adani

Power

Ref: APL/REL/EMD/MoEFCC/EC/288/05/24
Date: 24.05.2024

To,
Additional Principal Chief Conservator of Forest
Ministry of Environment, Forests & Climate Change,
Integrated Regional Office, Aranya Bhawan, North Block
Sector 19, Naya Raipur, Atal Nagar,
Chhattisgarh 492 002

Sub: Submission of Six-Monthly Environment Clearance (EC) Compliance Status Report for 2x685 MW Raipur Thermal Power Plant at Village Raikheda, Gaitara and Chicholi in Tilda Block of Raipur District, Chhattisgarh.

Ref: Environment clearance vide letter no. J-13012/62/2008-IA.II (T) dated 09.05.2011 and its subsequent amendment vide letter dated 10.06.2015, 13.06.2013, 18.11.2014, 04.02.2015. EC Transfer from Raipur Energen Ltd. to Adani Power Ltd. dated 24.04.2023.

Dear Sir,

With reference to the above, please find enclosed herewith Six-Monthly Environment Clearance (EC) compliance status report along with environmental monitoring reports as Ambient Air, Water Quality, Noise level, Soil quality, CAAQM data, Met. data, Greenbelt development, Fly ash data & CSR progress report etc. for the period of **October'2023 to March'2024** in soft copy (**e-mail**).

This is for your kind information and record please.

Thanking You,
Yours faithfully,
for Adani Power Limited, Raipur

(Santosh Kumar Singh)
Head – AESG

Encl.: As above

CC: Member Secretary,
Central Pollution Control Board,
Parivesh Bhavan, East Arjun Nagar,
New Delhi – 110 032

Regional Officer
Chhattisgarh Environment Conservation Board,
Commercial Complex,
Chhattisgarh Housing Board Colony,
Kabir Nagar, Raipur – 492 099, Chhattisgarh

Member Secretary,
Chhattisgarh Environment Conservation Board,
Prayavas Bhavan, North Block, Sector-19,
Naya Raipur – 490 009, Chhattisgarh

Adani Power Ltd
Adani Corporate House
Shantigram, S G Highway
Ahmedabad 382 421
Gujarat, India
CIN: L40100GJ1996PLC030533

Tel +91 79 2555 4444
Fax +91 79 2555 7177
www.adanipower.com

SIX MONTHLY COMPLIANCE REPORT OF ENVIRONMENT CLEARANCE (EC)

FOR

1370 (2x685) MW
Raipur Thermal Power Plant

At

Village Raikheda, Gaitara and Chicholi,
Tilda Block, Raipur District, Chhattisgarh

Submitted to:

Integrated Regional Office, Raipur
Ministry of Environment, Forest & Climate Change,
Central Pollution Control Board, New Delhi &
Chhattisgarh Environment Conservation Board, Raipur

Submitted by:

Environment Management Department

Adani Power Limited
Village Raikheda, Block Tilda,
District Raipur, Chhattisgarh

Period: October'2023 – March'2024

Table of Content

Sl. No.	Title	Annexures
1	**Introduction**	
2	**Compliance status of Environment Clearances (EC)**	
	List of Annexures	
3	Environmental Monitoring Reports **(From October'2023 – March'2024)** • Ambient Air Quality Report • Stack Emission Report • Ground Water Quality Report • Surface Water Quality Report • Wastewater Analysis Report • Ambient Noise Level Monitoring Report • Soil and Ash Analysis Report	**Annexure – I**
4	Rainwater Harvesting Ponds	**Annexure – II**
5	Hydrogeological study Report	**Annexure – III**
6	List of Pollution Control Equipment	**Annexure – IV**
7	Fly Ash generation and utilization	**Annexure – V**
8	Greenbelt Evaluation Report	**Annexure – VI**
9	CSR Progress report	**Annexure – VII**
10	Environment Statement FY 2022-23	**Annexure – VIII**
11	Radioactivity Test Certificate	**Annexure – IX**

*****

INTRODUCTION

Adani Power Limited, Raipur (formerly known as Raipur Energen Limited) has set up Coal based Thermal Power Plant of capacity 2x685 MW at Village Raikheda, Gaitara and Chicholi in Tilda block of Raipur District, Chhattisgarh.
Environmental Clearance has been granted by Hon'ble MoEFCC to M/s GMR Energy Ltd. vide letter No. J-13012/62/2008-IA. II (T), dated 09/05/2011. It was subsequently amended vide letter dated 13.06.2013, 18.11.2014. 04.02.2015 and 09.12.2015.

The company has been taken over by M/s Adani Power Ltd. (APL) & name of the company has been changed from M/s GMR Chhattisgarh Energy Limited to M/s Raipur Energen Limited (REL) with effect from 20th August 2019 as 100% subsidiary of M/s Adani Power Limited. Raipur TPP has also obtained transferred EC vide letter No.J-13012/62/2008-IA.II (T), dated 05.11.2019.

Environment Clearance is transferred from Raipur Energen Limited to **Adani Power Limited** vide letter no. J.13012/62/2008-IA.II (T), dated 24.04.2023. Under the Hon'ble NCLT vide its order dated 08.02.2023 sanctioning the scheme of amalgamation of Raipur Energen Limited with **Adani Power Limited** Subsequently.

APL Raipur has proposed expansion of the existing unit of 1370 (2x685) MW Coal based the Thermal Power Plant by adding 1600 (2x800) MW deploying the state-of-the-art technology based on Ultra Super Critical Technology within the existing plant boundary. **The Terms of Reference (ToR) for proposed expansion is already granted by MoEFCC, New Delhi vide File No: J-13012/62/2008-IA. II(T)) dated: 10.09.2023.**

Raipur Thermal Power Plant has a well-established Environmental Laboratory with equipped monitoring equipment, which are being used for monitoring environmental parameters.

Raipur Thermal Power Plant has engaged NABL Accredited Lab consultant for their service of sampling, monitoring and analysis of Environmental parameters as per statutory guidelines.

The company has adopted three peripheral Villages and executing most of the CSR works which is supported by the Adani Foundation, in those villages in the field of their livelihood, infrastructure development, cleanliness, community health and education.

Compliance Status of Environmental Clearance

vide letter No. J-13012/62/2008-IA. II (T), dated: 09th May 2011 and amendment dated: 13.06.2013, 18.11.2014, 04.02.2015, 09.12.2015, 05.11.2019 & 24.04.2023
EC Transfer from Raipur Energen Ltd. to Adani Power Ltd. 24.04.2023

Sl. No.	Conditions of EC	Compliance Status
A.	**Specific Conditions**	
(i)	Vision document specifying prospective plan for the site shall be formulated and submitted to the Ministry within six months.	Complied. The Vision document of Adani Power Limited was already submitted to MoEFCC, Regional Office (WCZ), Nagpur vide our office letter Ref: REL/MoEFCC/EC/2020F/ May/29, dated: 29th May 2020. Environment Clearance is transferred from Raipur Energen Limited to **Adani Power Limited** vide letter no. J.13012/62/2008-IA.II(T),dated 24.04.2023. Under the Hon'ble NCLT vide its order dated 08.02.2023 sanctioning the scheme of amalgamation of Raipur Energen Limited with Adani Power Limited.
(ii)	In case source of fuel supply now proposed to be run on imported coal from South Africa for running the power plant is proposed to be changed to domestic coal at a later stage, the project proponent shall apply for such a change in environmental clearance along with necessary documents as required under EIA notification, 2006 (and its amendments). In such a case the necessity for holding public hearing again or otherwise will be determined by the Ministry in consultation with the Expert Appraisal Committee (Thermal Power).	Being complied. Use of 100% domestic coal sourced from tolling linkage and open market. Talabira-1 Mine is not under operation as Mining Plan was expired and the revised mining plan is due for approval. Sulphur and Ash content of blended coal being used (procured from Market & E-Auction).
(iii)	Provision for installation of FGD shall be provided for future use.	Space provision for FGD have been provided as per the guidelines of CPCB vide letter No. B-33014/07/2017/IPC-II/TPP/15848, dated 11.12.2017. However as per MoEFCC' Notification dated 5th September'2022, Raipur TPP is falling under Category "C" Non- retiring TPPs and the timelines for compliance of SO_2 emission is up to December 2026. Accordingly, the work is under progress for compliance as per CPCB direction.
(iv)	Stack of 275 m height shall be installed and provided with continuous online monitoring equipment's for SO_x, NO_x, $PM_{2.5}$ & PM_{10}. Exit velocity of flue gases shall not be less than 22 m/sec. Mercury emissions from stack may also monitored on periodic basis.	Complied. Stack Height is 275 meters. On-line continuous emission monitoring system (CEMS) has been installed for PM, SO2 & NOx. Monitoring of Hg in stack emission is also carried out by authorized

Sl. No.	Conditions of EC	Compliance Status
		laboratory by MoEFCC. The exit gas velocity is ensured more than 22m/sec. The latest Environment Monitoring report is enclosed herewith as **Annexure – I.**
(v)	High Efficiency Electrostatic Precipitators (ESPs) shall be installed followed by installation of Bag Filter and it shall be ensured that particulate emission does not exceed 50 mg/Nm^3.	Complied. High efficiency Electrostatic Precipitators (ESP) has been considered to meet revised emission standard of <50 mg/Nm3 for PM. The monitoring report for stack emission is enclosed as **Annexure-I.**
(vi)	Adequate dust extraction system such as cyclones. bag filters and water spray system in dusty areas such as in coal handling and ash handling points, transfer areas and other vulnerable dusty areas shall be provided.	Complied. Dust extraction system has been installed in coal crusher, AHP & coal bunkers. Dust suppression system through dry fog method has been installed at coal conveyor transfer points. Water spray system has also been installed in coal yards for dust suppression.
(vii)	Sulphur and ash contents in the coal to be used in the project shall not exceed 0.5 % and 34 % respectively at any given time. In case of variation of coal quality at any point of time fresh reference shall be made to MOEF for suitable amendments to environmental clearance condition wherever necessary.	Being Complied. As per the Office Memorandum, MoEFCC dated; 11.11.2020, all the Thermal Power Plants (including Captive Power Plants) having Environmental Clearance can change the Coal Source (from imported to domestic, domestic to domestic, and domestic to imported) including Lignite, directly through e-auctions/short term. Linkage / long term linkage/other linkage options of Ministry of Coal or any organization recognized for allotting Coal linkages, without seeking the amendment in Environmental Clearance.
(viii)	Transport of coal to the plant site shall be strictly by rail. The project proponent shall therefore immediately take up the matter with the Railways. Status of implementation shall be submitted to the Regional Office of the Ministry from time to time.	Complied. The transportation through rail is started. Avenue plantation all along the road has already been done inside the plant premises. Compliance status of conditions mentioned in Environmental Clearance and it's time to time amendments is also kept in public domain at the website of holding Company. https://www.adanipower.com/Downloads
(ix)	Existing de-generated water bodies (if any) within 5.0 Km of the site shall be regenerated at the project proponent's expenses in consultation with the state govt.	Complied. Raipur TPP has regenerated around 6 numbers of Water bodies in nearby villages including 2 numbers of ponds are deepened and beautification has been done in consultation with state government.

Sl. No.	Conditions of EC	Compliance Status
(x)	The proponent shall sponsor a detailed study regarding water availability in Mahanadi River for all competing sources such as drinking, agriculture, industrial, minimum flow of water in the river during the lean season etc. through institutions like IIT, Delhi/IIT Roorkee. The draft terms of reference shall be submitted within three months which shall be finalized by the Expert Appraisal Committee. The preliminary report on the above study shall be submitted within one year.	Complied. Water allocation from Mahanadi River and maintained by WRD, Chhattisgarh. Raipur TPP has no role in regulating the water flow downstream & distribution.
(xi)	The project proponent shall undertake proactive water harvesting measures and water storage for a larger period not less than 30 days storage shall be developed. The rainwater harvesting system shall be put in place before commissioning of the plant. Central Groundwater Authority. Board shall be consulted for finalization of appropriate rainwater harvesting technology design within a period of three months from the date of this clearance and details shall be furnished. The design of rainwater harvesting shall comprise of rainwater collection from the built up and open area in the plant premises. Action plan and road map for implementation shall be submitted to the Ministry within six months.	Complied. Two Rainwater harvesting pond established within the plant premises of Raipur TPP with total **60580 M³ water holding capacity** and Photographs of the same is enclosed as **Annexure II.**
(xii)	Hydrogeology in and around the project area shall be reviewed annually from an institute. organization of repute to assess impact of surface water and ground regime (especially around ash dyke). In case and deterioration is observed specific mitigation measures shall be undertaken and reports. data of water quality monitored regularly and maintained shall be submitted to the Regional Office of the Ministry.	Complied. The Hydrogeological Investigation Report for FY 2022-23 has been conducted and copy of the report is enclosed as **Annexure III.**
(xiii)	No ground water shall be extracted for use in operation of the power plant even in lean season.	Being Complied**.** Ground water is not used for operation of plant.
(xiv)	No water bodies (including natural drainage system) in the area shall be disturbed due to activities associated with the setting up. operation of the power plant.	Complied. No water bodies have been disturbed during construction activity & operational activity of the plant.

Sl. No.	Conditions of EC	Compliance Status
(xv)	Water requirement shall be optimized to around 32 MCM and shall accordingly adopt higher COC of at least not less than 5.0.	Complied. • Water requirement is being restricted to 25 MCM. • COC is being maintained more than 5.0.
(xvi)	Minimum required environmental flow suggested by the Competent Authority of the State Govt. shall be maintained in the Channel. Rivers (as applicable) even in lean season.	Complied. Raipur TPP has revisited and optimized water requirements by reusing and recycling system, the water allotment has been reduced from 37 to 25 MCM per annum by Water Resource Department, Government of Chhattisgarh.
(xvii)	Regular monitoring of ground water level shall be carried out by establishing a network of existing wells and constructing new piezometers. Monitoring around the ash pond area shall be carried out particularly for heavy metals (Hg, Cr, As, Pb) and records maintained and submitted to the Regional Office of this Ministry. The data so obtained should be compared with the baseline data so as to ensure that the ground water quality is not adversely affected due to the project	Complied. Six nos. piezometers constructed around periphery of the ash pond for ground water monitoring. Seasonal monitoring of ground water level and quality is being done and monitoring data is being submitted to the MoEFCC, CPCB & CECB regularly. The ground water analysis data is enclosed as **Annexure I.**
(xviii)	Monitoring surface water quality in the region shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.	Complied. Seasonal monitoring of Surface water is being done. The monitored data is being submitted to MoEFCC, CPCB & CECB regularly. The surface water analysis data is attached in **Annexure I.**
(xix)	Additional soil for levelling of the proposed site shall be generated within the sites (to the extent possible) so that natural drainage system of the area is protected and improved.	Complied. Excavated Soil being utilized within the project site to the extent possible.
(xx)	The project proponent shall undertake measures and ensure that no fugitive fly ash emissions take place at any point of time.	Complied. All the preventive measures have been ensured to restrict fugitive emission from fly ash. List of Pollution Control Equipment/Devices installed to restrict fugitive as emission within prescribed limits is enclosed as **Annexure IV.**
(xxi)	Utilization of 100% Fly Ash generated shall be made from 4th year of operation. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.	Complied. Fly ash is being supplied to nearest cement industries and brick manufacturer. Fly Ash generation and utilization Status is attached as **Annexure V.**

Sl. No.	Conditions of EC	Compliance Status
(xxii)	Fly ash shall be collected in dry form and storage facility (silos) shall be provided. Unutilized fly ash shall be disposed off in the ash pond in the form of slurry form. Mercury and other heavy metals (As, Hg, Cr, Pb etc.) will be monitored in the bottom ash as also in the effluents emanating from the existing ash pond. No ash shall be disposed off in low lying area.	Being Complied. – Fly ash is being collected in dry form and unutilized fly ash is being disposed in dedicated ash storage ponds. – As per MoEFCC Office Memorandum dated 28th August 2019, utilization of fly ash in low lying areas has been permitted and the existing condition in Environmental Clearance may stand replaced, accordingly organization has started utilization of fly ash in low lying areas and land reclamation. – Mercury and heavy metals are being monitored in bottom ash. No effluent is emanated from ash pond.
(xxiii)	Ash pond shall be lined with HDPE/LDPE lining or any other suitable impermeable media such that no leachate takes place at any point of time. Adequate safety measures shall also be implemented to protect the ash dyke from getting breached.	Complied. Ash ponds is constructed with LDPE/HDPE & in the way that no leachate takes place any point of time.
(xxiv)	For disposal of Bottom Ash in abandoned mines (if proposed to be undertaken) shall be done after obtaining due permission from DGMS and after ensuring that the bottom and sides of the mined-out areas are adequately lined with clay before Bottom Ash is filled up. The project proponent shall inform the State Pollution Control Board well in advance before undertaking the activity.	Noted Compliance assured.
(xxv)	Green Belt consisting of 3 tiers of plantations of native species around plant and at least 75 m width shall be raised. Tree density shall not less than 2500 per ha with survival rate not less than 80 %.	Complied. Plantation/Greenbelt development is being developed as per guidelines & in consultation with forest department for local species. 3rd party Green Belt Evaluation/Audit has been carried out. Copy of Greenbelt evaluation report is enclosed as **Annexure VI.**
(xxvi)	At least three nearest village shall be adopted and basic amenities like development of roads, drinking water supply, primary health centre, primary school etc shall be developed in co-ordination with the district administration.	Being complied. The Company undertakes various CSR activities as per framework of CSR Rules under the Companies Act. Community services in three nearby villages namely Raikheda, Chicholi & Gaitera is conducted with focus and Sontara, Gaurkheda and Murra village area also covered. The outreach is also expanded to other nearby villages namely Khamariya, Konari, Tulsi, Tarashiv, Bartori, Chatod and Samoda. The

Sl. No.	Conditions of EC	Compliance Status
		thematic area of work in villages is improving quality of education, access of health care and sanitation, empowerment and livelihood thought SHGs, individual income generation & community vocational training centre and community development. CSR Progress Report is enclosed as **Annexure VII.**
(xxvii)	The project proponent shall also adequately contribute in the development of the neighbouring villages. Special package with implementation schedule for providing potable drinking water supply in the nearby villages and schools shall be undertaken in a time bound manner.	Being complied. The Company is undertaking CSR activities within 10 km radius area with focus on project affected and Railway siding villages namely Sontara, Gaurkheda, Khamariya, Konari Murra, Tulsi, Tarashiv, Bartori, Chatod located on western and northern boundary of the proposed plant. The development work in these villages is implemented in planned and time bound manner.
(xxviii)	A time bound implementation of the CSR shall be formulated within six months and submitted to the Ministry. While identifying CSR activities it shall be ensured that need based assessment for the nearby villages within study area shall be conducted to study economic measures with action plan which can help in upliftment of poor section of society. Income generating projects consistent with the traditional skills of the people shall be undertaken. Development of fodder farm, fruit bearing orchards, vocational training etc. can form a part of such programme. Company shall provide separate budget for community development activities and income generating programmes. Vocational training programme for possible self-employment and jobs shall be imparted to identify villagers free of cost.	Being complied. CSR Plan for the villages is made as per local need and CSR activities are identified by social work professionals employed exclusively for CSR through the company in consultation with communities and their representatives. Poorest of the poor families are identified basing village Panchayat's statistics and special interventions have been planned for their upliftment. Separate budget has been allocated for community development activities with income generation activities. Vocational training is being provided to youth for self-employment free of cost. We have started Pratibha Centre for local youths. To increase access of youth to educational and employment opportunities through helping them become aware of and to prepare for these. To prepare youth to become self-reliant through education and employment opportunities at Pratibha centres. CSR Progress Report with details is enclosed as **Annexure VII.**
(xxix)	An amount of Rs 33.16 Crores shall be earmarked as one-time capital cost for CSR programme as committed by the project proponent. Subsequently a recurring expenditure of Rs 6.63 Crores per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within six	Time bound implementation of CSR activities have been carried out & CSR budget has earmarked for CSR activities being implemented in nearby project villages. CSR Progress Report with details is enclosed as **Annexure VII.**

Sl. No.	Conditions of EC	Compliance Status
	months along with road map for implementation.	
(xxx)	It shall be ensured that in-built monitoring mechanism for the schemes identified is in place and annual social audit shall be got done from the nearest government institute of repute in the region. The project proponent shall also submit the status of implementation of the scheme from time to time	Complied. Social Audit has been carried out by Indian Institute of Social Welfare and Business Management, Kolkata. The same is submitted to ministry along with previous compliance report.
	General Conditions;	
(i)	The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant. Arrangements shall be made that effluents and storm water do not get mixed.	Complied. The treated effluents conforming to the prescribed standards are being re-circulated and reused within the plant. Plant layout has been designed so that effluents and storm water do not get mixed. The ETP analysis report is enclosed as **Annexure I.**
(ii)	A sewage treatment plant shall be provided (as applicable) and the treated sewage shall be used for raising greenbelt plantation.	Complied. Sewage Treatment Plant is installed and commissioned within premises to ensure quality of sewerage.
(iii)	Adequate safety measures shall be provided in the plant area to check minimize spontaneous fires in coal yard, especially during summer season. Copy of these measures with full details along with location plant layout shall be submitted to the Ministry as well as to the Regional Office of the ministry.	Complied. Drawings & other details are already submitted to the MoEFCC, Delhi as well as Regional Office of MoEFCC.
(iv)	Storage facilities for auxiliary liquid fuel such as LDO and/ HFO/LSHS shall be made in the plant area in consultation with Department of Explosives, Nagpur. Sulphur content in the liquid fuel will not exceed O.5%. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.	Complied Approval for storage facilities for auxiliary liquid fuel such as LDO/ HFO (auxiliary liquid fuel) has been obtained from Petroleum & Explosive Safety Organization (PESO) and the same has been submitted. Sulphur content in the liquid fuel is well within O.5%. Disaster Management Plan also is in place.
(v)	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	Complied. Raipur Thermal Power Plant is fully operational. All temporary structures constructed during Project phase for facilitating contract workers are now removed.
(vi)	Noise levels emanating for turbines shall be so controlled such that the noise in the work zone shall be limited to 85 dBA from the source. For people working in the high noise	Complied. Engineering control for noise such as acoustic enclosure, silencer have been installed in the turbine. Other than engineering controls, PPEs

Sl. No.	Conditions of EC	Compliance Status
	area, requisite personal protective equipment like earplugs/earmuffs etc. shall be provided. Workers engaged in noisy areas such as turbine area, air compressors etc. shall be periodically examined to maintain audiometric record and for treatment for any hearing loss including shifting to non-noisy, less noisy areas.	like earplugs, earmuffs etc. are also provided to workers in high noise area. Noise level monitoring report is enclosed as **Annexure I.**
(vii)	Regular monitoring of ambient air ground level concentration of SO_2, NOx, $PM_{2.5}$ & PM_{10} and Hg shall be carried out in the impact zone and records maintained. If at any stage these levels are found to exceed the prescribed limits, necessary control measures shall be provided immediately. The location of the monitoring stations and frequency of monitoring shall be decided in consultation with SPCB. Periodic reports shall be submitted to the Regional Office of this Ministry. The data shall also be put on the website of the company.	Complied. We have installed three nos. of stationary AAQMS station at periphery of the plant for Ambient air quality monitoring. Environment Monitoring Data as part of the six-monthly compliance is being submitted to MoEFCC and is also made available at company's website. **https://www.adanipower.com/Downloads** The ambient air quality monitoring report is enclosed **Annexure I.**
(viii)	Provision shall be made for the housing of construction labour (as applicable) within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after completion of the project.	Complied during construction phase.
(ix)	The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project. one of which shall be in the vernacular language of the Quality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance an copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at Website of the Ministry of environment and Forests at http:..envfor.nic.in	Complied. Copies of the advertisement published in local daily Newspapers after obtaining EC and details of the same already submitted to ministry with previous compliance reports.
(x)	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parisad, Municipal Corporation, urban local Body and the Local NGO, if any, from whom suggestions, representations. If any, receive	Complied. The environment clearance letter is available at website of Adani Power. https://www.adanipower.com/Downloads

