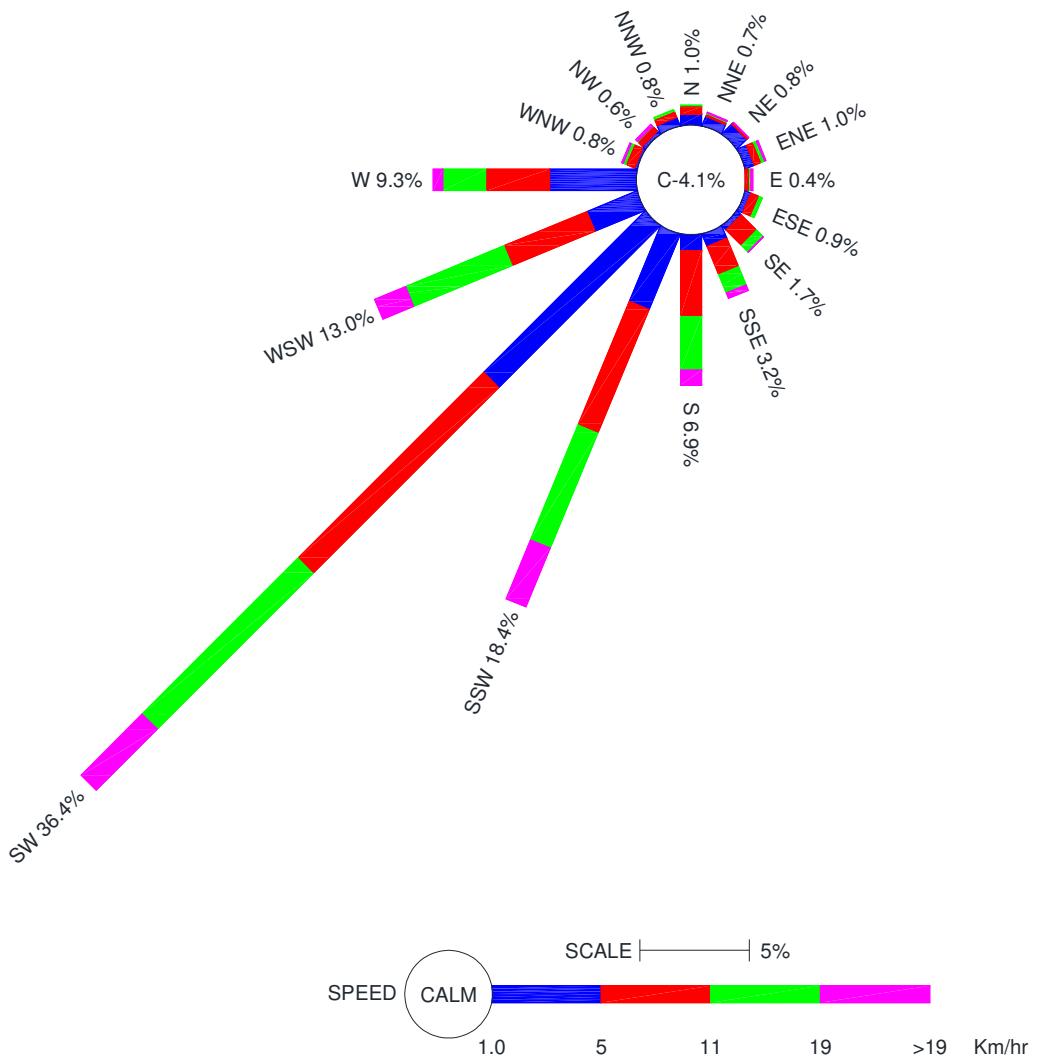


FIGURE-3.1
WINDROSE FOR APRIL - SEPTEMBER 2025

3.2 Ambient Air Quality

Dispersion of different air pollutants released into the atmosphere has significant impacts on neighborhood air environment of an industrial project. The existing ambient air quality status with respect to the study zone of 10 km radial distance from the plant site has been assessed through a monitoring network of 8 AAQ stations during the **April – September 2025**.

The design of monitoring network in the air quality surveillance program has been based on the GLC's obtained using long term screening model considering the following:

- (i) Meteorological conditions on synoptic scale;
- (ii) Topography of the study area;
- (iii) Representation of regional background levels;
- (iv) Representation of plant site; and
- (v) Representation of cross sectional distribution in the downward direction.

The existing status of Air environment was monitored for PM2.5, PM10, and gaseous pollutants like Sulphur dioxide (SO₂), Nitrogen dioxide (NO₂) and Carbon monoxide (CO), Ammonia (NH₃), Ozone (O₃), Benzene (C₆H₆) and metals like Benzo(a)pyrene, Lead (Pb), Arsenic (As) and Nickel (Ni).

Ambient Air Quality Monitoring (AAQM) stations were set up at 8 locations with due consideration to the above mentioned points. **Table-3.2** gives the details of environmental setting around each monitoring station. The location of the selected stations with reference to the plant site is given in the same table and depicted in **Figure-3.2**.

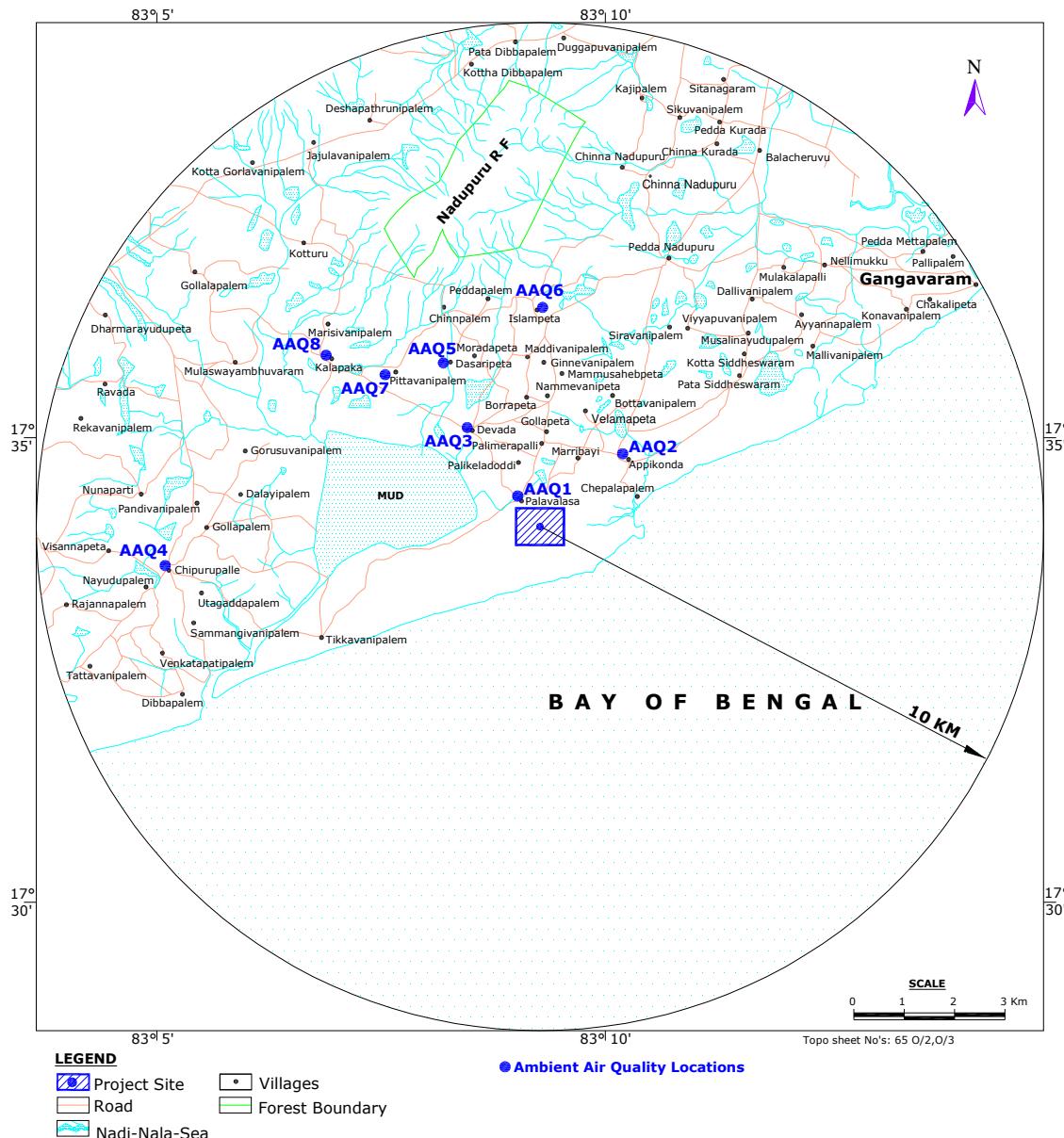
3.2.1 Frequency and Parameters for Sampling

The following frequency has been adopted for sampling:

Ambient air quality monitoring has been carried out with a frequency of 2 days per week at 8 locations. (April – September 2025).

The Post monitoring of air environment is generated for the following parameters:

- Fine Respirable Particulate Matter (PM2.5);
- Respirable Particulate Matter (PM10);
- Sulphur dioxide (SO₂);
- Nitrogen dioxide (NO₂);
- Carbon Monoxide (CO);
- Ammonia (NH₃);
- Ozone (O₃);
- Benzene (C₆H₆);
- Benzo(a)pyrene;
- Lead (Pb);
- Arsenic (As) and
- Nickel (Ni).



**FIGURE-3.2
AIR QUALITY SAMPLING LOCATIONS**

TABLE-3.2
DETAILS OF AMBIENT AIR QUALITY MONITORING LOCATIONS

Station Code	Name of the Station	Distance w.r.t. site (km)	Direction w.r.t. site	Environmental Setting
AAQ1	Palavalasa	0.5	N	Rural/Residential activities
AAQ2	Appikonda	2.2	NE	Rural/Residential activities
AAQ3	Devada	2.3	NW	Rural/Residential activities
AAQ4	Cheepurupalli	7.4	W	Rural/Residential activities
AAQ5	Dasaripeta	3.7	NNW	Rural/Residential activities
AAQ6	Islampeta	4.3	N	Rural/Residential activities.
AAQ7	Pittavanipalem	4.2	NW	Rural/Residential activities
AAQ8	Kalapaka	5.3	NW	Rural/Residential activities

3.2.2 Duration of Sampling

The sampling duration for Particulate Matter PM2.5, PM10, SO₂, NO₂, Ammonia, Benzo(a)Pyrene, Benzene, Arsenic, Nockel and Lead is twenty four hourly continuous sample per day and CO and Ozone is sampled for 8 hours continues thrice a day. This is to allow a comparison with the present revised standards mentioned in the latest Gazette notification of the Central Pollution Control Board (CPCB).

3.2.3 Method of Analysis

The air samples were analyzed as per standard methods specified by Central Pollution Control Board (CPCB) (16th November, 2009); IS: 5182 and American Public Health Association (APHA).

3.2.4 Details of the Sampling Locations

AAQ1: PALAVALASA

The monitoring station was installed on top of a residential building at a height of 4.5 m from ground level at a distance of 0.5 km in the N direction from the proposed plant site. This station was selected to assess the air quality levels in the crosswind direction. This location is situated within rural/residential activities.

AAQ2: APPIKONDA

The monitoring station was installed on top of a residential building at a height of 5.0 m from ground level at a distance of 2.2 km in the NE direction from the plant site. This station was selected to assess the air quality levels in the Down wind direction. This location is situated within rural/residential activities.

AAQ3: DEVADA

The monitoring station was installed on top of a residential building at a height of 4 m from ground level at a distance of 2.3 km in the North West direction from the

plant site. This station was selected to assess the air quality levels in the crosswind direction. This location is situated within rural/residential activities.

AAQ4:CHEEPURUPALLE

The location has been finalized to assess the air quality levels in the Up wind direction to the proposed plant site. The monitoring station is located at a distance of about 7.4 km west of the proposed plant site. The sampler is installed on a residential building at a height of about 4.5 m from ground level. Rural residential activities surround the station.

AAQ5:DASARI PETA

The sampling station has been finalized to assess the air quality levels in the crosswind direction to the proposed plant site. The monitoring station is located NNW of the plant site at about 3.7 km. The sampler was installed on top of residential building at a height of about 5.0 m from ground level free from any obstructions. This location is situated in rural/residential activities with village activities.

AAQ6:ISLAMPETA

The monitoring station was installed on top of a residential building at a height of 4.5 m from ground level at a distance of 4.3 km in the N direction from the plant site. This station was selected to assess the air quality levels in the crosswind direction. This location is situated within rural/residential activities.

AAQ7:PITTAVANIPALEM

The location has been finalized to assess the air quality levels in the downwind direction to the proposed plant site. The monitoring station is located at a distance of about 4.2 km North West of the proposed plant site. The sampler is installed on a residential building at a height of about 6.0 m from ground level. Rural residential activities surround the station.

AAQ8:KALAPAKA

At this monitoring station the sampler was installed on top of a residential building at a height of 5.0 m from ground level at a distance of 5.3 km in the NW direction from the proposed plant site. This station was selected to assess the air quality levels in the cross wind direction. This location is situated within rural/residential activities.

3.2.5 Selection of Instruments for Air Quality Sampling

Respirable Dust Samplers of Envirotech instruments are being used for monitoring Respirable Particulate Matter (PM10), Respirable fraction (<10 microns), Fine Respirable Particulate Matter (PM2.5), Respirable fraction (<2.5 microns), and gaseous pollutants like SO₂ and NO₂. Gas Chromatography techniques have been used for the estimation of CO.

3.2.6 Sampling and Analytical Techniques

1] Fine Respirable Particulate matter (PM2.5) and Respirable Particulate matter (PM10)

Fine Respirable Particulate Matter – FRPM (PM2.5) and particles below 10 μ (PM10), which are more likely Respirable (Respirable Particulate matter – RPM). RPM Present in ambient air is measured by Gravimetric method by using Respirable Dust Sampler with a cyclone attachment over a period of 24 hours by sucking known quantity of air through Glass micro fibre filter paper and PM2.5 by Teflon filter paper. Respirable Dust ($<10\mu$) is computed by measuring weight of collected matter in known volume of air sampled (BIS:5182 part IV, 1973; ASTM D-4096 -91).

2] Sulphur Dioxide

The most commonly used method for measuring atmospheric SO₂ is based on colorimetry and is known as modified West - Gaeke method. In this method SO₂ from a measured quantity of air is absorbed in a solution of sodium tetrachloromercurate to form a stable and non-volatile dichlorosulphitomercurate complex. This is then reacted with formaldehyde and bleached pararosaniline, yielding magenta - coloured pararosaniline methyl sulfonic acid. The colour intensity of this acid is detected photometrically at 560 nm (A.P.H.A and BIS: 5182 Part-II, 1969).

3] Nitrogen Dioxide

Concentration of nitrogen dioxide is estimated in ambient air by using Jacob and Hochheiser method. Nitrogen dioxide are collected by bubbling air through a sodium hydroxide solution to form a stable solution of sodium nitrite. The nitrite ion produced during sampling is determined colorimetrically by reacting the exposed absorbing reagent with phosphoric acid, sulfanilamide, and NEDA (1-naphthyl ethylenediamine dihydrochloride) at 540 nm (BIS: 5182 Part-VI, 1975).

4] Carbon Monoxide

A sample of the air containing carbon monoxide is adsorbed on Charcoal plugged into a glass tube. The adsorbed charcoal is eluted using the solvent, which in turn is projected into the gas chromatograph where it is carried from one end of the column to the other. During its movement, the constituents of the sample undergo distribution at different rates and ultimately get separated from one another. The separated constituents emerge from the end of the column one after the other and are detected by suitable means whose response is related to the amount of a specific component leaving the column [CO- IS: 5182 (Part-X)].

The details of the methods used for monitoring studies are presented in **Table-3.3.**

TABLE-3.3
TECHNIQUES USED FOR AMBIENT AIR QUALITY MONITORING

Sr. No.	Parameter	Method of Mesuarement
1	Fine Respirable Particulate Matter	Respirable Dust Sampler (Gravimetric method)
2	Respirable Particulate Matter	Respirable Dust Sampler (Gravimetric method)
3	Sulphur Dioxide	Improved West and Gaeke method
4	Nitrogen Oxide	Modified Jacob & Hochheiser method
5	Carbon Monoxide	NDIR (Non Dispersive Infrared Spectroscopy)
6	Ammonia (NH ₃)	Indophenol Blue method
7	Ozone (O ₃)	Spectrophotometric method
8	Benzene (C ₆ H ₆)	Gas Chromatography
9	Benzo(a)pyrene	Solvent extraction followed by GC MS
10	Lead (Pb)	AAS / ICP-MS method
11	Arsenic (As)	AAS / ICP-MS method
12	Nickel (Ni)	AAS / ICP-MS method

3.2.7 Presentation of Primary Data

a) Observations of Primary Data (April – September 2025)

Various statistical parameters like 98th percentile, average, maximum and minimum values have been computed from the observed raw data for all the AAQ monitoring stations.

The concentration of NH₃, Pb, As, Ni, B(a)P and C₆H₆ values are well within the detectable limits.

AAQ1) Palavalasa village

The maximum concentration for PM_{2.5} is recorded as 53.7 µg/m³ with minimum concentration as 43.1 µg/m³. The 98th percentile values are observed as 53.7 µg/m³ respectively.

The maximum concentration for PM₁₀ is recorded as 82.4 µg/m³ with minimum concentration as 66.8 µg/m³. The 98th percentile values are observed as 80.3 µg/m³ respectively.

The maximum SO₂ concentration is recorded as 16.8 µg/m³ with minimum concentration as 10.3 µg/m³. The 98th percentile values are observed as 16.6 µg/m³ respectively.

The maximum NO₂ concentration is recorded as 15.7 µg/m³ with minimum concentration as 12.5 µg/m³. The 98th percentile values are observed as 15.5 µg/m³ respectively.

The maximum CO concentration is recorded as 296 µg/m³ with minimum concentration as 186 µg/m³. The 98th percentile values are observed as 285 µg/m³ respectively.

The maximum O₃ concentration is recorded as 13.7 $\mu\text{g}/\text{m}^3$ with minimum concentration as 5.2 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 12.5 $\mu\text{g}/\text{m}^3$ respectively.

The concentration of NH₃, Pb, As, Ni, B(a)P and C₆H₆ values are well within the detectable limits.

AAQ2) Appikonda village

The maximum concentration for PM_{2.5} is recorded as 51.5 $\mu\text{g}/\text{m}^3$ with minimum concentration at 36.5 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 50.8 $\mu\text{g}/\text{m}^3$ respectively.

The maximum concentration for PM₁₀ is recorded as 76.4 $\mu\text{g}/\text{m}^3$ with minimum concentration as 62.1 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 75.6 $\mu\text{g}/\text{m}^3$ respectively.

The maximum SO₂ concentration is recorded as 16.2 $\mu\text{g}/\text{m}^3$ with minimum concentration as 9.6 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 16.0 $\mu\text{g}/\text{m}^3$ respectively.