Sl. No.	Conditions of EC	Compliance Status
	while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	
(xi)	An Environmental Cell comprising of at least one expert in environmental science. engineering, occupational health and social scientist, shall be created at the project site itself and shall be headed by an officer of appropriate superiority and qualification it shall be ensured that the Head the Cell shall directly report to the head of the organization, and he shall be held responsible for implementation of environmental regulations and social impact improvement, mitigation measures.	Complied. We have well-established Environment Management Dept. headed by a competent experienced Manager with relevant academic qualification supported by Environmental Engineers, Chemist & Horticulturist.
(xii)	The proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely SPM, RSPM (PM2.5 & PM10), SO2, NOX (ambient levels as well as stack emissions) shall display at a convenient location near the main gate of the company in the public domain.	Complied. Display board has been installed at main gate of TPP. Environment compliance report will be uploaded in company website. www.adanipower.com/Downloads
(xiii)	The environment statement for each financial year ending 31 March in Form- V as is mandated to be submitted by the project proponent to the concerned: State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices at the Ministry.	Complied. The Environmental Statement Report for the period FY: 2022-23 in prescribed format (Form V) has been submitted to CECB, Raipur vide Letter No. APL/ENV/23-24/205 dated 15th September 2023 enclosed as Annexure VIII.
(xiv)	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of environment and Forests, its Regional Office, Central Pollution Control Board and State	Being Complied. Six monthly compliances on the Environmental Clearance granted by MoEFCC is being submitted to MoEF, CPCB & CECB regularly. Compliance status updated on company's website. www.adanipower.com/Downloads

Sl. No.	Conditions of EC	Compliance Status
	Pollution Control board. The project proponent shall upload the status of compliance of the environment of the environmental clearance conditions on their website and update the same periodically and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests.	Compliance report for the period of April'2023 to September'2023 has been already submitted to vide letter no. Ref: APL/Raipur /TPP/EMD/ MoEFCC/EC/308/11/23, Dated: 24.11.2023.
(xv)	Regional Office of the Ministry of Environment, forest and climate change will monitor the implementation of the stipulated conditions. A complete set of documents including environmental impact Assessment Report and Environment Management Plan along with the additional, information submitted from time to time shall be forwarded to the regional office for their use during monitoring. Project proponent will upload the compliance status in their website and update the same from time to time at least six-monthly basis Criteria pollutants levels including NOX (from stack & ambient air) shall be displayed at the main gate of the power plant.	Being Complied. EIA & EMP report with all necessary document & information are already submitted to RO, MoEF&CC and CECB.
(xvi)	Separate funds shall be allocated for implementation of environmental, protection measures along with item-wise break-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should be reported to the Ministry.	Complied. Separate fund has been already allocated for environmental protection
(xvii)	The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work a commissioning of plant.	Complied. Financial Closure granted on 10th Dec'10. The Project development started after receiving Consent to establish dated 13.06.2011.
(xviii)	Full cooperation shall be extended to the Scientists/Officers from the Ministry Regional Office of the Ministry at Bangalore/CPCB/SPCB who would be monitoring the compliance of environmental status.	Noted. Full co-operation will be extended.
Conditions of Amended EC dated 13.06.2013		

Sl. No.	Conditions of EC	Compliance Status
(v)	High Efficiency Electrostatic Precipitators (ESPs) shall be installed, and it shall be ensured that particulate emission does not exceed 50 mg/Nm3"	Complied. High efficiency Electrostatic Precipitators (ESP) has been considered to meet revised emission standard of <50 mg/ Nm^3 for PM. The monitoring report for stack emission is enclosed as **Annexure I.**
(xxxi)	The GCV of the imported coal from South Africa shall not be less than 4911 Kcal/kg and the ash and sulphur contents shall not exceed the limits stated under: Ash contents: 33.7% Sulphur contents: 0.7%	Being Complied. As per the Office Memorandum, MoEFCC dated; 11.11.2020, all the Thermal Power Plants (including Captive Power Plants) having Environmental Clearance can change the Coal Source (from imported to domestic, domestic to domestic, and domestic to imported) including Lignite, directly through e-auctions/short term linkage/long term linkage/other linkage options of Ministry of Coal or any organization recognized for allotting coal linkages, without seeking the amendment in Environmental Clearance.
(xxxii)	A long-term study of radio activity and heavy metals contents on coal to be used shall be carried out through a reputed institute. Thereafter mechanism for an in-built continuous monitoring for radio activity and heavy metals in coal and fly ash (including bottom ash) shall be put in place.	Complied. Radioactivity (U238 & Th232) analysis in coal and ash is being carried out by Board of Radiation and Isotope Technology (BRIT) Government of India, copy of Radioactivity Test Certificate is enclosed as **Annexure IX.**
(xxxiii)	Continuous monitoring for heavy metals in and around the ash pond area shall be carried out through reputed institutes like IIT, Kanpur and records/ data maintained.	Complied. Quarterly monitoring of heavy metal and other physicochemical parameters in ground water around ash pond area is being carried out regularly by 3rd party NABL approved Environmental Laboratory. The ground water analysis report is enclosed as **Annexure I.**
Conditions of Amended EC Extension dated 18.11.2014		
(i)	The coal transportation by road shall be through mechanically covered trucks to the extent feasible, else, shall be through tarpaulin covered trucks.	Complied. The transportation through rail is being done.
(ii)	Avenue plantation of 2/3 rows all along the road shall be carried out by the project proponent at its own expenses in consultation with the State Government Authorities.	Complied. Avenue plantation all along the road has already been done inside the plant premises.
(iii)	Periodic maintenance of the road shall be done by the project proponent at its own	Complied

Sl. No.	Conditions of EC	Compliance Status
	expenses and shall facilitate the traffic control on the road in consultation with the State Government Authorities.	The coal transportation through rail has been started. Avenue plantation all along the road has already been done inside the plant premises.
(iv)	The PP shall advertise in the newspaper and place on the website, the amendment issued by the Ministry for public information.	Complied. Advertisement has been published in local daily News Papers. & details submitted with previous compliance report. Original Env. Clearance along with its amendment from time to time has been kept in public domain at the website of holding company. https://www.adanipower.com/Downloads
(xxxiv)	Harnessing solar power within the premises of the plant particularly at available rooftops shall be undertaken and status of implementation shall be submitted periodically to the Regional Office of the Ministry.	Complied. 10 KWh Solar Power generation unit installed and generated power is being used in Internal lighting and circulating water operation system.
(xxxv)	Green belt shall also be developed around the Ash Pond over and above the Green Belt around the plant boundary.	Complied. 3rd Party Green Belt Evaluation Report is enclosed as **Annexure VI.**
(xxxvi)	The project proponent shall formulate a well-laid Corporate Environment Policy, identify, and designate responsible officers at all levels of its hierarchy for ensuring adherence to the policy and compliance with the conditions stipulated in this clearance letter and other applicable environmental laws and regulations.	Complied. Raipur TPP has implemented ISO 14001:2015 under Integrated Management System consist of Environment, Health & Safety, Quality and Energy Management Systems. We have formulated a corporate policy as per the requirement of Integrated Management System (IMS), Biodiversity Conservation Policy has already been framed and incorporated in existing IMS policy.
Conditions of Amended EC Extension dated 04.02.2015		
(i)	Sulphur and ash contents in the coal to be used in the project shall not exceed 0.7 % and 34% respectively for at any given time. In case of variation of coal quality at any point of time, fresh reference shall be made to the Ministry for suitable amendments to environmental clearance condition wherever necessary.	Being Complied. As per the Office Memorandum, MoEFCC dated; 11.11.2020, all the Thermal Power Plants (including Captive Power Plants) having Environmental Clearance can change the Coal Source (from imported to domestic, domestic to domestic, and domestic to imported) including Lignite, directly through e-auctions/short term Linkage / long term linkage/other linkage options of Ministry of Coal or any organization recognized for allotting coal linkages, without seeking the amendment in Environmental Clearance.

Sl. No.	Conditions of EC	Compliance Status
(ii)	The PP shall advertise in the local newspapers and place on the website, the proposed amendment for public information.	Complied. Advertisement has been published in local daily News Papers. & details submitted with previous compliance report.
Conditions of Amended EC Extension dated 09.12.2015		
(i)	The Sulphur and ash contents in the coal shall not exceed 0.7 % and 34% respectively. In case of variation of coal quality at any point of time, fresh reference shall be made to the Ministry for consideration.	Being Complied.
(ii)	The PP shall advertise in the local leading newspapers and place on the website, the proposed amendment of EC (after receipt from Ministry) for change in source of coal for public information.	Complied.
EC amendment – MoEF&CC notification vide letter number S.O. 1561 (E) dated 21st May, 2020		
Sl. No.	**Condition of Notification**	**Compliance Status**
1)	Setting up technology solution for emission norms i) Compliance of specified emission norms for Particulate Matter, as per extent notifications and instructions of Central Pollution Control Board, issued from time to time. ii) In case of washeries, middling and rejects to be utilized in FBC (Fluidised Bed Combustion) technology based thermal power plant. Washery to have linkage for middling and rejects in Fluidised Bed Combustion plants.	Noted. i) Technology solutions are being implemented for mitigating fugitive emissions of Particulate Matter. • The Dust Extraction (DE) type dust control system is provided for controlling fugitive dust emissions from dust generation points of coal handling system. • Bag filter type dust extraction system with reversable pulse jet cleaning arrangement with fan, bag filter and stacks are provided at coal crusher house. • Different types of dust suppression system and water sprinkling arrangements are already installed at various probable fugitive dust generation points. • Plain water dust suppression for wagon tippler complex. • Plain water dust suppression for Coal stockpile. • Pre-wetting system for Wagon Tripler. • Dry Fog dust suppression for all Transfer points. ii) Super Thermal Power Plant.
2)	Management of Ash Ponds i) The thermal power plants shall comply with conditions, as notified in	Noted & being complied. i. Fly ash is being supplied to nearest cement industries and brick manufacture. Fly Ash

Sl. No.	Conditions of EC	Compliance Status
	the Fly Ash notifications issued from time to time, without being entitled to additional capacity of fly ash pond (for existing power generation capacity) on ground of switching from washed coal to unwashed coal.	generation and utilization is regularly submitted to MoEFCC, CPCB, CEA & CECB. Details is enclosed as **Annexure V**.
	ii) Appropriate Technology solutions shall be applied to optimise water consumption for Ash management.	ii. Water requirement is being restricted to 25 MCM. Optimization of water has been incorporated as part of plant design and COC is being maintained more than 5.0.
	iii) The segregation of ash may be done at the Electro- Static Precipitator stage, if required, based on site specific conditions, to ensure maximum utilisation of fly ash	iii. Noted & being complied to meet 100% utilization of fly ash.
	iv) Subject to 2(i) above, the thermal power plants to dispose fly ash in abandoned or working mines (to be facilitated by mine owner) with environmental safeguards.	iv. Noted & will be complied as & when fly ash is disposed in abandoned or working mines
3)	Transportation i) Coal transportation may be undertaken by covered Railway wagon (railway wagons covered by tarpaulin or other means) and/or covered conveyor beyond the mine area. However, till such time enabling Rail transport/conveyer beyond infrastructure is not available, road transportation may be undertaken in trucks, covered by tarpaulin or other means.	i) Noted & being complied. Rail siding facility has been made operational & coal is being transported through covered rail wagons.
	ii) It shall be ensured by the thermal power plant that: a) Rail siding facility or conveyer facility is set up at or near the power plant, for transportation by rail or conveyor; and b) If transportation by rail or conveyor facility is not available, ensure that the coal is transported out from the Delivery Point of the respective mine in covered trucks (by tarpaulin or other means), or any mechanized closed trucks by roads.	ii) a) Rail siding facility has been made operational & coal is being transported through covered rail wagons. b) Not applicable as Rail siding facility has been made operational & coal is being transported through covered rail wagons.

*****

ENVIRONMENTAL MONITORING REPORT

Submitted To:

M/s Adani Power Limited

***Formerly* M/s Raipur Energen Limited**

Village: Raikheda, Block-Tilda, Dist.-Raipur (Chhattisgarh)

Conducted by:

M/s Vibrant Techno Lab Pvt. Ltd.

Add: SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road

Jaipur (Rajasthan)

(Recognized by MoEF & CC, NABL Government of India)

PREFACE

The growing concern for environment protection and the passing of various environmental legislations have increased the responsibilities of Ministry of Environment, Forest & Climate change, Pollution Control boards in many folds. Besides enforcing the various environmental legislations MoEF&CC, CPCB & SPCB strive to propagate the necessity awareness regarding the various legal provisions and environmental protection measures in the country.

Electric Power scenario has occupied a significant place in the development program of the country Development and environment can neither be separated nor ignored. In fact, they are complimentary to each other. These issues have become a concern of the community, particularly the environment impact due to industries in the developing countries.

However, the prerequisite for sustainable development is judicious planning of environmental status, likely impacts of the approach adopted on the environment including inhabitants of the locality, availability of the eco-friendly technology, emerging waste disposal and waste utilization processes, techniques of land reclamation for the restoration of aesthetic beauty and soon.

M/s Adani Power Limited Formerly M/s Raipur Energen Limited located at Village; Raikheda, Block-Tilda, Dist. – Raipur (Chhattisgarh), India, has engaged M/s Vibrant Techno lab Pvt. Ltd. (Raj.) to provide Environmental services in respect of ambient air quality monitoring, stack emission, noise level monitoring & Sampling and Analysis of ground water quality, surface water quality, treated effluent sewage, effluent water from ETP, and soil for M/s Adani Power Limited, Raipur district of Chhattisgarh, as per guidelines of MoEF & CC an CPCB Gazette Notification.

M/s Vibrant Techno lab Pvt. Ltd. (Raj.) has deployed entirely its own personnel, facilities and expertise for doing this service, Sampling/Monitoring Stations were identified by the Environmental Officer of M/s Adani Power Limited, Raipur. The samples were analyzed Partly at site and partly at our MoEF Recognized laboratory situated a Jaipur (Rajasthan)

This report presents the data generated for the period from July to sept 2023 i.e., for Second quarter which includes sampling locations, Methodology, testing procedure and compilation for the Environmental parameters i.e., Air, Water, Soil & Noise with a view to evaluate the impact due to the thermal power plant activities.

During the course of our operations for the above task, the staff and management of M/s Adani Power Limited, were extremely co-operative. We are grateful to them for their invaluable support and assistance rendered to us during the course of the sampling and monitoring.

Index

S.No.	Contents	Page No.
1.0	**Introduction**	**4**
2.0	**Project Profile**	**5**
2.1	**Topography and Drainage**	**5**
2.2	Location	5
2.3	Climate	5
2.4	Communication	5
2.5	Location Map	6
3.0	**Scope of Study and Methodology**	**7**
3.1	Scope of Study	7
3.2	Methodology	7
3.2.1	Air Environment	7
3.2.2	Noise Environment	7
3.2.3	Water Environment	7
3.2.4	Soil	8
4.0	**Sampling Location Map and Analysis Reports**	**9**
4.1a	Ambient Air Quality Monitoring (Air, & Ash monitoring)	9-33
4.2	Noise Level Monitoring	34-42
4.3	Surface water Quality Analysis	43-61
4.4	Ground water Quality Analysis	62-92
4.5	Soil Quality Analysis	93-103
4.6a	Effluent Sample Analysis Report (ETP & STP)	104-108
4.6b	Effluent Sample Analysis Report (Cooling Tower)	109-115
5.0	**Conclusion**	**116**
5.1	Air Environment	116
5.2	Noise Environment	116
5.3	Water Environment	116

Chapter-1

INTRODUCTION

M/s Adani Power Limited, a subsidiary of Adani Power, is a power generation company based at Raipur in the State of Chhattisgarh. M/s Adani Power Limited, has commissioned its Thermal Power Plant 1370MW (2x685 MW) Unit at Village Raikheda, Block -Tilda, District- Raipur, Chhattisgarh (India).

M/s Adani Power Limited, is also committed towards the environment and the community it operates in. It has successfully implemented several community welfare schemes in the field of livelihood, infrastructure, community health and education which has so far benefited over 60,000 people from close to 75 villages.

Fig: 1 Adani Power Limited

Chapter-2

PROJECT PROFILE

2.1 Topography & Drainage

Topography of this area is generally undulating. The area is drained by Raikheda Talab approximately 2.5 km. away from plant in SW direction and Bangoli dam approximately 2 km. away from plant in SW direction. Mura Talab approximately 5 km. away from plant in South direction. Chhicholi Talab approximately 2 km. away from plant in East direction.

2.2 Location

Plant is bounded by Northern Latitudes of 21° 26' 23" to 21° 27' 48" and Eastern Longitude of 81° 50'34.6" to 81° 52'08.5". This area falls in the survey of India toposheet no. 64 G/14, 64 G/15 in parts (1:50000 Scale) The location of the Plant area is shown in Fig. No. 2.

2.3 Climate

The climate of the area is Sub-tropical type. It is in the zone of humid tropic climate where temperature and humidity of air are very high. The temperature varies from the minimum - maximum temperature range between 29.5°C - 49 °C in summer, and 8°C - 25 °C in winter. The humidity varies from 35% to 82%. The annual average rainfall in the area is about 1300 mm.

2.4 Communication

The nearest railway station is Tilda, which is at a distance of ~14 Km towards West direction. The area is well connected with S.H. No. 9. Nearest Airport is Raipur ~32 km in SW direction. Nearest village is Raikheda ~ 1.5 km. in South direction and nearest town is Raipur ~31 km. in SW direction.

VIBRANT
"Experience the unimaginable"

TEST REPORT

TC-11227

Sample Number : VTL/AA/01

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2312180001/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Near Raw Water Area
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/01
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	11/12/2023 To 12/12/2023
Time of Monitoring	:	10:00 TO 10:00 Hrs.
Ambient Temperature (°C)	:	Min. 14°C Max. 27°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	64.25	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	33.26	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	18.56	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	11.98	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ(**LOQ-0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/2

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/AA/01

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2312180001/B
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Near Raw Water Area
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/01
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	11/12/2023 To 12/12/2023
Time of Monitoring	:	10:00 TO 10:00 Hrs.
Ambient Temperature (°C)	:	Min. 14°C Max. 27°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.54	mg/m³	4
2	Suspended Particulate Matter (as SPM)	IS:5182 (P- 4) :1999, RA.2014	240.00	µg/m³	--
3	Mercury (as Hg)	Methods of air sampling and analysis,3rd ed.,1988, Method No.317	*BLQ(**LOQ-0.5)	µg/m³	--

*BLQ-Below Limit Of Quantification, **LOQ-Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AA/02

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2312180002/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Near STP Area
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/02
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	11/12/2023 To 12/12/2023
Time of Monitoring	:	10:30 TO 10:30 Hrs.
Ambient Temperature (°C)	:	Min. 14°C Max. 27°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	69.23	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	32.56	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	19.02	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	12.45	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ(**LOQ-0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/2

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/AA/02

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2312180002/B
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Near STP Area
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/02
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	11/12/2023 To 12/12/2023
Time of Monitoring	:	10:30 TO 10:30 Hrs.
Ambient Temperature (°C)	:	Min. 14°C Max. 27°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.89	mg/m³	4
2	Suspended Particulate Matter (as SPM)	IS:5182 (P- 4) :1999, RA.2014	256.34	µg/m³	--
3	Mercury (as Hg)	Methods of air sampling and analysis,3rd ed.,1988, Method No.317	*BLQ(**LOQ-0.5)	µg/m³	--

*BLQ-Below Limit Of Quantification, **LOQ-Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AA/03

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2312180003/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Near Old Project Doosan
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/03
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	11/12/2023 To 12/12/2023
Time of Monitoring	:	11:30 TO 11:30 Hrs.
Ambient Temperature (°C)	:	Min. 14°C Max. 27°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	60.12	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	28.65	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	17.95	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	10.45	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ(**LOQ-0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/2

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/AA/03

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2312180003/B
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Near Old Project Doosan
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/03
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	11/12/2023 To 12/12/2023
Time of Monitoring	:	11:30 TO 11:30 Hrs.
Ambient Temperature (°C)	:	Min. 14°C Max. 27°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.46	mg/m³	4
2	Suspended Particulate Matter (as SPM)	IS:5182 (P- 4) :1999, RA.2014	210.00	µg/m³	--
3	Mercury (as Hg)	Methods of air sampling and analysis,3rd ed.,1988, Method No.317	*BLQ(**LOQ-0.5)	µg/m³	--

*BLQ-Below Limit Of Quantification, **LOQ-Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AA/04

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2312180004/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Village - Raikheda (Jitendra House)
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/04
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	12/12/2023 To 13/12/2023
Time of Monitoring	:	10:30 TO 10:30 Hrs.
Ambient Temperature (°C)	:	Min. 14°C Max. 27°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	52.82	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	27.45	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	15.12	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	11.34	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ(**LOQ-0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/2

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/AA/04

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2312180004/B
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Village - Raikheda (Jitendra House)
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/04
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	12/12/2023 To 13/12/2023
Time of Monitoring	:	10:30 TO 10:30 Hrs.
Ambient Temperature (°C)	:	Min. 14°C Max. 27°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.59	mg/m³	4
2	Suspended Particulate Matter (as SPM)	IS:5182 (P- 4) :1999, RA.2014	245.96	µg/m³	--
3	Mercury (as Hg)	Methods of air sampling and analysis,3rd ed.,1988, Method No.317	*BLQ(**LOQ-0.5)	µg/m³	--

*BLQ-Below Limit Of Quantification, **LOQ-Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AA/05

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2312180005/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Village - Mura (Near Petrol Pump)
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/04
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	13/12/2023 To 14/12/2023
Time of Monitoring	:	11:30 TO 11:30 Hrs.
Ambient Temperature (°C)	:	Min. 14°C Max. 27°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	51.86	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	25.49	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	16.53	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	12.03	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ(**LOQ-0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/AA/05

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2312180005/B
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Village - Mura (Near Petrol Pump)
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/04
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	13/12/2023 To 14/12/2023
Time of Monitoring	:	11:30 TO 11:30 Hrs.
Ambient Temperature (°C)	:	Min. 14°C Max. 27°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.55	mg/m³	4
2	Suspended Particulate Matter (as SPM)	IS:5182 (P- 4) :1999, RA.2014	231.02	µg/m³	--
3	Mercury (as Hg)	Methods of air sampling and analysis,3rd ed.,1988, Method No.317	*BLQ(**LOQ-0.5)	µg/m³	--

*BLQ-Below Limit Of Quantification, **LOQ-Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions P'TO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AA/06

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2312180006/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Village - Gaitara
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/04
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	14/12/2023 To 15/12/2023
Time of Monitoring	:	12:30 TO 12:30 Hrs.
Ambient Temperature (°C)	:	Min. 13°C Max. 28°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	57.56	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	28.41	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	17.48	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	13.45	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ(**LOQ-0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/2

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/AA/06

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2312180006/B
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Village - Gaitara
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/04
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	14/12/2023 To 15/12/2023
Time of Monitoring	:	12:30 TO 12:30 Hrs.
Ambient Temperature (°C)	:	Min. 13°C Max. 28°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.73	mg/m³	4
2	Suspended Particulate Matter (as SPM)	IS:5182 (P- 4) :1999, RA.2014	268.31	µg/m³	--
3	Mercury (as Hg)	Methods of air sampling and analysis,3rd ed.,1988, Method No.317	*BLQ(**LOQ-0.5)	µg/m³	--

*BLQ-Below Limit Of Quantification, **LOQ-Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AA/07

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2312180007/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Village - Chicholi (Rajput House)
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/04
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	15/12/2023 To 16/12/2023
Time of Monitoring	:	13:30 TO 13:30 Hrs.
Ambient Temperature (°C)	:	Min. 12°C Max. 26°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	56.12	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	26.15	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	15.46	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	11.23	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ(**LOQ-0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions P.T.O

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/AA/07

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2312180007/B
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Village - Chicholi (Rajput House)
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/04
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	15/12/2023 To 16/12/2023
Time of Monitoring	:	13:30 TO 13:30 Hrs.
Ambient Temperature (°C)	:	Min. 12°C Max. 26°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.56	mg/m³	4
2	Suspended Particulate Matter (as SPM)	IS:5182 (P- 4) :1999, RA.2014	225.16	µg/m³	--
3	Mercury (as Hg)	Methods of air sampling and analysis,3rd ed.,1988, Method No.317	*BLQ(**LOQ-0.5)	µg/m³	--

*BLQ-Below Limit Of Quantification, **LOQ-Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AN/01

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Ambient Noise Level Monitoring
Scope of Monitoring : Regulatory Requirment
Protocol Used : IS 9989
Instrument Used : SLM

Report No. : VTL/N/2312250001/A
Format No : 7.8 F-04
Party Reference No : NIL
Report Date : 05/01/2024
Receipt Date : 25/12/2023
Sampling Duration : 24 Hrs.
Sample Collected : VTL Team
Instrument Calibration Status : Calibrated

General Information:-

Sampling Location : Near Admin Building
Instrument Code : VTL/SLM/01
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 18/12/2023 To 19/12/2023
Time of Monitoring : 06:00 TO 06:00 Hrs.
Ambient Temperature (°C) : Min. 12°C Max. 26°C
Surrounding Activity : Human, Vehicular & Other Act.
Parameter Required : As per work order
Coordinates : --

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	54.9	46.8

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions FTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AN/02

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No.	: VTL/N/2312250002/A
Format No	: 7.8 F-04
Party Reference No	: NIL
Report Date	: 05/01/2024
Receipt Date	: 25/12/2023
Sampling Duration	: 24 Hrs.
Sample Collected	: VTL Team
Instrument Calibration Status	: Calibrated

Sample Description	: **Ambient Noise Level Monitoring**
Scope of Monitoring	: Regulatory Requirment
Protocol Used	: IS 9989
Instrument Used	: SLM

General Information:-

Sampling Location	: Near Field Hostel
Instrument Code	: VTL/SLM/02
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 18/12/2023 To 19/12/2023
Time of Monitoring	: 06:00 TO 06:00 Hrs.
Ambient Temperature (°C)	: Min. 12°C Max. 26°C
Surrounding Activity	: Human, Vehicular & Other Act.
Parameter Required	: As per work order
Coordinates	: --

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	51.4	44.9

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AN/03

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Ambient Noise Level Monitoring
Scope of Monitoring : Regulatory Requirment
Protocol Used : IS 9989
Instrument Used : SLM

Report No. : VTL/N/2312250003/A
Format No : 7.8 F-04
Party Reference No : NIL
Report Date : 05/01/2024
Receipt Date : 25/12/2023
Sampling Duration : 24 Hrs.
Sample Collected : VTL Team
Instrument Calibration Status : Calibrated

General Information:-

Sampling Location : Gate No. -2 (Gaitara Gate)
Instrument Code : VTL/SLM/02
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 19/12/2023 To 20/12/2023
Time of Monitoring : 06:00 TO 06:00 Hrs.
Ambient Temperature (°C) : Min. 11°C Max. 25°C
Surrounding Activity : Human, Vehicular & Other Act.
Parameter Required : As per work order
Coordinates : --

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	53.8	44.7

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AN/04

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Ambient Noise Level Monitoring
Scope of Monitoring : Regulatory Requirment
Protocol Used : IS 9989
Instrument Used : SLM

Report No. : VTL/N/2312250004/A
Format No : 7.8 F-04
Party Reference No : NIL
Report Date : 05/01/2024
Receipt Date : 25/12/2023
Sampling Duration : 24 Hrs.
Sample Collected : VTL Team
Instrument Calibration Status : Calibrated

General Information:-

Sampling Location : Near Gate No.-01
Instrument Code : VTL/SLM/01
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 19/12/2023 To 20/12/2023
Time of Monitoring : 06:00 TO 06:00 Hrs.
Ambient Temperature (°C) : Min. 11°C Max. 25°C
Surrounding Activity : Human, Vehicular & Other Act.
Parameter Required : As per work order
Coordinates : --

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	55.9	48.3

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AN/05

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Ambient Noise Level Monitoring
Scope of Monitoring : Regulatory Requirment
Protocol Used : IS 9989
Instrument Used : SLM

Report No. : VTL/N/2312250005/A
Format No : 7.8 F-04
Party Reference No : NIL
Report Date : 05/01/2024
Receipt Date : 25/12/2023
Sampling Duration : 24 Hrs.
Sample Collected : VTL Team
Instrument Calibration Status : Calibrated

General Information:-

Sampling Location : Near Mura Village Gate
Instrument Code : VTL/SLM/01
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 20/12/2023 To 21/12/2023
Time of Monitoring : 06:00 TO 06:00 Hrs.
Ambient Temperature (°C) : Min. 12°C Max. 25°C
Surrounding Activity : Human, Vehicular & Other Act.
Parameter Required : As per work order
Coordinates : --

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	53.7	48.1

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AN/06

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : **Ambient Noise Level Monitoring**
Scope of Monitoring : Regulatory Requirment
Protocol Used : IS 9989
Instrument Used : SLM

Report No. : VTL/N/2312250006/A
Format No : 7.8 F-04
Party Reference No : NIL
Report Date : 05/01/2024
Receipt Date : 25/12/2023
Sampling Duration : 24 Hrs.
Sample Collected : VTL Team
Instrument Calibration Status : Calibrated

General Information:-

Sampling Location : Gate No.-3 (Bhatapora)
Instrument Code : VTL/SLM/02
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 20/12/2023 To 21/12/2023
Time of Monitoring : 06:00 TO 06:00 Hrs.
Ambient Temperature (°C) : Min. 12°C Max. 25°C
Surrounding Activity : Human, Vehicular & Other Act.
Parameter Required : As per work order
Coordinates : --

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	50.9	44.3

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AN/07

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No.	: VTL/N/2312250007/A
Format No	: 7.8 F-04
Party Reference No	: NIL
Report Date	: 05/01/2024
Receipt Date	: 25/12/2023
Sampling Duration	: 24 Hrs.
Sample Collected	: VTL Team
Instrument Calibration Status	: Calibrated

Sample Description	: **Ambient Noise Level Monitoring**
Scope of Monitoring	: Regulatory Requirment
Protocol Used	: IS 9989
Instrument Used	: SLM

General Information:-

Sampling Location	: Near OHC
Instrument Code	: VTL/SLM/02
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 21/12/2023 To 22/12/2023
Time of Monitoring	: 06:00 TO 06:00 Hrs.
Ambient Temperature (°C)	: Min. 12°C Max. 25°C
Surrounding Activity	: Human, Vehicular & Other Act.
Parameter Required	: As per work order
Coordinates	: --

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	58.1	49.3

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions P.T.O

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AN/08

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No.	: VTL/N/2312250008/A
Format No	: 7.8 F-04
Party Reference No	: NIL
Report Date	: 05/01/2024
Receipt Date	: 25/12/2023
Sampling Duration	: 24 Hrs.
Sample Collected	: VTL Team
Instrument Calibration Status	: Calibrated

Sample Description	: **Ambient Noise Level Monitoring**
Scope of Monitoring	: Regulatory Requirment
Protocol Used	: IS 9989
Instrument Used	: SLM

General Information:-

Sampling Location	: Near Weigh Bridge
Instrument Code	: VTL/SLM/01
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 21/12/2023 To 22/12/2023
Time of Monitoring	: 06:00 TO 06:00 Hrs.
Ambient Temperature (°C)	: Min. 12°C Max. 25°C
Surrounding Activity	: Human, Vehicular & Other Act.
Parameter Required	: As per work order
Coordinates	: --

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	63.8	51.7

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/01

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Mura Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122723000000557F
Report No. : VTL/W/2312180017/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	pH value	IS : 3025 (P-11) : 2022	7.14	--
2	Turbidity	IS : 3025 (P- 10) : 1984, RA 2017	4.85	NTU
3	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 1984, RA 2017	340.00	mg/l
4	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	101.92	mg/l
5	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	19.40	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (P- 23) : 1986, RA 2019	180.00	mg/l
7	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	140.10	mg/l
8	Calcium (as Ca)	IS : 3025 (P-40) : 1991 RA 2019	36.07	mg/l
9	Magnesium (as Mg)	IS : 3025 (P- 46) : 1994, RA 2019	12.17	mg/l
10	Fluoride (as F)	APHA 23rd Edition, 4500D, 2017	0.61	mg/l
11	Phenolic compounds	APHA 23rd Edition, 5530C, 2017	*BLQ(**LOQ-0.001)	mg/l
12	Dissolved oxygen (DO)	IS : 3025 (P -38) : 1989, RA 2019	6.18	mg/l
13	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 1993, RA : 2019	13.5	mg/l
14	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2006 RA 2017	49.36	mg/l
15	Iron (as Fe)	APHA 23rd Edition,3111B, 2017	*BLQ(**LOQ-0.1)	mg/l
16	Zinc (as Zn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.2)	mg/l
17	Copper (as Cu)	APHA 23rd edition, 3111B, 2017	*BLQ(**LOQ-0.02)	mg/l
18	Manganese (as Mn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.05)	mg/l
19	Lead (as Pb)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.005)	mg/l
20	Arsenic (as As)	APHA 23rd Edition, 3030D,3114C, 2017	*BLQ(**LOQ-0.005)	mg/l
21	Boron (as B)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions FTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/SW/01

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Mura Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2312180017/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	Colour	IS : 3025 (P-4) : 2021	*BLQ(**LOQ-5.0)	CU
2	Odour	IS : 3025 (P-5) : 2018	Agreeable	--
3	Cyanide (as CN)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l
4	Aluminium (as Al)	IS : 3025 : (P-55) 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l
5	Oil & Grease	IS : 3025 (P-39) 1991, RA 2019	*BLQ(**LOQ-4.0)	mg/l
6	Anionic Detergents (MBAS)	APHA 23rd ed., 2017, 5530C	*BLQ(**LOQ 0.02)	mg/l

*BLQ Blow limit of Quantification **LOQ Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/02

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Chicholi Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122723000000558F
Report No. : VTL/W/2312180018/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	pH value	IS : 3025 (P-11) : 2022	7.57	--
2	Turbidity	IS : 3025 (P- 10) : 1984, RA 2017	5.96	NTU
3	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 1984, RA 2017	510.00	mg/l
4	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	31.02	mg/l
5	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	25.84	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (P- 23) : 1986, RA 2019	150.00	mg/l
7	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	110.08	mg/l
8	Calcium (as Ca)	IS : 3025 (P-40) : 1991 RA 2019	32.06	mg/l
9	Magnesium (as Mg)	IS : 3025 (P- 46) : 1994, RA 2019	7.31	mg/l
10	Fluoride (as F)	APHA 23rd Edition, 4500D, 2017	0.85	mg/l
11	Phenolic compounds	APHA 23rd Edition, 5530C, 2017	*BLQ(**LOQ-0.001)	mg/l
12	Dissolved oxygen (DO)	IS : 3025 (P -38) : 1989, RA 2019	6.25	mg/l
13	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 1993, RA : 2019	12.00	mg/l
14	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2006 RA 2017	30.85	mg/l
15	Iron (as Fe)	APHA 23rd Edition,3111B, 2017	*BLQ(**LOQ-0.1)	mg/l
16	Zinc (as Zn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.2)	mg/l
17	Copper (as Cu)	APHA 23rd edition, 3111B, 2017	*BLQ(**LOQ-0.02)	mg/l
18	Manganese (as Mn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.05)	mg/l
19	Lead (as Pb)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.005)	mg/l
20	Arsenic (as As)	APHA 23rd Edition, 3030D,3114C, 2017	*BLQ(**LOQ-0.005)	mg/l
21	Boron (as B)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/SW/02

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Chicholi Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2312180018/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	Colour	IS : 3025 (P-4) : 2021	*BLQ(**LOQ-5.0)	CU
2	Odour	IS : 3025 (P-5) : 2018	Agreeable	--
3	Cyanide (as CN)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l
4	Aluminium (as Al)	IS : 3025 : (P-55) 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l
5	Oil & Grease	IS : 3025 (P-39) 1991, RA 2019	*BLQ(**LOQ-4.0)	mg/l
6	Anionic Detergents (MBAS)	APHA 23rd ed., 2017, 5530C	*BLQ(**LOQ 0.02)	mg/l

*BLQ Blow limit of Quantification **LOQ Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions ETO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/03

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

ULR No. : TC1122723000000559F
Report No. : VTL/W/2312180019/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

Sample Description : SURFACE WATER
Sampling Location : Raikheda Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

S.No.	Test Parameters	Test Method	Results	Unit
1	pH value	IS : 3025 (P-11) : 2022	7.51	--
2	Turbidity	IS : 3025 (P- 10) : 1984, RA 2017	3.52	NTU
3	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 1984, RA 2017	432.00	mg/l
4	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	46.12	mg/l
5	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	23.16	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (P- 23) : 1986, RA 2019	132.65	mg/l
7	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	205.00	mg/l
8	Calcium (as Ca)	IS : 3025 (P-40) : 1991 RA 2019	46.12	mg/l
9	Magnesium (as Mg)	IS : 3025 (P- 46) : 1994, RA 2019	21.85	mg/l
10	Fluoride (as F)	APHA 23rd Edition, 4500D, 2017	0.43	mg/l
11	Phenolic compounds	APHA 23rd Edition, 5530C, 2017	*BLQ(**LOQ-0.001)	mg/l
12	Dissolved oxygen (DO)	IS : 3025 (P -38) : 1989, RA 2019	5.03	mg/l
13	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 1993, RA : 2019	20.00	mg/l
14	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2006 RA 2017	51.32	mg/l
15	Iron (as Fe)	APHA 23rd Edition,3111B, 2017	*BLQ(**LOQ-0.1)	mg/l
16	Zinc (as Zn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.2)	mg/l
17	Copper (as Cu)	APHA 23rd edition, 3111B, 2017	*BLQ(**LOQ-0.02)	mg/l
18	Manganese (as Mn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.05)	mg/l
19	Lead (as Pb)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.005)	mg/l
20	Arsenic (as As)	APHA 23rd Edition, 3030D,3114C, 2017	*BLQ(**LOQ-0.005)	mg/l
21	Boron (as B)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

Sample Number : VTL/SW/03

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Raikheda Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2312180019/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	Colour	IS : 3025 (P-4) : 2021	*BLQ(**LOQ-5.0)	CU
2	Odour	IS : 3025 (P-5) : 2018	Agreeable	--
3	Cyanide (as CN)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l
4	Aluminium (as Al)	IS : 3025 : (P-55) 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l
5	Oil & Grease	IS : 3025 (P-39) 1991, RA 2019	*BLQ(**LOQ-4.0)	mg/l
6	Anionic Detergents (MBAS)	APHA 23rd ed., 2017, 5530C	*BLQ(**LOQ 0.02)	mg/l

*BLQ Blow limit of Quantification **LOQ Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/04

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

ULR No. : TC1122723000000560F
Report No. : VTL/W/2312180020/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

Sample Description : SURFACE WATER
Sampling Location : Gaitara Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

S.No.	Test Parameters	Test Method	Results	Unit
1	pH value	IS : 3025 (P-11) : 2022	7.54	--
2	Turbidity	IS : 3025 (P- 10) : 1984, RA 2017	2.65	NTU
3	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 1984, RA 2017	456.00	mg/l
4	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	59.12	mg/l
5	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	21.23	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (P- 23) : 1986, RA 2019	171.23	mg/l
7	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	190.00	mg/l
8	Calcium (as Ca)	IS : 3025 (P-40) : 1991 RA 2019	42.16	mg/l
9	Magnesium (as Mg)	IS : 3025 (P- 46) : 1994, RA 2019	20.60	mg/l
10	Fluoride (as F)	APHA 23rd Edition, 4500D, 2017	0.78	mg/l
11	Phenolic compounds	APHA 23rd Edition, 5530C, 2017	*BLQ(**LOQ-0.001)	mg/l
12	Dissolved oxygen (DO)	IS : 3025 (P -38) : 1989, RA 2019	5.64	mg/l
13	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 1993, RA : 2019	18.00	mg/l
14	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2006 RA 2017	42.06	mg/l
15	Iron (as Fe)	APHA 23rd Edition,3111B, 2017	*BLQ(**LOQ-0.1)	mg/l
16	Zinc (as Zn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.2)	mg/l
17	Copper (as Cu)	APHA 23rd edition, 3111B, 2017	*BLQ(**LOQ-0.02)	mg/l
18	Manganese (as Mn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.05)	mg/l
19	Lead (as Pb)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.005)	mg/l
20	Arsenic (as As)	APHA 23rd Edition, 3030D,3114C, 2017	*BLQ(**LOQ-0.005)	mg/l
21	Boron (as B)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

Sample Number : VTL/SW/04

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Gaitara Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2312180020/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	Colour	IS : 3025 (P-4) : 2021	*BLQ(**LOQ-5.0)	CU
2	Odour	IS : 3025 (P-5) : 2018	Agreeable	--
3	Cyanide (as CN)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l
4	Aluminium (as Al)	IS : 3025 : (P-55) 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l
5	Oil & Grease	IS : 3025 (P-39) 1991, RA 2019	*BLQ(**LOQ-4.0)	mg/l
6	Anionic Detergents (MBAS)	APHA 23rd ed., 2017, 5530C	*BLQ(**LOQ 0.02)	mg/l

*BLQ Blow limit of Quantification **LOQ Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Terms & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/05

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Bangoli Dam
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122723000000561F
Report No. : VTL/W/2312180021/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	pH value	IS : 3025 (P-11) : 2022	8.03	--
2	Turbidity	IS : 3025 (P- 10) : 1984, RA 2017	4.56	NTU
3	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 1984, RA 2017	378.00	mg/l
4	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	74.32	mg/l
5	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	24.32	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (P- 23) : 1986, RA 2019	120.00	mg/l
7	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	152.00	mg/l
8	Calcium (as Ca)	IS : 3025 (P-40) : 1991 RA 2019	41.98	mg/l
9	Magnesium (as Mg)	IS : 3025 (P- 46) : 1994, RA 2019	11.48	mg/l
10	Fluoride (as F)	APHA 23rd Edition, 4500D, 2017	0.61	mg/l
11	Phenolic compounds	APHA 23rd Edition, 5530C, 2017	*BLQ(**LOQ-0.001)	mg/l
12	Dissolved oxygen (DO)	IS : 3025 (P -38) : 1989, RA 2019	5.12	mg/l
13	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 1993, RA : 2019	15.62	mg/l
14	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2006 RA 2017	59.26	mg/l
15	Iron (as Fe)	APHA 23rd Edition,3111B, 2017	*BLQ(**LOQ-0.1)	mg/l
16	Zinc (as Zn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.2)	mg/l
17	Copper (as Cu)	APHA 23rd edition, 3111B, 2017	*BLQ(**LOQ-0.02)	mg/l
18	Manganese (as Mn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.05)	mg/l
19	Lead (as Pb)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.005)	mg/l
20	Arsenic (as As)	APHA 23rd Edition, 3030D,3114C, 2017	*BLQ(**LOQ-0.005)	mg/l
21	Boron (as B)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

Sample Number : VTL/SW/05

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Bangoli Dam
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2312180021/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	Colour	IS : 3025 (P-4) : 2021	*BLQ(**LOQ-5.0)	CU
2	Odour	IS : 3025 (P-5) : 2018	Agreeable	--
3	Cyanide (as CN)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l
4	Aluminium (as Al)	IS : 3025 : (P-55) 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l
5	Oil & Grease	IS : 3025 (P-39) 1991, RA 2019	*BLQ(**LOQ-4.0)	mg/l
6	Anionic Detergents (MBAS)	APHA 23rd ed., 2017, 5530C	*BLQ(**LOQ 0.02)	mg/l

*BLQ Blow limit of Quantification **LOQ Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/06

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

ULR No.	: TC112272300000562F
Report No.	: VTL/W/2312180022/A
Format No	: 7.8 F-01
Party Reference No	:
Report Date	: 25/12/2023
Period of Analysis	: 18/12/2023-25/12/2023
Receipt Date	: 18/12/2023
Sampling Date	: 14/12/2023
Sampling Type	: Grab
Sample Quantity	: 2 Ltr
Coordinates	: NA

Sample Description	: SURFACE WATER
Sampling Location	: Raw Water Reservoir
Sample Collected By	: VTL Team
Preservation	: Refrigerated
Method of sampling	: IS 3025

S.No.	Test Parameters	Test Method	Results	Unit
1	pH value	IS : 3025 (P-11) : 2022	7.45	--
2	Turbidity	IS : 3025 (P- 10) : 1984, RA 2017	3.89	NTU
3	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 1984, RA 2017	314.00	mg/l
4	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	85.62	mg/l
5	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	24.85	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (P- 23) : 1986, RA 2019	145.96	mg/l
7	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	160.00	mg/l
8	Calcium (as Ca)	IS : 3025 (P-40) : 1991 RA 2019	49.21	mg/l
9	Magnesium (as Mg)	IS : 3025 (P- 46) : 1994, RA 2019	9.04	mg/l
10	Fluoride (as F)	APHA 23rd Edition, 4500D, 2017	0.41	mg/l
11	Phenolic compounds	APHA 23rd Edition, 5530C, 2017	*BLQ(**LOQ-0.001)	mg/l
12	Dissolved oxygen (DO)	IS : 3025 (P -38) : 1989, RA 2019	6.02	mg/l
13	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 1993, RA : 2019	6.00	mg/l
14	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2006 RA 2017	28.45	mg/l
15	Iron (as Fe)	APHA 23rd Edition,3111B, 2017	*BLQ(**LOQ-0.1)	mg/l
16	Zinc (as Zn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.2)	mg/l
17	Copper (as Cu)	APHA 23rd edition, 3111B, 2017	*BLQ(**LOQ-0.02)	mg/l
18	Manganese (as Mn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.05)	mg/l
19	Lead (as Pb)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.005)	mg/l
20	Arsenic (as As)	APHA 23rd Edition, 3030D,3114C, 2017	*BLQ(**LOQ-0.005)	mg/l
21	Boron (as B)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions FTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/SW/06

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Raw Water Reservoir
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2312180022/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	Colour	IS : 3025 (P-4) : 2021	*BLQ(**LOQ-5.0)	CU
2	Odour	IS : 3025 (P-5) : 2018	Agreeable	--
3	Cyanide (as CN)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l
4	Aluminium (as Al)	IS : 3025 : (P-55) 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l
5	Oil & Grease	IS : 3025 (P-39) 1991, RA 2019	*BLQ(**LOQ-4.0)	mg/l
6	Anionic Detergents (MBAS)	APHA 23rd ed., 2017, 5530C	*BLQ(**LOQ 0.02)	mg/l

*BLQ Blow limit of Quantification **LOQ Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions FTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