The maximum NO₂ concentration is recorded as 15.3 $\mu\text{g}/\text{m}^3$ with minimum concentration as 10.7 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 15.3 $\mu\text{g}/\text{m}^3$ respectively.

The maximum CO concentration is recorded as 217 $\mu\text{g}/\text{m}^3$ with minimum concentration as 116 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 211 $\mu\text{g}/\text{m}^3$ respectively.

The maximum O₃ concentration is recorded as 10.4 $\mu\text{g}/\text{m}^3$ with minimum concentration as 5.1 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 10.2 $\mu\text{g}/\text{m}^3$ respectively.

The concentration of NH₃, Pb, As, Ni, B(a)P and C₆H₆ values are well within the detectable limits.

AAQ3) Devada villag

The maximum concentration for PM_{2.5} is recorded as 53.1 $\mu\text{g}/\text{m}^3$ with minimum concentration as 35.6 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 52.6 $\mu\text{g}/\text{m}^3$ respectively.

The maximum concentration for PM₁₀ is recorded as 80.2 $\mu\text{g}/\text{m}^3$ with minimum concentration as 56.6 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 65.1 $\mu\text{g}/\text{m}^3$ respectively.

The maximum SO₂ concentration is recorded as 15.1 $\mu\text{g}/\text{m}^3$ with minimum concentration as 10.1 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 15.0 $\mu\text{g}/\text{m}^3$ respectively.

The maximum NO₂ concentration is recorded as 16.7 $\mu\text{g}/\text{m}^3$ with minimum concentration as 12.4 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 16.4 $\mu\text{g}/\text{m}^3$ respectively.

The maximum CO concentration is recorded as 243 $\mu\text{g}/\text{m}^3$ with minimum concentration as 144 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 240 $\mu\text{g}/\text{m}^3$ respectively.

The maximum O₃ concentration is recorded as 10.5 $\mu\text{g}/\text{m}^3$ with minimum concentration as 4.8 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 10.4 $\mu\text{g}/\text{m}^3$ respectively.

The concentration of NH₃, Pb, As, Ni, B(a)P and C₆H₆ values are well within the detectable limits.

AAQ4) Cheepurupalle village

The maximum concentration for PM_{2.5} is recorded as 50.5 $\mu\text{g}/\text{m}^3$ with minimum concentration as 35.2 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 50.2 $\mu\text{g}/\text{m}^3$ respectively.

The maximum concentration for PM₁₀ is recorded as 76.3 $\mu\text{g}/\text{m}^3$ with minimum concentration as 57.38 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 75.4 $\mu\text{g}/\text{m}^3$ respectively.

The maximum SO₂ concentration is recorded as 14.3 $\mu\text{g}/\text{m}^3$ with minimum concentration as 9.4 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 14.2 $\mu\text{g}/\text{m}^3$ respectively.

The maximum NO₂ concentration is recorded as 15.7 $\mu\text{g}/\text{m}^3$ with minimum concentration as 11.6 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 15.2 $\mu\text{g}/\text{m}^3$ respectively.

The maximum CO concentration is recorded as 257 $\mu\text{g}/\text{m}^3$ with minimum concentration as 157 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 255 $\mu\text{g}/\text{m}^3$ respectively.

The maximum O₃ concentration is recorded as 9.8 $\mu\text{g}/\text{m}^3$ with minimum concentration as 5.1 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 9.5 $\mu\text{g}/\text{m}^3$ respectively.

The concentration of NH₃, Pb, As, Ni, B(a)P and C₆H₆ values are well within the detectable limits.

AAQ5) Dasaripeta village

The maximum concentration for PM_{2.5} is recorded as 53.1 $\mu\text{g}/\text{m}^3$ with minimum concentration as 36.5 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 52.7 $\mu\text{g}/\text{m}^3$ respectively.

The maximum concentration for PM10 is recorded as 77.4 $\mu\text{g}/\text{m}^3$ with minimum concentration as 61.4 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 76.3 $\mu\text{g}/\text{m}^3$ respectively.

The maximum SO₂ concentration is recorded as 14.9 $\mu\text{g}/\text{m}^3$ with minimum concentration as 10.0 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 14.2 $\mu\text{g}/\text{m}^3$ respectively.

The maximum NO₂ concentration is recorded as 15.6 $\mu\text{g}/\text{m}^3$ with minimum concentration as 12.0 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 15.5 $\mu\text{g}/\text{m}^3$ respectively.

The maximum CO concentration is recorded as 226 $\mu\text{g}/\text{m}^3$ with minimum concentration as 133 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 215 $\mu\text{g}/\text{m}^3$ respectively.

The maximum O₃ concentration is recorded as 9.5 $\mu\text{g}/\text{m}^3$ with minimum concentration as 4.8 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 9.3 $\mu\text{g}/\text{m}^3$ respectively.

The concentration of NH₃, Pb, As, Ni, B(a)P and C₆H₆ values are well within the detectable limits.

AAQ6) Islampeta village

The maximum concentration for PM2.5 is recorded as 45.6 $\mu\text{g}/\text{m}^3$ with minimum concentration as 32.7 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 43.2 $\mu\text{g}/\text{m}^3$ respectively.

The maximum concentration for PM10 is recorded as 69.2 $\mu\text{g}/\text{m}^3$ with minimum concentration as 56.9 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 69.0 $\mu\text{g}/\text{m}^3$ respectively.

The maximum SO₂ concentration is recorded as 13.8 $\mu\text{g}/\text{m}^3$ with minimum concentration as 8.5 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 13.8 $\mu\text{g}/\text{m}^3$ respectively.

The maximum NO₂ concentration is recorded as 15.7 $\mu\text{g}/\text{m}^3$ with minimum concentration as 11.3 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 15.2 $\mu\text{g}/\text{m}^3$ respectively.

The maximum CO concentration is recorded as 183 $\mu\text{g}/\text{m}^3$ with minimum concentration as 117 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 178 $\mu\text{g}/\text{m}^3$ respectively.

The maximum O₃ concentration is recorded as 9.7 $\mu\text{g}/\text{m}^3$ with minimum concentration as 4.5 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 9.4 $\mu\text{g}/\text{m}^3$ respectively.

The concentration of NH₃, Pb, As, Ni, B(a)P and C₆H₆ values are well within the detectable limits.

AAQ7) Pittavanipalem village

The maximum concentration for PM_{2.5} is recorded as 52.8 $\mu\text{g}/\text{m}^3$ with minimum concentration as 37.7 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 51.7 $\mu\text{g}/\text{m}^3$ respectively.

The maximum concentration for PM₁₀ is recorded as 81.8 $\mu\text{g}/\text{m}^3$ with minimum concentration as 65.0 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 80.2 $\mu\text{g}/\text{m}^3$ respectively.

The maximum SO₂ concentration is recorded as 16.0 $\mu\text{g}/\text{m}^3$ with minimum concentration as 10.9 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 15.5 $\mu\text{g}/\text{m}^3$ respectively.

The maximum NO₂ concentration is recorded as 15.5 $\mu\text{g}/\text{m}^3$ with minimum concentration as 12.0 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 15.3 $\mu\text{g}/\text{m}^3$ respectively.

The maximum CO concentration is recorded as 246 $\mu\text{g}/\text{m}^3$ with minimum concentration as 140 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 233 $\mu\text{g}/\text{m}^3$ respectively.

The maximum O₃ concentration is recorded as 10.2 $\mu\text{g}/\text{m}^3$ with minimum concentration as 4.3 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 9.8 $\mu\text{g}/\text{m}^3$ respectively.

The concentration of NH₃, Pb, As, Ni, B(a)P and C₆H₆ values are well within the detectable limits.

AAQ8) Kalapaka village

The maximum concentration for PM_{2.5} is recorded as 47.6 $\mu\text{g}/\text{m}^3$ with minimum concentration as 33.1 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 47.5 $\mu\text{g}/\text{m}^3$ respectively.

The maximum concentration for PM₁₀ is recorded as 75.3 $\mu\text{g}/\text{m}^3$ with minimum concentration as 58.7 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 74.3 $\mu\text{g}/\text{m}^3$ respectively.

The maximum SO₂ concentration is recorded as 16.3 $\mu\text{g}/\text{m}^3$ with minimum concentration as 9.2 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 15.7 $\mu\text{g}/\text{m}^3$ respectively.

The maximum NO₂ concentration is recorded as 15.4 $\mu\text{g}/\text{m}^3$ with minimum concentration as 11.3 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 13.5 $\mu\text{g}/\text{m}^3$ respectively.

The maximum CO concentration is recorded as 205 $\mu\text{g}/\text{m}^3$ with minimum concentration as 109 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 197 $\mu\text{g}/\text{m}^3$ respectively.

The maximum O₃ concentration is recorded as 9.9 $\mu\text{g}/\text{m}^3$ with minimum concentration as 4.2 $\mu\text{g}/\text{m}^3$. The 98th percentile values are observed as 9.3 $\mu\text{g}/\text{m}^3$ respectively.

The concentration of NH₃, Pb, As, Ni, B(a)P and C₆H₆ values are well within the detectable limits.

3.2.8 Regional Scenario

The ambient air quality survey was carried out for at eight locations in the 10 Km radial distance. The monitoring was carried out for **April – September 2025**. Fine Respirable Particulate Matter (PM2.5), Respirable Particulate Matter (PM10), Sulphur dioxide (SO₂), Nitrogen dioxide (NO₂) and Carbon monoxide (CO), Ammonia (NH₃), Ozone (O₃), Benzene (C₆H₆) and metals like Benzo(a)pyrene, Lead (Pb), Arsenic (As) and Nickel (Ni). The results of monitoring carried out during study period are presented in **Annexure-II for April – September 2025**.

Various statistical parameters like Maximum, Minimum, Average and 98th percentile have been computed from the observed raw data for all sampling stations. The ambient air quality Summary of concentrations of different parameters (PM2.5, PM10, SO₂, NO₂, CO, NH₃, O₃, C₆H₆, B(a)P, As, Ni and Pb is presented in **Tables 3.4 and 3.5**

The AAQ levels observed at all the sampling locations were within the limits specified by CPCB for Industrial/Mixed use and Residential/Rural use.

TABLE - 3.4
SUMMARY OF AMBIENT AIR QUALITY DATA (APRIL - SEPTEMBER 2025)

Location Code	Location	PM2.5				PM10				SO ₂			
		Min	Max	Avg	98% Tile	Min	Max	Avg	98% tile	Min	Max	Avg	98% tile
AAQ1	Palavalasa village	43.1	53.7	49.9	53.7	66.8	82.4	74.8	80.3	10.3	16.8	14.2	16.6
AAQ2	Appikonda village	36.5	51.5	44.6	50.8	62.1	76.4	69.5	75.6	9.6	16.2	13.1	16.0
AAQ3	Devada village	35.6	53.1	41.9	52.6	56.6	80.2	65.1	78.5	10.1	15.1	12.3	15.0
AAQ4	Cheepurupalle village	35.2	50.5	43.5	50.2	57.3	76.3	68.3	75.4	9.4	14.3	12.3	14.2
AAQ5	Dasaripeta village	36.5	53.1	42.7	52.7	61.4	77.4	69.8	76.3	10.0	14.9	12.0	14.2
AAQ6	Islampeta village	32.7	45.6	38.3	43.2	56.9	69.2	61.9	69.0	8.5	13.8	11.8	13.8
AAQ7	Pittavanipalem village	37.7	52.8	45.9	51.7	65	81.8	74.4	80.2	10.9	16.0	12.7	15.5
AAQ8	Kalapaka village	33.1	47.6	41.6	47.5	58.7	75.3	66.3	74.3	9.2	16.3	12.6	15.7
Range		32.7 – 53.7				56.6 – 82.4				8.5 – 16.8			

Location Code	Location	NO ₂				CO				O ₃			
		Min	Max	Avg	98% Tile	Min	Max	Avg	98% tile	Min	Max	Avg	98% Tile
AAQ1	Palavalasa village	12.5	15.7	14.2	15.5	186	296	235	285	5.2	13.7	8.7	12.5
AAQ2	Appikonda village	10.7	15.3	13.3	15.3	116	217	170	211	5.1	10.4	7.7	10.2
AAQ3	Devada village	12.4	16.7	14.4	16.4	144	243	186	240	4.8	10.5	7.4	10.4
AAQ4	Cheepurupalle village	11.6	15.7	13.6	15.2	157	257	205	255	5.1	9.8	7.2	9.5
AAQ5	Dasaripeta village	12.0	15.6	14.0	15.5	133	226	167	215	4.8	9.5	7.4	9.3
AAQ6	Islampeta village	11.3	15.7	13.5	15.2	117	183	151	178	4.5	9.7	7.4	9.4
AAQ7	Pittavanipalem village	12.0	15.5	13.9	15.3	140	246	178	233	4.3	10.2	7.6	9.8
AAQ8	Kalapaka village	11.3	15.4	13.5	15.4	109	205	158	197	4.2	9.9	7.1	9.3
Range		10.7 – 16.7				109 – 296				4.2 13.7			

*Note: (Concentrations are expressed in $\mu\text{g}/\text{m}^3$)

TABLE - 3.5
SUMMARY OF AMBIENT AIR QUALITY DATA (APRIL - SEPTEMBER 2025)

Location Code	Location	NH ₃				Pb				As			
		Min	Max	Avg	98% tile	Min	Max	Avg	98% tile	Min	Max	Avg	98% tile
AAQ1	Palavalasa village	<20	<20	<20	<20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
AAQ2	Appikonda village	<20	<20	<20	<20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
AAQ3	Devada village	<20	<20	<20	<20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
AAQ4	Cheepurupalle village	<20	<20	<20	<20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
AAQ5	Dasaripeta village	<20	<20	<20	<20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
AAQ6	Islampeta village	<20	<20	<20	<20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
AAQ7	Pittavanipalem village	<20	<20	<20	<20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
AAQ8	Kalapaka village	<20	<20	<20	<20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	Range	<20				<1.0				<1.0			

Location Code	Location	Ni				B(a)P				C6H6			
		Min	Max	Avg	98% tile	Min	Max	Avg	98% Tile	Min	Max	Avg	98% tile
AAQ1	Palavalasa village	<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0
AAQ2	Appikonda village	<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0
AAQ3	Devada village	<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0
AAQ4	Cheepurupalle village	<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0
AAQ5	Dasaripeta village	<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0
AAQ6	Islampeta village	<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0
AAQ7	Pittavanipalem village	<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0
AAQ8	Kalapaka village	<1.0	<1.0	<1.0	<1.0	<0.1	<0.1	<0.1	<0.1	<1.0	<1.0	<1.0	<1.0
	Range	<1.0				<0.1				<1.0			

*Note: (Concentrations are expressed in $\mu\text{g}/\text{m}^3$ except As, Ni and B(a)p are ng/m^3)

3.3 Fugitive Dust Emission Monitoring

Fugitive dust emission monitoring has been carried out eight hours monitoring during the **April – September 2025**. The monitoring has been carried out in five locations. The analysis results of fugitive dust monitoring are represented in **Table-3.6**.

**TABLE-3.6
FUGITIVE DUST MONITORING RESULTS**

All values are in ($\mu\text{g}/\text{m}^3$)

Sr.No	Location Name	April 2025	May 2025	June 2025	July 2025	August 2025	September 2025
	Sampling Date	24.04.25	16.05.25	23.06.25	16.07.25	22.08.25	9.09.25
1	Plant Main gate	115.6	102.5	93.7	88.4	102.4	85.3
2	Power Plant service building	131.7	127.4	114.3	121.8	142.5	156.3
3	Coal handling plant	165.4	173.2	158.2	144.3	160.1	176.1
4	Work shop building	124.8	135.6	119.7	127.0	144.2	131.5
5	Ash handling plant	180.9	192.4	177.6	162.8	182.3	198.2

3.4 Ambient Noise Quality

Eight locations were monitored for ambient noise levels within the 10-km radius of the Thermal power plant and three locations for Inside the Plant. The monitoring will be carried out every month and details of presented in **Table-3.7** and are shown in **Figure-3.3**.

**TABLE-3.7
AMBIENT NOISE MONITORING LOCATIONS**

Sampling Code	Name of the Location	Direction w.r.t to Plant
N1	Palavalasa village	N
N2	Appikonda village	NE
N3	Devada village	NW
N4	Cheepurapalli village	W
N5	Dasaripeta village	NNW
N6	Islampeta village	N
N7	Pittavanipalem village	NW
N8	Kalapaka village	NW
Inside the Plant Area		
N9	Near HNPCL Office	-
N10	Near Boiler Area	-
N11	Near Power Mech Stores	-

Sound Pressure Level (SPL) measurements were measured by noise meter at all the above locations. Noise level monitoring was carried continuously for 24-hours with one-hour interval. During each hour parameters like L_{10} , L_{50} , L_{90} , L_{eq} , L_{day} and L_{night} were directly computed by the instrument based on the sound pressure levels. The day noise levels have been monitored during 6 am to 10 pm and night levels during 10 pm to 6 am.

3.4.1 Noise Quality

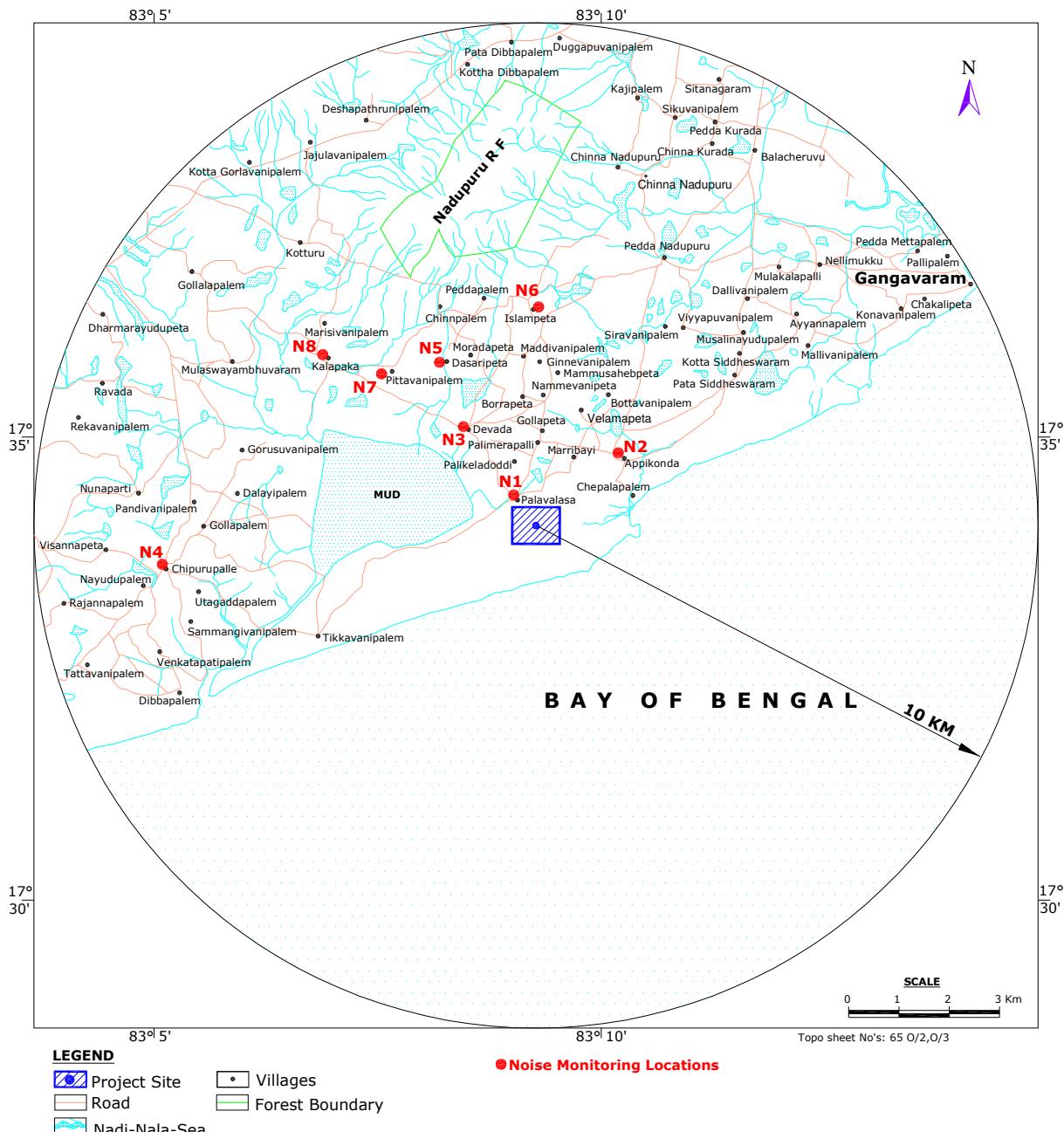
Noise levels were measured in 8 villages and 1 inside the plant area for 24 hours and 2 locations in plant site for source noise levels on monthly basis and the measured noise levels in day time and night time from April - September 2025 are given below in **Table-3.8 and 3.9**. The noise levels are well within the CPCB norms for Rural Residential zones.