TC-11227

Sample Number : VTL/W/01

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-01 (Near Raw Water Pump
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122723000000547F
Report No. : VTL/W/2312180007/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.96	--	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	310.00	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	87.45	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	261.23	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	81.62	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	22.31	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	710.00	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	36.25	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.65	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	21.43	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.21	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.28	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Terms & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

TC-11227

ULR No. : TC1122723000000547F

Sample Number : VTL/W/01

Report No. : VTL/W/2312180007/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

Sample Number : VTL/W/01
Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/W/2312180007/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-01 (Near Raw Water Pump
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, :RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	--	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	--	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

TC-11227

Sample Number : VTL/W/02

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-02 (Near Mura Gate)
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122723000000548F
Report No. : VTL/W/2312180008/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.73	--	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	269.23	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	78.45	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	243.52	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	73.56	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	17.86	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	570.00	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	26.42	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.60	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	22.23	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.25	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.32	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

TC-11227

ULR No. : TC1122723000000548F

Sample Number : VTL/W/02

Report No. : VTL/W/2312180008/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

Sample Number : VTL/W/02
Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : **Water Sample**
Sampling Location : Piezometer Well No.-02 (Near Mura Gate)
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2312180008/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, :RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	--	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	--	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/03
Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

ULR No. : TC1122723000000550F
Report No. : VTL/W/2312180009/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-03 (Near Ash Recovery Water)
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.82	--	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	290.00	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	82.63	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	258.75	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	78.45	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	20.37	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	620.00	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	31.26	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.64	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	23.34	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.20	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.30	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

TC-11227

ULR No. : TC1122723000000550F

Sample Number : VTL/W/03

Report No. : VTL/W/2312180009/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	0.006	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

Sample Number : VTL/W/03
Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/W/2312180009/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-03 (Near Ash Recovery Water)
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, :RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	--	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	--	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions P*TO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/04
Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-04 (Near Wagon Trippler Area
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122723000000549F
Report No. : VTL/W/2312180010/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.52	--	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	210.00	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	55.63	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	202.00	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	65.62	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	17.30	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	365.00	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	22.65	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.32	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	12.59	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.18	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.36	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/05
Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : **Water Sample**
Sampling Location : Piezometer Well No.-05 (Near Old Project Doosan)
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122723000000551F
Report No. : VTL/W/2312180011/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.63	--	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	216.21	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	62.85	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	180.22	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	65.98	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	14.43	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	350.00	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	19.45	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.42	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	11.23	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.19	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.33	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/06
Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-06 (Near OWC Area (Brick
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122723000000552F
Report No. : VTL/W/2312180012/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.63	--	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	250.00	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	67.23	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	229.36	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	42.65	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	19.99	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	425.00	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	26.15	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.51	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	23.15	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.21	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.34	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions FTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar 5, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

TC-11227

ULR No. : TC1122723000000552F

Sample Number : VTL/W/06

Report No. : VTL/W/2312180012/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 2/2

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/06
Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-06 (Near OWC Area (Brick
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2312180012/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, :RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	--	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	--	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

Sample Number : VTL/W/07
Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : **Water Sample**
Sampling Location : Village - Mura Hand Pump Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2312180013/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, :RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	--	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	--	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/08
Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

ULR No. : TC1122723000000553F
Report No. : VTL/W/2312180014/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

Sample Description : Water Sample
Sampling Location : Village - Chicholi Tap Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.86	--	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	530.00	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	164.85	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	242.52	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	112.15	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	28.84	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	865.00	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	74.12	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.27	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	24.56	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.21	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.42	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/09

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

ULR No.	: TC112272300000055F
Report No.	: VTL/W/2312180015/A
Format No	: 7.8 F-01
Party Reference No	:
Report Date	: 25/12/2023
Period of Analysis	: 18/12/2023-25/12/2023
Receipt Date	: 18/12/2023
Sampling Date	: 14/12/2023
Sampling Type	: Grab
Sample Quantity	: 2 Ltr
Coordinates	: NA

Sample Description	: Water Sample
Sampling Location	: Village - Raikheda Tap Water
Sample Collected By	: VTL Team
Preservation	: Refrigerated
Method of sampling	: IS 3025

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.42	--	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	280.00	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	92.18	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	260.00	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	75.33	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	12.15	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	510.00	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	35.60	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.52	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	16.02	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.21	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.43	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Page No. 1/2

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

TC-11227

ULR No. : TC1122723000000555F

Sample Number : VTL/W/09

Report No. : VTL/W/2312180015/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/09
Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Village - Raikheda Tap Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2312180015/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, :RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	--	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	--	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/10
Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

ULR No. : TC112272300000056F
Report No. : VTL/W/2312180016/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

Sample Description : Water Sample
Sampling Location : Village - Gaitara Hand Pump Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.25	--	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	240.19	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	68.14	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	250.00	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	26.59	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	17.05	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	350.00	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	16.3	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.46	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	6.23	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.23	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.38	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Page No. 1/2

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

ULR No. : TC1122723000000556F
Report No. : VTL/W/2312180016/A

Sample Number : VTL/W/10

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/10
Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/W/2312180016/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

Sample Description : Water Sample
Sampling Location : Village - Gaitara Hand Pump Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, :RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	--	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	--	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/S0/01

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : SOIL
Sampling Location : Raikheda Village
Sample Collected By : VTL Team
Parameter Required : As per work order
Method of sampling : IS 2720

Report No. : VTL/S0/2312180001/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Composite
Sample Quantity : 2 Kg.
Packing Status : Temporary Sealed
Coordinates : NA

S.No.	Parameters	Test Method	Results	Units
1	pH	IS : 2720 (P- 26): 1987, RA: 2021	7.83	-
2	Electrical Conductivity	IS 14767: 2000, RA:2021	0.310	mS/cm
3	Bulk density	USDA:1954 (Page-121), RA: 2014	1.34	gm/c.c.
4	Chloride (as Cl)	USDA:1954 Method 13 (Page-98), RA: 2010	98.56	mg/kg
5	Exchangeable Calcium (as Ca)	Lab SOP No. VTL/STP/03: 2022, STP-06	326.45	mg/kg
6	Sodium (as Na)	USEPA:3050 B:1996	165.23	mg/kg
7	Potassium (as K)	USEPA 3050 B: 1996	286.52	kg/hec.
8	Organic Matter	IS 2720 (P-22) 1972, RA:2020	0.58	%
9	Exchangeable Magnesium (as Mg)	Lab SOP No. VTL/STP/03: 2022, STP-06	198.45	mg/kg
10	Available Nitrogen (N)	IS :14684,1999 RA: 2019	267.89	kg/ha
11	Available Phosphorus (as P)	Lab SOP No. VTL/STP/03: 2022, STP-10	43.26	kg/ha
12	Zinc (as Zn)	USEPA 3050 B: 1996	36.85	mg/kg
13	Manganese (as Mn)	USEPA 3050 B: 1996	47.85	mg/kg
14	Total Lead (as Pb)	USEPA 3050 B: 1996	5.62	mg/kg
15	Total Cadmium (as Cd)	USEPA 3050 B:1996	3.74	mg/kg
16	Copper (as Cu)	USEPA 3050 B: 1996	14.52	mg/kg

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTD

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/S0/01

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description	: SOIL
Sampling Location	: Raikheda Village
Sample Collected By	: VTL Team
Parameter Required	: As per work order
Method of sampling	: IS 2720

Report No.	: VTL/S0/2312180001/B
Format No	: 7.8 F-01
Party Reference No	:
Report Date	: 25/12/2023
Period of Analysis	: 18/12/2023-25/12/2023
Receipt Date	: 18/12/2023
Sampling Date	: 14/12/2023
Sampling Type	: Composite
Sample Quantity	: 2 Kg.
Packing Status	: Temporary Sealed
Coordinates	: NA

S.No.	Parameters	Test Method	Results	Units
1	Colour	USDA:1954-Reaffirmed, 2010	Reddish- Brown	-
2	Water holding capacity	USDA:1954-Reaffirmed, 2010	37.98	%
3	Total Chromium (as Cr)	USEPA 3050 B:1996	3.89	mg/kg
4	Soil Texture	IS:2720 (P-4), RA:2006	Sandy Loam	--

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/S0/02

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : SOIL
Sampling Location : Gaitara Village
Sample Collected By : VTL Team
Parameter Required : As per work order
Method of sampling : IS 2720

Report No. : VTL/S0/2312180002/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Composite
Sample Quantity : 2 Kg.
Packing Status : Temporary Sealed
Coordinates : NA

S.No.	Parameters	Test Method	Results	Units
1	pH	IS : 2720 (P- 26): 1987, RA: 2021	7.49	-
2	Electrical Conductivity	IS 14767: 2000, RA:2021	0.298	mS/cm
3	Bulk density	USDA:1954 (Page-121), RA: 2014	1.41	gm/c.c.
4	Chloride (as Cl)	USDA:1954 Method 13 (Page-98), RA: 2010	89.56	mg/kg
5	Exchangeable Calcium (as Ca)	Lab SOP No. VTL/STP/03: 2022, STP-06	298.45	mg/kg
6	Sodium (as Na)	USEPA:3050 B:1996	142.56	mg/kg
7	Potassium (as K)	USEPA 3050 B: 1996	251.69	kg/hec.
8	Organic Matter	IS 2720 (P-22) 1972, RA:2020	0.59	%
9	Exchangeable Magnesium (as Mg)	Lab SOP No. VTL/STP/03: 2022, STP-06	138.97	mg/kg
10	Available Nitrogen (N)	IS :14684,1999 RA: 2019	232.26	kg/ha
11	Available Phosphorus (as P)	Lab SOP No. VTL/STP/03: 2022, STP-10	37.15	kg/ha
12	Zinc (as Zn)	USEPA 3050 B: 1996	22.56	mg/kg
13	Manganese (as Mn)	USEPA 3050 B: 1996	34.56	mg/kg
14	Total Lead (as Pb)	USEPA 3050 B: 1996	3.87	mg/kg
15	Total Cadmium (as Cd)	USEPA 3050 B:1996	2.67	mg/kg
16	Copper (as Cu)	USEPA 3050 B: 1996	11.45	mg/kg

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/S0/02

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SOIL
Sampling Location : Gaitara Village
Sample Collected By : VTL Team
Parameter Required : As per work order
Method of sampling : IS 2720

Report No. : VTL/S0/2312180002/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Composite
Sample Quantity : 2 Kg.
Packing Status : Temporary Sealed
Coordinates : NA

S.No.	Parameters	Test Method	Results	Units
1	Colour	USDA:1954-Reaffirmed, 2010	Reddish- Brown	-
2	Water holding capacity	USDA:1954-Reaffirmed, 2010	32.56	%
3	Total Chromium (as Cr)	USEPA 3050 B:1996	2.87	mg/kg
4	Soil Texture	IS:2720 (P-4), RA:2006	Sandy Loam	--

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/S0/03

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : SOIL
Sampling Location : Mura Village
Sample Collected By : VTL Team
Parameter Required : As per work order
Method of sampling : IS 2720

Report No. : VTL/S0/2312180003/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Composite
Sample Quantity : 2 Kg.
Packing Status : Temporary Sealed
Coordinates : NA

S.No.	Parameters	Test Method	Results	Units
1	pH	IS : 2720 (P- 26): 1987, RA: 2021	7.96	-
2	Electrical Conductivity	IS 14767: 2000, RA:2021	0.319	mS/cm
3	Bulk density	USDA:1954 (Page-121), RA: 2014	1.35	gm/c.c.
4	Chloride (as Cl)	USDA:1954 Method 13 (Page-98), RA: 2010	102.36	mg/kg
5	Exchangeable Calcium (as Ca)	Lab SOP No. VTL/STP/03: 2022, STP-06	321.45	mg/kg
6	Sodium (as Na)	USEPA:3050 B:1996	159.85	mg/kg
7	Potassium (as K)	USEPA 3050 B: 1996	268.52	kg/hec.
8	Organic Matter	IS 2720 (P-22) 1972, RA:2020	0.55	%
9	Exchangeable Magnesium (as Mg)	Lab SOP No. VTL/STP/03: 2022, STP-06	164.35	mg/kg
10	Available Nitrogen (N)	IS :14684,1999 RA: 2019	243.94	kg/ha
11	Available Phosphorus (as P)	Lab SOP No. VTL/STP/03: 2022, STP-10	40.05	kg/ha
12	Zinc (as Zn)	USEPA 3050 B: 1996	35.16	mg/kg
13	Manganese (as Mn)	USEPA 3050 B: 1996	32.04	mg/kg
14	Total Lead (as Pb)	USEPA 3050 B: 1996	4.56	mg/kg
15	Total Cadmium (as Cd)	USEPA 3050 B:1996	3.02	mg/kg
16	Copper (as Cu)	USEPA 3050 B: 1996	13.56	mg/kg

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/S0/03

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : SOIL
Sampling Location : Mura Village
Sample Collected By : VTL Team
Parameter Required : As per work order
Method of sampling : IS 2720

Report No. : VTL/S0/2312180003/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Composite
Sample Quantity : 2 Kg.
Packing Status : Temporary Sealed
Coordinates : NA

S.No.	Parameters	Test Method	Results	Units
1	Colour	USDA:1954-Reaffirmed, 2010	Reddish- Brown	-
2	Water holding capacity	USDA:1954-Reaffirmed, 2010	33.26	%
3	Total Chromium (as Cr)	USEPA 3050 B:1996	3.42	mg/kg
4	Soil Texture	IS:2720 (P-4), RA:2006	Sandy Loam	--

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/S0/04

Name & Address of the Party :
M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SOIL
Sampling Location : Chicholi Village
Sample Collected By : VTL Team
Parameter Required : As per work order
Method of sampling : IS 2720

Report No. : VTL/S0/2312180004/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Composite
Sample Quantity : 2 Kg.
Packing Status : Temporary Sealed
Coordinates : NA

S.No.	Parameters	Test Method	Results	Units
1	pH	IS : 2720 (P- 26): 1987, RA: 2021	7.74	-
2	Electrical Conductivity	IS 14767: 2000, RA:2021	0.302	mS/cm
3	Bulk density	USDA:1954 (Page-121), RA: 2014	1.37	gm/c.c.
4	Chloride (as Cl)	USDA:1954 Method 13 (Page-98), RA: 2010	96.25	mg/kg
5	Exchangeable Calcium (as Ca)	Lab SOP No. VTL/STP/03: 2022, STP-06	316.52	mg/kg
6	Sodium (as Na)	USEPA:3050 B:1996	145.62	mg/kg
7	Potassium (as K)	USEPA 3050 B: 1996	251.26	kg/hec.
8	Organic Matter	IS 2720 (P-22) 1972, RA:2020	0.61	%
9	Exchangeable Magnesium (as Mg)	Lab SOP No. VTL/STP/03: 2022, STP-06	165.32	mg/kg
10	Available Nitrogen (N)	IS :14684,1999 RA: 2019	245.98	kg/ha
11	Available Phosphorus (as P)	Lab SOP No. VTL/STP/03: 2022, STP-10	41.03	kg/ha
12	Zinc (as Zn)	USEPA 3050 B: 1996	30.56	mg/kg
13	Manganese (as Mn)	USEPA 3050 B: 1996	38.45	mg/kg
14	Total Lead (as Pb)	USEPA 3050 B: 1996	4.98	mg/kg
15	Total Cadmium (as Cd)	USEPA 3050 B:1996	2.98	mg/kg
16	Copper (as Cu)	USEPA 3050 B: 1996	11.52	mg/kg

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/S0/04

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : SOIL
Sampling Location : Chicholi Village
Sample Collected By : VTL Team
Parameter Required : As per work order
Method of sampling : IS 2720

Report No. : VTL/S0/2312180004/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Composite
Sample Quantity : 2 Kg.
Packing Status : Temporary Sealed
Coordinates : NA

S.No.	Parameters	Test Method	Results	Units
1	Colour	USDA:1954-Reaffirmed, 2010	Reddish- Brown	-
2	Water holding capacity	USDA:1954-Reaffirmed, 2010	35.62	%
3	Total Chromium (as Cr)	USEPA 3050 B:1996	3.51	mg/kg
4	Soil Texture	IS:2720 (P-4), RA:2006	Sandy Loam	--

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/S0/05

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : SOIL
Sampling Location : Near Field Hosterl Garden
Sample Collected By : VTL Team
Parameter Required : As per work order
Method of sampling : IS 2720

Report No. : VTL/S0/2312180005/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Composite
Sample Quantity : 2 Kg.
Packing Status : Temporary Sealed
Coordinates : NA

S.No.	Parameters	Test Method	Results	Units
1	pH	IS : 2720 (P- 26): 1987, RA: 2021	7.38	-
2	Electrical Conductivity	IS 14767: 2000, RA:2021	0.276	mS/cm
3	Bulk density	USDA:1954 (Page-121), RA: 2014	1.33	gm/c.c.
4	Chloride (as Cl)	USDA:1954 Method 13 (Page-98), RA: 2010	97.45	mg/kg
5	Exchangeable Calcium (as Ca)	Lab SOP No. VTL/STP/03: 2022, STP-06	307.98	mg/kg
6	Sodium (as Na)	USEPA:3050 B:1996	143.26	mg/kg
7	Potassium (as K)	USEPA 3050 B: 1996	232.45	kg/hec.
8	Organic Matter	IS 2720 (P-22) 1972, RA:2020	0.67	%
9	Exchangeable Magnesium (as Mg)	Lab SOP No. VTL/STP/03: 2022, STP-06	151.42	mg/kg
10	Available Nitrogen (N)	IS :14684,1999 RA: 2019	253.62	kg/ha
11	Available Phosphorus (as P)	Lab SOP No. VTL/STP/03: 2022, STP-10	36.52	kg/ha
12	Zinc (as Zn)	USEPA 3050 B: 1996	24.56	mg/kg
13	Manganese (as Mn)	USEPA 3050 B: 1996	36.89	mg/kg
14	Total Lead (as Pb)	USEPA 3050 B: 1996	4.85	mg/kg
15	Total Cadmium (as Cd)	USEPA 3050 B:1996	3.06	mg/kg
16	Copper (as Cu)	USEPA 3050 B: 1996	12.06	mg/kg

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions P.T.O

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/S0/05

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : SOIL
Sampling Location : Near Field Hosterl Garden
Sample Collected By : VTL Team
Parameter Required : As per work order
Method of sampling : IS 2720

Report No. : VTL/S0/2312180005/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Sampling Type : Composite
Sample Quantity : 2 Kg.
Packing Status : Temporary Sealed
Coordinates : NA

S.No.	Parameters	Test Method	Results	Units
1	Colour	USDA:1954-Reaffirmed, 2010	Reddish- Brown	-
2	Water holding capacity	USDA:1954-Reaffirmed, 2010	38.12	%
3	Total Chromium (as Cr)	USEPA 3050 B:1996	2.89	mg/kg
4	Soil Texture	IS:2720 (P-4), RA:2006	Sandy Loam	--

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/WW/01

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Waste Water
Sampling Location : STP Outlet
Sample Collected By : VTL Team
Coordinates : NA

ULR No. : TC112272300000535F
Report No. : VTL/WW/2312180009/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	pH	IS: 3025 (P-11): 2022	7.74	-	5.5 to 9.0
2	Total Suspended Solids (TSS)	IS: 3025 (P-17): 2022	14.21	mg/l	100
3	Oil & Grease	IS:3025 (P-39): 2021	*BLQ(**LOQ-4.0)	mg/l	10
4	Biochemical Oxygen Demand (BOD) (3 days @ 27°C)	IS: 3025 (P-44): 1993, RA: 2019	13.50	mg/l	30
5	Chemical oxygen Demand (COD)	IS : 3025 (P-58) : 2006 RA: 2017	59.58	mg/l	250

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions FTC

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

TC-11227

Sample Number : VTL/WW/02

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : Waste Water
Sampling Location : STP Inlet
Sample Collected By : VTL Team
Coordinates : NA

ULR No. : TC112272300000536F
Report No. : VTL/WW/2312180010/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	pH	IS: 3025 (P-11): 2022	7.31	-	5.5 to 9.0
2	Total Suspended Solids (TSS)	IS: 3025 (P-17): 2022	192.46	mg/l	100
3	Oil & Grease	IS:3025 (P-39): 2021	31.26	mg/l	10
4	Biochemical Oxygen Demand (BOD) (3 days @ 27°C)	IS: 3025 (P-44): 1993, RA: 2019	65.42	mg/l	30
5	Chemical oxygen Demand (COD)	IS : 3025 (P-58) : 2006 RA: 2017	273.56	mg/l	250

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/WW/02

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : Waste Water
Sampling Location : ETP Inlet
Sample Collected By : VTL Team
Coordinates : NA

ULR No. : TC1122723000000537F
Report No. : VTL/WW/2312180011/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	pH	IS: 3025 (P-11): 2022	7.40	-	5.5 to 9.0
2	Total Suspended Solids (TSS)	IS: 3025 (P-17): 2022	143.65	mg/l	100
3	Oil & Grease	IS:3025 (P-39): 2021	*BLQ(**LOQ-4.0)	mg/l	10
4	Biochemical Oxygen Demand (BOD) (3 days @ 27°C)	IS: 3025 (P-44): 1993, RA: 2019	39.85	mg/l	30
5	Chemical oxygen Demand (COD)	IS : 3025 (P-58) : 2006 RA: 2017	226.85	mg/l	250

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

TC-11227

Sample Number : VTL/WW/03

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Waste Water
Sampling Location : ETP Outlet
Sample Collected By : VTL Team
Coordinates : NA

ULR No. : TC112272300000538F
Report No. : VTL/WW/2312180012/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	pH	IS: 3025 (P-11): 2022	8.21	-	5.5 to 9.0
2	Total Suspended Solids (TSS)	IS: 3025 (P-17): 2022	24.56	mg/l	100
3	Oil & Grease	IS:3025 (P-39): 2021	*BLQ(**LOQ-4.0)	mg/l	10
4	Biochemical Oxygen Demand (BOD) (3 days @ 27°C)	IS: 3025 (P-44): 1993, RA: 2019	18.50	mg/l	30
5	Chemical oxygen Demand (COD)	IS : 3025 (P-58) : 2006 RA: 2017	85.62	mg/l	250

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/WW/05

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : Waste Water
Sampling Location : Cooling Tower Blow Down Inlet Unit-II
Sample Collected By : VTL Team
Coordinates : NA

ULR No. : TC1122723000000540F
Report No. : VTL/WW/2312180014/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	Chromium (as Cr)	APHA 23rd Edition 3113 B, 2017	*BLQ(**LOQ-0.1)	mg/l	0.2
2	Zinc (as Zn)	APHA 23rd Edition-3030D, 3113 B, 2017	*BLQ(**LOQ-0.2)	mg/l	1.0
3	Residual Free Chlorine	IS: 3025 (P-26):2021	0.36	mg/l	0.5

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

Sample Number : VTL/WW/05

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh

Sample Description : Waste Water
Sampling Location : Cooling Tower Blow Down Inlet Unit-II
Sample Collected By : VTL Team
Coordinates : NA

Report No. : VTL/WW/2312180014/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	Phosphate (as PO4)	IS:3025 (P-31):1988, (stannous Chloride Method) Sec.3 RA: 2022	*BLQ(**LOQ-0.2)	mg/l	5

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/WW/07

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh

Name & Address of the Party :

Sample Description : Waste Water
Sampling Location : Cooling Tower Blow Down Outlet Unit-II
Sample Collected By : VTL Team
Coordinates : NA

ULR No. : TC1122723000000542F
Report No. : VTL/WW/2312180016/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	Chromium (as Cr)	APHA 23rd Edition 3113 B, 2017	*BLQ(**LOQ-0.1)	mg/l	0.2
2	Zinc (as Zn)	APHA 23rd Edition-3030D, 3113 B, 2017	*BLQ(**LOQ-0.2)	mg/l	1.0
3	Residual Free Chlorine	IS: 3025 (P-26):2021	0.23	mg/l	0.5

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Terms & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

Sample Number : VTL/WW/07

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : **Waste Water**
Sampling Location : Cooling Tower Blow Down Outlet Unit-II
Sample Collected By : VTL Team
Coordinates : NA

Report No. : VTL/WW/2312180016/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	Phosphate (as PO4)	IS:3025 (P-31):1988, (stannous Chloride Method) Sec.3 RA: 2022	*BLQ(**LOQ-0.2)	mg/l	5.0

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

TC-11227

Sample Number : VTL/WW/03

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Waste Water
Sampling Location : Cooling Water Condenset Inlet unit -II
Sample Collected By : VTL Team
Coordinates : NA

ULR No. : TC1122723000000545F
Report No. : VTL/WW/2312180019/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	pH	IS: 3025 (P-11): 2022	7.45	-	6.5 to 8.5
2	Temperature	IS: 3025 (P-9): 1984, RA 2017	22.9	°C	Shall not exceed 5°C above the receiving water temperature
3	Residual Free Chlorine	IS: 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.5

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

TECHNO LAB PRIVATE LIMITED

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/WW/04

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh

Name & Address of the Party :

Sample Description : Waste Water
Sampling Location : Cooling Water Condenset Outlet unit -II
Sample Collected By : VTL Team
Coordinates : NA

ULR No. : TC112272300000546F
Report No. : VTL/WW/2312180020/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 25/12/2023
Period of Analysis : 18/12/2023-25/12/2023
Receipt Date : 18/12/2023
Sampling Date : 14/12/2023
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	pH	IS: 3025 (P-11): 2022	7.35	-	6.5 to 8.5
2	Temperature	IS: 3025 (P-9): 1984, RA 2017	27.3	°C	Shall not exceed 5°C above the receiving water temperature
3	Residual Free Chlorine	IS: 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.5

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Terms & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number : VTL/AA/01

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2403180003/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 26/03/2024
Period of Analysis : 18/03/2024-26/03/2024
Receipt Date : 18/03/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Near Raw Water Area
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/01
Coordinates	:	–
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	11/03/2024 To 12/03/2024
Time of Monitoring	:	10:30 TO 10:30 Hrs.
Ambient Temperature (°C)	:	Min. 23°C Max. 35°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	58.76	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	29.34	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	15.68	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	10.24	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ(**LOQ-0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/2

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
Experience the unimaginable

Sample Number : VTL/AA/01

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2403180003/B
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 26/03/2024
Period of Analysis : 18/03/2024-26/03/2024
Receipt Date : 18/03/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	: Near Raw Water Area
Sample Collected By	: VTL Team
Sampling Equipment used	: RDS/FPS
Instrument Code	: VTL/RDS/FPS/01
Coordinates	: –
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 11/03/2024 To 12/03/2024
Time of Monitoring	: 10:30 TO 10:30 Hrs.
Ambient Temperature (°C)	: Min. 23°C Max. 35°C
Surrounding Activity	: Human, Vehicular & Other Act
Scope of Monitoring	: Regulatory Requirment
Method of Sampling	: IS :5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.39	mg/m³	4
2	Suspended Particulate Matter (as SPM)	IS:5182 (P- 4) :1999, RA.2014	195.0	µg/m³	--
3	Mercury (as Hg)	Methods of air sampling and analysis,3rd ed.,1988, Method No.317	*BLQ(**LOQ-0.5)	µg/m³	--

*BLQ-Below Limit Of Quantification, **LOQ-Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT
Experience the unimaginable

Sample Number : VTL/AA/02

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2403180004/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 26/03/2024
Period of Analysis : 18/03/2024-26/03/2024
Receipt Date : 18/03/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	: Near Old Project Doosan
Sample Collected By	: VTL Team
Sampling Equipment used	: RDS/FPS
Instrument Code	: VTL/RDS/FPS/03
Coordinates	: –
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 11/03/2024 To 12/03/2024
Time of Monitoring	: 09:30 TO 09:30 Hrs.
Ambient Temperature (°C)	: Min. 23°C Max. 35°C
Surrounding Activity	: Human, Vehicular & Other Act.
Scope of Monitoring	: Regulatory Requirment
Method of Sampling	: IS :5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	54.29	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	24.32	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	14.75	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	8.16	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ(**LOQ-0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions FTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

Sample Number nabl/VTL/AA/02

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2403180004/B
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 26/03/2024
Period of Analysis : 18/03/2024-26/03/2024
Receipt Date : 18/03/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Near Old Project Doosan
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/03
Coordinates	:	–
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	11/03/2024 To 12/03/2024
Time of Monitoring	:	09:30 TO 09:30 Hrs.
Ambient Temperature (°C)	:	Min. 23°C Max. 35°C
Surrounding Activity	:	Human, Vehicular & Other Act
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.36	mg/m³	4
2	Suspended Particulate Matter (as SPM)	IS:5182 (P- 4) :1999, RA.2014	173.0	µg/m³	–
3	Mercury (as Hg)	Methods of air sampling and analysis,3rd ed.,1988, Method No.317	*BLQ(**LOQ-0.5)	µg/m³	–

*BLQ-Below Limit Of Quantification, **LOQ-Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions FTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT
Experience the unimaginable

Sample Number : VTL/AA/03

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2403180005/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 26/03/2024
Period of Analysis : 18/03/2024-26/03/2024
Receipt Date : 18/03/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Near STP
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/02
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	11/03/2024 To 12/03/2024
Time of Monitoring	:	13:00 TO 13:00 Hrs.
Ambient Temperature (°C)	:	Min. 23°C Max. 35°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	61.75	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	30.38	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	16.42	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	10.56	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ(**LOQ-0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

Sample Number : VTL/AA/03

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2403180005/B
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 26/03/2024
Period of Analysis : 18/03/2024-26/03/2024
Receipt Date : 18/03/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	: Near STP
Sample Collected By	: VTL Team
Sampling Equipment used	: RDS/FPS
Instrument Code	: VTL/RDS/FPS/02
Coordinates	: --
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 11/03/2024 To 12/03/2024
Time of Monitoring	: 13:00 TO 13:00 Hrs.
Ambient Temperature (°C)	: Min. 23°C Max. 35°C
Surrounding Activity	: Human, Vehicular & Other Act
Scope of Monitoring	: Regulatory Requirment
Method of Sampling	: IS :5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.85	mg/m³	4
2	Suspended Particulate Matter (as SPM)	IS:5182 (P- 4) :1999, RA.2014	220.0	µg/m³	--
3	Mercury (as Hg)	Methods of air sampling and analysis,3rd ed.,1988, Method No.317	*BLQ(**LOQ-0.5)	µg/m³	--

*BLQ-Below Limit Of Quantification, **LOQ-Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number: VTL/AA/06

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2403180006/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 26/03/2024
Period of Analysis : 18/03/2024-26/03/2024
Receipt Date : 18/03/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	: Village - Chicholi (Vikash Rajput House)
Sample Collected By	: VTL Team
Sampling Equipment used	: RDS/FPS
Instrument Code	: VTL/RDS/FPS/04
Coordinates	: —
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 14/03/2024 To 15/03/2024
Time of Monitoring	: 10:45 TO 10:45 Hrs.
Ambient Temperature (°C)	: Min. 19°C Max. 36°C
Surrounding Activity	: Human, Vehicular & Other Act.
Scope of Monitoring	: Regulatory Requirment
Method of Sampling	: IS :5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	50.49	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	28.42	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	13.16	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	9.85	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ(**LOQ-0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/2

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
Experience the unimaginable

Sample Number : VTL/AA/06

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2403180006/B
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 26/03/2024
Period of Analysis : 18/03/2024-26/03/2024
Receipt Date : 18/03/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Village - Chicholi (Vikash Rajput House)
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/04
Coordinates	:	--
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	14/03/2024 To 15/03/2024
Time of Monitoring	:	10:45 TO 10:45 Hrs.
Ambient Temperature (°C)	:	Min. 19°C Max. 36°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.41	mg/m³	4
2	Suspended Particulate Matter (as SPM)	IS:5182 (P- 4) :1999, RA.2014	193.0	µg/m³	--
3	Mercury (as Hg)	Methods of air sampling and analysis,3rd ed.,1988, Method No.317	*BLQ(**LOQ-0.5)	µg/m³	--

*BLQ-Below Limit Of Quantification, **LOQ-Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number : VTL/AA/07

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2403180007/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 26/03/2024
Period of Analysis : 18/03/2024-26/03/2024
Receipt Date : 18/03/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Village - Raikheda (Jitendra House)
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/04
Coordinates	:	–
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	11/03/2024 To 12/03/2024
Time of Monitoring	:	14:00 TO 14:00 Hrs.
Ambient Temperature (°C)	:	Min. 23°C Max. 35°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Scope of Monitoring	:	Regulatory Requirment
Method of Sampling	:	IS :5182
Sampling Duration	:	24 Hrs.
Parameter Required	:	As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	56.83	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	29.67	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	13.52	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	10.61	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ(**LOQ-0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

Sample Number : VTL/AA/07

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2403180007/B
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 26/03/2024
Period of Analysis : 18/03/2024-26/03/2024
Receipt Date : 18/03/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	: Village - Raikheda (Jitendra House)
Sample Collected By	: VTL Team
Sampling Equipment used	: RDS/FPS
Instrument Code	: VTL/RDS/FPS/04
Coordinates	: –
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 11/03/2024 To 12/03/2024
Time of Monitoring	: 14:00 TO 14:00 Hrs.
Ambient Temperature (°C)	: Min. 23°C Max. 35°C
Surrounding Activity	: Human, Vehicular & Other Act.
Scope of Monitoring	: Regulatory Requirment
Method of Sampling	: IS :5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.42	mg/m³	4
2	Suspended Particulate Matter (as SPM)	IS:5182 (P- 4) :1999, RA.2014	201.0	µg/m³	--
3	Mercury (as Hg)	Methods of air sampling and analysis,3rd ed.,1988, Method No.317	*BLQ(**LOQ-0.5)	µg/m³	--

*BLQ-Below Limit Of Quantification, **LOQ-Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number: VTL/AA/08

Name & Address of the Party	: M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh	**Report No.**	: VTL/A/2403180008/A
		Format No	: 7.8 F-02
		Party Reference No	: NIL
		Report Date	: 26/03/2024
		Period of Analysis	: 18/03/2024-26/03/2024
		Receipt Date	: 18/03/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	: Village - Gaitara (Amardas House)
Sample Collected By	: VTL Team
Sampling Equipment used	: RDS/FPS
Instrument Code	: VTL/RDS/FPS/04
Coordinates	: –
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 13/03/2024 To 14/03/2024
Time of Monitoring	: 10:20 TO 10:20 Hrs.
Ambient Temperature (°C)	: Min. 22°C Max. 37°C
Surrounding Activity	: Human, Vehicular & Other Act.
Scope of Monitoring	: Regulatory Requirment
Method of Sampling	: IS :5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	62.89	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	32.39	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	18.42	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	12.23	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ(**LOQ-0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/2

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

Sample Number : VTL/AA/08

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No.	: VTL/A/2403180008/B
Format No	: 7.8 F-02
Party Reference No	: NIL
Report Date	: 26/03/2024
Period of Analysis	: 18/03/2024-26/03/2024
Receipt Date	: 18/03/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	: Village - Gaitara (Amardas House)
Sample Collected By	: VTL Team
Sampling Equipment used	: RDS/FPS
Instrument Code	: VTL/RDS/FPS/04
Coordinates	: –
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 13/03/2024 To 14/03/2024
Time of Monitoring	: 10:20 TO 10:20 Hrs.
Ambient Temperature (°C)	: Min. 22°C Max. 37°C
Surrounding Activity	: Human, Vehicular & Other Act
Scope of Monitoring	: Regulatory Requirment
Method of Sampling	: IS :5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.65	mg/m³	4
2	Suspended Particulate Matter (as SPM)	IS:5182 (P- 4) :1999, RA.2014	219.0	µg/m³	--
3	Mercury (as Hg)	Methods of air sampling and analysis,3rd ed.,1988, Method No.317	*BLQ(**LOQ-0.5)	µg/m³	--

*BLQ-Below Limit Of Quantification, **LOQ-Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number: VTL/AA/08

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2403180009/A
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 26/03/2024
Period of Analysis : 18/03/2024-26/03/2024
Receipt Date : 18/03/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	: Village - Mura (Near Petrol Pump)
Sample Collected By	: VTL Team
Sampling Equipment used	: RDS/FPS
Instrument Code	: VTL/RDS/FPS/04
Coordinates	: –
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 12/03/2024 To 13/03/2024
Time of Monitoring	: 15:30 TO 15:30 Hrs.
Ambient Temperature (°C)	: Min. 21°C Max. 37°C
Surrounding Activity	: Human, Vehicular & Other Act
Scope of Monitoring	: Regulatory Requirment
Method of Sampling	: IS :5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Particulate Matter (as PM10)	IS:5182 (P- 23)-2006, RA. 2017	59.12	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	29.67	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	15.34	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	12.82	µg/m³	80
5	Benzene (as C6H6)	IS 5182 (P-11)-2006, RA.2017	*BLQ (**LOQ 1.0)	µg/m³	5
6	Ammonia (as NH3)	Methods of air sampling and analysis,3rd ed.,1988, Method No. 401	*BLQ (**LOQ 2.0)	µg/m³	400
7	Ozone (as O3)	IS 5182 (P-9):1974, RA.2019	*BLQ (**LOQ 4.0)	µg/m³	180
8	Lead (as Pb)	IS 5182 (P-22) : 2004, RA.2019	*BLQ (**LOQ 0.02)	µg/m³	1
9	Arsenic (as As)	Methods of air sampling and analysis,3rd ed.,1988, Method No.302	*BLQ (**LOQ 0.15)	ng/m³	6
10	Nickel (as Ni)	USEPA compendium IO-3.2,1999	*BLQ (**LOQ 5.0)	ng/m³	20
11	Benzo (alpha) Pyrene-Particulate Phase Only	IS:5182 (P-12):2004, RA.2019	*BLQ(**LOQ-0.2)	ng/m³	1

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

Sample Number : VTL/AA/08

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/A/2403180009/B
Format No : 7.8 F-02
Party Reference No : NIL
Report Date : 26/03/2024
Period of Analysis : 18/03/2024-26/03/2024
Receipt Date : 18/03/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	: Village - Mura (Near Petrol Pump)
Sample Collected By	: VTL Team
Sampling Equipment used	: RDS/FPS
Instrument Code	: VTL/RDS/FPS/04
Coordinates	: –
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 12/03/2024 To 13/03/2024
Time of Monitoring	: 15:30 TO 15:30 Hrs.
Ambient Temperature (°C)	: Min. 21°C Max. 37°C
Surrounding Activity	: Human, Vehicular & Other Act.
Scope of Monitoring	: Regulatory Requirment
Method of Sampling	: IS :5182
Sampling Duration	: 24 Hrs.
Parameter Required	: As per work order

S.No.	Parameters	Test Method	Results	Units	NAAQS 2009
1	Carbon Monoxide (as CO)	Lab SOP no. VTL/STP/02:2022, STP-08	0.49	mg/m³	4
2	Suspended Particulate Matter (as SPM)	IS:5182 (P- 4) :1999, RA.2014	235.0	µg/m³	–
3	Mercury (as Hg)	Methods of air sampling and analysis,3rd ed.,1988, Method No.317	*BLQ(**LOQ-0.5)	µg/m³	–

*BLQ-Below Limit Of Quantification, **LOQ-Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

Sample Number:	**VTL/FA/01**	**Report No.:**	**VTL/FA/2403120001/B**
Name & Address of the Party:	**M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225, Chhattisgarh**	**Format No.:**	**7.8 F-01**
		Party Reference No.:	**NIL**
Sampling Description:	**FLY ASH**	**Report Date:**	**18/03/2024**
		Period of Analysis:	**12-18/03/2024**
		Sampling Date:	**08/03/2024**

TEST RESULTS

S. No.	Parameter	Result
1.	Arsenic as As (mg/kg)	0.30
2.	Lead as Pb (mg/kg)	0.83
3.	Mercury as Hg (mg/kg)	0.42
4.	Chromium as Cr (mg/kg)	0.69

Checked By

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge

Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

Sample Number:	**VTL/BA/01**	**Report No.:**	**VTL/BA/2403120001/B**
Name & Address of the Party:	**M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225, Chhattisgarh**	**Format No.:**	**7.8 F-01**
		Party Reference No.:	**NIL**
		Report Date:	**18/03/2024**
Sampling Description:	**BOTTOM ASH**	**Period of Analysis:**	**12-18/03/2024**
		Sampling Date:	**08/03/2024**

TEST RESULTS

S. No.	Parameter	Result
1.	Arsenic as As (mg/kg)	0.28
2.	Lead as Pb (mg/kg)	5.30
3.	Mercury as Hg (mg/kg)	0.60
4.	Chromium as Cr (mg/kg)	3.20

Checked By

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge

Authorized Signatory

Term & conditions, PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

Sample Number:	**VTL/PA/01**	**Report No.:**	**VTL/PA/2403120001/B**
Name & Address of the Party:	**M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225, Chhattisgarh**	**Format No.:**	**7.8 F-01**
		Party Reference No.:	**NIL**
Sampling Description:	**POND ASH**	**Report Date:**	**18/03/2024**
		Period of Analysis:	**12-18/03/2024**
		Sampling Date:	**08/03/2024**

TEST RESULTS

S. No.	Parameter	Result
1.	Arsenic as As (mg/kg)	0.21
2.	Lead as Pb (mg/kg)	4.90
3.	Mercury as Hg (mg/kg)	0.41
4.	Chromium as Cr (mg/kg)	2.69

Checked By

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge

Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

Sample Number : VTL/S/01

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/S/2403180006/A
Format No : 7.8 F-03
Party Reference No : NIL
Report Date : 26/03/2024
Period of Analysis : 18/03/2024-26/03/2024
Receipt Date : 18/03/2024

Sample Description : **Stack Emission Monitoring**

General Information:-

Sampling Location	:	Stack Unit-I
Sample Collected By	:	VTL Team
Date of Sampling	:	15/03/2024
Sampling duration (Minutes)	:	30 min. (11:50 to 12:20 hrs.)
Stack attached to	:	ESP
Make of stack	:	MS
Diameter of stack(m)	:	7.5 m
Height of stack(m)	:	275 m
Instrument calibration status	:	Calibrated
Meteorological Condition	:	Clear Sky
Ambient Temperature - Ta (°C)	:	34°C
Temperature of Stack Gases - Ts (°C)	:	134°c
Velocity of Stack Gases (m/sec.)	:	23.0
Flow rate of PM (LPM)	:	33
Flow rate of Gas (LPM)	:	2.0
Sampling condition	:	OK
Protocol used	:	IS 11255 & USEPA
Coordinates	:	--

S.No.	Parameters	Test Method	Results	Units
1	Particulate Matter (PM)	IS: 11255 (P-1) : 1985, RA 2019	36.12	mg/Nm3
2	Sulphur Dioxide (SO2)	IS: 11255(P- 2): 1985, RA.2019	985.47	mg/Nm3
3	Oxide of Nitrogen (NO2)	IS-11255 (P-7), RA 2017	258.31	mg/Nm3
4	Mercury (Hg)	USEPA 29: 1996	*BLQ(**LOQ-.001)	mg/Nm3

*BLQ= Below Limit Of Quantification, **LOQ= Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number : VTL/S/02

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/S/2403180007/A
Format No : 7.8 F-03
Party Reference No : NIL
Report Date : 26/03/2024
Period of Analysis : 18/03/2024-26/03/2024
Receipt Date : 18/03/2024

Sample Description : **Stack Emission Monitoring**

General Information:-

Sampling Location	:	Stack Unit-II
Sample Collected By	:	VTL Team
Date of Sampling	:	15/03/2024
Sampling duration (Minutes)	:	32 min. (12:25 to 12:57 hrs.)
Stack attached to	:	ESP
Make of stack	:	MS
Diameter of stack(m)	:	7.5 m
Height of stack(m)	:	275 m
Instrument calibration status	:	Calibrated
Meteorological Condition	:	Clear Sky
Ambient Temperature - Ta (°C)	:	34°C
Temperature of Stack Gases - Ts (°C)	:	132°c
Velocity of Stack Gases (m/sec.)	:	21.70
Flow rate of PM (LPM)	:	31
Flow rate of Gas (LPM)	:	2.0
Sampling condition	:	OK
Protocol used	:	IS 11255 & USEPA
Coordinates	:	—

S.No.	Parameters	Test Method	Results	Units
1	Particulate Matter (PM)	IS: 11255 (P-1) : 1985, RA 2019	39.76	mg/Nm3
2	Sulphur Dioxide (SO2)	IS: 11255(P- 2): 1985, RA.2019	1056.02	mg/Nm3
3	Oxide of Nitrogen (NO2)	IS-11255 (P-7), RA 2017	275.00	mg/Nm3
4	Mercury (Hg)	USEPA 29: 1996	*BLQ(**LOQ-.001)	mg/Nm3

*BLQ= Below Limit Of Quantification, **LOQ= Limit Of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar 5, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number : VTL/AN/01

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/N/2403180006/A
Format No : 7.8 F-04
Party Reference No : NIL
Report Date : 26/03/2024
Receipt Date : 18/03/2024
Sampling Duration : 24 Hrs.
Sample Collected : VTL Team
Instrument Calibration Status : Calibrated

Sample Description : **Ambient Noise Level Monitoring**
Scope of Monitoring : Regulatory Requirment
Protocol Used : IS 9989
Instrument Used : SLM

General Information:-

Sampling Location	:	Near Admin Building
Instrument Code	:	VTL/SLM/01
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	11/03/2024 To 12/03/2024
Time of Monitoring	:	06:00 TO 06:00 Hrs.
Ambient Temperature (°C)	:	Min. 23°C Max. 35°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Parameter Required	:	As per work order
Coordinates	:	--

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	58.4	50.1

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number	: VTL/AN/02	**Report No.**	: VTL/N/2403180007/A
Name & Address of the Party	: M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh	**Format No**	: 7.8 F-04
		Party Reference No	: NIL
		Report Date	: 26/03/2024
		Receipt Date	: 18/03/2024
Sample Description	: **Ambient Noise Level Monitoring**	**Sampling Duration**	: 24 Hrs.
Scope of Monitoring	: Regulatory Requirment	**Sample Collected**	: VTL Team
Protocol Used	: IS 9989	**Instrument Calibration Status**	: Calibrated
Instrument Used	: SLM		

General Information:-

Sampling Location	:	Near Field Hostel
Instrument Code	:	VTL/SLM/02
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	11/03/2024 To 12/03/2024
Time of Monitoring	:	06:00 TO 06:00 Hrs.
Ambient Temperature (°C)	:	Min. 23°C Max. 35°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Parameter Required	:	As per work order
Coordinates	:	--

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	54.1	43.9

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions Pt.O

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number : VTL/AN/03

Name & Address of the Party	: M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh	**Report No.**	: VTL/N/2403180008/A
		Format No	: 7.8 F-04
		Party Reference No	: NIL
		Report Date	: 26/03/2024
		Receipt Date	: 18/03/2024
Sample Description	: **Ambient Noise Level Monitoring**	**Sampling Duration**	: 24 Hrs.
Scope of Monitoring	: Regulatory Requirment	**Sample Collected**	: VTL Team
Protocol Used	: IS 9989	**Instrument Calibration Status**	: Calibrated
Instrument Used	: SLM		

General Information:-

Sampling Location	: Gate No. -2 (Gaitara Gate)
Instrument Code	: VTL/SLM/01
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 12/03/2024 To 13/03/2024
Time of Monitoring	: 06:00 TO 06:00 Hrs.
Ambient Temperature (°C)	: Min. 21°C Max. 37°C
Surrounding Activity	: Human, Vehicular & Other Act.
Parameter Required	: As per work order
Coordinates	: --

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	52.8	41.2

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT
Experience the Unimaginable

Sample Number : VTL/AN/04

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/N/2403180009/A
Format No : 7.8 F-04
Party Reference No : NIL
Report Date : 26/03/2024
Receipt Date : 18/03/2024
Sampling Duration : 24 Hrs.
Sample Collected : VTL Team
Instrument Calibration Status : Calibrated

Sample Description : **Ambient Noise Level Monitoring**
Scope of Monitoring : Regulatory Requirment
Protocol Used : IS 9989
Instrument Used : SLM

General Information:-

Sampling Location : Near Gate No.-01
Instrument Code : VTL/SLM/02
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 12/03/2024 To 13/03/2024
Time of Monitoring : 06:00 TO 06:00 Hrs.
Ambient Temperature (°C) : Min. 21°C Max. 37°C
Surrounding Activity : Human, Vehicular & Other Act
Parameter Required : As per work order
Coordinates : –

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	54.3	41.9

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions P.T.O.