**TABLE-3.8
AMBIENT NOISE LEVEL MONITORING RESULTS**

S.No	Sources	April 2025		May 2025		June 2025		July 2025		August 2025		September 2025	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
1	Palavalasa	52.1	42.6	50.7	41.5	52.6	42.6	50.8	40.7	51.5	42.1	52.0	43.0
2	Appikonda	51.5	41.8	51.4	40.7	50.4	41.8	53.2	42.5	49.3	41.5	51.3	42.4
3	Devada	49.8	40.7	50.3	42.2	49.8	40.7	50.8	41.4	52.2	43.1	48.7	40.8
4	Cheepurupalle	50.2	42.5	52.4	41.7	52.1	43.1	51.4	40.3	53.6	40.8	50.8	42.1
5	Dasaripeta	53.8	41.3	53.1	42.5	50.8	41.5	49.6	42.5	51.1	42.2	51.7	41.8
6	Islampeta	49.5	41.7	49.8	40.3	51.5	42.2	51.8	41.8	50.5	41.6	49.7	41.2
7	Pittavanipalem	50.4	42.1	51.4	42.0	52.6	40.9	52.3	42.3	52.2	43.2	53.1	43.6
8	Kalapaka	51.6	40.3	52.8	41.4	51.2	41.3	50.9	40.7	51.5	41.7	50.3	42.3
CPCB Limits		55	45	55	45	55	45	55	45	55	45	55	45

**TABLE-3.9
NOISE LEVEL MONITORING RESULTS INSIDE THE PLANT**

S.No	Sources	April 2025		May 2025		June 2025		July 2025		August 2025		September 2025	
		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
1	Near Plant main gate	65.7	54.2	63.2	51.6	61.5	53.6	63.3	52.7	66.2	53.2	63.8	55.2
	CPCB Limits	75	75	70	75	70	75	70	75	70	75	70	70
2	Near Boiler area	86.1		85.6		86.8		84.2		86.3		87.4	
3	Near Turbine area	85.3		84.8		85.2		85.7		84.5		86.6	
	CPCB Limits	90		90		90		90		90		90	



**FIGURE-3.3
NOISE MONITORING LOCATIONS**

3.5 WATER QUALITY

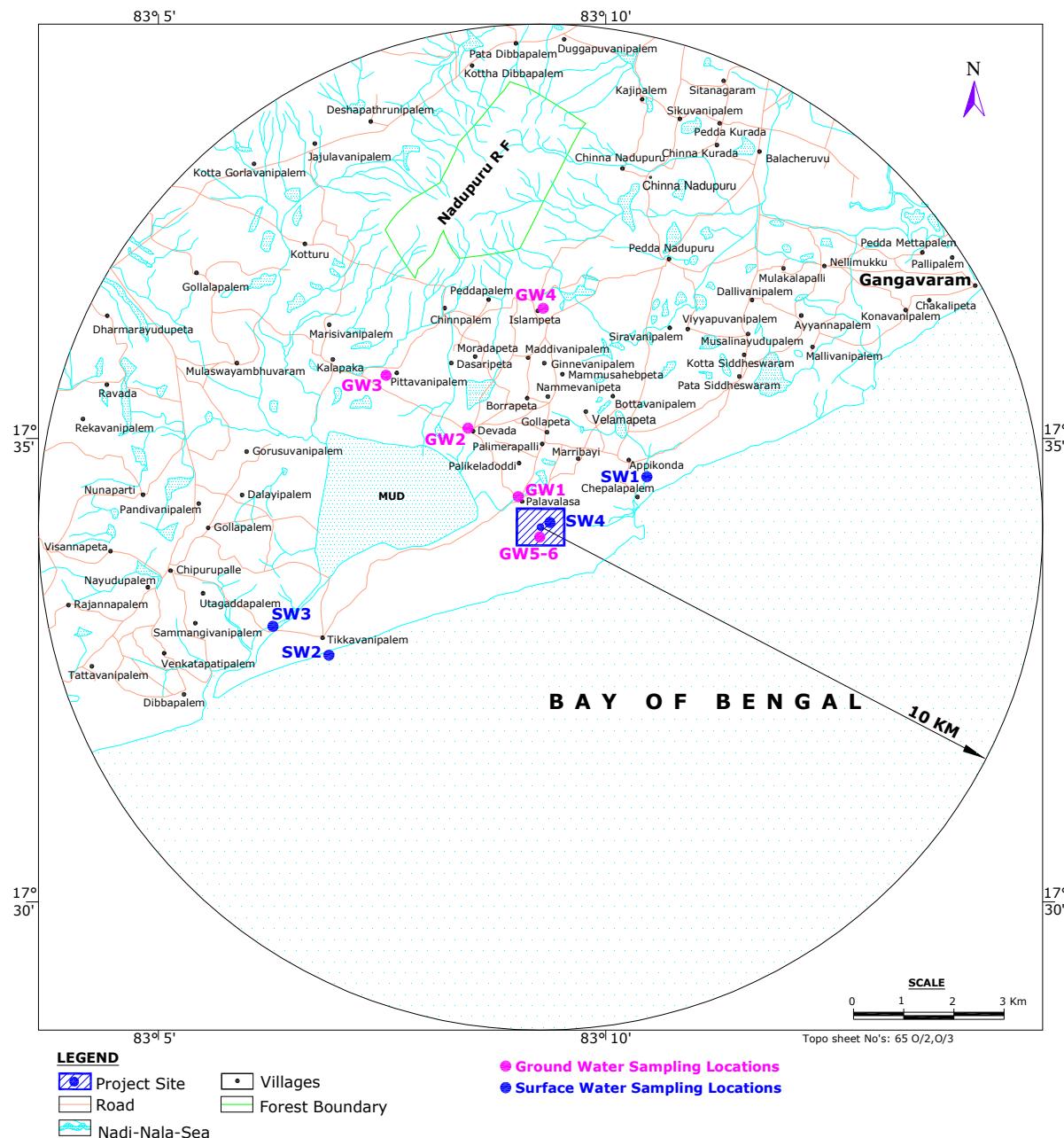
Water quality of ground water samples is collected to assess the quality of water with in the 10Km radius. Water samples were collected from six Ground water locations and four Surface water locations.

These samples were taken as grab samples and preservation and transportation of the samples are done as per the standard sampling procedures and analyzed in laboratory. The details of the sampling locations are given below in **TABLE-3.10** and shown in **Figure-3.4**

TABLE-3.10
WATER QUALITY SAMPLING LOCATIONS

Sampling Code	Name of the Location	Direction w.r.t to Plant
I	Ground Water Samples	
GW1	Devada village	NW
GW2	Islampeta village	N
GW3	Velama Appikonda village	NNE
GW4	Dasaripeta village	NNW
GW5	Palavalasa village	N
GW6	Rajiv Nagar	NE
GW7	Gouruvanipalem village	N
III	Creek Water Samples	
SW1	At Vade cheepurapalli	WSW
II	Surface water Samples (Marine Water)	
SW2	Appikonda beach	ENE
SW3	Tikavanipalem beach	SW
III	Waste Water Samples	
SW4	ETP Outlet	-
SW5	Outfall water at diffusion point	SE

The details of the Water Quality Analysis of **(April - September 2025)** are given below in **Table-3.11 to Table-3.19**.



**FIGURE-3.4
WATER SAMPLING LOCATIONS**

**TABLE-3.11
GROUND WATER QUALITY**

Sr. No.	Parameters	Unit	GW1 - Devada village						Limits as per IS:10500
			Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	
			15.04.25	17.05.25	16.06.25	14.7.25	18.8.25	12.9.25	
1	pH	-	7.34	7.51	7.66	7.42	7.52	7.73	6.5-8.5 (NR)
2	Colour	Hazen	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5(15)
3	Taste	-	Agree	Agree	Agree	Agree	Agree	Agree	Agreeable
4	Odour	-	Agree	Agree	Agree	Agree	Agree	Agree	Agreeable
5	Conductivity	µS/cm	1653	1788	1583	1373	1506	1433	\$
6	Turbidity	NTU	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1(5)
7	TDS	mg/l	1068	1142	1015	880	964	924	500(2000)
8	Total Hardness as CaCO ₃	mg/l	520	554	480	385	435	451	200(600)
9	Total Alkalinity	mg/l	345	364	320	285	315	305	200(600)
10	Calcium as Ca	mg/l	88.5	99.2	82.4	74.2	88.2	86.2	75(200)
11	Magnesium as Mg	mg/l	72.8	74.5	66.7	48.6	52.6	48.5	30(100)
12	Residual Chlorine	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2(1)
13	Boron	mg/l	0.06	0.04	0.06	0.03	0.04	0.02	0.5(1)
14	Chlorides as Cl	mg/l	230.6	282.2	218.6	189.4	209.9	180.1	250(1000)
15	Sulphates as SO ₄	mg/l	135.9	156.2	141.6	117.2	122.3	135.2	200(400)
16	Fluorides as F	mg/l	0.4	0.5	0.4	0.3	0.5	0.4	1.0(1.5)
17	Nitrates as NO ₃	mg/l	14.8	18.5	16.5	13.5	15.1	17.7	45(NR)
18	Sodium as Na	mg/l	135.4	149.7	137.4	132.1	137.7	132.1	\$
19	Potassium as K	mg/l	9.1	10.9	9.7	10.9	13.1	11.1	\$
20	Phenolic Compounds	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001(0.002)
21	Cyanides	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05 (NR)
22	Anionic Detergents	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2 (1.0)
23	Mineral Oil	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.5 (NR)
24	Cadmium as Cd	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.003 (NR)
25	Arsenic as As	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01 (0.05)
26	Copper as Cu	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05 (1.5)
27	Lead as Pb	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01 (NR)
28	Manganese as Mn	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.1 (0.3)
29	Iron as Fe	mg/l	0.13	0.10	0.12	0.10	0.13	0.11	0.3(NR)
30	Chromium as Cr ⁺⁶	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.05(NR)
31	Selenium as Se	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01(NR)
32	Zinc as Zn	mg/l	0.19	0.25	0.19	0.23	0.17	0.15	5(15)
33	Aluminum as Al	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.03(0.2)
34	Mercury as Hg	mg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.001(NR)
35	Pesticides	µg/l	Absent	Absent	Absent	Absent	Absent	Absent	Absent
36	E. Coli	-	Absent	Absent	Absent	Absent	Absent	Absent	Absent
37	Total Coliforms	MPN/100	Absent	Absent	Absent	Absent	Absent	Absent	10

Note: \$ - Limits not specified;

NR - No Relaxation

Limits are shown in IS 10500 are Acceptable limits (Requirement) and in parenthesis are Permissible limit in absence of alternate source

**TABLE-3.12
GROUND WATER QUALITY**

Sr. No.	Parameters	Unit	GW2 – Islampeta village						Limits as per IS:10500
			Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	
1	pH	-	15.04.25	17.05.25	16.06.25	14.7.25	18.8.25	12.9.25	
2	Colour	Hazen	7.56	7.66	7.45	7.58	7.63	7.58	6.5–8.5 (NR)
3	Taste	-	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5(15)
4	Odour	-	Agree	Agree	Agree	Agree	Agree	Agree	Agreeable
5	Conductivity	µS/cm	1177	1306	1176	1073	1266	1302	\$
6	Turbidity	NTU	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1(5)
7	TDS	mg/l	743	836	762	690	820	841	500(2000)
8	Total Hardness as CaCO ₃	mg/l	347	388	341	313	355	369	200(600)
9	Total Alkalinity	mg/l	195	230	212	205	275	285	200(600)
10	Calcium as Ca	mg/l	68.5	75.2	68.4	62.4	68.6	70.6	75(200)
11	Magnesium as Mg	mg/l	42.8	48.6	41.3	38.2	44.2	46.8	30(100)
12	Residual Chlorine	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2(1)
13	Boron	mg/l	0.04	0.03	0.02	0.05	0.02	0.01	0.5(1)
14	Chlorides as Cl	mg/l	168.2	179.5	156.2	136.4	148.6	152.4	250(1000)
15	Sulphates as SO ₄	mg/l	120.1	129.8	123.1	111.8	119.4	125.3	200(400)
16	Fluorides as F	mg/l	0.7	0.9	0.7	0.5	0.6	0.8	1.0(1.5)
17	Nitrates as NO ₃	mg/l	35.1	38.4	30.8	25.6	27.4	24.1	45(NR)
18	Sodium as Na	mg/l	105.1	116.5	108.4	98.3	122.8	123.5	\$
19	Potassium as K	mg/l	9.8	9.1	8.9	7.60	9.9	10.4	\$
20	Phenolic Compounds	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001(0.002)
21	Cyanides	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05 (NR)
22	Anionic Detergents	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2 (1.0)
23	Mineral Oil	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.5 (NR)
24	Cadmium as Cd	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.003 (NR)
25	Arsenic as As	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01 (0.05)
26	Copper as Cu	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05 (1.5)
27	Lead as Pb	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01 (NR)
28	Manganese as Mn	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.1 (0.3)
29	Iron as Fe	mg/l	0.15	0.12	0.10	0.12	0.09	0.07	0.3(NR)
30	Chromium as Cr ⁺⁶	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.05(NR)
31	Selenium as Se	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01(NR)
32	Zinc as Zn	mg/l	0.23	0.14	0.17	0.014	0.11	0.12	5(15)
33	Aluminum as Al	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.03(0.2)
34	Mercury as Hg	mg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.001(NR)
35	Pesticides	µg/l	Absent	Absent	Absent	Absent	Absent	Absent	Absent
36	E. Coli	-	Absent	Absent	Absent	Absent	Absent	Absent	Absent
37	Total Coliforms	MPN/100	Absent	Absent	Absent	Absent	Absent	Absent	10

Note: \$ - Limits not specified;

NR - No Relaxation

Limits are shown in IS 10500 are Acceptable limits (Requirement) and in parenthesis are Permissible limit in absence of alternate source

**TABLE-3.13
GROUND WATER QUALITY**

Sr. No	Parameters	Unit	GW3 – Velama Appikonda village						Limits as per IS:10500
			Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	
			15.04.25	17.05.25	16.06.25	14.7.25	18.8.25	12.9.25	
1	pH	-	7.49	7.53	7.65	7.72	7.56	7.46	6.5–8.5 (NR)
2	Colour	Hazen	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5(15)
3	Taste	-	Agree	Agree	Agree	Agree	Agree	Agree	Agreeable
4	Odour	-	Agree	Agree	Agree	Agree	Agree	Agree	Agreeable
5	Conductivity	µS/cm	1682	1428	1204	1414	1508	1376	\$
6	Turbidity	NTU	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1(5)
7	TDS	mg/l	1075	915	760	912	978	878	500(2000)
8	Total Hardness as CaCO ₃	mg/l	463	427	362	437	473	216	200(600)
9	Total Alkalinity	mg/l	380	305	235	275	300	286	200(600)
10	Calcium as Ca	mg/l	86.2	78.6	70.2	88.2	96.4	89.6	75(200)
11	Magnesium as Mg	mg/l	60.2	56.2	45.4	52.6	56.6	52.4	30(100)
12	Free Residual Chlorine	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2(1)
13	Boron	mg/l	0.05	0.03	0.01	0.04	0.02	0.01	0.5(1)
14	Chlorides as Cl	mg/l	229.6	202.8	176.4	194.9	204.6	187.4	250(1000)
15	Sulphates as SO ₄	mg/l	114.7	104.2	101.2	132.8	139.7	117.8	200(400)
16	Fluorides as F	mg/l	0.8	0.7	0.9	1.1	1.0	0.7	1.0(1.5)
17	Nitrates as NO ₃	mg/l	17.9	13.9	12.6	17.9	19.4	15.2	45(NR)
18	Sodium as Na	mg/l	165.2	125.1	104.6	116.8	119.9	106.2	\$
19	Potassium as K	mg/l	14.5	11.3	10.2	12.8	15.1	13.9	\$
20	Phenolic Compounds	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001(0.002)
21	Cyanides	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05 (NR)
22	Anionic Detergents	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2 (1.0)
23	Mineral Oil	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.5 (NR)
24	Cadmium as Cd	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.003 (NR)
25	Arsenic as As	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01 (0.05)
26	Copper as Cu	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05 (1.5)
27	Lead as Pb	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01 (NR)
28	Manganese as Mn	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.1 (0.3)
29	Iron as Fe	mg/l	0.10	0.08	0.13	0.15	0.08	0.04	0.3(NR)
30	Chromium as Cr+6	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.05(NR)
31	Selenium as Se	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01(NR)
32	Zinc as Zn	mg/l	0.21	0.13	0.16	0.19	0.13	0.09	5(15)
33	Aluminum as Al	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.03(0.2)
34	Mercury as Hg	mg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.001(NR)
35	Pesticides	µg/l	Absent	Absent	Absent	Absent	Absent	Absent	Absent
36	E. Coli	-	Absent	Absent	Absent	Absent	Absent	Absent	Absent
37	Total Coliforms	MPN/10 ⁰	Absent	Absent	Absent	Absent	Absent	Absent	10

Note: \$ - Limits not specified;

NR - No Relaxation

Limits are shown in IS 10500 are Acceptable limits (Requirement) and in parenthesis are Permissible limit in absence of alternate source