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AN/05

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No.	: VTL/N/2403180010/A
Format No	: 7.8 F-04
Party Reference No	: NIL
Report Date	: 26/03/2024
Receipt Date	: 18/03/2024
Sampling Duration	: 24 Hrs.
Sample Collected	: VTL Team
Instrument Calibration Status	: Calibrated

Sample Description	: **Ambient Noise Level Monitoring**
Scope of Monitoring	: Regulatory Requirment
Protocol Used	: IS 9989
Instrument Used	: SLM

General Information:-

Sampling Location	: Near Mura Village Gate
Instrument Code	: VTL/SLM/01
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 13/03/2024 To 14/03/2024
Time of Monitoring	: 06:00 TO 06:00 Hrs.
Ambient Temperature (°C)	: Min. 22°C Max. 37°C
Surrounding Activity	: Human, Vehicular & Other Act.
Parameter Required	: As per work order
Coordinates	: --

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	51.4	43.5

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions/ PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar 5, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT
Experience the Difference

Sample Number : VTL/AN/06

Name & Address of the Party	: M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh	**Report No.**	: VTL/N/2403180011/A
		Format No	: 7.8 F-04
		Party Reference No	: NIL
		Report Date	: 26/03/2024
		Receipt Date	: 18/03/2024
Sample Description	: **Ambient Noise Level Monitoring**	**Sampling Duration**	: 24 Hrs.
Scope of Monitoring	: Regulatory Requirment	**Sample Collected**	: VTL Team
Protocol Used	: IS 9989	**Instrument Calibration Status**	: Calibrated
Instrument Used	: SLM		

General Information:-

Sampling Location	: Gate No.-3 (Bhatapara)
Instrument Code	: VTL/SLM/02
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 13/03/2024 To 14/03/2024
Time of Monitoring	: 06:00 TO 06:00 Hrs.
Ambient Temperature (°C)	: Min. 22°C Max. 37°C
Surrounding Activity	: Human, Vehicular & Other Act.
Parameter Required	: As per work order
Coordinates	: –

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	49.2	41.6

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number	: VTL/AN/07	**Report No.**	: VTL/N/2403180012/A
Name & Address of the Party	: M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh	**Format No**	: 7.8 F-04
		Party Reference No	: NIL
		Report Date	: 26/03/2024
		Receipt Date	: 18/03/2024
Sample Description	: **Ambient Noise Level Monitoring**	**Sampling Duration**	: 24 Hrs.
Scope of Monitoring	: Regulatory Requirment	**Sample Collected**	: VTL Team
Protocol Used	: IS 9989	**Instrument Calibration Status**	: Calibrated
Instrument Used	: SLM		

General Information:-

Sampling Location	:	Near OHC
Instrument Code	:	VTL/SLM/01
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	14/03/2024 To 15/03/2024
Time of Monitoring	:	06:00 TO 06:00 Hrs.
Ambient Temperature (°C)	:	Min. 19°C Max. 36°C
Surrounding Activity	:	Human, Vehicular & Other Act.
Parameter Required	:	As per work order
Coordinates	:	—

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	52.7	38.9

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions: P.T.O.

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AN/08

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No.	: VTL/N/2403180013/A
Format No	: 7.8 F-04
Party Reference No	: NIL
Report Date	: 26/03/2024
Receipt Date	: 18/03/2024
Sampling Duration	: 24 Hrs.
Sample Collected	: VTL Team
Instrument Calibration Status	: Calibrated

Sample Description	: **Ambient Noise Level Monitoring**
Scope of Monitoring	: Regulatory Requirment
Protocol Used	: IS 9989
Instrument Used	: SLM

General Information:-

Sampling Location	: Near Weigh Bridge
Instrument Code	: VTL/SLM/02
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 14/03/2024 To 15/03/2024
Time of Monitoring	: 06:00 TO 06:00 Hrs.
Ambient Temperature (°C)	: Min. 19°C Max. 36°C
Surrounding Activity	: Human, Vehicular & Other Act
Parameter Required	: As per work order
Coordinates	: --

S.No.	Test Parameters	Protocol	Test Result dB(A)	
			Day Time	Night Time
1	Leq	IS 9989 - 1981 RA:2020	54.2	50.3

Ambient Noise Quality Standards as per Noise Pollution (Regulation and Control) Rules, 2000

Area Code	Category of Area/Zone	Limits in dB(A) Leq*	
		Day Time	Night Time
A	Industrial area	75	70
B	Commercial area	65	55
C	Residential area	55	45
D	Silence Zone	50	40

1. Day Time is from 6.00 AM to 10.00 PM.
2. Night Time is reckoned between 10.00 PM to 6.00 AM.
3. Silence Zone is defined as an area up to 100 m around premises of Hospitals, Educational and Courts. Use of vehicle horn, Loudspeaker and bursting of crackers is banned in these zones.

Note: Mixed categories of areas be declared as one of the four above mentioned categories by the competent Authority and the corresponding standards shall apply

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj, 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/01

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Mura Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122724000000521F
Report No. : VTL/W/2403150012/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	pH value	IS : 3025 (P-11) : 2022	6.87	–
2	Turbidity	IS : 3025 (P- 10) : 1984, RA 2017	3.95	NTU
3	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 1984, RA 2017	350.0	mg/l
4	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	105.26	mg/l
5	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	20.12	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (P- 23) : 1986, RA 2019	135.0	mg/l
7	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	150.12	mg/l
8	Calcium (as Ca)	IS : 3025 (P-40) : 1991 RA 2019	29.0	mg/l
9	Magnesium (as Mg)	IS : 3025 (P- 46) : 1994, RA 2019	18.90	mg/l
10	Fluoride (as F)	APHA 23rd Edition, 4500D, 2017	0.62	mg/l
11	Phenolic compounds	APHA 23rd Edition, 5530C, 2017	*BLQ(**LOQ-0.001)	mg/l
12	Dissolved oxygen (DO)	IS : 3025 (P -38) : 1989, RA 2019	5.8	mg/l
13	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 1993, RA : 2019	15.0	mg/l
14	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2006 RA 2017	55.0	mg/l
15	Iron (as Fe)	APHA 23rd Edition,3111B, 2017	*BLQ(**LOQ-0.1)	mg/l
16	Zinc (as Zn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.2)	mg/l
17	Copper (as Cu)	APHA 23rd edition, 3111B, 2017	*BLQ(**LOQ-0.02)	mg/l
18	Manganese (as Mn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.05)	mg/l
19	Lead (as Pb)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.005)	mg/l
20	Arsenic (as As)	APHA 23rd Edition, 3030D,3114C, 2017	*BLQ(**LOQ-0.005)	mg/l
21	Boron (as B)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions I/TO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/01

ULR No. : TC1122724000000521F
Report No. : VTL/W/2403150012/A

S.No.	Test Parameters	Test Method	Results	Unit
22	Chromium (as Cr)	APHA 23rd Edition,3113B, 2017	*BLQ(**LOQ-0.02)	mg/l
23	Cadmium (as Cd)	APHA 23rd Edition,3113B ,2017	*BLQ(**LOQ-0.002)	mg/l
24	Selenium (as Se)	APHA 23rd Edition,3114C, 2017	*BLQ(**LOQ-0.005)	mg/l
25	Mercury (as Hg)	APHA 23rd Edition,3114C, 2017	*BLQ(**LOQ- 0.001)	mg/l

*BLQ Blow limit of Quantification **LOQ Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions F1D

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/SW/01

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Mura Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2403150012/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	Colour	IS : 3025 (P-4) : 2021	*BLQ(**LOQ-5.0)	CU
2	Odour	IS : 3025 (P-5) : 2018	Agreeable	–
3	Cyanide (as CN)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l
4	Aluminium (as Al)	IS : 3025 : (P-55) 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l
5	Oil & Grease	IS : 3025 (P-39) 1991, RA 2019	*BLQ(**LOQ-4.0)	mg/l
6	Anionic Detergents (MBAS)	APHA 23rd ed., 2017, 5530C	*BLQ(**LOQ 0.02)	mg/l

*BLQ Blow limit of Quantification **LOQ Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions FTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar 5, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/02

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

ULR No. : TC1122724000000522F
Report No. : VTL/W/2403150013/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

Sample Description : SURFACE WATER
Sampling Location : Chicholi Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

S.No.	Test Parameters	Test Method	Results	Unit
1	pH value	IS : 3025 (P-11) : 2022	7.10	–
2	Turbidity	IS : 3025 (P- 10) : 1984, RA 2017	6.12	NTU
3	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 1984, RA 2017	525.0	mg/l
4	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	35.83	mg/l
5	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	28.19	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (P- 23) : 1986, RA 2019	162.0	mg/l
7	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	125.0	mg/l
8	Calcium (as Ca)	IS : 3025 (P-40) : 1991 RA 2019	31.0	mg/l
9	Magnesium (as Mg)	IS : 3025 (P- 46) : 1994, RA 2019	11.58	mg/l
10	Fluoride (as F)	APHA 23rd Edition, 4500D, 2017	0.82	mg/l
11	Phenolic compounds	APHA 23rd Edition, 5530C, 2017	*BLQ(**LOQ-0.001)	mg/l
12	Dissolved oxygen (DO)	IS : 3025 (P -38) : 1989, RA 2019	6.2	mg/l
13	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 1993, RA : 2019	10.0	mg/l
14	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2006 RA 2017	42.0	mg/l
15	Iron (as Fe)	APHA 23rd Edition,3111B, 2017	*BLQ(**LOQ-0.1)	mg/l
16	Zinc (as Zn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.2)	mg/l
17	Copper (as Cu)	APHA 23rd edition, 3111B, 2017	*BLQ(**LOQ-0.02)	mg/l
18	Manganese (as Mn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.05)	mg/l
19	Lead (as Pb)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.005)	mg/l
20	Arsenic (as As)	APHA 23rd Edition, 3030D,3114C, 2017	*BLQ(**LOQ-0.005)	mg/l
21	Boron (as B)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions (*T&C)

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/02

ULR No. : TC1122724000000522F
Report No. : VTL/W/2403150013/A

S.No.	Test Parameters	Test Method	Results	Unit
22	Chromium (as Cr)	APHA 23rd Edition,3113B, 2017	*BLQ(**LOQ-0.02)	mg/l
23	Cadmium (as Cd)	APHA 23rd Edition,3113B ,2017	*BLQ(**LOQ-0.002)	mg/l
24	Selenium (as Se)	APHA 23rd Edition,3114C, 2017	*BLQ(**LOQ-0.005)	mg/l
25	Mercury (as Hg)	APHA 23rd Edition,3114C, 2017	*BLQ(**LOQ- 0.001)	mg/l

*BLQ Blow limit of Quantification **LOQ Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 2/2

Term & conditions ↱TO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/SW/02

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Chicholi Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2403150013/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	Colour	IS : 3025 (P-4) : 2021	*BLQ(**LOQ-5.0)	CU
2	Odour	IS : 3025 (P-5) : 2018	Agreeable	--
3	Cyanide (as CN)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l
4	Aluminium (as Al)	IS : 3025 : (P-55) 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l
5	Oil & Grease	IS : 3025 (P-39) 1991, RA 2019	*BLQ(**LOQ-4.0)	mg/l
6	Anionic Detergents (MBAS)	APHA 23rd ed., 2017, 5530C	*BLQ(**LOQ 0.02)	mg/l

*BLQ Blow limit of Quantification **LOQ Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & condition PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/03

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Raikheda Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122724000000523F
Report No. : VTL/W/2403150014/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	pH value	IS : 3025 (P-11) : 2022	7.08	–
2	Turbidity	IS : 3025 (P- 10) : 1984, RA 2017	3.42	NTU
3	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 1984, RA 2017	415.0	mg/l
4	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	42.20	mg/l
5	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	19.76	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (P- 23) : 1986, RA 2019	112.0	mg/l
7	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	125.0	mg/l
8	Calcium (as Ca)	IS : 3025 (P-40) : 1991 RA 2019	28.0	mg/l
9	Magnesium (as Mg)	IS : 3025 (P- 46) : 1994, RA 2019	13.40	mg/l
10	Fluoride (as F)	APHA 23rd Edition, 4500D, 2017	0.41	mg/l
11	Phenolic compounds	APHA 23rd Edition, 5530C, 2017	*BLQ(**LOQ-0.001)	mg/l
12	Dissolved oxygen (DO)	IS : 3025 (P -38) 1989, RA 2019	4.82	mg/l
13	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 1993, RA : 2019	15.0	mg/l
14	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2006 RA 2017	65.0	mg/l
15	Iron (as Fe)	APHA 23rd Edition,3111B, 2017	*BLQ(**LOQ-0.1)	mg/l
16	Zinc (as Zn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.2)	mg/l
17	Copper (as Cu)	APHA 23rd edition, 3111B, 2017	*BLQ(**LOQ-0.02)	mg/l
18	Manganese (as Mn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.05)	mg/l
19	Lead (as Pb)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.005)	mg/l
20	Arsenic (as As)	APHA 23rd Edition, 3030D,3114C, 2017	*BLQ(**LOQ-0.005)	mg/l
21	Boron (as B)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/2

Term & conditions FTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

Sample Number : VTL/SW/03

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Raikheda Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2403150014/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	Colour	IS : 3025 (P-4) : 2021	*BLQ(**LOQ-5.0)	CU
2	Odour	IS : 3025 (P-5) : 2018	Agreeable	--
3	Cyanide (as CN)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l
4	Aluminium (as Al)	IS : 3025 : (P-55) 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l
5	Oil & Grease	IS : 3025 (P-39) 1991, RA 2019	*BLQ(**LOQ-4.0)	mg/l
6	Anionic Detergents (MBAS)	APHA 23rd ed., 2017, 5530C	*BLQ(**LOQ 0.02)	mg/l

*BLQ Blow limit of Quantification **LOQ Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar 5, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/04

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Gaitara Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122724000000524F
Report No. : VTL/W/2403150015/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	pH value	IS : 3025 (P-11) : 2022	7.22	–
2	Turbidity	IS : 3025 (P- 10) : 1984, RA 2017	2.92	NTU
3	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 1984, RA 2017	465.0	mg/l
4	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	62.0	mg/l
5	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	22.36	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (P- 23) : 1986, RA 2019	178.0	mg/l
7	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	145.0	mg/l
8	Calcium (as Ca)	IS : 3025 (P-40) : 1991 RA 2019	22.0	mg/l
9	Magnesium (as Mg)	IS : 3025 (P- 46) : 1994, RA 2019	21.90	mg/l
10	Fluoride (as F)	APHA 23rd Edition, 4500D, 2017	0.72	mg/l
11	Phenolic compounds	APHA 23rd Edition, 5530C, 2017	*BLQ(**LOQ-0.001)	mg/l
12	Dissolved oxygen (DO)	IS : 3025 (P -38) : 1989, RA 2019	6.20	mg/l
13	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 1993, RA : 2019	16.0	mg/l
14	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2006 RA 2017	60.0	mg/l
15	Iron (as Fe)	APHA 23rd Edition,3111B, 2017	*BLQ(**LOQ-0.1)	mg/l
16	Zinc (as Zn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.2)	mg/l
17	Copper (as Cu)	APHA 23rd edition, 3111B, 2017	*BLQ(**LOQ-0.02)	mg/l
18	Manganese (as Mn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.05)	mg/l
19	Lead (as Pb)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.005)	mg/l
20	Arsenic (as As)	APHA 23rd Edition, 3030D,3114C, 2017	*BLQ(**LOQ-0.005)	mg/l
21	Boron (as B)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/04

ULR No. : TC1122724000000524F
Report No. : VTL/W/2403150015/A

S.No.	Test Parameters	Test Method	Results	Unit
22	Chromium (as Cr)	APHA 23rd Edition,3113B, 2017	*BLQ(**LOQ-0.02)	mg/l
23	Cadmium (as Cd)	APHA 23rd Edition,3113B ,2017	*BLQ(**LOQ-0.002)	mg/l
24	Selenium (as Se)	APHA 23rd Edition,3114C, 2017	*BLQ(**LOQ-0.005)	mg/l
25	Mercury (as Hg)	APHA 23rd Edition,3114C, 2017	*BLQ(**LOQ- 0.001)	mg/l

*BLQ Blow limit of Quantification **LOQ Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 2/2

Terms & conditions #TC

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/SW/04

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : **SURFACE WATER**
Sampling Location : Gaitara Pond Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2403150015/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	Colour	IS : 3025 (P-4) : 2021	*BLQ(**LOQ-5.0)	CU
2	Odour	IS : 3025 (P-5) : 2018	Agreeable	--
3	Cyanide (as CN)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l
4	Aluminium (as Al)	IS : 3025 : (P-55) 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l
5	Oil & Grease	IS : 3025 (P-39) 1991, RA 2019	*BLQ(**LOQ-4.0)	mg/l
6	Anionic Detergents (MBAS)	APHA 23rd ed., 2017, 5530C	*BLQ(**LOQ 0.02)	mg/l

*BLQ Blow limit of Quantification **LOQ Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions (FYI)

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/05

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Bangoli Dam
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122724000000525F
Report No. : VTL/W/2403150016/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	pH value	IS : 3025 (P-11) : 2022	6.79	–
2	Turbidity	IS : 3025 (P- 10) : 1984, RA 2017	5.12	NTU
3	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 1984, RA 2017	435.0	mg/l
4	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	71.42	mg/l
5	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	25.16	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (P- 23) : 1986, RA 2019	110.0	mg/l
7	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	135.0	mg/l
8	Calcium (as Ca)	IS : 3025 (P-40) : 1991 RA 2019	38.0	mg/l
9	Magnesium (as Mg)	IS : 3025 (P- 46) : 1994, RA 2019	9.77	mg/l
10	Fluoride (as F)	APHA 23rd Edition, 4500D, 2017	0.51	mg/l
11	Phenolic compounds	APHA 23rd Edition, 5530C, 2017	*BLQ(**LOQ-0.001)	mg/l
12	Dissolved oxygen (DO)	IS : 3025 (P -38) : 1989, RA 2019	6.5	mg/l
13	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 1993, RA : 2019	12.0	mg/l
14	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2006 RA 2017	50.0	mg/l
15	Iron (as Fe)	APHA 23rd Edition,3111B, 2017	*BLQ(**LOQ-0.1)	mg/l
16	Zinc (as Zn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.2)	mg/l
17	Copper (as Cu)	APHA 23rd edition, 3111B, 2017	*BLQ(**LOQ-0.02)	mg/l
18	Manganese (as Mn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.05)	mg/l
19	Lead (as Pb)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.005)	mg/l
20	Arsenic (as As)	APHA 23rd Edition, 3030D,3114C, 2017	*BLQ(**LOQ-0.005)	mg/l
21	Boron (as B)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions P/O

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience We unimaginable"

Sample Number : VTL/SW/05

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Bangoli Dam
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2403150016/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	Colour	IS : 3025 (P-4) : 2021	*BLQ(**LOQ-5.0)	CU
2	Odour	IS : 3025 (P-5) : 2018	Agreeable	–
3	Cyanide (as CN)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l
4	Aluminium (as Al)	IS : 3025 : (P-55) 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l
5	Oil & Grease	IS : 3025 (P-39) 1991, RA 2019	*BLQ(**LOQ-4.0)	mg/l
6	Anionic Detergents (MBAS)	APHA 23rd ed., 2017, 5530C	*BLQ(**LOQ 0.02)	mg/l

*BLQ Blow limit of Quantification **LOQ Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions F10

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/06

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description	: SURFACE WATER
Sampling Location	: Raw Water Reservoir
Sample Collected By	: VTL Team
Preservation	: Refrigerated
Method of sampling	: IS 3025

ULR No.	: TC1122724000000526F
Report No.	: VTL/W/2403150017/A
Format No	: 7.8 F-01
Party Reference No	:
Report Date	: 22/03/2024
Period of Analysis	: 15/03/2024-22/03/2024
Receipt Date	: 15/03/2024
Sampling Date	: 12/03/2024
Sampling Type	: Grab
Sample Quantity	: 2 Ltr
Coordinates	: NA

S.No.	Test Parameters	Test Method	Results	Unit
1	pH value	IS : 3025 (P-11) : 2022	7.36	–
2	Turbidity	IS : 3025 (P- 10) : 1984, RA 2017	4.12	NTU
3	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 1984, RA 2017	327.0	mg/l
4	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	92.0	mg/l
5	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	23.15	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (P- 23) : 1986, RA 2019	123.0	mg/l
7	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	138.0	mg/l
8	Calcium (as Ca)	IS : 3025 (P-40) : 1991 RA 2019	45.0	mg/l
9	Magnesium (as Mg)	IS : 3025 (P- 46) : 1994, RA 2019	6.25	mg/l
10	Fluoride (as F)	APHA 23rd Edition, 4500D, 2017	0.42	mg/l
11	Phenolic compounds	APHA 23rd Edition, 5530C, 2017	*BLQ(**LOQ-0.001)	mg/l
12	Dissolved oxygen (DO)	IS : 3025 (P -38) : 1989, RA 2019	6.19	mg/l
13	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 1993, RA : 2019	12.0	mg/l
14	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2006 RA 2017	45.0	mg/l
15	Iron (as Fe)	APHA 23rd Edition,3111B, 2017	*BLQ(**LOQ-0.1)	mg/l
16	Zinc (as Zn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.2)	mg/l
17	Copper (as Cu)	APHA 23rd edition, 3111B, 2017	*BLQ(**LOQ-0.02)	mg/l
18	Manganese (as Mn)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.05)	mg/l
19	Lead (as Pb)	APHA 23rd Edition, 3030D,3113B, 2017	*BLQ(**LOQ-0.005)	mg/l
20	Arsenic (as As)	APHA 23rd Edition, 3030D,3114C, 2017	*BLQ(**LOQ-0.005)	mg/l
21	Boron (as B)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/2

Term & conditions (FTC)

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/SW/06

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : SURFACE WATER
Sampling Location : Raw Water Reservoir
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2403150017/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Unit
1	Colour	IS : 3025 (P-4) : 2021	*BLQ(**LOQ-5.0)	CU
2	Odour	IS : 3025 (P-5) : 2018	Agreeable	—
3	Cyanide (as CN)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ-5.0)	mg/l
4	Aluminium (as Al)	IS : 3025 : (P-55) 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l
5	Oil & Grease	IS : 3025 (P-39) 1991, RA 2019	*BLQ(**LOQ-4.0)	mg/l
6	Anionic Detergents (MBAS)	APHA 23rd ed., 2017, 5530C	*BLQ(**LOQ 0.02)	mg/l

*BLQ Blow limit of Quantification **LOQ Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions *TO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number	: VTL/W/01	**ULR No.**	: TC1122724000000511F
Name & Address of the Party	: M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh	**Report No.**	: VTL/W/2403150002/A
		Format No	: 7.8 F-01
		Party Reference No	:
		Report Date	: 22/03/2024
Sample Description	: Water Sample	**Period of Analysis**	: 15/03/2024-22/03/2024
Sampling Location	: Piezometer Well No.-01 (Near Raw Water Pump	**Receipt Date**	: 15/03/2024
Sample Collected By	: VTL Team	**Sampling Date**	: 12/03/2024
Preservation	: Refrigerated	**Sampling Type**	: Grab
Method of sampling	: IS 3025	**Sample Quantity**	: 2 Ltr
		Coordinates	: NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.82	–	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	289.0	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	82.0	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	249.0	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	76.0	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	20.51	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	690.0	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	34.0	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.62	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	19.0	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.22	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.29	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & condition-FTD

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

TC-11227

Sample Number : VTL/W/01

ULR No. : TC1122724000000511F

Report No. : VTL/W/2403150002/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	–
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	–
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

Sample Number : VTL/W/01

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/W/2403150002/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-01 (Near Raw Water Pump
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	–	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	–	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number : VTL/W/02

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

ULR No. : TC1122724000000512F
Report No. : VTL/W/2403150003/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-02 (Near Mura Gate)
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.68	--	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	272.0	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	77.0	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	221.0	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	68.0	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	19.41	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	560.0	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	24.0	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.58	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	19.17	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.23	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.33	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
experience the unimaginable

TC-11227

Sample Number : VTL/W/02

ULR No. : TC1122724000000512F
Report No. : VTL/W/2403150003/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

Sample Number : VTL/W/02

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/W/2403150003/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-02 (Near Mura Gate)
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, :RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	--	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	--	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions P.T.O.