**TABLE-3.14
GROUND WATER QUALITY**

Sr. No	Parameters	Unit	GW4 – Dasaripeta village						Limits as per IS:10500
			Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	
			15.04.25	17.05.25	16.06.25	14.7.25	18.8.25	12.9.25	
1	pH	-	7.55	7.74	7.75	7.59	7.49	7.61	6.5 – 8.5 (NR)
2	Colour	Hazen	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5(15)
3	Taste	-	Agree	Agree	Agree	Agree	Agree	Agree	Agreeable
4	Odour	-	Agree	Agree	Agree	Agree	Agree	Agree	Agreeable
5	Conductivity	µS/cm	1526	1665	1445	1608	1815	1583	\$
6	Turbidity	NTU	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1(5)
7	TDS	mg/l	990	1078	934	1025	1176	1013	500(2000)
8	Total Hardness as CaCO ₃	mg/l	431	458	403	471	545	245	200(600)
9	Total Alkalinity	mg/l	325	345	285	335	395	350	200(600)
10	Calcium as Ca	mg/l	92.4	96.8	86.4	92.6	112.4	88.3	75(200)
11	Magnesium as Mg	mg/l	48.6	52.6	45.6	58.4	64.2	59.6	30(100)
12	Residual Chlorine	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2(1)
13	Boron	mg/l	0.03	0.02	0.02	0.01	0.01	<0.01	0.5(1)
14	Chlorides as Cl	mg/l	192.2	220.6	189.7	205.4	234.2	209.9	250(1000)
15	Sulphates as SO ₄	mg/l	136.2	142.5	139.7	147.5	153.4	123.5	200(400)
16	Fluorides as F	mg/l	0.7	0.5	0.5	0.7	0.5	0.6	1.0(1.5)
17	Nitrates as NO ₃	mg/l	28.2	30.5	27.4	25.3	24.5	18.5	45(NR)
18	Sodium as Na	mg/l	139.1	157.2	135.4	139.8	152.4	138.4	\$
19	Potassium as K	mg/l	23.1	25.2	19.6	22.1	24.3	19.5	\$
20	Phenolic Compounds	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001(0.002)
21	Cyanides	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05 (NR)
22	Anionic Detergents	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2 (1.0)
23	Mineral Oil	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.5 (NR)
24	Cadmium as Cd	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.003 (NR)
25	Arsenic as As	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01 (0.05)
26	Copper as Cu	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05 (1.5)
27	Lead as Pb	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01 (NR)
28	Manganese as Mn	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.1 (0.3)
29	Iron as Fe	mg/l	0.16	0.11	0.09	0.11	0.12	0.08	0.3(NR)
30	Chromium as Cr ⁺⁶	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.05(NR)
31	Selenium as Se	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01(NR)
32	Zinc as Zn	mg/l	0.22	0.18	0.13	0.17	0.10	0.14	5(15)
33	Aluminum as Al	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.03(0.2)
34	Mercury as Hg	mg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.001(NR)
35	Pesticides	µg/l	Absent	Absent	Absent	Absent	Absent	Absent	Absent
36	E. Coli	-	Absent	Absent	Absent	Absent	Absent	Absent	Absent
37	Total Coliforms	MPN/100	Absent	Absent	Absent	Absent	Absent	Absent	10

Note: \$ - Limits not specified;

NR - No Relaxation

Limits are shown in IS 10500 are Acceptable limits (Requirement) and in parenthesis are Permissible limit in absence of alternate source

**TABLE-3.15
GROUND WATER QUALITY**

Sr. No.	Parameters	Unit	GW5 – Palavalasa village						Limits as per IS:10500
			Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	
			15.04.25	17.05.25	16.06.25	14.7.25	18.8.25	12.9.25	
1	pH	-	7.61	7.57	7.43	7.66	7.43	7.66	6.5–8.5 (NR)
2	Colour	Hazen	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5(15)
3	Taste	-	Agree	Agree	Agree	Agree	Agree	Agree	Agreeable
4	Odour	-	Agree	Agree	Agree	Agree	Agree	Agree	Agreeable
5	Conductivity	µS/cm	2404	2577	2319	2155	2360	2360	\$
6	Turbidity	NTU	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1(5)
7	TDS	mg/l	1529	1673	1488	1372	1524	1503	500(2000)
8	Total Hardness as CaCO ₃	mg/l	498	540	475	437	480	443	200(600)
9	Total Alkalinity	mg/l	335	365	325	345	385	315	200(600)
10	Calcium as Ca	mg/l	102.5	110.2	102.4	90.6	104.2	92.4	75(200)
11	Magnesium as Mg	mg/l	58.8	64.6	53.4	51.2	53.1	51.6	30(100)
12	Residual Chlorine	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2(1)
13	Boron	mg/l	0.03	0.06	0.03	0.01	0.03	0.02	0.5(1)
14	Chlorides as Cl	mg/l	486.2	498.4	448.9	398.6	432.6	402.4	250(1000)
15	Sulphates as SO ₄	mg/l	140.2	175.9	164.3	137.6	147.4	127.4	200(400)
16	Fluorides as F	mg/l	0.9	1.0	0.9	1.0	1.2	1.0	1.0(1.5)
17	Nitrates as NO ₃	mg/l	37.4	39.8	32.5	29.3	32.4	27.8	45(NR)
18	Sodium as Na	mg/l	310.2	329.0	302.1	283.1	311.6	264.5	\$
19	Potassium as K	mg/l	22.8	24.7	21.4	19.5	18.4	17.8	\$
20	Phenolic Compounds	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.001(0.002)
21	Cyanides	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05 (NR)
22	Anionic Detergents	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2 (1.0)
23	Mineral Oil	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.5 (NR)
24	Cadmium as Cd	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.003 (NR)
25	Arsenic as As	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01 (0.05)
26	Copper as Cu	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05 (1.5)
27	Lead as Pb	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01 (NR)
28	Manganese as Mn	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.1 (0.3)
29	Iron as Fe	mg/l	0.14	0.16	0.13	0.12	0.14	0.10	0.3(NR)
30	Chromium as Cr+6	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.05(NR)
31	Selenium as Se	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01(NR)
32	Zinc as Zn	mg/l	0.18	0.22	0.18	0.15	0.10	0.15	5(15)
33	Aluminum as Al	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.03(0.2)
34	Mercury as Hg	mg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.001(NR)
35	Pesticides	µg/l	Absent	Absent	Absent	Absent	Absent	Absent	Absent
36	E. Coli	-	Absent	Absent	Absent	Absent	Absent	Absent	Absent
37	Total Coliforms	MPN/100	Absent	Absent	Absent	Absent	Absent	Absent	10

Note: \$ - Limits not specified;

NR - No Relaxation

Limits are shown in IS 10500 are Acceptable limits (Requirement) and in parenthesis are Permissible limit in absence of alternate source

**TABLE-3.16
GROUND WATER QUALITY**

Sr. No.	Parameters	Unit	GW6 – Rajiv Nagar						Limits as per IS:10500
			Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	
			15.04.25	17.05.25	16.06.25	14.7.25	18.8.25	12.9.25	
1	pH	-	7.53	7.45	7.61	7.58	7.73	7.53	6.5-8.5 (NR)
2	Colour	Hazen	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5(15)
3	Taste	-	Agree	Agree	Agree	Agree	Agree	Agree	Agreeable
4	Odour	-	Agree	Agree	Agree	Agree	Agree	Agree	Agreeable
5	Conductivity	µS/cm	2211	2036	1905	1748	1906	1906	\$
6	Turbidity	NTU	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1(5)
7	TDS	mg/l	1424	1305	1220	1123	1249	1256	500(2000)
8	Total Hardness as CaCO ₃	mg/l	462	415	405	354	407	383	200(600)
9	Total Alkalinity	mg/l	425	395	355	325	374	358	200(600)
10	Calcium as Ca	mg/l	98.2	89.6	88.4	74.8	86.8	84.2	75(200)
11	Magnesium as Mg	mg/l	52.6	46.4	44.8	40.8	46.4	42.0	30(100)
12	Residual Chlorine	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2(1)
13	Boron	mg/l	0.04	0.04	0.02	0.04	0.01	<0.01	0.5(1)
14	Chlorides as Cl	mg/l	357.9	328.6	314.7	286.4	299.4	267.4	250(1000)
15	Sulphates as SO ₄	mg/l	148.5	135.2	128.6	121.9	131.2	126.4	200(400)
16	Fluorides as F	mg/l	0.8	0.7	0.8	0.6	0.8	0.6	1.0(1.5)
17	Nitrates as NO ₃	mg/l	22.7	20.8	19.2	17.9	21.3	19.5	45(NR)
18	Sodium as Na	mg/l	282.2	264.6	241.2	229.7	239.1	219.4	\$
19	Potassium as K	mg/l	23.5	21.6	17.4	15.4	19.7	17.4	\$
20	Phenolic Compounds	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001(0.002)
21	Cyanides	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05 (NR)
22	Anionic Detergents	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2 (1.0)
23	Mineral Oil	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.5 (NR)
24	Cadmium as Cd	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.003 (NR)
25	Arsenic as As	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01 (0.05)
26	Copper as Cu	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05 (1.5)
27	Lead as Pb	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01 (NR)
28	Manganese as Mn	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.1 (0.3)
29	Iron as Fe	mg/l	0.13	0.10	0.11	0.17	0.12	0.08	0.3(NR)
30	Chromium as Cr ⁺⁶	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.05(NR)
31	Selenium as Se	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01(NR)
32	Zinc as Zn	mg/l	0.23	0.16	0.07	0.22	0.18	0.10	5(15)
33	Aluminum as Al	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.03(0.2)
34	Mercury as Hg	mg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.001(NR)
35	Pdes	µg/l	Absent	Absent	Absent	Absent	Absent	Absent	Absent
36	E. Coil	-	Absent	Absent	Absent	Absent	Absent	Absent	Absent
37	Total Coliforms	MPN/100	Absent	Absent	Absent	Absent	Absent	Absent	10

Note: \$ - Limits not specified;

NR - No Relaxation

Limits are shown in IS 10500 are Acceptable limits (Requirement) and in parenthesis are Permissible limit in absence of alternate source

**TABLE-3.17
GROUND WATER QUALITY**

SrNo	Parameters	Unit	GW7 – Gouruvanipalem village						Limits as per IS:10500
			Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	
			15.04.25	17.05.25	16.06.25	14.7.25	18.8.25	12.9.25	
1	pH	-	7.42	7.82	7.73	7.45	7.61	7.78	6.5 – 8.5 (NR)
2	Colour	Hazen	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	5(15)
3	Taste	-	Agree	Agree	Agree	Agree	Agree	Agree	Agreeable
4	Odour	-	Agree	Agree	Agree	Agree	Agree	Agree	Agreeable
5	Conductivity	µS/cm	3348	3146	2874	3164	2954	2954	\$
6	Turbidity	NTU	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	1(5)
7	TDS	mg/l	2120	2039	1843	2050	1910	1861	500(2000)
8	Total Hardness as CaCO ₃	mg/l	817	770	711	786	720	620	200(600)
9	Total Alkalinity	mg/l	420	385	335	395	355	325	200(600)
10	Calcium as Ca	mg/l	168.4	156.2	142.6	162.4	148.6	128.6	75(200)
11	Magnesium as Mg	mg/l	96.4	92.4	86.2	92.4	84.6	72.6	30(100)
12	Residual Chlorine	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2(1)
13	Boron	mg/l	0.05	0.03	0.02	0.01	0.02	0.01	0.5(1)
14	Chlorides as Cl	mg/l	675.9	635.2	597.9	642.8	622.9	174.5	250(1000)
15	Sulphates as SO ₄	mg/l	259.6	252.4	218.6	236.4	208.9	174.5	200(400)
16	Fluorides as F	mg/l	1.0	0.8	0.9	1.1	1.0	0.7	1.0(1.5)
17	Nitrates as NO ₃	mg/l	31.9	32.8	31.6	34.5	25.6	22.4	45(NR)
18	Sodium as Na	mg/l	370.2	352.1	318.6	348.5	332.3	324.7	\$
19	Potassium as K	mg/l	40.3	28.9	25.8	29.5	27.4	24.7	\$
20	Phenolic Compounds	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001(0.002)
21	Cyanides	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.05 (NR)
22	Anionic Detergents	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.2 (1.0)
23	Mineral Oil	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.5 (NR)
24	Cadmium as Cd	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.003 (NR)
25	Arsenic as As	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01 (0.05)
26	Copper as Cu	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.05 (1.5)
27	Lead as Pb	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.01 (NR)
28	Manganese as Mn	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.1 (0.3)
29	Iron as Fe	mg/l	0.15	0.17	0.15	0.13	0.10	0.06	0.3(NR)
30	Chromium as Cr+6	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.05(NR)
31	Selenium as Se	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01(NR)
32	Zinc as Zn	mg/l	0.19	0.26	0.17	0.17	0.15	0.13	5(15)
33	Aluminum as Al	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.03(0.2)
34	Mercury as Hg	mg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.001(NR)
35	Pesticides	µg/l	Absent	Absent	Absent	Absent	Absent	Absent	Absent
36	E. Coli	-	Absent	Absent	Absent	Absent	Absent	Absent	Absent
37	Total Coliforms	MPN/10 ⁰	Absent	Absent	Absent	Absent	Absent	Absent	10

Note: \$ - Limits not specified;

NR - No Relaxation

Limits are shown in IS 10500 are Acceptable limits (Requirement) and in parenthesis are Permissible limit in absence of alternate source

TABLE-3.18
SURFACE WATER QUALITY (MARINE WATER SAMPLES) FROM APRIL - SEPTEMBER 2025

S. No.	Parameter	Units	15.04.25		17.05.25		17.06.25		14.7.25		18.8.25		12.9.25	
			SW2	SW3	SW2	SW3	SW2	SW3	SW2	SW3	SW2	SW3	SW2	SW3
1	pH	-	7.94	8.11	7.87	7.92	7.96	8.03	8.04	8.12	7.93	8.07	8.10	7.97
2	Color	Hazen	7	9	6	8	9	7	8	11	13	9	8	11
3	Conductivity	□S/cm	53200	54100	54500	53700	55400	54600	54100	55000	55100	54500	53600	55100
4	Total Dissolved Solids	mg/l	39360	40030	40220	39560	40990	39980	39970	40300	40770	39930	39670	40820
5	DO	mg/l	5.3	5.2	5.2	5.4	5.2	5.0	5.0	5.3	5.4	5.2	5.2	5.1
6	BOD	mg/l	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
7	COD	mg/l	110	80	60	90	80	70	70	90	90	110	70	80
8	Total Hardness as CaCO ₃	mg/l	2745	2812	2924	2819	3034	2940	2930	3056	3303	2948	2928	3040
9	Total Alkalinity as CaCO ₃	mg/l	515	530	331	202	315	215	205	255	285	225	265	245
10	Calcium as Ca ²⁺	mg/l	304.6	386.4	342.8	350.2	348	356	328.4	386.4	386.4	362.4	318.2	386.2
11	Magnesium as Mg ²⁺	mg/l	482.2	448.6	502.5	472.3	525.6	498.1	512.5	507.9	568.1	496.2	518.2	504.2
12	Chlorides as Cl	mg/l	17265.3	17325.6	18710.3	18590.2	19025.6	18926.4	18828.6	18997.6	18989.6	18888.6	18526.8	19023.6
13	Residual free Chlorine	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
14	Phosphates PO ₄	mg/l	7.4	11.5	9.5	6.8	12.4	8.8	15.3	12.8	10.7	13.1	16.3	11.5
15	Sulphates as SO ₄	mg/l	1612.7	1956.2	488.2	354.2	458	365	322.5	389.8	398.7	362.7	362.4	401.2
16	Fluorides as F	mg/l	1.0	1.5	1.4	1.7	1.2	1.5	1.0	1.3	0.9	1.2	0.7	1.0
17	Nitrates as NO ₃	mg/l	21.8	26.5	12.5	10.5	15.5	13.2	15.2	17.5	19.6	16.4	15.4	12.4
18	Sodium as Na ⁺	mg/l	10865.1	11029.6	11078.2	10945.2	11238	11125	11002.1	11164.5	11062.5	11092.9	10897	11189
19	Potassium as K	mg/l	175.6	198.5	185.3	178.4	174.8	151.6	153.1	147.4	150.4	142.4	137.2	139.2
20	Total Boron as B	mg/l	0.11	0.08	0.09	0.06	0.05	0.08	0.07	0.05	0.04	0.02	0.02	0.03
21	Cyanides	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
22	Phenol compounds	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
23	Oil and Grease	mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
24	Cadmium as Cd	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
25	Arsenic as As	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
26	Copper as Cu	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
27	Lead as Pb	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
28	Iron as Fe	mg/l	0.17	0.20	0.19	0.16	0.17	0.14	0.12	0.11	0.10	0.09	0.06	0.07
29	Chromium as Cr ⁺⁶	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
30	Selenium as Se	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
31	Zinc as Zn	mg/l	0.24	0.28	0.16	0.24	0.13	0.11	0.08	0.15	0.16	0.12	0.12	0.10
32	Aluminium as Al	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
33	Mercury as Hg	mg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

SW2- Appikonda beach(marine); SW3-Tikkavanipalem beach(marine);

**TABLE-3.19
MARINE WATER SAMPLES RESULTS (INTAKE WATER)**

Sr. No.	Parameter	Units	SW4					
			15.04.25	16.05.25	17.06.25	14.7.25	18.8.25	12.9.25
1	pH	-	8.04	7.98	8.03	7.99	8.03	7.96
2	Color	Hazen	8	10	7	9	15	18
3	Conductivity	□S/cm	53500	54100	55000	54800	55300	54700
4	Total Dissolved Solids	mg/l	39590	35165	40600	39890	40800	40470
5	DO	mg/l	5.2	5.4	5.3	5.1	5.3	5.4
6	BOD	mg/l	<3	<3	<3	<3	<3	<3
7	COD	mg/l	50	70	90	70	100	70
8	Total Hardness as CaCO ₃	mg/l	2747.4	2938	2919	2861	3010	2953
9	Total Alkalinity as CaCO ₃	mg/l	525.5	147	185	195	215	205
10	Calcium as Ca ²⁺	mg/l	310.8	364.8	338	342.6	358.6	346.2
11	Magnesium as Mg ²⁺	mg/l	478.8	492.5	504	487.2	513.7	507.3
12	Chlorides as Cl	mg/l	17162.5	18898.2	19175	19091.5	19208.9	19023.2
13	Residual free Chlorine	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
14	Phosphates PO ₄	mg/l	16.8	11.6	7.8	11.5	8.5	12.1
15	Sulphates as SO ₄	mg/l	1865.2	212.5	265.8	245.6	279.8	286.5
16	Fluorides as F	mg/l	1.2	0.9	1.1	1.2	1.0	1.4
17	Nitrates as NO ₃	mg/l	25.4	11.6	10.9	13.2	15.3	17.2
18	Sodium as Na ⁺	mg/l	10937.4	10979.7	11197.5	11172.6	11213.6	11112.5
19	Potassium as K	mg/l	169.2	182.3	198.3	187.9	197.1	181.5
20	Total Boron as B	mg/l	0.12	0.08	0.04	0.08	0.04	0.02
21	Cyanides as CN	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
22	Phenolic compounds	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
23	Oil and Grease	mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
24	Cadmium as Cd	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
25	Arsenic as As	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
26	Copper as Cu	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
27	Lead as Pb	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
28	Iron as Fe	mg/l	0.18	0.15	0.13	0.09	0.13	0.09
29	Total Chromium (as Cr)	mg/l	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
30	Selenium as Se	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
31	Zinc as Zn	mg/l	0.23	0.19	0.08	0.15	0.10	0.13
32	Aluminium as Al	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
33	Mercury as Hg	mg/l	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
34	Sulphide as H ₂ S	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
35	Bromide as Br	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
36	Iodides as I	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Sampling Location Name
SW4- Intake sea water;

**TABLE-3.20
SURFACE WATER QUALITY (CREEK WATER SAMPLES)**

S.No	Parameters	Units	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25
1	pH	-	15.4.25	17.5.25	17.6.25	14.7.25	18.8.25	12.9.25
2	Suspended solids	mg/l	35	28	35	26	33	24
3	Conductivity	µS/cm	20040	18720	16340	19823	17450	19327
4	TDS	mg/l	13820	12368	10935	13275	12030	13328
5	DO	mg/l	5.1	5.3	5.1	5.3	5.2	5.4
6	BOD	mg/l	<3	<3	<3	<3	6	5
7	Turbidity	NTU	18	22	28	33	24	31
8	Salinity	Ppt	11	10	9	10.7	9.6	10.7
9	Total Alkalinity as CaCO ₃	mg/l	610	515.4	415	575	465.8	505
10	Calcium as Ca	mg/l	642.5	612.4	454	698.6	574.2	592.6
11	Magnesium as Mg	mg/l	578.4	534.2	421	498.7	428.2	462.4
12	Chlorides as Cl	mg/l	5974.2	5645.2	5026.5	5958.4	5338.9	5933.9
13	Phosphates as PO ₄	mg/l	31.7	23.1	18.5	24.3	17.6	21.5
14	Sulphates as SO ₄	mg/l	912.5	815.6	612.5	849.8	658.6	747.7
15	Fluorides as F	mg/l	1.8	1.5	1.2	1.6	1.4	1.1
16	Nitrates as NO ₃	mg/l	32.3	31.4	27.5	32.9	29.8	34.2
17	Sodium as Na	mg/l	2645.1	2488.9	2346	2702.3	2442.5	2783.1
18	Potassium as K	mg/l	221.3	172.4	164.2	185.2	168.4	179.2
19	Phenolic Compounds	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
20	Copper as Cu	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	Lead as Pb	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
22	Iron as Fe	mg/l	0.42	0.37	0.30	0.17	0.25	0.18
23	Chromium as Cr ⁺⁶	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
24	Zinc as Zn	mg/l	0.36	0.27	0.36	0.27	0.36	0.24

Creek water in Mud flat area at Vade cheepurapalli.

3.6 Soil Quality

Soil Samples were collected from eight locations around the plant site area, out of which, three locations (S1 to S3) are monthly and the remaining five locations (S4 to S8) are quarterly samples. The soil quality is given below in **Table-3.21** and **Table-3.25**.

**TABLE-3.21
SOIL QUALITY RESULTS**

Sr. No	Parameters	Unit	S1 -Palavalasa Village					
			Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25
1	Texture	--	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay loam	Sandy Clay loam	Sandy Clay loam
a	Sand	%	53	55	53	49	46	48
b	Silt	%	16	18	21	27	24	21
c	Clay	%	31	27	26	24	30	31
2	Bulk Density	g/cc	1.28	1.32	1.28	1.21	1.25	1.27
3	pH (1:5 Aq.Extraction)	-	7.62	7.82	7.75	7.54	7.79	7.65
4	Conductivity (1:5 Aq.Extraction)	µS/cm	567	623	529	395	516	453
5	Cation Exchange Capacity	(meq/100gm)	37.96	37.6	27.4	42.5	35.4	31.9
6	Exchangeable Calcium	(meq/100gm)	22.1	19.7	28.4	22.4	18.4	16.7
7	Exchangeable Magnesium	(meq/100gm)	14.3	16.4	12.5	17.4	15.6	13.8
8	Exchangeable Potassium	(meq/100gm)	0.52	0.64	0.58	0.64	0.52	0.46
9	Exchangeable Sodium	(meq/100gm)	1.04	0.88	0.75	0.92	0.83	0.97
10	Sodium Absorption Ratio (SAR)	----	0.24	0.21	0.17	0.21	0.20	0.25
11	Available Nitrogen as N	Kg/ha	41.3	0.3	38.20	47.60	53.24	48.5
12	Available Phosphorous as P	Kg/ha	72.3	56.3	61.2	75.4	80.2	75.4
13	Available Potassium as K	Kg/ha	308.2	253.5	198.2	223.5	208.9	190.3
14	Organic Carbon	%	0.20	0.18	0.15	0.32	0.27	0.32
15	Organic Matter	%	0.34	0.31	0.26	0.55	0.48	0.55
16	Water Soluble Chlorides as Cl	mg/kg	176.2	243.2	312.6	245.0	328.2	354.4
17	Water Soluble Sulphates as SO4	mg/kg	108.3	134.2	208.4	183.4	248.2	227.5
18	Aluminium	%	0.98	0.78	0.92	0.64	0.48	0.56
19	Total Iron	%	1.58	1.24	1.45	1.24	1.08	1.16
20	Manganese	mg/kg	267	336.0	215.8	184.5	208.9	225.0
21	Boron	mg/kg	8.22	9.17	8.10	6.24	4.37	5.86
22	Zinc	mg/kg	34.2	19.4	23.1	27.4	19.4	23.5

**TABLE-3.22
SOIL QUALITY RESULTS**

Sr. No	Parameters	Unit	S2 –Appikonda Village					
			Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25
			22.4.25	19.5.25	21.6.25	21.7.25	18.8.25	10.9.25
1	Texture	--	Sandy Clay	Sandy Clay	Sandy Clay	Sandy Clay loam	Sandy Clay loam	Sandy Clay loam
a	Sand	%	48	52	48	56	48	46
b	Silt	%	15	13	16	21	27	25
c	Clay	%	37	35	36	23	25	29
2	Bulk Density	g/cc	1.31	1.26	1.21	1.27	1.31	1.36
3	pH (1:5 Aq.Extraction)		7.55	7.45	7.37	7.68	7.83	7.72
4	Conductivity (1:5 Aq.Extraction)	µS/cm	738	688	597	712	924	872
5	Cation Exchange Capacity	(meq/100gm)	31.36	43.1	52.6	36.8	45.4	41.0
6	Exchangeable Calcium	(meq/100gm)	17.4	24.2	18.6	30.6	24.8	22.5
7	Exchangeable Magnesium	(meq/100gm)	12.8	17.2	13.2	19.2	18.5	16.7
8	Exchangeable Potassium	(meq/100gm)	0.38	0.44	0.42	0.72	0.87	0.63
9	Exchangeable Sodium	(meq/100gm)	0.78	1.24	1.28	1.34	1.18	1.15
10	Sodium Absorption Ratio (SAR)	----	0.20	0.27	0.32	0.27	0.27	0.26
11	Available Nitrogen as N	Kg/ha	36.5	0.5	46.80	55.80	49.51	52.7
12	Available Phosphorous as P	Kg/ha	66.4	81.4	85.2	92.4	74.2	68.3
13	Available Potassium as K	Kg/ha	278.3	317.4	265.4	312.5	274.5	234.2
14	Organic Carbon	%	0.14	0.21	0.24	0.42	0.34	0.29
15	Organic Matter	%	0.24	0.36	0.41	0.72	0.60	0.50
16	Water Soluble Chlorides as Cl	mg/kg	213.4	187.4	302.8	386.9	294.6	287.6
17	Water Soluble Sulphates as SO4	mg/kg	96.3	104.0	197.2	243.6	178.2	191.3
18	Aluminium	%	1.32	0.96	0.74	0.81	0.67	0.72
19	Total Iron	%	1.43	1.08	1.29	1.08	1.43	1.32
20	Manganese	mg/kg	366	218	325	256	328	345
21	Boron	mg/kg	5.33	7.44	9.56	11.20	9.54	8.73
22	Zinc	mg/kg	44.9	35.2	37.4	23.8	17.2	15.5

**TABLE-3.23
SOIL QUALITY RESULTS**

Sr. No	Parameters	Unit	S3 -Devada Village					
			Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25
			22.4.25	19.5.25	21.6.25	21.7.25	18.8.25	10.9.25
1	Texture	--	Sandy Clay	Sandy Clay	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay loam
a	Sand	%	50	49	51	47	52	49
b	Silt	%	14	16	19	24	17	19
c	Clay	%	36	35	30	29	31	32
2	Bulk Density	g/cc	1.25	1.29	1.32	1.24	1.27	1.21
3	pH (1:5 Aq.Extraction)		7.42	7.66	7.62	7.81	7.97	7.84
4	Conductivity (1:5 Aq.Extraction)	µS/cm	662	714	654	485	638	564
5	Cation Exchange Capacity	(meq/100gm)	36.05	40.3	37.8	46.7	37.4	34.3
6	Exchangeable Calcium	(meq/100gm)	20.5	25.1	31.2	27.5	21.5	19.8
7	Exchangeable Magnesium	(meq/100gm)	14.2	13.5	19.2	16.5	14.2	12.7
8	Exchangeable Potassium	(meq/100gm)	0.44	0.60	0.64	0.47	0.64	0.52
9	Exchangeable Sodium	(meq/100gm)	0.91	1.08	1.12	0.88	1.02	1.23
10	Sodium Absorption Ratio (SAR)	----	0.22	0.25	0.22	0.19	0.25	0.31
11	Available Nitrogen as N	Kg/ha	30.8	0.5	52.40	39.5	42.08	46.4
12	Available Phosphorous as P	Kg/ha	91.2	76.8	67.4	56.8	60.2	51.5
13	Available Potassium as K	Kg/ha	244.6	287.5	335.2	283.2	242.7	187.2
14	Organic Carbon	%	0.17	0.25	0.27	0.38	0.42	0.37
15	Organic Matter	%	0.29	0.43	0.47	0.65	0.74	0.64
16	Water Soluble Chlorides as Cl	mg/kg	169.3	208.3	298.6	334.5	238.2	246.3
17	Water Soluble Sulphates as SO4	mg/kg	133.4	152.6	219.2	198.5	267.4	182.6
18	Aluminium	%	1.07	1.14	0.97	0.52	0.36	0.47
19	Total Iron	%	1.67	1.43	1.57	1.37	1.17	1.09
20	Manganese	mg/kg	382	266	309	223.4	247.1	264
21	Boron	mg/kg	7.06	8.02	6.25	8.7	10.2	12.54
22	Zinc	mg/kg	28.4	41.7	43.8	34.8	25.3	26.4

**TABLE-3.24
SOIL QUALITY RESULTS (QUARTERLY)**

S. No	Parameters	Unit	S4	S5	S6	S7	S8
			21.06.25				
1	Texture	--	Sandy Clay Loam	Sandy Clay Loam	Sandy Clay Loam	clay Loam	Sandy Loam
A	Sand	%	49	52	49	47	54
B	Silt	%	24	17	17	25	28
C	Clay	%	27	31	34	28	18
2	Bulk Density	g/cc	1.25	1.27	1.22	1.30	1.18
3	pH (1:5 Aq.Extraction)		7.76	7.34	7.57	7.43	7.79
4	Conductivity (1:5 Aq.Extraction)	µS/cm	461	572	618	702	493
5	Cation Exchange Capacity	(meq/100gm)	32.6	40.8	34.8	33.5	26.5
6	Exchangeable Calcium	(meq/100gm)	17.5	30.2	19.5	15.4	17.4
7	Exchangeable Magnesium	(meq/100gm)	10.8	13.6	10.2	12.4	4.8
8	Exchangeable Potassium	(meq/100gm)	0.47	0.36	0.32	0.35	0.41
9	Exchangeable Sodium	(meq/100gm)	0.44	0.67	0.45	0.89	0.75
10	Sodium Absorption Ratio (SAR)	----	0.12	0.14	0.12	0.24	0.23
11	Available Nitrogen as N	Kg/ha	49.50	57.20	36.20	49.60	58.4
12	Available Phosphorous as P	Kg/ha	79.6	142.0	87.4	124.0	82.2
13	Available Potassium as K	Kg/ha	214.5	338.2	215.8	302.6	217.2
14	Organic Carbon	%	0.16	0.25	0.36	0.15	0.22
15	Organic Matter	%	0.28	0.43	0.62	0.26	0.38
16	Water Soluble Chlorides as Cl	mg/kg	364.8	286.4	372.2	398.7	402.5
17	Water Soluble Sulphates as SO4	mg/kg	275.6	214.7	227.4	285.2	298.6
18	Aluminium	%	1.02	0.85	1.47	1.24	1.28
19	Total Iron	%	1.63	1.42	1.62	1.85	1.62
20	Manganese	mg/kg	297	313	257	296	302.4
21	Boron	mg/kg	9.70	5.42	8.56	7.12	8.54
22	Zinc	mg/kg	36.2	54.2	32.1	39.5	27.4

Soil Sampling Locations

S4- Islampeta village

S5- Namidoddi village

S6- Palikiladoddi village

S7- Dasaripeta village

S8- 8th feet road (Near Islampet village)

**TABLE-3.25
SOIL QUALITY RESULTS (QUARTERLY)**

Sr. No	Parameters	Unit	S4	S5	S6	S7	S8
			10.09.25				
1	Texture	--	Sandy Clay loam	Sandy Clay loam	clay Loam	clay Loam	Sandy clay Loam
A	Sand	%	47	54	45	28	52
B	Silt	%	23	18	19	37	20
C	Clay	%	30	28	36	35	28
2	Bulk Density	g/cc	1.32	1.29	1.21	1.19	1.31
3	pH (1:5 Aq.Extraction)		7.48	7.29	7.69	7.31	7.56
4	Conductivity (1:5 Aq.Extraction)	µS/cm	398	489	572	624	412
5	Cation Exchange Capacity	(meq/100gm)	35.0	43.5	38.9	26.6	24.4
6	Exchangeable Calcium	(meq/100gm)	21.4	26.5	23.6	14.8	15.6
7	Exchangeable Magnesium	(meq/100gm)	12.6	15.7	14.2	10.2	7.8
8	Exchangeable Potassium	(meq/100gm)	0.36	0.51	0.47	0.43	0.35
9	Exchangeable Sodium	(meq/100gm)	0.67	0.78	0.65	1.12	0.62
10	Sodium Absorption Ratio (SAR)	----	0.16	0.17	0.15	0.32	0.18
11	Available Nitrogen as N	Kg/ha	53.7	61.4	38.7	52.3	37.8
12	Available Phosphorous as P	Kg/ha	64.7	83.6	45.7	67.4	54.6
13	Available Potassium as K	Kg/ha	165.4	254.2	232.2	356.3	268.5
14	Organic Carbon	%	0.25	0.31	0.24	0.19	0.37
15	Organic Matter	%	0.43	0.53	0.41	0.33	0.64
16	Water Soluble Chlorides as Cl	mg/kg	312.5	297.6	393.5	375.4	321.7
17	Water Soluble Sulphates as SO4	mg/kg	224.6	176.2	237.2	252.2	236.1
18	Aluminium	%	0.98	0.76	1.23	1.15	1.05
19	Total Iron	%	1.36	1.54	1.48	1.67	1.82
20	Manganese	mg/kg	312	286	292	335	292
21	Boron	mg/kg	7.62	4.89	9.43	11.53	7.24
22	Zinc	mg/kg	32.8	43.7	36.7	42.5	34.6

Soil Sampling Locations

S4- Islampeta village ,S5- Namidoddi village, S6- Palikiladoddi village

S7- Dasaripeta village, S8- 8th feet road (Near Islampet village)

**TABLE-3.26
SEDIMENT QUALITY OF INTER-TIDAL REGION**

Sr. No	Parameters	Unit	Sediment Sample			
			Pre monsoon Season		Monsoon Season	
	Sampling date		22.4.25	16.05.25.	23.06.25	16.7.25
1	Texture	--	Sandy Loam	Sandy Loam	Sandy Loam	Sandy Loam
a	Sand	%	53	55	52	56
b	Silt	%	30	34	35	34
c	Clay	%	17	11	13	10
2	Phosphorous as P	mg/kg	18.3	13.65	18.83	22.7
3	Chromium as Cr	mg/kg	10.20	8.54	11.33	8.67
4	Nickel as Ni	mg/kg	7.21	5.35	7.9	5.33
5	Cadmium as Cd	mg/kg	<1.0	<1.0	<1.0	<1.0
6	Lead as Pb	mg/kg	0.87	0.35	0.62	2.75
7	Mercury as Hg	mg/kg	<1.0	<1.0	<1.0	<1.0
8	Total Petroleum hydrocarbons (TPH)	%	<0.01	<0.01	<0.01	<0.01

**TABLE-3.27
SEDIMENT QUALITY OF INTER-TIDAL REGION**

Sr.No	Parameters	Unit	Sediment Sample	
			Monsoon Season	
	Sampling date		22.8.25	9.9.25
1	Texture	--	Sandy Loam	Sandy Loam
a	Sand	%	52	55
b	Silt	%	36	30
c	Clay	%	12	15
2	Phosphorous as P	mg/kg	17.32	11.73
3	Chromium as Cr	mg/kg	11.2	7.6
4	Nickel as Ni	mg/kg	7.08	5.1
5	Cadmium as Cd	mg/kg	<1.0	<1.0
6	Lead as Pb	mg/kg	1.83	1.05
7	Mercury as Hg	mg/kg	<1.0	<1.0
8	Total Petroleum hydrocarbons (TPH)	%	<0.01	<0.01

3.7 Waste Water Quality

3.7.1 Effluent Treatment Plant and Outfall water at diffusion point water Quality

There are one ETP water inside plant and two Outfall water at diffusion point these sample were collected and these were as per analyzed as per the standards to know the quality of water. The Summary of analyzed parameters results is given in **Table-3.28** and **Table-3.30**.