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number : VTL/W/03

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-03 (Near Ash Recovery Water)
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122724000000513F
Report No. : VTL/W/2403150004/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.73	–	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	271.0	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	78.0	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	232.0	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	69.0	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	18.56	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	650.0	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	32.81	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.65	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	21.4	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.21	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.32	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions FTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

TC-11227

Sample Number : VTL/W/03

ULR No. : TC1122724000000513F

Report No. : VTL/W/2403150004/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	–
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	–
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/03

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-03 (Near Ash Recovery Water)
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2403150004/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, :RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	–	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	–	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions #TC

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number	: VTL/W/04	**ULR No.**	: TC112272400000514F
Name & Address of the Party	: M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh	**Report No.**	: VTL/W/2403150005/A
		Format No	: 7.8 F-01
		Party Reference No	:
		Report Date	: 22/03/2024
		Period of Analysis	: 15/03/2024-22/03/2024
Sample Description	: Water Sample	**Receipt Date**	: 15/03/2024
Sampling Location	: Piezometer Well No.-04 (Near Wagon Tippier Area	**Sampling Date**	: 12/03/2024
Sample Collected By	: VTL Team	**Sampling Type**	: Grab
Preservation	: Refrigerated	**Sample Quantity**	: 2 Ltr
Method of sampling	: IS 3025	**Coordinates**	: NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.48	–	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	195.0	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	63.0	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	180.2	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	62.83	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	9.19	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	420.0	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	26.0	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.33	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	13.62	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.19	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.31	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

VIBRANT
"Experience the unimaginable"

TEST REPORT

TC-11227

ULR No. : TC1122724000000514F

Sample Number : VTL/W/04

Report No. : VTL/W/2403150005/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 2/2

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.

SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020

9929108691, 9810205356, 8005707098, 9549956601

0141-2954638

bd@vibranttechnolab.com

www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/04

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-04 (Near Wagon Tippler Area
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2403150005/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, :RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	--	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	--	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions FTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/05

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-05 (Near Old Project Doosan)
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122724000000515F
Report No. : VTL/W/2403150006/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.59	--	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	208.0	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	66.0	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	162.0	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	58.23	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	10.53	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	420.0	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	21.03	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.39	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	10.14	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.20	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.34	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/2

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/05

ULR No. : TC1122724000000515F
Report No. : VTL/W/2403150006/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/05

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-05 (Near Old Project Doosan)
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2403150006/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, :RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	--	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	--	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions FTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/06

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-06 (Near OWC Area (Brick
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC112272400000516F
Report No. : VTL/W/2403150007/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.55	—	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	239.0	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	64.0	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	110.23	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	38.47	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	19.27	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	410.0	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	23.75	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.52	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	19.85	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.23	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.37	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/06

ULR No. : TC112272400000516F
Report No. : VTL/W/2403150007/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	–
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	–
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 2/2

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/06

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Piezometer Well No.-06 (Near OWC Area (Brick
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2403150007/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, :RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	–	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	–	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/07

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Village - Murs Hand Pump Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122724000000517F
Report No. : VTL/W/2403150008/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	6.93	—	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	440.0	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	136.0	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	386.0	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	98.12	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	24.46	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	860.0	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	82.0	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	1.20	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	28.16	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.26	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.40	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions P.T.O.

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar 5, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/07

ULR No. : TC1122724000000517F
Report No. : VTL/W/2403150008/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/07

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/W/2403150008/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

Sample Description : Water Sample
Sampling Location : Village - Mura Hand Pump Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, :RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	–	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	–	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/08

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Village - Chicholi Tap Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122724000000518F
Report No. : VTL/W/2403150009/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.24	--	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	250.0	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	68.0	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	220.0	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	82.0	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	19.52	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	635.0	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	36.78	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.24	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	19.0	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.26	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.43	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/08

ULR No. : TC1122724000000518F
Report No. : VTL/W/2403150009/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	–
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	–
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions: PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/08

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Village - Chicholi Tap Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2403150009/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, :RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	–	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	–	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/09

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

ULR No.	: TC112272400000519F
Report No.	: VTL/W/2403150010/A
Format No	: 7.8 F-01
Party Reference No	:
Report Date	: 22/03/2024
Period of Analysis	: 15/03/2024-22/03/2024
Receipt Date	: 15/03/2024
Sampling Date	: 12/03/2024
Sampling Type	: Grab
Sample Quantity	: 2 Ltr
Coordinates	: NA

Sample Description	: Water Sample
Sampling Location	: Village - Raikheda Tap Water
Sample Collected By	: VTL Team
Preservation	: Refrigerated
Method of sampling	: IS 3025

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	7.39	–	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	253.0	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	64.0	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	218.0	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	62.0	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	22.68	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	540.0	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	33.19	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.49	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	14.72	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.22	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.43	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/09

ULR No. : TC1122724000000519F
Report No. : VTL/W/2403150010/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & condition FTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/09

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Report No. : VTL/W/2403150010/B
Format No : 7.6 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

Sample Description : Water Sample
Sampling Location : Village - Raikheda Tap Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, :RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	--	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	--	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions: P.T.O.

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/10

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

ULR No.	: TC112272400000520F
Report No.	: VTL/W/2403150011/A
Format No	: 7.8 F-01
Party Reference No	:
Report Date	: 22/03/2024
Period of Analysis	: 15/03/2024-22/03/2024
Receipt Date	: 15/03/2024
Sampling Date	: 12/03/2024
Sampling Type	: Grab
Sample Quantity	: 2 Ltr
Coordinates	: NA

Sample Description	: Water Sample
Sampling Location	: Village - Gaitara Hand Pump Water
Sample Collected By	: VTL Team
Preservation	: Refrigerated
Method of sampling	: IS 3025

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	pH (at 25°C)	IS : 3025 (P-11) : 2022	6.99	–	6.5 to 8.5	No Relaxation
2	Turbidity	IS : 3025: (P-10)1984, RA 2017	*BLQ(**LOQ-1.0)	NTU	1	5
3	Total Hardness (as CaCO3)	IS: 3025 (P-21): 2009, RA 2019	245.0	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	67.0	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	239.0	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	25.13	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	18.91	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	370.0	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	14.2	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.45	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	5.89	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.22	mg/l	1.0	No Relaxation
13	Aluminium (as Al)	IS 3025 (P-55): 2003, RA 2019	*BLQ(**LOQ-0.03)	mg/l	0.03	0.2
14	Boron (as B)	APHA 23rd Edition, 4500B,2017	*BLQ(**LOQ-0.2)	mg/l	0.5	1.0
15	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.35	mg/l	5.0	15.0
16	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
17	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/W/10

ULR No. : TC1122724000000520F
Report No. : VTL/W/2403150011/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
19	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
20	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	–
21	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	–
22	Sulphide	IS 3025 (P-29) :1986 RA 2019 Idometric	*BLQ(**LOQ-0.1)	mg/l	0.05	No Relaxation
23	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0
24	Faecal Coliform	IS :1622 :1981 RA 2019	Absent	MPN	-	-

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 2/2

Terms & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/10

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Water Sample
Sampling Location : Village - Gaitara Hand Pump Water
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/W/2403150011/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
1	Colour	IS : 3025:(P-4)1983, RA 2017	*BLQ(**LOQ-5.0)	Hazen	5	15
2	Odour	IS : 3025 (P-5) : RA 2018	Agreeable	–	Agreeable	Agreeable
3	Taste	IS :3025 (P-8): 1984 RA 2017	Agreeable	–	Agreeable	Agreeable
4	Cyanide (as CN)	APHA 23rd Edition ,4500D,2017	*BLQ(**LOQ-5.0)	mg/l	0.05	No Relaxation
5	Mineral Oil	IS 3025 (P-39) 1989	*BLQ(**LOQ-0.05)	mg/l	0.5	No Relaxation
6	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0
7	Barium as Ba	APHA 23rd Edition,3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.7	No relaxation

*BLQ-Below Limit Of Quantification, **LOQ- Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions (FT2)

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number VTL/S0/01

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : SOIL
Sampling Location : Raikheda Village
Sample Collected By : VTL Team
Parameter Required : As per work order
Method of sampling : IS 2720

ULR No. : TC112272400000011F
Report No. : VTL/S0/2403150001/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Composite
Sample Quantity : 2 Kg.
Packing Status : Temporary Sealed
Coordinates : NA

S.No.	Parameters	Test Method	Results	Units
1	pH	IS : 2720 (P- 26): 1987, RA: 2021	7.79	-
2	Electrical Conductivity	IS 14767: 2000, RA:2021	0.299	mS/cm
3	Bulk density	USDA:1954 (Page-121), RA: 2014	1.36	gm/c.c.
4	Chloride (as Cl)	USDA:1954 Method 13 (Page-98), RA: 2010	95.28	mg/kg
5	Exchangeable Calcium (as Ca)	Lab SOP No. VTL/STP/03: 2022, STP-06	310.43	mg/kg
6	Sodium (as Na)	USEPA:3050 B:1996	147.67	mg/kg
7	Potassium (as K)	USEPA 3050 B: 1996	259.31	kg/hec.
8	Organic Matter	IS 2720 (P-22) 1972, RA:2020	0.62	%
9	Exchangeable Magnesium (as Mg)	Lab SOP No. VTL/STP/03: 2022, STP-06	175.0	mg/kg
10	Available Nitrogen (N)	IS :14684,1999 RA: 2019	249.31	kg/ha
11	Available Phosphorus (as P)	Lab SOP No. VTL/STP/03: 2022, STP-10	39.53	kg/ha
12	Zinc (as Zn)	USEPA 3050 B: 1996	17.2	mg/kg
13	Manganese (as Mn)	USEPA 3050 B: 1996	28.1	mg/kg
14	Total Lead (as Pb)	USEPA 3050 B: 1996	4.82	mg/kg
15	Total Cadmium (as Cd)	USEPA 3050 B:1996	2.98	mg/kg
16	Copper (as Cu)	USEPA 3050 B: 1996	13.2	mg/kg

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

Sample Number : VTL/S0/01

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : SOIL
Sampling Location : Raikheda Village
Sample Collected By : VTL Team
Parameter Required : As per work order
Method of sampling : IS 2720

Report No. : VTL/S0/2403150001/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Composite
Sample Quantity : 2 Kg.
Packing Status : Temporary Sealed
Coordinates : NA

S.No.	Parameters	Test Method	Results	Units
1	Colour	USDA:1954-Reaffirmed, 2010	Reddish- Brown	-
2	Water holding capacity	USDA:1954-Reaffirmed, 2010	36.12	%
3	Total Chromium (as Cr)	USEPA 3050 B:1996	2.86	mg/kg
4	Soil Texture	IS:2720 (P-4), RA:2006	Sandy Loam	--

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions #TO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/S0/02

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : SOIL
Sampling Location : Gaitara Village
Sample Collected By : VTL Team
Parameter Required : As per work order
Method of sampling : IS 2720

ULR No. : TC112272400000012F
Report No. : VTL/S0/2403150002/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Composite
Sample Quantity : 2 Kg
Packing Status : Temporary Sealed
Coordinates : NA

S.No.	Parameters	Test Method	Results	Units
1	pH	IS : 2720 (P- 26): 1987, RA: 2021	7.52	-
2	Electrical Conductivity	IS 14767: 2000, RA:2021	0.303	mS/cm
3	Bulk density	USDA:1954 (Page-121), RA: 2014	1.30	gm/c.c.
4	Chloride (as Cl)	USDA:1954 Method 13 (Page-98), RA: 2010	82.16	mg/kg
5	Exchangeable Calcium (as Ca)	Lab SOP No. VTL/STP/03: 2022, STP-06	272.34	mg/kg
6	Sodium (as Na)	USEPA:3050 B:1996	135.81	mg/kg
7	Potassium (as K)	USEPA 3050 B: 1996	260.0	kg/hec.
8	Organic Matter	IS 2720 (P-22) 1972, RA:2020	0.67	%
9	Exchangeable Magnesium (as Mg)	Lab SOP No. VTL/STP/03: 2022, STP-06	129.0	mg/kg
10	Available Nitrogen (N)	IS :14684,1999 RA: 2019	271.0	kg/ha
11	Available Phosphorus (as P)	Lab SOP No. VTL/STP/03: 2022, STP-10	41.2	kg/ha
12	Zinc (as Zn)	USEPA 3050 B: 1996	19.31	mg/kg
13	Manganese (as Mn)	USEPA 3050 B: 1996	31.57	mg/kg
14	Total Lead (as Pb)	USEPA 3050 B: 1996	4.10	mg/kg
15	Total Cadmium (as Cd)	USEPA 3050 B:1996	3.59	mg/kg
16	Copper (as Cu)	USEPA 3050 B: 1996	15.27	mg/kg

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

Sample Number : VTL/S0/02

Report No.	: VTL/S0/2403150002/B
Format No	: 7.8 F-01
Party Reference No	:
Report Date	: 22/03/2024
Period of Analysis	: 15/03/2024-22/03/2024
Receipt Date	: 15/03/2024
Sampling Date	: 12/03/2024
Sampling Type	: Composite
Sample Quantity	: 2 Kg.
Packing Status	: Temporary Sealed
Coordinates	: NA

Name & Address of the Party :

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description	: SOIL
Sampling Location	: Gaitara Village
Sample Collected By	: VTL Team
Parameter Required	: As per work order
Method of sampling	: IS 2720

S.No.	Parameters	Test Method	Results	Units
1	Colour	USDA:1954-Reaffirmed, 2010	Reddish- Brown	-
2	Water holding capacity	USDA:1954-Reaffirmed, 2010	37.2	%
3	Total Chromium (as Cr)	USEPA 3050 B:1996	3.12	mg/kg
4	Soil Texture	IS:2720 (P-4), RA:2006	Sandy Loam	–

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions: PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT
"Solutions You can Imagine"

Sample Number : VTL/S0/03

ULR No.	: TC112272400000013F
Report No.	: VTL/S0/2403150003/A
Format No	: 7.8 F-01
Party Reference No	:
Report Date	: 22/03/2024
Period of Analysis	: 15/03/2024-22/03/2024
Receipt Date	: 15/03/2024
Sampling Date	: 12/03/2024
Sampling Type	: Composite
Sample Quantity	: 2 Kg.
Packing Status	: Temporary Sealed
Coordinates	: NA

Name & Address of the Party :
M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description	: SOIL
Sampling Location	: Mura Village
Sample Collected By	: VTL Team
Parameter Required	: As per work order
Method of sampling	: IS 2720

S.No.	Parameters	Test Method	Results	Units
1	pH	IS : 2720 (P- 26): 1987, RA: 2021	7.93	-
2	Electrical Conductivity	IS 14767: 2000, RA:2021	0.320	mS/cm
3	Bulk density	USDA:1954 (Page-121), RA: 2014	1.19	gm/c.c.
4	Chloride (as Cl)	USDA:1954 Method 13 (Page-98), RA: 2010	110.42	mg/kg
5	Exchangeable Calcium (as Ca)	Lab SOP No. VTL/STP/03: 2022, STP-06	335.64	mg/kg
6	Sodium (as Na)	USEPA:3050 B:1996	168.97	mg/kg
7	Potassium (as K)	USEPA 3050 B: 1996	286.0	kg/hec.
8	Organic Matter	IS 2720 (P-22) 1972, RA:2020	0.72	%
9	Exchangeable Magnesium (as Mg)	Lab SOP No. VTL/STP/03: 2022, STP-06	169.54	mg/kg
10	Available Nitrogen (N)	IS :14684,1999 RA: 2019	290.0	kg/ha
11	Available Phosphorus (as P)	Lab SOP No. VTL/STP/03: 2022, STP-10	44.10	kg/ha
12	Zinc (as Zn)	USEPA 3050 B: 1996	24.1	mg/kg
13	Manganese (as Mn)	USEPA 3050 B: 1996	33.02	mg/kg
14	Total Lead (as Pb)	USEPA 3050 B: 1996	5.32	mg/kg
15	Total Cadmium (as Cd)	USEPA 3050 B:1996	4.29	mg/kg
16	Copper (as Cu)	USEPA 3050 B: 1996	18.67	mg/kg

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions FTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

Sample Number : VTL/S0/03

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : SOIL
Sampling Location : Mura Village
Sample Collected By : VTL Team
Parameter Required : As per work order
Method of sampling : IS 2720

Report No. : VTL/S0/2403150003/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Composite
Sample Quantity : 2 Kg.
Packing Status : Temporary Sealed
Coordinates : NA

S.No.	Parameters	Test Method	Results	Units
1	Colour	USDA:1954-Reaffirmed, 2010	Reddish- Brown	-
2	Water holding capacity	USDA:1954-Reaffirmed, 2010	38.10	%
3	Total Chromium (as Cr)	USEPA 3050 B:1996	4.10	mg/kg
4	Soil Texture	IS:2720 (P-4), RA:2006	Sandy Loam	–

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTD

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number (original): VTL/S0/04

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description	: **SOIL**
Sampling Location	: Chicholi Village
Sample Collected By	: VTL Team
Parameter Required	: As per work order
Method of sampling	: IS 2720

ULR No.	: TC112272400000014F
Report No.	: VTL/S0/2403150004/A
Format No	: 7.8 F-01
Party Reference No	:
Report Date	: 22/03/2024
Period of Analysis	: 15/03/2024-22/03/2024
Receipt Date	: 15/03/2024
Sampling Date	: 12/03/2024
Sampling Type	: Composite
Sample Quantity	: 2 Kg.
Packing Status	: Temporary Sealed
Coordinates	: NA

S.No.	Parameters	Test Method	Results	Units
1	pH	IS : 2720 (P- 26): 1987, RA: 2021	7.76	-
2	Electrical Conductivity	IS 14767: 2000, RA:2021	0.309	mS/cm
3	Bulk density	USDA:1954 (Page-121), RA: 2014	1.28	gm/c.c.
4	Chloride (as Cl)	USDA:1954 Method 13 (Page-98), RA: 2010	98.54	mg/kg
5	Exchangeable Calcium (as Ca)	Lab SOP No. VTL/STP/03: 2022, STP-06	308.0	mg/kg
6	Sodium (as Na)	USEPA:3050 B:1996	139.80	mg/kg
7	Potassium (as K)	USEPA 3050 B: 1996	242.12	kg/hec.
8	Organic Matter	IS 2720 (P-22) 1972, RA:2020	0.65	%
9	Exchangeable Magnesium (as Mg)	Lab SOP No. VTL/STP/03: 2022, STP-06	159.30	mg/kg
10	Available Nitrogen (N)	IS :14684,1999 RA: 2019	253.16	kg/ha
11	Available Phosphorus (as P)	Lab SOP No. VTL/STP/03: 2022, STP-10	44.52	kg/ha
12	Zinc (as Zn)	USEPA 3050 B: 1996	20.1	mg/kg
13	Manganese (as Mn)	USEPA 3050 B: 1996	30.1	mg/kg
14	Total Lead (as Pb)	USEPA 3050 B: 1996	4.87	mg/kg
15	Total Cadmium (as Cd)	USEPA 3050 B:1996	3.01	mg/kg
16	Copper (as Cu)	USEPA 3050 B: 1996	15.18	mg/kg

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

Sample Number : VTL/S0/04

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : SOIL
Sampling Location : Chicholi Village
Sample Collected By : VTL Team
Parameter Required : As per work order
Method of sampling : IS 2720

Report No. : VTL/S0/2403150004/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Composite
Sample Quantity : 2 Kg.
Packing Status : Temporary Sealed
Coordinates : NA

S.No.	Parameters	Test Method	Results	Units
1	Colour	USDA:1954-Reaffirmed, 2010	Reddish- Brown	-
2	Water holding capacity	USDA:1954-Reaffirmed, 2010	35.1	%
3	Total Chromium (as Cr)	USEPA 3050 B:1996	3.20	mg/kg
4	Soil Texture	IS:2720 (P-4), RA:2006	Sandy Loam	--

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions: FTD

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/S0/05

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : SOIL
Sampling Location : Near Field Hostel Garden
Sample Collected By : VTL Team
Parameter Required : As per work order
Method of sampling : IS 2720

ULR No. : TC112272400000015F
Report No. : VTL/S0/2403150005/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Composite
Sample Quantity : 2 Kg.
Packing Status : Temporary Sealed
Coordinates : NA

S.No.	Parameters	Test Method	Results	Units
1	pH	IS : 2720 (P- 26): 1987, RA: 2021	7.69	-
2	Electrical Conductivity	IS 14767: 2000, RA:2021	0.285	mS/cm
3	Bulk density	USDA:1954 (Page-121), RA: 2014	1.28	gm/c.c.
4	Chloride (as Cl)	USDA:1954 Method 13 (Page-98), RA: 2010	99.76	mg/kg
5	Exchangeable Calcium (as Ca)	Lab SOP No. VTL/STP/03: 2022, STP-06	318.20	mg/kg
6	Sodium (as Na)	USEPA:3050 B:1996	153.41	mg/kg
7	Potassium (as K)	USEPA 3050 B: 1996	247.68	kg/hec.
8	Organic Matter	IS 2720 (P-22) 1972, RA:2020	0.70	%
9	Exchangeable Magnesium (as Mg)	Lab SOP No. VTL/STP/03: 2022, STP-06	169.0	mg/kg
10	Available Nitrogen (N)	IS :14684,1999 RA: 2019	272.0	kg/ha
11	Available Phosphorus (as P)	Lab SOP No. VTL/STP/03: 2022, STP-10	38.16	kg/ha
12	Zinc (as Zn)	USEPA 3050 B: 1996	18.10	mg/kg
13	Manganese (as Mn)	USEPA 3050 B: 1996	34.2	mg/kg
14	Total Lead (as Pb)	USEPA 3050 B: 1996	4.28	mg/kg
15	Total Cadmium (as Cd)	USEPA 3050 B:1996	2.99	mg/kg
16	Copper (as Cu)	USEPA 3050 B: 1996	14.87	mg/kg