**TABLE-3.28
ETP OUTLET ANALYSIS RESULT AT PLANT SITE**

Sr.no	Parameters	Unit	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25	Limiting standards
			24.4.25	16.05.25	23.06.25	16.7.25	22.8.25	9.9.25	
1	Ph	-	7.51	7.53	7.56	7.44	7.61	7.45	6.50–8.50
2	Total Suspended Solids (at 103–105° C)	mg/l	48.54	61.32	56.35	67.3	48.62	56.43	100 mg/l
3	Oil and Grease	mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	20 mg/l
4	Free chlorine	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.5 mg/l
5	Phosphate as PO ₄	mg/l	17.32	9.54	7.51	11.5	8.67	11.4	20 mg/l
6	Chromium (Total)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.2 mg/l
7	Copper (Total)	mg/l	0.41	0.27	0.34	0.37	0.44	0.52	1 mg/l
8	Iron	mg/l	0.25	0.22	0.18	0.26	0.17	0.24	1 mg/l
9	Zinc	mg/l	0.42	0.37	0.28	0.41	0.32	0.40	1 mg/l

**TABLE-3.29
OUTFALL WATER QUALITY AT DIFFUSION POINT**

Sr No	Parameters	Unit	Outfall water at diffusion point							
			Surface area	Bottom area	Surface area	Bottom area	Surface area	Bottom area		
Sampling Date			Apr 2025			May 2025			Jun 2025	
1	pH	-	7.95	7.83	7.81	8.04	7.92	8.08		
2	Temperature	°C	29.4	34.7	28.7	33.7	29.1	34.2		
3	Salinity	mg/l	27.6	24.8	32.1	27.5	32.8	28.4		
4	DO	mg/l	5.4	5.1	5.3	5.0	5.2	5.1		
5	BOD	mg/l	<3	<3	<3	<3	<3	<3		
6	Dissolved Phosphate	mg/l	17.4	13.1	14.26	9.68	16.43	11.84		
7	Ammonia	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01		
8	Total Petroleum hydrocarbons	%	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		

**TABLE-3.30
OUTFALL WATER QUALITY AT DIFFUSION POINT**

Sr No	Parameters	Unit	Outfall water at diffusion point					
			Surface area	Bottom area	Surface area	Bottom area	Surface area	Bottom area
			Jul 2025	Aug 2025		Sep 2025		
Sampling Date			16.07.25		22.8.25		10.9.25	
1 pH	-	8.02	7.94	8.14	7.83	8.03	7.92	
2 Temperature	°C	29.5	33.7	28.8	32.6	28.3	34.2	
3 Salinity	mg/l	33.2	27.6	32.1	26.12	34.3	27.8	
4 DO	mg/l	5.3	5.0	5.4	5.1	5.2	5.0	
5 BOD	mg/l	<3	<3	<3	<3	<3	<3	
6 Dissolved Phosphate	mg/l	9.6	13.7	7.93	15.3	14.6	10.8	
7 Ammonia	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
8 Total Petroleum hydrocarbons	%	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	

3.8 Stack Emission Monitoring

The power plant has stack of height 275.0-m, which is the major source of air pollution. The stack emission monitoring for Unit-I and Unit-II has been carried out and results are given in **Table-3.31 to 3.34**

**TABLE-3.31
STACK EMISSION MONITORING**

Sr. No.	Parameters	UOM	Unit-I	Unit-I	Unit-II	Methods of Testing
	Sampling date		24.4.25	16.5.25	26.5.25	
1	Capacity	MW	520	520	520	-
2	Stack Height	M	275	275	275	-
3	Stack diameter	M	6.8	6.8	6.8	-
4	Cross sectional area of the duct	m ²	36.33	36.33	36.33	-
5	Flue gas Temperature	°C	119	116	120	-
6	Velocity of the flue gas	m/s	23.84	24.12	23.78	IS: 11255(P-3) 2008
7	Gas volumetric flow rate	Nm ³ /s	680.72	677.4	687.3	IS: 11255(P-3) 2008
8	Particulate Matter	mg/Nm ³	46.36	48.11	47.34	IS: 11255(P-1) 2009
9	Sulphur dioxide	mg/Nm ³	965	981	957	IS: 11255(P-2) 2012
10	Oxides of Nitrogen	mg/Nm ³	393	412	387	IS: 11255(P-7) 1985
11	Mercury	mg/Nm ³	0.008	0.013	0.010	USEPA 29

**TABLE-3.32
STACK EMISSION MONITORING**

Sr. No.	Parameters	UOM	Unit-I	Unit-II	Unit-I	Methods of Testing
	Sampling date		23.6.25	26.6.25	16.7.25	
1	Capacity	MW	520	520	520	-
2	Stack Height	M	275	275	275	-
3	Stack diameter	m	6.8	6.8	6.8	-
4	Cross sectional area of the duct	m ²	36.33	36.33	36.33	-
5	Flue gas Temperature	°C	119	123	114	-
6	Velocity of the flue gas	m/s	24.68	24.10	23.96	IS: 11255(P-3) 2008
7	Gas volumetric flow rate	Nm ³ /s	646.96	625.60	636.38	IS: 11255(P-3) 2008
8	Particulate Matter	mg/Nm ³	46.4	48.2	47.2	IS: 11255(P-1) 2009
9	Sulphur dioxide	mg/Nm ³	943	972	998	IS: 11255(P-2) 2012
10	Oxides of Nitrogen	mg/Nm ³	395	408	418	IS: 11255(P-7) 1985
11	Mercury	mg/Nm ³	0.011	0.014	0.015	USEPA 29

**TABLE-3.33
STACK EMISSION MONITORING**

Sr. No.	Parameters	UOM	Unit-II	Unit-I	Unit-II	Methods of Testing
	Sampling date		16.7.25	22.8.25		
1	Capacity	MW	520	520	520	-
2	Stack Height	M	275	275	275	-
3	Stack diameter	M	6.8	6.8	6.8	-
4	Cross sectional area of the duct	m ²	36.33	36.33	36.33	-
5	Flue gas Temperature	°C	118	108	117	-
6	Velocity of the flue gas	m/s	24.41	24.60	25.05	IS: 11255(P-3) 2008
7	Gas volumetric flow rate	Nm ³ /s	641.60	666.37	659.88	IS: 11255(P-3) 2008
8	Particulate Matter	mg/Nm ³	45.4	46.21	48.04	IS: 11255(P-1) 2009
9	Sulphur dioxide	mg/Nm ³	964	1008	929	IS: 11255(P-2) 2012
10	Oxides of Nitrogen	mg/Nm ³	402	408	389	IS: 11255(P-7) 1985
11	Mercury	mg/Nm ³	0.012	0.013	0.009	USEPA 29

**TABLE-3.34
STACK EMISSION MONITORING**

Sr. No.	Parameters	UOM	Unit-I	Unit-II	Methods of Testing
	Sampling date		22.09.25	09.09.25	
1	Capacity	MW	520	520	-
2	Stack Height	M	275	275	-
3	Stack diameter	M	6.8	6.8	-
4	Cross sectional area of the duct	m ²	36.33	36.33	-
5	Flue gas Temperature	°C	124	129	-
6	Velocity of the flue gas	m/s	23.51	24.22	IS: 11255(P-3) 2008
7	Gas volumetric flow rate	Nm ³ /s	645.73	662.53	IS: 11255(P-3) 2008
8	Particulate Matter	mg/Nm ³	47.54	45.77	IS: 11255(P-1) 2009
9	Sulphur dioxide	mg/Nm ³	974	992	IS: 11255(P-2) 2012
10	Oxides of Nitrogen	mg/Nm ³	389	414	IS: 11255(P-7) 1985
11	Mercury	mg/Nm ³	0.010	0.014	USEPA 29

3.9 Diesel Generator Emission Monitoring

Emission Monitoring was carried out at three DG set of 1500 KVA capacity at project site and the monitoring results are given below in **Table-3.35 to 3.37**.

**TABLE-3.35
DG EMISSION MONITORING**

Sr. No.	PARAMETERS	UoM	METHOD OF TESTING	DG1	* Limits as per CPCB
Physical Parameter					
Sampling Date : 22.08.2025					
1	Capacity	KVA	-	1500	--
2	Stack diameter	m	-	0.20232	--
3	Area of the Stack	m ²	-	0.032	--
4	Flue gas Temperature	°C	USEPA M-2	127	--
5	Velocity of the Flue gas	m/Sec		10.05	--
6	Volumetric Flow rate	Nm ³ /hr		834.29	--
Chemical Parameters					
7	Sulphur Dioxide @ 15% O ₂	mg/Nm ³	USEPA CTM30&34	8	--
8	Carbon Monoxide @ 15% O ₂	mg/Nm ³		126	150
9	Oxides of Nitrogen@ 15% O ₂	mg/Nm ³		288	360
10	Hydro Carbons as CH ₄ @ 15% O ₂	mg/ Nm ³		<0.01	100
11	Particulate Matter@15% O ₂	mg/ Nm ³	USEPA M-5	43.17	75

Notification_vide G.S.R. 489 (E), dated 9thJuly, 2002 at serial no. 96, under the Environment (Protection) Act, 1986

**TABLE-3.36
DG EMISSION MONITORING**

Sr. No.	PARAMETERS	UoM	METHOD OF TESTING	DG2	* Limits as per CPCB
Physical Parameter					
Sampling Date : 22.08.2025					
1	Capacity	KVA	-	1500	--
2	Stack diameter	m	-	0.20232	--
3	Area of the Stack	m ²	-	0.032	--
4	Flue gas Temperature	°C	USEPA M-2	118	--
5	Velocity of the Flue gas	m/Sec		9.62	--
6	Volumetric Flow rate	Nm ³ /hr		816.65	--
Chemical Parameters					
7	Sulphur Dioxide @ 15% O ₂	mg/Nm ³	USEPA CTM30&34	5	--
8	Carbon Monoxide @ 15% O ₂	mg/Nm ³		134	150
9	Oxides of Nitrogen@ 15% O ₂	mg/Nm ³		304	360
10	Hydro Carbons as CH ₄ @ 15% O ₂	mg/ Nm ³		<0.01	100
11	Particulate Matter@15% O ₂	mg/ Nm ³	USEPA M-5	38.75	75

Notification_vide G.S.R. 489 (E), dated 9thJuly, 2002 at serial no. 96, under the Environment (Protection) Act, 1986

**TABLE-3.37
DG EMISSION MONITORING**

Sr. No.	PARAMETERS	UoM	METHOD OF TESTING	DG3	* Limits as per CPCB
Physical Parameter					
Sampling Date : 22.08.2025					
1	Capacity	KVA	-	1500	--
2	Stack diameter	m	-	0.20232	--
3	Area of the Stack	m ²	-	0.032	--
4	Flue gas Temperature	°C	USEPA M-2	125	--
5	Velocity of the Flue gas	m/Sec		8.8	--
6	Volumetric Flow rate	Nm ³ /hr	6	784.38	--
7	Sulphur Dioxide @ 15% O ₂	mg/Nm ³		6	--
8	Carbon Monoxide @ 15% O ₂	mg/Nm ³	USEPA CTM30&34	127	150
9	Oxides of Nitrogen@ 15% O ₂	mg/Nm ³		312	360
10	Hydro Carbons as CH ₄ @ 15% O ₂	mg/ Nm ³	USEPA M-5	<0.01	100
11	Particulate Matter@15% O ₂	mg/ Nm ³		44.79	75

Notification_vide G.S.R. 489 (E), dated 9thJuly, 2002 at serial no. 96, under the Environment (Protection) Act, 1986

3.10 Pizeo wells Monitoring

Pizeo wells Monitoring of ground water has been carried out for 6 locations around the plant site and the Pizeo wells water level monitoring is given in **Table-3.38.**

**TABLE-3.38
PIZEO WELLS MONITORING FOR GROUND WATER**

Sr.No.	Location Name	Depth of Water levels (m)	
	Sampling date	17.06.25	13.9.25
1	Appikonda village	1.04	1.22
2	Palavalasa village	1.42	0.98
3	Velama Appikonda village	1.29	1.08
4	Gouruvanipalem village	1.40	1.13
5	Islampet village	1.76	2.08
6	Dasaripeta villa	1.48	1.17

3.11 Sewage Treatment Plant Outlet Water Quality (STP)

Two Sewage water samples are collected one is from Plant site and other is Colony and analyzed for various parameters. The survey analytical results are given in **Table-3.39**.

TABLE-3.39
SEWAGE OUTLET WATER QUALITY (APRIL - SEPTEMBER 2025)

Sr.No	Parameter	UOM	Apr 25	May 25	Jun 25	Jul 25	Aug 25	Sep 25
	Sampling date		22.4.25	16.05.25	23.6.25	16.07.25	22.8.25	10.9.25
1	pH	-	7.56	7.38	7.55	7.48	7.52	7.66
2	Oil & Grease	mg/l	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
3	Total Dissolved Solids	mg/l	455	486	514	475	512	464
4	Total Suspended Solids	mg/l	41.2	37.4	42.1	37.5	41.8	50.9
5	Bio Chemical Oxygen Demand for 3 day 27°C	mg/l	15	17	19	16	18	14
6	Fecal Coliform (FC) MPN/100ml	MPN/100ml	780	830	880	740	810	760

3.12 Ground Water Near Ash Pond Area

Ground Water around ash pond area have been collected in four locations and these samples has been collected to know the quality of the water and the results of the same are shown below in **Table-3.40-3.43**

**TABLE-3.40
GROUND WATER NEAR ASHPOND AREA**

Sr. No	Parameters	MOU	Near Pump house					
			16.4.25	14.05.25	17.6.25	17.7.25	18.8.25	12.9.25
1	pH	---	7.62	7.81	8.04	8.12	7.86	7.53
2	Colour	Hazen	8	12	9	11	8	12
3	Conductivity	µs/cm	12070	10350	8730	9477	1108	8734
4	Turbidity	NTU	14	18	21	24	27	18
5	TDS	mg/l	7845	6194	5675	6357	718	5850
6	Total Hardness (as CaCO ₃)	mg/l	1653	1108	939	1038	1505	1285
7	Total Alkalinity as (as CaCO ₃)	mg/l	535.6	315	295	325	410	364
8	Calcium (as Ca)	mg/l	334.2	208.6	164.2	188.2	282.4	252.4
9	Magnesium (as Mg)	mg/l	198.6	142.6	128.4	137.9	194.1	158.9
10	Boron (as B)	mg/l	0.21	0.08	0.11	0.06	0.11	0.08
11	Chlorides (as Cl)	mg/l	3138.6	2983.2	2488.9	2705.6	3093.6	2442.5
12	Sulphates (as SO ₄)	mg/l	998.9	606.2	514.5	556.2	714.5	520.1
13	Fluorides (as F)	mg/l	1.98	1.26	1.12	1.20	1.32	1.24
14	Nitrates (as NO ₃)	mg/l	28.9	19.80	16.2	14.60	18.40	14.2
15	Sodium as Na	mg/l	1952.4	1803.2	1524.6	1645.6	1798.6	1368.7
16	Potassium as K	mg/l	107.2	114.5	86.8	95.8	99.4	83.4
17	Cyanides(as CN)	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
18	Cadmium (as Cd)	mg/l	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
19	Total Arsenic (as As)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
20	Copper (as Cu)	mg/l	0.08	0.11	0.08	0.04	0.02	0.01
21	Lead (as Pb)	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
22	Manganese (as Mn)	mg/l	0.03	0.02	<0.01	<0.01	<0.01	<0.01
23	Iron (as Fe)	mg/l	0.23	0.18	0.16	0.14	0.12	0.10
24	Total Chromium (as Cr)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Selenium (as Se)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26	Zinc (as Zn)	mg/l	0.25	0.18	0.15	0.21	0.18	0.12
27	Aluminum (as Al)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
28	Mercury (as Hg)	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

TABLE-3.41
GROUND WATER NEAR ASHPOND AREA

Sr. No	Parameters	MOU	North side opp Palavalasa village					
			16.4.25	14.05.25	17.6.25	17.7.25	18.8.25	12.9.25
1	pH	---	7.92	7.97	7.94	8.06	8.16	7.96
2	Colour	Hazen	10	8	13	7	12	9
3	Conductivity	µs/cm	28640	33770	29780	31860	33830	35950
4	Turbidity	NTU	16	12	18	15	21	22
5	TDS	mg/l	10647	19835	19357	19354	23340	25164
6	Total Hardness (as CaCO ₃)	mg/l	1464	2314	1954	2330	2957	3287
7	Total Alkalinity as (as CaCO ₃)	mg/l	865.2	495	415	515	595	655
8	Calcium (as Ca)	mg/l	314.6	448.8	356.2	442.6	586.2	678.6
9	Magnesium (as Mg)	mg/l	164.6	289.6	258.4	297.4	362.4	386.5
10	Boron (as B)	mg/l	0.18	0.13	0.07	0.10	0.07	0.04
11	Chlorides (as Cl)	mg/l	7764.2	11052.6	934.6	10392.6	11020.1	11718.6
12	Sulphates (as SO ₄)	mg/l	2356.2	695.6	412.3	672.5	689.4	712.5
13	Fluorides (as F)	mg/l	1.21	2.20	2.08	1.98	1.89	1.92
14	Nitrates (as NO ₃)	mg/l	31.2	37.50	29.8	27.90	28.20	24.7
15	Sodium as Na	mg/l	5806.7	6539.2	5823.1	6123.8	6255.1	6561.4
16	Potassium as K	mg/l	178.5	274.5	213.2	221.3	278.9	379.8
17	Cyanides(as CN)	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
18	Cadmium (as Cd)	mg/l	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
19	Total Arsenic (as As)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
20	Copper (as Cu)	mg/l	0.13	0.07	0.05	0.06	0.01	0.04
21	Lead (as Pb)	mg/l	0.04	<0.01	<0.01	<0.01	<0.01	<0.01
22	Manganese (as Mn)	mg/l	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
23	Iron (as Fe)	mg/l	0.17	0.15	0.12	0.10	0.08	0.14
24	Total Chromium (as Cr)	mg/l	0.01	0.01	0.01	0.01	0.01	0.01
25	Selenium (as Se)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26	Zinc (as Zn)	mg/l	0.17	0.20	0.17	0.018	0.13	0.09
27	Aluminum (as Al)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
28	Mercury (as Hg)	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

**TABLE-3.42
GROUND WATER NEAR ASHPOND AREA**

Sr. No	Parameters	MOU	East side Towards HNPCL Town ship					
			16.4.25	14.05.25	17.6.25	17.7.25	18.8.25	12.9.25
1	pH	---	7.80	7.54	7.68	7.94	8.01	7.89
2	Colour	Hazen	15	10	8	10	13	11
3	Conductivity	µs/cm	9120	8450	7350	9050	8735	8735
4	Turbidity	NTU	22	19	15	19	16	15
5	TDS	mg/l	5928	5050	4778	5970	5805	5920
6	Total Hardness (as CaCO ₃)	mg/l	1044	787	676	907	845	956
7	Total Alkalinity as (as CaCO ₃)	mg/l	304.2	225	195	265	245	298
8	Calcium (as Ca)	mg/l	212.6	152.6	128.6	210.4	196.2	204.6
9	Magnesium (as Mg)	mg/l	124.6	98.6	86.2	92.6	86.2	108.1
10	Boron (as B)	mg/l	0.09	0.06	0.10	0.08	0.05	0.10
11	Chlorides (as Cl)	mg/l	2602.5	2578.6	2220.2	2696.2	2615.0	2598.5
12	Sulphates (as SO ₄)	mg/l	538.6	325.6	312.6	412.8	387.4	367.5
13	Fluorides (as F)	mg/l	1.30	1.10	1.0	1.30	1.21	1.41
14	Nitrates (as NO ₃)	mg/l	24.5	23.60	21.8	23.90	25.40	18.5
15	Sodium as Na	mg/l	1522.1	1490.6	1307.5	1587.7	1545.4	1489.2
16	Potassium as K	mg/l	161.2	154.3	121.8	129.5	126.8	135.6
17	Cyanides(as CN)	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
18	Cadmium (as Cd)	mg/l	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
19	Total Arsenic (as As)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
20	Copper (as Cu)	mg/l	0.18	0.13	0.10	0.03	0.04	0.02
21	Lead (as Pb)	mg/l	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
22	Manganese (as Mn)	mg/l	0.03	0.01	<0.01	<0.01	<0.01	<0.01
23	Iron (as Fe)	mg/l	0.16	0.14	0.11	0.13	0.17	0.08
24	Total Chromium (as Cr)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Selenium (as Se)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26	Zinc (as Zn)	mg/l	0.21	0.16	0.12	0.16	0.25	0.18
27	Aluminum (as Al)	mg/l	0.01	0.01	0.01	0.01	0.01	0.01
28	Mercury (as Hg)	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

**TABLE-3.43
GROUND WATER NEAR ASHPOND AREA**

Sr. No	Parameters	MOU	South side Towards sea					
			16.4.25	14.05.25	17.6.25	17.7.25	18.8.25	12.9.25
1	pH	---	8.86	8.11	8.07	7.89	7.94	8.12
2	Colour	Hazen	9	7	11	9	11	8
3	Conductivity	µs/cm	42740	40630	43120	46730	47820	45180
4	Turbidity	NTU	15	11	17	21	19	24
5	TDS	mg/l	27781	23653	28028	32070	34420	32020
6	Total Hardness (as CaCO ₃)	mg/l	3798	3052	3358	3757	3899	3634
7	Total Alkalinity as (as CaCO ₃)	mg/l	765.8	335	556	725	797	635
8	Calcium (as Ca)	mg/l	698.5	508.2	592.6	692.4	715.6	689.5
9	Magnesium (as Mg)	mg/l	498.5	432.8	456	492.6	512.8	464.2
10	Boron (as B)	mg/l	0.14	0.09	0.06	0.12	0.09	0.07
11	Chlorides (as Cl)	mg/l	11725.6	13706.4	14386.2	15389.5	15623.1	14862.8
12	Sulphates (as SO ₄)	mg/l	3865.2	568.4	645.6	859.6	997.4	917.8
13	Fluorides (as F)	mg/l	2.28	1.80	2.1	1.83	1.92	1.32
14	Nitrates (as NO ₃)	mg/l	25.6	26.90	24.8	21.65	19.40	23.5
15	Sodium as Na	mg/l	7875.5	7745.2	8164.8	8791.8	8961.4	8216.5
16	Potassium as K	mg/l	349.5	328.7	348.6	382.7	409.5	342.5
17	Cyanides(as CN)	mg/l	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
18	Cadmium (as Cd)	mg/l	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
19	Total Arsenic (as As)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
20	Copper (as Cu)	mg/l	0.09	0.05	0.07	0.05	0.02	0.01
21	Lead (as Pb)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
22	Manganese (as Mn)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
23	Iron (as Fe)	mg/l	0.27	0.23	0.21	0.18	0.22	0.12
24	Total Chromium (as Cr)	mg/l	0.01	0.01	<0.01	0.01	0.01	0.01
25	Selenium (as Se)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
26	Zinc (as Zn)	mg/l	0.28	0.23	0.19	0.24	0.17	0.14
27	Aluminum (as Al)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
28	Mercury (as Hg)	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Annexure-I
Ambient Air Quality Levels

ANNEXURE-I
AMBIENT AIR QUALITY LEVELS

AAQ1 - Palavalasa village													
Sr.No	Monitoring Date	PM2.5	PM10	SO ₂	NO ₂	CO	O ₃	NH ₃	Pb	As	Ni	Bap	C6H6
1	01.04.2025	47.9	79.4	13.1	13.9	217	7.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
2	02.04.2025	51.8	75.9	14.7	15	228	6.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
3	10.04.2025	53.7	82.4	13.2	13.5	210	8.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
4	11.04.2025	49.2	74.8	11.7	15.1	198	6.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
5	14.04.2025	47.7	75.7	12.1	13.9	212	9.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
6	15.04.2025	53.7	72.4	13.1	14.1	236	7.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
7	24.04.2025	49.3	78.1	13	13.5	209	5.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
8	25.04.2025	53.7	74.6	11.6	14.9	186	6.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
9	28.04.2025	50.3	80.3	12.6	12.5	205	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
10	29.04.2025	47.2	77.3	14.2	15.4	227	8.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
11	08.05.2025	51.3	76.7	11.7	14.7	230	8.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
12	09.05.2025	49.5	79.3	12.3	13.8	214	7.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
13	13.05.2025	51.4	76.2	14.1	15.3	223	9.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
14	14.05.2025	46.9	78	12.1	14.3	202	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
15	22.05.2025	50.1	74.4	13.2	13.9	225	6.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
16	23.05.2025	47.3	73.5	12.4	14.5	245	8.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
17	26.05.2025	50.4	75.2	10.3	13.5	196	6.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
18	27.05.2025	48.2	78.1	13.3	14.1	216	5.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
19	05.06.2025	47.6	72.4	14.3	15	215	7.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
20	06.06.2025	52.3	75.5	12.8	14.6	243	9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
21	09.06.2025	49.3	70.3	15.3	14.7	208	8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
22	10.06.2025	50.1	74.2	13.7	13.2	218	9.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
23	19.06.2025	52.8	77.6	15	14.7	253	5.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
24	20.06.2025	50.1	69.7	13.7	12.5	261	10.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
25	23.06.2025	48.5	73.1	14.7	14.1	224	5.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
26	24.06.2025	51	74.3	14.3	13.8	232	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
27	04.07.2025	50.4	76.1	14.4	13.8	229	8.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
28	07.07.2025	49.7	72.6	13.9	15.5	252	7.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
29	08.07.2025	45.8	74	15.4	13.5	222	8.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
30	17.07.2025	47.5	71.3	14.8	14.1	244	10.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
31	18.07.2025	50.4	78.3	13.5	13.5	267	7.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
32	21.07.2025	47.5	66.8	14.8	13.4	249	9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
33	22.07.2025	51.3	76.8	16.2	12.9	238	11.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
34	30.07.2025	48.4	71.4	15.4	14.7	220	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
35	31.07.2025	46.3	68.3	14.2	12.5	278	8.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
36	04.08.2025	46.8	72.5	13.7	15.7	247	9.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
37	05.08.2025	51.3	75.8	14.7	13.8	238	10	<20	<1.0	<1.0	<1.0	<0.01	<0.01
38	14.08.2025	43.1	68.2	16.3	15.4	240	10.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
39	15.08.2025	49.4	74.2	15.6	12.9	230	12.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
40	18.08.2025	52	71.3	12.8	15.4	285	8.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
41	19.08.2025	48.2	70	15.6	13.2	235	11.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
42	28.08.2025	45.3	72.5	14.7	14.8	256	12.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
43	29.08.2025	51.3	74.6	16.2	13.9	206	9.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
44	02.09.2025	52.6	76	15.8	14.5	271	11.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
45	03.09.2025	51.6	80.2	16.1	15.1	263	8.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
46	11.09.2025	50.2	77.3	15.1	14.2	251	11.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
47	12.09.2025	52.7	75.4	16.6	13.8	255	11.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
48	15.09.2025	52.8	74.8	14.9	14.2	296	10.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
49	17.09.2025	53.4	78.3	16.3	15.2	260	9.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
50	25.09.2025	50.8	76	16.8	13.6	271	10.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
51	26.09.2025	52.6	74.8	15.9	14.6	231	13.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Minimum value		43.1	66.8	10.3	12.5	186	5.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Maximum value		53.7	82.4	16.8	15.7	296	13.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Average value		49.9	74.8	14.2	14.2	235	8.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
98th Percentile		53.7	80.3	16.6	15.5	285	12.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01

All the above values are expressed in $\mu\text{g}/\text{m}^3$ except Pb,As,Ni and Bap are ng/m^3

ANNEXURE-I
AMBIENT AIR QUALITY LEVELS

AAQ2 - Appikonda village													
Sr.No	Monitoring Date	PM2.5	PM10	SO ₂	NO ₂	CO	O ₃	NH ₃	Pb	As	Ni	Bap	C6H6
1	04.04.2025	45.9	71.5	11.2	12.8	138	7.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
2	05.04.2025	48.6	68.1	10.8	13.6	173	5.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
3	07.04.2025	47.5	73.1	11.1	12.5	163	6.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
4	08.04.2025	46.3	69.2	12.9	14.3	183	7.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
5	17.04.2025	44.7	73.6	10.5	12.2	180	6.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
6	18.04.2025	45.8	67.3	12.7	14.2	172	5.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
7	21.04.2025	46.3	72.3	10.9	12.3	159	6.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
8	22.04.2025	48.8	68.3	12.7	13.7	144	5.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
9	02.05.2025	42.3	67.9	10.3	13.5	153	6.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
10	03.05.2025	46.5	71.4	12.3	13.1	160	7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
11	05.05.2025	42.6	69.5	10.2	12.9	178	6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
12	06.05.2025	44.2	68.2	11.5	14.1	156	8.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
13	15.05.2025	46.8	70	9.6	12.9	175	5.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
14	16.05.2025	43.7	66.9	11.9	12.5	157	6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
15	29.05.2025	41.5	68.7	12.6	13	174	7.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
16	30.05.2025	45.3	71.6	11.5	12.7	134	6.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
17	02.06.2025	45.2	70.9	12	14.2	166	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
18	03.06.2025	42.9	68.2	13.6	14.4	142	8.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
19	13.06.2025	43.6	67.3	11.9	13.6	191	7.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
20	14.06.2025	40.6	65	13.5	12.8	138	9.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
21	16.06.2025	42.3	67.2	13.8	13.1	188	6.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
22	17.06.2025	40.1	63.7	12.7	12.4	139	7.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
23	27.06.2025	44	70.3	14.3	13.7	187	8.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
24	28.06.2025	41.7	68.4	13.1	14	116	7.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
25	10.07.2025	47.2	68.3	13.4	13	152	9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
26	11.07.2025	45.2	71.4	14.4	12.3	171	6.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
27	14.07.2025	41.5	64.7	13.1	12.4	134	8.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
28	15.07.2025	43.8	68.2	14.3	10.7	167	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
29	24.07.2025	39.7	72.3	15	13.2	204	10.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
30	25.07.2025	43.3	66.9	13.5	12.5	168	8.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
31	28.07.2025	41.9	67.7	15.5	13.3	173	9.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
32	29.07.2025	44.9	71.6	13.9	12.8	207	6.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
33	07.08.2025	44	70.3	15.1	12.2	182	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
34	08.08.2025	42.7	67.8	13.1	13.7	158	8.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
35	11.08.2025	38.3	62.1	14.8	14.2	217	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
36	12.08.2025	45.6	64.6	13	12.1	154	8.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
37	21.08.2025	36.5	70.3	14.3	13.8	187	9.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
38	22.08.2025	45.1	63.3	12.8	14.1	155	9.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
39	25.08.2025	38.7	70.6	14.2	13.7	180	8.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
40	26.08.2025	42.7	68	12.6	13.7	194	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
41	04.09.2025	48.2	75.5	15.1	13.7	169	9.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
42	05.09.2025	46.7	72.3	14.6	12	175	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
43	08.09.2025	50.3	75.3	16.2	15.3	204	9.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
44	09.09.2025	48.2	73.5	14.5	13.2	171	7.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
45	18.09.2025	50.2	76.4	15.4	15.3	184	10.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
46	19.09.2025	47.7	73.6	14.3	14.8	191	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
47	22.09.2025	50.8	71.4	16	15.2	167	10.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
48	23.09.2025	51.5	72.5	14.1	13.7	211	8.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Minimum value		36.5	62.1	9.6	10.7	116	5.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Maximum value		51.5	76.4	16.2	15.3	217	10.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Average value		44.6	69.5	13.1	13.3	170	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
98th Percentile		50.8	75.6	16.0	15.3	211	10.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01

All the above values are expressed in $\mu\text{g}/\text{m}^3$ except Pb,As,Ni and Bap are ng/m^3

ANNEXURE-I
AMBIENT AIR QUALITY LEVELS

AAQ3 - Devada village													
Sr.No	Monitoring Date	PM2.5	PM10	SO ₂	NO ₂	CO	O ₃	NH ₃	Pb	As	Ni	Bap	C6H6
1	04.04.2025	40.2	66.1	11.3	13.5	177	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
2	05.04.2025	37.8	70.2	12.1	14.1	183	6.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
3	07.04.2025	45.1	66.3	10.1	13	180	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
4	08.04.2025	38.2	62.9	12.1	14.3	196	5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
5	17.04.2025	43.5	67.2	11.8	12.4	162	7.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
6	18.04.2025	38.3	63	10.8	13.3	198	6.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
7	21.04.2025	45.2	66.6	11.7	12.8	165	8.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
8	22.04.2025	42.2	65.4	11.6	15.1	159	6.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
9	02.05.2025	37.5	63.4	12.2	13	159	6.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
10	03.05.2025	41.4	67.4	11.2	13.3	169	7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
11	05.05.2025	43.7	65.5	11.3	14.2	176	5.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
12	06.05.2025	42.2	63.3	10.6	13.7	182	6.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
13	15.05.2025	39.8	64.5	12.1	14.1	175	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
14	16.05.2025	43.6	67.3	11.8	12.8	184	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
15	29.05.2025	38.6	63.9	12.8	13.8	178	6.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
16	30.05.2025	40.2	65.2	10.5	14.1	145	5.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
17	02.06.2025	40.2	59.7	13.1	13.8	144	7.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
18	03.06.2025	36.4	63.6	10.1	14.1	185	8.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
19	13.06.2025	38.6	61.4	13.1	15	161	4.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
20	14.06.2025	35.6	59.5	13.7	14.5	198	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
21	16.06.2025	40.8	62.4	13.9	14.9	160	6.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
22	17.06.2025	39.4	63.5	10.7	13.6	200	8.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
23	27.06.2025	40.2	60.4	13.2	15.4	163	5.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
24	28.06.2025	36.7	61.4	12.1	14.9	161	7.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
25	10.07.2025	36.4	63.4	11.6	12.6	203	8.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
26	11.07.2025	40.2	60.7	13.1	15	154	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
27	14.07.2025	41.4	65.1	11.6	13.8	211	5.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
28	15.07.2025	36.4	56.6	12.6	15.4	186	6.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
29	24.07.2025	43.6	66.1	12.4	13.7	174	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
30	25.07.2025	36.8	60.6	12.3	14.5	188	7.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
31	28.07.2025	43	64.1	11.7	14.2	177	6.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
32	29.07.2025	39.5	62.3	13.2	15.8	167	6.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
33	07.08.2025	43.2	59.8	10.1	14.5	232	9.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
34	08.08.2025	38.1	63.9	12.5	13.8	188	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
35	11.08.2025	39.1	57.3	12.1	15.7	229	6.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
36	12.08.2025	45.2	67.2	13.4	14.2	173	8.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
37	21.08.2025	37.2	68.2	11.5	15.6	192	8.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
38	22.08.2025	44.2	63.8	13.1	13.3	174	9.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
39	25.08.2025	40.7	61.6	10.2	16	195	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
40	26.08.2025	43.2	58.6	12.5	14.6	202	8.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
41	04.09.2025	46.3	68.3	12.2	15.2	243	10.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
42	05.09.2025	51.5	78.4	13.9	15.1	213	8.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
43	08.09.2025	48.1	78.3	14.2	16.7	240	8.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
44	09.09.2025	46.2	63.1	15	15.5	198	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
45	18.09.2025	52.6	77.3	13.6	16.4	203	10.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
46	19.09.2025	48.2	80.2	14.5	15.9	199	8.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
47	22.09.2025	50.2	68.3	15.1	14.8	206	9.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
48	23.09.2025	53.1	72.2	13.9	16.1	227	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Minimum value		35.6	56.6	10.1	12.4	144	4.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Maximum value		53.1	80.2	15.1	16.7	243	10.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Average value		41.9	65.1	12.3	14.4	186	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
98th Percentile		52.6	78.5	15.0	16.4	240	10.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01

All the above values are expressed in $\mu\text{g}/\text{m}^3$ except Pb,As,Ni and Bap are ng/m^3

ANNEXURE-I
AMBIENT AIR QUALITY LEVELS

AAQ-4 Cheepurupalle village													
Sr.No	Monitoring Date	PM2.5	PM10	SO ₂	NO ₂	CO	O ₃	NH ₃	Pb	As	Ni	Bap	C6H6
1	04.04.2025	48.6	75.3	10.3	11.6	175	6.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
2	05.04.2025	42.3	69	12.3	13.5	195	5.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
3	07.04.2025	46.3	71.5	11.8	13.3	165	6.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
4	08.04.2025	50.5	72.7	12.5	13.8	203	5.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
5	17.04.2025	45.6	71.6	11.5	13	168	6.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
6	18.04.2025	49.8	69.6	12.7	14	203	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
7	21.04.2025	47.3	72.4	12	13.2	193	7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
8	22.04.2025	47.3	74.3	13.6	14.3	158	6.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
9	02.05.2025	45.1	68.3	9.4	12.3	190	5.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
10	03.05.2025	39.4	71.5	11.8	13	185	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
11	05.05.2025	47.7	67.9	10.9	14	225	5.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
12	06.05.2025	46.2	70.5	11.6	13.3	193	6.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
13	15.05.2025	47.9	68	10.6	12.7	183	5.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
14	16.05.2025	45.5	72.5	12.6	14.5	193	8.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
15	29.05.2025	43.8	66.4	11.1	13.9	208	6.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
16	30.05.2025	45.2	69.4	10.8	12.2	197	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
17	02.06.2025	38.5	65.3	11.1	13	212	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
18	03.06.2025	42.6	68.3	13.7	14.3	167	8.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
19	13.06.2025	43.1	70.9	12.6	14.7	197	7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
20	14.06.2025	42.6	67.3	13.2	12.6	224	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
21	16.06.2025	45.1	66.3	12.3	13.4	196	6.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
22	17.06.2025	41.9	65.8	13.7	12.6	236	9.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
23	27.06.2025	44.8	69.4	12.8	14.6	221	7.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
24	28.06.2025	41.6	64.3	11.2	13.5	205	8.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
25	10.07.2025	41.4	62.7	12.3	13.6	215	8.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
26	11.07.2025	39.2	67.3	14.1	12.2	157	6.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
27	14.07.2025	41	63.2	13.8	13.5	204	8.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
28	15.07.2025	42.1	65.3	11.6	14.2	253	6.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
29	24.07.2025	43	63.7	13.5	12.2	182	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
30	25.07.2025	40.7	67.1	12.7	14.4	251	8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
31	28.07.2025	42.7	66.8	14	13.6	207	9.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
32	29.07.2025	39.5	67.5	13.1	12.8	234	6.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
33	07.08.2025	38.2	65.6	12.8	13.4	182	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
34	08.08.2025	41	63.7	12.8	14	222	8.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
35	11.08.2025	37.8	59.3	11.6	12.4	218	6.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
36	12.08.2025	35.2	61.7	10.3	13.2	240	7.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
37	21.08.2025	39.8	63.2	13.2	14.2	196	6.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
38	22.08.2025	40.1	63.5	13.6	14	238	7.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
39	25.08.2025	39.5	57.3	12.2	13.3	221	8.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
40	26.08.2025	37.3	63.9	11.8	14.2	187	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
41	04.09.2025	45.2	76.3	10.9	14.9	169	9.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
42	05.09.2025	43.6	73.5	14.3	15.2	239	6.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
43	08.09.2025	45.7	70.1	12.5	13.9	205	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
44	09.09.2025	47.3	75.3	11.8	14.4	257	5.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
45	18.09.2025	50.2	73.7	11.3	15.7	183	8.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
46	19.09.2025	46.5	72.7	14.2	14.7	255	6.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
47	22.09.2025	48.3	70.3	10.3	15	208	9.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
48	23.09.2025	45.5	74.2	13.3	14.3	204	5.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Minimum value		35.2	57.3	9.4	11.6	157	5.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Maximum value		50.5	76.3	14.3	15.7	257	9.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Average value		43.5	68.3	12.3	13.6	205	7.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
98th Percentile		50.2	75.4	14.2	15.2	255	9.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01

All the above values are expressed in $\mu\text{g}/\text{m}^3$ except Pb,As,Ni and Bap are ng/m^3

ANNEXURE-I
AMBIENT AIR QUALITY LEVELS

Sr.No	Monitoring Date	AAQ-5 Dasaripeta village											
		PM2.5	PM10	SO₂	NO₂	CO	O₃	NH₃	Pb	As	Ni	Bap	C6H6
1	01.04.2025	42.3	74.5	10.3	12.7	144	6.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
2	02.04.2025	45.2	69.5	12.3	14.3	147	5.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
3	10.04.2025	37.5	72.4	11.2	13.3	142	6.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
4	11.04.2025	47.4	68.6	12.8	14.7	161	5.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
5	14.04.2025	39.3	75.6	10.5	12.5	140	6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
6	15.04.2025	47.4	65	12.3	15.2	160	7.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
7	24.04.2025	38.1	71	11.6	12	164	6.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
8	25.04.2025	47.6	67.1	12.5	14.5	159	5.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
9	28.04.2025	41.4	72.4	10.8	13.2	138	4.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
10	29.04.2025	44.7	69.3	11.5	14.1	148	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
11	08.05.2025	38.5	68.3	11.2	13.1	175	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
12	09.05.2025	42.9	73	10.8	12.7	133	6.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
13	13.05.2025	39.1	69.7	12.1	13.7	155	7.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
14	14.05.2025	45.1	72.1	11.3	14.6	147	6.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
15	22.05.2025	43.6	70.3	10.2	12.8	168	6.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
16	23.05.2025	45.1	68.1	10.8	14.4	146	8.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
17	26.05.2025	41.6	66.8	12.5	13.5	177	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
18	27.05.2025	38.6	70.6	11	13.9	145	6.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
19	05.06.2025	42.5	71.5	13	13.9	160	6.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
20	06.06.2025	39.4	69.2	10.5	13.5	149	8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
21	09.06.2025	41.8	70.2	13	14.5	183	6.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
22	10.06.2025	41.3	68.3	11.1	13.8	163	7.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
23	19.06.2025	37.5	65.7	12	14.5	153	9.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
24	20.06.2025	40.8	64.3	13.1	13.8	180	8.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
25	23.06.2025	37.7	70	13.8	13.3	162	6.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
26	24.06.2025	41.4	66.8	12.2	14.7	174	7.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
27	04.07.2025	44.7	68.4	11.5	12.7	182	8.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
28	07.07.2025	40.2	66.3	12.7	14.4	177	6.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
29	08.07.2025	37.2	73.9	11.5	13.3	197	7.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
30	17.07.2025	38.7	65.4	12.2	14.7	151	6.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
31	18.07.2025	40.3	69.4	10.5	13.3	167	8.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
32	21.07.2025	38.2	61.4	14.2	14.7	168	7.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
33	22.07.2025	40.5	73.7	12.3	12.1	176	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
34	30.07.2025	38.8	63.9	13.3	15.6	162	6.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
35	31.07.2025	42.3	70.3	11.7	13.4	148	8.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
36	04.08.2025	40.4	64.8	10	14.6	200	9.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
37	05.08.2025	36.5	69.5	13.5	13.2	163	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
38	14.08.2025	45.2	70.3	10	15.2	215	8.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
39	15.08.2025	40.6	68.6	12.6	13.5	137	8.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
40	18.08.2025	38	65.8	11.4	15.2	185	9.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
41	19.08.2025	40.1	64.6	12	13.5	154	6.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
42	28.08.2025	38.2	70.1	10.8	14	194	8.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
43	29.08.2025	42.5	67.1	11.2	14.4	148	7.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
44	02.09.2025	51.4	76.2	12.1	13.4	211	8.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
45	03.09.2025	52.7	72.5	14.9	14.5	188	6.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
46	11.09.2025	48.3	75.6	12.1	15.5	226	8.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
47	12.09.2025	50.2	73.6	14	14.8	162	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
48	15.09.2025	47.3	72.5	13.5	15.4	196	8.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
49	17.09.2025	52.3	77.4	13.4	14.8	179	5.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
50	25.09.2025	50.8	73.6	12.9	15.3	205	9.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
51	26.09.2025	53.1	76.3	12.6	13.8	173	6.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Minimum value		36.5	61.4	10.0	12.0	133	4.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Maximum value		53.1	77.4	14.9	15.6	226	9.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Average value		42.7	69.8	12.0	14.0	167	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
98th Percentile		52.7	76.3	14.2	15.5	215	9.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01

All the above values are expressed in $\mu\text{g}/\text{m}^3$ except Pb,As,Ni and Bap are ng/m^3

ANNEXURE-I
AMBIENT AIR QUALITY LEVELS

AAQ-6 Islampeta village													
Sr.No	Monitoring Date	PM2.5	PM10	SO ₂	NO ₂	CO	O ₃	NH ₃	Pb	As	Ni	Bap	C6H6
1	01.04.2025	36.4	59.3	8.5	11.3	129	7.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
2	02.04.2025	38.4	61.4	11.7	13.2	151	5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
3	10.04.2025	35.4	63.2	9.8	12.8	132	7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
4	11.04.2025	41.2	58	12.3	13.7	146	5.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
5	14.04.2025	35.4	62.3	10.5	12.8	149	7.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
6	15.04.2025	40.8	65.7	9.8	13.6	138	4.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
7	24.04.2025	41	61.5	10.9	12.6	150	6.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
8	25.04.2025	38.2	59	10.3	13.3	156	5.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
9	28.04.2025	33.6	63.2	11.3	14.2	143	4.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
10	29.04.2025	41.5	57.3	12.2	13.8	158	6.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
11	08.05.2025	38.7	61.5	10.7	12	144	6.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
12	09.05.2025	35.2	64.7	11.7	14.1	127	5.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
13	13.05.2025	37.7	59.6	8.9	13.5	151	6.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
14	14.05.2025	39.1	61.3	13.8	13.2	139	7.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
15	22.05.2025	35.5	58.7	9.6	11.7	164	6.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
16	23.05.2025	42.6	67.3	11.3	13.1	135	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
17	26.05.2025	38.4	57.9	10	13.3	165	5.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
18	27.05.2025	36.1	62.3	11.8	12.7	146	6.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
19	05.06.2025	40.4	64.5	13.2	12.7	157	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
20	06.06.2025	37.1	57.3	10.6	13/.6	133	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
21	09.06.2025	40.2	62.6	11.5	14.2	164	7.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
22	10.06.2025	35.5	58.1	12.7	14.5	121	9.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
23	19.06.2025	38	61.7	11.3	12.4	177	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
24	20.06.2025	39	64.1	13.7	13.1	117	8.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
25	23.06.2025	35.4	60.9	11.7	14	178	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
26	24.06.2025	40.3	59.1	12.6	13.5	128	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
27	04.07.2025	38.3	61.9	12.7	13.5	143	9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
28	07.07.2025	41.5	60.5	11.4	14.6	162	5.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
29	08.07.2025	38.1	57.8	12.7	13	150	8.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
30	17.07.2025	35.7	61.3	13.5	14	150	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
31	18.07.2025	35.9	59.1	12.5	13.6	163	9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
32	21.07.2025	42.2	66.3	13.6	14.7	146	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
33	22.07.2025	33.3	58.2	11.6	13.3	164	8.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
34	30.07.2025	38.4	62.3	13.4	14.1	157	6.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
35	31.07.2025	41.5	60.6	11.4	13.2	183	9.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
36	04.08.2025	35.1	59.3	13.2	14.2	157	8.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
37	05.08.2025	37.2	56.9	10.1	12.5	149	6.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
38	14.08.2025	34.9	60.7	13.1	13.7	164	7.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
39	15.08.2025	37.5	57.7	12.2	13	137	8.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
40	18.08.2025	32.7	62	11.7	12.5	177	8.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
41	19.08.2025	39.2	62.7	12.3	14.2	133	8.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
42	28.08.2025	39.1	61.1	13	12.1	178	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
43	29.08.2025	36.3	58.7	12.1	13.7	144	7.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
44	02.09.2025	43.2	68.3	11.3	15.7	144	9.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
45	03.09.2025	39.8	66.5	12.6	13.2	166	7.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
46	11.09.2025	38.7	69	11.2	15.2	151	9.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
47	12.09.2025	40.1	65.7	13.7	13.8	154	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
48	15.09.2025	38.5	69.2	11.6	14	164	9.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
49	17.09.2025	41.8	67.2	13.8	13.5	150	6.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
50	25.09.2025	45.6	63.7	11.1	13.6	165	9.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
51	26.09.2025	38.9	68.3	13.6	14.7	161	6.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Minimum value		32.7	56.9	8.5	11.3	117	4.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Maximum value		45.6	69.2	13.8	15.7	183	9.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Average value		38.3	61.9	11.8	13.5	151	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
98th Percentile		43.2	69.0	13.8	15.2	178	9.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01

All the above values are expressed in $\mu\text{g}/\text{m}^3$ except Pb,As,Ni and Bap are ng/m^3

ANNEXURE-I
AMBIENT AIR QUALITY LEVELS

AAQ-7 Pittavanipalem village													
Sr.No	Monitoring Date	PM2.5	PM10	SO₂	NO₂	CO	O₃	NH₃	Pb	As	Ni	Bap	C6H6
1	04.04.2025	43.4	73.7	12.1	13.6	168	6.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
2	05.04.2025	47.5	79.3	13.8	14	165	4.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
3	07.04.2025	38.8	75.7	10.9	13.3	153	8.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
4	08.04.2025	48.8	74.4	13.7	15	154	5.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
5	17.04.2025	49.3	77.6	12.7	13.6	171	7.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
6	18.04.2025	43.4	68.2	12.4	14.1	192	6.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
7	21.04.2025	40.5	71.5	11.8	13.1	174	9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
8	22.04.2025	50.3	76.4	12.7	14.4	159	5.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
9	02.05.2025	46.1	71	11.6	14.5	181	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
10	03.05.2025	37.7	76.2	12.3	13.2	153	6.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
11	05.05.2025	42.7	73	11.8	12.4	166	8.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
12	06.05.2025	40.8	76.3	12.2	14	140	6.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
13	15.05.2025	47.3	74.9	11.6	13.3	184	5.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
14	16.05.2025	41.1	71.7	10.9	12.7	178	7.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
15	29.05.2025	43.7	68.8	12.7	14.1	157	9.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
16	30.05.2025	46.3	73.6	11.2	13.1	145	6.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
17	02.06.2025	48.8	74.2	13.4	15.3	166	6.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
18	03.06.2025	40.5	72.4	11.2	14	177	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
19	13.06.2025	45.4	76.2	13.6	13.2	151	8.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
20	14.06.2025	43.6	72.5	11.1	14.8	174	9.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
21	16.06.2025	50	78.1	13.4	14.1	169	4.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
22	17.06.2025	43.9	67.9	11.5	13.5	194	7.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
23	27.06.2025	46.4	72	13.7	14.9	142	8.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
24	28.06.2025	49.1	69.8	12.2	13.9	161	7.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
25	10.07.2025	51.6	77.9	12.6	14.1	180	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
26	11.07.2025	44.3	69.5	12.3	13.7	165	6.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
27	14.07.2025	48.2	79.9	13.6	12	174	9.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
28	15.07.2025	41	69.6	12.2	15	162	8.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
29	24.07.2025	52.8	81.8	11.9	12.9	204	10.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
30	25.07.2025	44.7	65	13.8	14.4	182	6.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
31	28.07.2025	49.2	75.7	12.2	13.7	156	9.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
32	29.07.2025	46.5	72.4	13.3	14.8	183	6.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
33	07.08.2025	48.2	74.3	11.1	13.8	215	8.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
34	08.08.2025	42.6	72.7	13.1	12.5	176	8.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
35	11.08.2025	45.9	76.3	12.1	13.9	192	7.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
36	12.08.2025	42.9	72.8	13	13.8	207	6.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
37	21.08.2025	47.6	78.2	12.2	14.8	165	9.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
38	22.08.2025	44.2	68.2	12.5	13.2	221	8.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
39	25.08.2025	46.9	72.1	11.3	13.6	174	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
40	26.08.2025	48.4	70.4	12.7	14.2	169	8.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
41	04.09.2025	51.3	77.8	13.2	14.6	226	6.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
42	05.09.2025	46.3	79.3	14.5	13.8	201	7.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
43	08.09.2025	49	80.1	14.2	13.2	203	8.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
44	09.09.2025	45.6	75.3	16	15.1	232	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
45	18.09.2025	50.7	79.3	14.3	13.6	176	8.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
46	19.09.2025	44.7	77.3	15.5	14.5	246	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
47	22.09.2025	50	78.3	15.2	13.7	185	8.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
48	23.09.2025	44.5	80	14.1	15.5	194	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Minimum value		37.7	65.0	10.9	12.0	140	4.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Maximum value		52.8	81.8	16.0	15.5	246	10.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Average value		45.9	74.4	12.7	13.9	178	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
98th Percentile		51.7	80.2	15.5	15.3	233	9.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01

All the above values are expressed in $\mu\text{g}/\text{m}^3$ except Pb,As,Ni and Bap are ng/m^3

ANNEXURE-I
AMBIENT AIR QUALITY LEVELS

AAQ-8 Kalapaka village													
Sr.No	Monitoring Date	PM2.5	PM10	SO ₂	NO ₂	CO	O ₃	NH ₃	Pb	As	Ni	Bap	C6H6
1	01.04.2025	38.8	72.5	9.2	11.3	121	7.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
2	02.04.2025	46.9	64	11.6	15.2	140	4.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
3	10.04.2025	42.5	68.8	9.3	12.2	128	6.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
4	11.04.2025	42.4	70.3	12.4	14.7	163	6.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
5	14.04.2025	42.5	67.5	11.6	12.3	152	5.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
6	15.04.2025	47.5	62.6	13	14.5	152	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
7	24.04.2025	40.9	72.5	10.8	11.5	109	7.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
8	25.04.2025	44.7	67.6	12.4	14.9	170	4.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
9	28.04.2025	46.3	72.4	11.6	13.5	183	6.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
10	29.04.2025	42.2	66.3	10.5	12.8	155	7.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
11	08.05.2025	41.1	68.9	10.3	12	136	6.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
12	09.05.2025	44.8	67.3	12.5	14.7	126	5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
13	13.05.2025	39.5	65.2	10.7	13.2	143	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
14	14.05.2025	40.3	68.e	13.2	14.2	153	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
15	22.05.2025	44.8	63.9	11.3	13	167	5.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
16	23.05.2025	45.4	65.9	11.5	14	142	8.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
17	26.05.2025	43.2	68.9	10.8	13.6	124	7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
18	27.05.2025	40.1	63.6	11.6	14.2	158	5.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
19	05.06.2025	38.5	63.5	11.8	12.7	156	7.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
20	06.06.2025	41.2	64.1	11.4	14.2	133	6.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
21	09.06.2025	37.6	62.1	13.6	14.1	156	7.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
22	10.06.2025	42.6	65	12.1	13.8	135	8.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
23	19.06.2025	40.8	60.5	13	13.7	180	6.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
24	20.06.2025	41.8	62.7	13.2	14	124	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
25	23.06.2025	38.4	65.7	12.5	14.3	137	8.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
26	24.06.2025	36.5	60.4	12.6	13.7	140	6.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
27	04.07.2025	42.7	60.9	13	12.5	142	9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
28	07.07.2025	38.7	67.3	12.8	13.5	162	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
29	08.07.2025	41.3	59.5	14.8	12.9	178	8.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
30	17.07.2025	39.5	68.7	12.9	14	164	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
31	18.07.2025	38.7	67.3	14.2	12.5	166	8.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
32	21.07.2025	44.1	65.9	14.7	13.8	153	5.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
33	22.07.2025	36.3	68.3	13.7	13.1	144	9.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
34	30.07.2025	39.7	63.6	13.4	11.6	169	5.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
35	31.07.2025	41.5	59.2	12.7	13.7	197	7.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
36	04.08.2025	37.5	63.8	13.7	13.6	183	7.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
37	05.08.2025	40.5	65.2	14.2	12.8	151	8.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
38	14.08.2025	38.1	62.4	12.8	13.9	192	7.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
39	15.08.2025	41.3	59.7	14.8	13.2	151	7.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
40	18.08.2025	35.5	64.3	13.7	12.8	180	7.5	<20	<1.0	<1.0	<1.0	<0.01	<0.01
41	19.08.2025	40.7	58.7	10.7	13.6	162	6.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
42	28.08.2025	33.1	65.6	14.3	12	158	8.4	<20	<1.0	<1.0	<1.0	<0.01	<0.01
43	29.08.2025	41.4	60	13.8	13	178	6.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
44	02.09.2025	45.1	73.2	11.8	15.4	170	9.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01
45	03.09.2025	43.1	70.2	15.7	13.9	168	6.6	<20	<1.0	<1.0	<1.0	<0.01	<0.01
46	11.09.2025	47.6	75.3	14.6	15.4	179	8.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
47	12.09.2025	43.9	73.5	16.3	14.2	168	6.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
48	15.09.2025	46.7	72.4	11.8	14.3	205	9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
49	17.09.2025	43.3	70.3	12.2	13.2	179	4.7	<20	<1.0	<1.0	<1.0	<0.01	<0.01
50	25.09.2025	45.7	74.3	12.4	14.6	181	9.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
51	26.09.2025	44	71.4	15.3	12.8	195	4.8	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Minimum value		33.1	58.7	9.2	11.3	109	4.2	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Maximum value		47.6	75.3	16.3	15.4	205	9.9	<20	<1.0	<1.0	<1.0	<0.01	<0.01
Average value		41.6	66.3	12.6	13.5	158	7.1	<20	<1.0	<1.0	<1.0	<0.01	<0.01
98th Percentile		47.5	74.3	15.7	15.4	197	9.3	<20	<1.0	<1.0	<1.0	<0.01	<0.01

All the above values are expressed in $\mu\text{g}/\text{m}^3$ except Pb,As,Ni and Bap are ng/m^3

Annexure-II
Water Balance Diagram

ANNEXURE-II
WATER BALANCE DIAGRAM