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

Sample Number: VTL/S0/05

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description	: SOIL
Sampling Location	: Near Field Hostel Garden
Sample Collected By	: VTL Team
Parameter Required	: As per work order
Method of sampling	: IS 2720

Report No.	: VTL/S0/2403150005/B
Format No	: 7.8 F-01
Party Reference No	:
Report Date	: 22/03/2024
Period of Analysis	: 15/03/2024-22/03/2024
Receipt Date	: 15/03/2024
Sampling Date	: 12/03/2024
Sampling Type	: Composite
Sample Quantity	: 2 Kg.
Packing Status	: Temporary Sealed
Coordinates	: NA

S.No.	Parameters	Test Method	Results	Units
1	Colour	USDA:1954-Reaffirmed, 2010	Reddish- Brown	-
2	Water holding capacity	USDA:1954-Reaffirmed, 2010	37.2	%
3	Total Chromium (as Cr)	USEPA 3050 B:1996	3.15	mg/kg
4	Soil Texture	IS:2720 (P-4), RA:2006	Sandy Loam	--

*BLQ=Below Limit of Quantification,**LOQ=Limit of Quantification

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

Sample Number : VTL/WW/01

Name & Address of the Party :
M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : **Waste Water**
Sampling Location : STP Outlet
Sample Collected By : VTL Team
Coordinates : NA

ULR No. : TC112272400000499F
Report No. : VTL/WW/2403150001/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	pH	IS: 3025 (P-11): 2022	7.69	-	5.5 to 9.0
2	Total Suspended Solids (TSS)	IS: 3025 (P-17): 2022	13.25	mg/l	100
3	Oil & Grease	IS:3025 (P-39): 2021	*BLQ(**LOQ-4.0)	mg/l	10
4	Biochemical Oxygen Demand (BOD) (3 days @ 27°C)	IS: 3025 (P-44): 1993, RA: 2019	12.39	mg/l	30
5	Chemical oxygen Demand (COD)	IS : 3025 (P-58) : 2006 RA: 2017	55.0	mg/l	250

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions RTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

TC-11227

Sample Number : VTL/WW/02

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Waste Water
Sampling Location : STP Inlet
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122724000000500F
Report No. : VTL/WW/2403150002/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Result	Unit
1	pH	IS: 3025 (P-11): 2022	7.29	-
2	Total Suspended Solids (TSS)	IS: 3025 (P-17): 2022	185.26	mg/l
3	Oil & Grease	IS:3025 (P-39): 2021	32.11	mg/l
4	Biochemical Oxygen Demand (BOD) (3 days @ 27°C)	IS: 3025 (P-44): 1993, RA: 2019	66.58	mg/l
5	Chemical oxygen Demand (COD)	IS : 3025 (P-58) : 2006 RA: 2017	288.0	mg/l

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number	: VTL/WW/02	**ULR No.**	: TC1122724000000501F
Name & Address of the Party	: M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh	**Report No.**	: VTL/WW/2403150003/A
		Format No	: 7.8 F-01
		Party Reference No	:
		Report Date	: 22/03/2024
		Period of Analysis	: 15/03/2024-22/03/2024
Sample Description	: Waste Water	**Receipt Date**	: 15/03/2024
Sampling Location	: ETP Inlet	**Sampling Date**	: 12/03/2024
Sample Collected By	: VTL Team	**Sampling Type**	: Grab
Preservation	: Refrigerated	**Sample Quantity**	: 2 Ltr
Method of sampling	: IS 3025	**Coordinates**	: NA

S.No.	Test Parameters	Test Method	Result	Unit
1	pH	IS: 3025 (P-11): 2022	7.38	-
2	Total Suspended Solids (TSS)	IS: 3025 (P-17): 2022	145.0	mg/l
3	Oil & Grease	IS:3025 (P-39): 2021	*BLQ(**LOQ-4.0)	mg/l
4	Biochemical Oxygen Demand (BOD) (3 days @ 27°C)	IS: 3025 (P-44): 1993, RA: 2019	40.0	mg/l
5	Chemical oxygen Demand (COD)	IS : 3025 (P-58) : 2006 RA: 2017	240.0	mg/l

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number: VTL/WW/03

	M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh	**ULR No.**	: TC1122724000000502F
		Report No.	: VTL/WW/2403150004/A
		Format No	: 7.8 F-01
		Party Reference No	:
Name & Address of the Party	:	**Report Date**	: 22/03/2024
		Period of Analysis	: 15/03/2024-22/03/2024
Sample Description	: **Waste Water**	**Receipt Date**	: 15/03/2024
Sampling Location	: ETP Outlet	**Sampling Date**	: 12/03/2024
Sample Collected By	: VTL Team	**Parameter Required**	: As per work order
Coordinates	: NA		

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	pH	IS: 3025 (P-11): 2022	8.10	-	5.5 to 9.0
2	Total Suspended Solids (TSS)	IS: 3025 (P-17): 2022	22.48	mg/l	100
3	Oil & Grease	IS:3025 (P-39): 2021	*BLQ(**LOQ-4.0)	mg/l	10
4	Biochemical Oxygen Demand (BOD) (3 days @ 27°C)	IS: 3025 (P-44): 1993, RA: 2019	17.69	mg/l	30
5	Chemical oxygen Demand (COD)	IS : 3025 (P-58) : 2006 RA: 2017	82.16	mg/l	250

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions: P10

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number (in lab) VTL/WW/05

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : **Waste Water**
Sampling Location : Cooling Tower Blow Down Inlet Unit-II
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122724000000503F
Report No. : VTL/WW/2403150005/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Result	Unit
1	Chromium (as Cr)	APHA 23rd Edition 3113 B, 2017	*BLQ(**LOQ-0.1)	mg/l
2	Zinc (as Zn)	APHA 23rd Edition-3030D, 3113 B, 2017	*BLQ(**LOQ-0.2)	mg/l
3	Residual Free Chlorine	IS: 3025 (P-26):2021	0.34	mg/l

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions RTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/WW/05

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : **Waste Water**
Sampling Location : Cooling Tower Blow Down Inlet Unit-II
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

Report No. : VTL/WW/2403150005/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Result	Unit
1	Phosphate (as PO4)	IS:3025 (P-31):1988, (stannous Chloride Method) Sec.3 RA: 2022	*BLQ(**LOQ-0.2)	mg/l

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar 5, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number VTL/WW/07

	M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh	**ULR No.**	: TC1122724000000504F
		Report No.	: VTL/WW/2403150006/A
		Format No	: 7.8 F-01
		Party Reference No	:
Name & Address of the Party	:	**Report Date**	: 22/03/2024
		Period of Analysis	: 15/03/2024-22/03/2024
Sample Description	: **Waste Water**	**Receipt Date**	: 15/03/2024
Sampling Location	: Cooling Tower Blow Down Outlet Unit-II	**Sampling Date**	: 12/03/2024
Sample Collected By	: VTL Team	**Parameter Required**	: As per work order
Coordinates	: NA		

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	Chromium (as Cr)	APHA 23rd Edition 3113 B, 2017	*BLQ(**LOQ-0.1)	mg/l	0.2
2	Zinc (as Zn)	APHA 23rd Edition-3030D, 3113 B, 2017	*BLQ(**LOQ-0.2)	mg/l	1.0
3	Residual Free Chlorine	IS: 3025 (P-26):2021	0.21	mg/l	0.5

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions ↑TO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar 5, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/WW/07

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : Waste Water
Sampling Location : Cooling Tower Blow Down Outlet Unit-II
Sample Collected By : VTL Team
Coordinates : NA

Report No. : VTL/WW/2403150006/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	Phosphate (as PO4)	IS:3025 (P-31):1988, (stannous Chloride Method) Sec.3 RA: 2022	*BLQ(**LOQ-0.2)	mg/l	5.0

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number	: VTL/WW/03	**ULR No.**	: TC1122724000000505F
Name & Address of the Party	: M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh	**Report No.**	: VTL/WW/2403150007/A
		Format No	: 7.8 F-01
		Party Reference No	:
		Report Date	: 22/03/2024
		Period of Analysis	: 15/03/2024-22/03/2024
Sample Description	: **Waste Water**	**Receipt Date**	: 15/03/2024
Sampling Location	: Cooling Water Condenset Inlet unit -II	**Sampling Date**	: 12/03/2024
Sample Collected By	: VTL Team	**Sampling Type**	: Grab
Preservation	: Refrigerated	**Sample Quantity**	: 2 Ltr
Method of sampling	: IS 3025	**Coordinates**	: NA

S.No.	Test Parameters	Test Method	Result	Unit
1	pH	IS: 3025 (P-11): 2022	7.42	-
2	Temperature	IS: 3025 (P-9): 1984, RA 2017	23.1	°C
3	Residual Free Chlorine	IS: 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions FTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number (original) VTL/WW/04

Name & Address of the Party	: M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh	**ULR No.**	: TC1122724000000506F
		Report No.	: VTL/WW/2403150008/A
		Format No	: 7.8 F-01
		Party Reference No	:
		Report Date	: 22/03/2024
		Period of Analysis	: 15/03/2024-22/03/2024
Sample Description	: **Waste Water**	**Receipt Date**	: 15/03/2024
Sampling Location	: Cooling Water Condenset Outlet unit -II	**Sampling Date**	: 12/03/2024
Sample Collected By	: VTL Team	**Parameter Required**	: As per work order
Coordinates	: NA		

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	pH	IS: 3025 (P-11): 2022	7.37	-	6.5 to 8.5
2	Temperature	IS: 3025 (P-9): 1984, RA 2017	23.2	°C	Shall not exceed 5°C above the receiving water temperature
3	Residual Free Chlorine	IS: 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.5

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number VTL/WW/04

Name & Address of the Party	: M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh	**ULR No.**	: TC1122724000000507F
		Report No.	: VTL/WW/2403150009/A
		Format No	: 7.8 F-01
		Party Reference No	:
		Report Date	: 22/03/2024
		Period of Analysis	: 15/03/2024-22/03/2024
Sample Description	: **Waste Water**	**Receipt Date**	: 15/03/2024
Sampling Location	: Cooling Tower Blow Down Inlet Unit-I	**Sampling Date**	: 12/03/2024
Sample Collected By	: VTL Team	**Sampling Type**	: Grab
Preservation	: Refrigerated	**Sample Quantity**	: 2 Ltr
Method of sampling	: IS 3025	**Coordinates**	: NA

S.No.	Test Parameters	Test Method	Result	Unit
1	Chromium (as Cr)	APHA 23rd Edition 3113 B, 2017	*BLQ(**LOQ-0.1)	mg/l
2	Zinc (as Zn)	APHA 23rd Edition-3030D, 3113 B, 2017	*BLQ(**LOQ-0.2)	mg/l
3	Residual Free Chlorine	IS: 3025 (P-26):2021	0.42	mg/l

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED * JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions P1O

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number :	VTL/WW/04	**Report No.**	: VTL/WW/2403150009/B
Name & Address of the Party	: M/s ADANI POWER LIMITED Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh	**Format No**	: 7.8 F-01
		Party Reference No	:
		Report Date	: 22/03/2024
		Period of Analysis	: 15/03/2024-22/03/2024
Sample Description	: **Waste Water**	**Receipt Date**	: 15/03/2024
Sampling Location	: Cooling Tower Blow Down Inlet Unit-I	**Sampling Date**	: 12/03/2024
Sample Collected By	: VTL Team	**Sampling Type**	: Grab
Preservation	: Refrigerated	**Sample Quantity**	: 2 Ltr
Method of sampling	: IS 3025	**Coordinates**	: NA

S.No.	Test Parameters	Test Method	Result	Unit
1	Phosphate (as PO4)	IS:3025 (P-31):1988, (stannous Chloride Method) Sec.3 RA: 2022	*BLQ(**LOQ-0.2)	mg/l

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj, 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

VIBRANT

Sample Number : VTL/WW/06

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : **Waste Water**
Sampling Location : Cooling Tower Blow Down Outlet Unit-I
Sample Collected By : VTL Team
Coordinates : NA

ULR No. : TC1122724000000508F
Report No. : VTL/WW/2403150010/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	Chromium (as Cr)	APHA 23rd Edition 3113 B, 2017	*BLQ(**LOQ-0.1)	mg/l	0.2
2	Zinc (as Zn)	APHA 23rd Edition-3030D, 3113 B, 2017	*BLQ(**LOQ-0.2)	mg/l	1.0
3	Residual Free Chlorine	IS: 3025 (P-26):2021	0.20	mg/l	0.5

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar 5, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT

Sample Number : VTL/WW/06

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225 Chhattisgarh

Name & Address of the Party :

Sample Description : **Waste Water**
Sampling Location : Cooling Tower Blow Down Outlet Unit-I
Sample Collected By : VTL Team
Coordinates : NA

Report No. : VTL/WW/2403150010/B
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	Phosphate (as PO4)	IS:3025 (P-31):1988, (stannous Chloride Method) Sec.3 RA: 2022	*BLQ(**LOQ-0.2)	mg/l	5.0

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/WW/02

M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Name & Address of the Party :

Sample Description : **Waste Water**
Sampling Location : Cooling Water Condenset Outlet unit -I
Sample Collected By : VTL Team
Coordinates : NA

ULR No. : TC1122724000000510F
Report No. : VTL/WW/2403150012/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	pH	IS: 3025 (P-11): 2022	7.52	-	6.5 to 8.5
2	Temperature	IS: 3025 (P-9): 1984, RA 2017	24.9	°C	Shall not exceed 5°C above the receiving water temperature
3	Residual Free Chlorine	IS: 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.5

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions FTC

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

TC-11227

Sample Number : VTL/WW/01

Name & Address of the Party : M/s ADANI POWER LIMITED
Village- Raikheda, Block- Tilda Raipur 493225
Chhattisgarh

Sample Description : **Waste Water**
Sampling Location : Cooling Water Condenset Inlet unit -I
Sample Collected By : VTL Team
Preservation : Refrigerated
Method of sampling : IS 3025

ULR No. : TC1122724000000509F
Report No. : VTL/WW/2403150011/A
Format No : 7.8 F-01
Party Reference No :
Report Date : 22/03/2024
Period of Analysis : 15/03/2024-22/03/2024
Receipt Date : 15/03/2024
Sampling Date : 12/03/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : NA

S.No.	Test Parameters	Test Method	Result	Unit
1	pH	IS: 3025 (P-11): 2022	7.43	-
2	Temperature	IS: 3025 (P-9): 1984, RA 2017	24.7	°C
3	Residual Free Chlorine	IS: 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l

*BLQ-Below Limit OF Quantification, **LOQ- Limit Of Detection

End of Report

Checked by

VIBRANT TECHNO LAB PRIVATE LIMITED ★ JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

Page No. 1/1

Term & conditions PTO

Approved & Certified EPA 1986 Recognised, ISO:9001 and OHSAS:45001 Certified

Vibrant Techno Lab Pvt. Ltd.
SC-40, 3rd Floor, Narayan Vihar S, Ajmer Road, Jaipur Raj. 302020
9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

Chapter-5

CONCLUSION

M/s Adani Power Limited., authorities have been taken successful steps in controlling environmental pollution in and around the project. This fact is clear from analytical results of different environmental parameters. A brief conclusion is as follows:

S.No.	Environmental Parameters	Conclusion
1.	**Air Environment**	After analysis of the samples from seven different locations it is observed that both the individuals and average concentration of air pollutants in respect of SO_2, NO_2, PM_{10}, $PM_{2.5}$, CO and Mercury are well within the prescribed limits of NAAQM standards. People of township and of surrounding villages do not have any problems regarding the air quality and have no grievances because of Thermal Power Plant activities.
2.	**Noise Environment**	The observations taken at 8 different locations during day and night time shows that the noise level is well within prescribed limits of CPCB. Hence there is no possibility of any adverse effect of noise generated due to Thermal Power Plant activities on peoples of Surrounding areas.
3.	**Water Environment**	The analytical result of the samples from the ground water of villages, surface water from river, and domestic & industrial effluent after treatment shows that the concentrations of different water parameters are well within prescribed limits and will not cause any adverse impact on human health and on surrounding area. People of surrounding areas express satisfaction about the water quality of that area.

All the above details show that Thermal Power Plant of **M/s Adani Power Limited** is not causing any adverse impact on the human health and ecological balance.

Annexure II

Rainwater Harvesting Pond -1

Name of Structure	Length (In Mtr)	Width (In Mtr)	Depth (In Mtr)	Total Area (In M^3)
Recharge Pond -1	70	55	10	38500

Rainwater Harvesting Pond -2

Name of Structure	Length (In Mtr)	Width (In Mtr)	Depth (In Mtr)	Total Area (In M^3)
Recharge Pond - 2	48	46	10	22080

HYDROGEOLOGICAL INVESTIGATION REPORT

IN AND AROUND RAIKHEDA VILLAGE,

BLOCK- TILDA

DISTRICT - RAIPUR (C.G.)

M/S RAIPUR ENERGEN LIMITED

PREPARED BY

ENVIBA ENVIRONMENTAL SERVICES

EW-19, INDRAPRASTHA COLONY, RAIPURA, RAIPUR, CHHATTISGARH

Ph-09617160900 (M), 09711718234 (M)

Email:enviba.enviro@gmail.com

CONTENTS

SR.NO.	PARTICULARS	PAGE NO.
1.	INTRODUCTION	2
2.	GENERAL DESCRIPTION OF THE AREA	5
3.	GEOLOGY	21
4.	HYDROGEOLOGY	26
5.	ANALYSIS OF WATER LEVELS	38
6.	SURFACE GEOPHYSICAL SURVEY	60
7.	GROUND WATER RESOURCES	76
8.	ARTIFICIAL RECHARGE AND RAIN WATER HARVESTING	79
9.	GROUND WATER QUALITY	89
10.	IMPACT ASSESSMENT OF THE STUDY AREA	99
11.	CONCLUSION	98

1. INTRODUCTION

Adani Power Limited (APL), India's largest private sector thermal power producer, announced the completion of acquisition of Raipur Energen Limited, which owns and operates a 1,370 MW (2 X 685 MW) Supercritical power plant at Raikheda village, in Raipur District of Chhattisgarh.

The Raikheda power plant, which utilizes Boiler and Turbine Generator equipment supplied by Doosan Heavy Industries, S. Korea, is situated close to the coal bearing areas of Chhattisgarh. The addition of 1,370 MW capacity, along with the recently concluded acquisition of the 600 MW Korba West Power Co. Ltd., solidifies APL's position as India's largest private sector thermal power producer, with aggregate operating capacities of 12,450 MW and gives it a strong presence in India's leading power generating as well as power consuming regions.

With these developments, APL is now uniquely poised to contribute to the forthcoming growth phase of India's electricity sector, driven by a robust economic growth, as well as an increase in the market size led by reforms under the Government's ambitious "Power For All" vision. APL now has a healthy mix of open capacities as well as capacities tied up in long term PPAs, which provide it long term visibility while allowing it to tap into real growth opportunities. The Adani Group, with its established Pit-to-Plug presence, is confident of leveraging its strengths to achieve its long term goals, and contributing significantly to nation building.

This pre-eminent position of APL will be further consolidated upon completion of the 1,600 MW (2 X 800 MW) Ultra-supercritical power project, which is being constructed in Godda District of Jharkhand for supply of power to Bangladesh, and take the aggregate generation capacity to 14,050 MW.

About The Adani Group

Adani Power (APL), a part of the diversified Adani Group, is the largest private thermal power producer in India. The company has an installed thermal power capacity of 12,450 MW spread across four power plants in Gujarat, Maharashtra, Karnataka and Rajasthan. With the help of a world-class team of experts in every field of power, Adani Power is on course to achieve its growth potential. The company is harnessing technology and innovation to transform India into a power-surplus nation, and provide quality and affordable electricity for all.

1.1 OBJECTIVE AND SCOPE OF WORK

1.1.1 Objective and Scope

The broad objective of the present study is to establish the hydrogeological environment of the project area and study the impact on ground water and suggest strategies for mitigation.

The scope of work includes following points

1. Conducting comprehensive hydrogeological studies, pumping test, chemical analysis of ground and surface water samples from the buffer zone of 10 km radius and particularly downstream side of ash dyke and its impact on the water regime for REL, TPP 2 X 685 NW,Raikheda, Block- Tilda, District-Raipur, Raipur Energen Limited.
2. Survey and hydrological data collection of 30 key wells of 10km radius are from the boundary of plant (buffer zone) of existing open wells/bore wells/piezometers and determine and record for each location including extermination of coordinates of the points by GPS and its plotting on map and water levels, pre & post monsoon levels. Yields, use, aquifer tapped etc.
3. Comprehensive hydrogeological assessment studies of the buffer zone discussing its geomorphology, digitized elevation model, geology, nature of water bearing formation sand depth to water table, long term ground water recharge, present ground water exploitation and present status of ground water development.
4. Conducting a pump test any existing plant/private bore well along with recuperation test. The pump test is required to find out the aquifer parameters like K,T and S. Interpretation of pump test data by software is included conducting pump test on any open well and its recovery test to find out aquifer parameters.
5. Collection of samples of ground water and few surface samples from the buffer zone and more from the downstream side of ash dyke for determination of 23 constituents and parameters comprising pH, Color, EC, TDS, Chloride, Sulphate, Calcium, Magnesium, Fluoride, Nitrate, Bicarbonate, Carbonate, Total Hardness, Total alkalinity and all the heavy and toxic elements including Hg (which are generally present in bottom ash).
6. Preparation of ground water quality report of 10 km radius area of buffer zone based the results of chemical analysis and its different maps showing the different contour maps on important constituents.
7. Hydrological and drainage studies of buffer zone, delineation of micro watersheds, its

catchment area, catchment yields, particularly of watershed covering the ash dyke.

8. Preparation of ground water contour map of 10 km radius area showing the Ground water flow direction and hydraulic gradient.
9. Submission of draft report covering the findings of the investigations, original data and recommendations for future monitoring.
10. Submission of final report after incorporation of user observations.
11. The monitoring is to be carried out four times in a year i.e. January, May, August and November", ground water regime monitoring has been carried out under the present study. The study envisages regular monitoring of water level at select locations to observe the changes in ground water regime in time and space. The detailed hydro-geological study, already submitted forms base for the present monitoring work. The present report describes the behavior of ground water regime between **January 2019 and November 2022**, elucidates the analysis of ground water monitoring data and further depict overall picture of ground water regime along with changes in storage in time domain due to continuous abstraction of groundwater.

1.1.2 Approach and Methodology

To fulfill the above objectives, especially Hydrogeological study in the area, following approach has been adapted as given below:

1. A detailed Hydrogeological investigation was carried out in & around Plant within 10 km of radius for both Core & Buffer Zone for evaluating the impact of project activity on ground water storage in the area.
2. Collection and collation of supplementary data viz. soils, geology, geomorphology, drainage etc. for interpretation.
3. Establishment of observation stations for water level measurements in different seasons as well as water sample collection for determining the quality aspects.
4. Pumping test data & its interpretation for knowing the hydrogeological parameters, etc.
5. Ground water resources have been estimated based on the norms recommended by GEC'97.
6. Evaluation of present ground water scenario as well as future course of action for protecting the natural environment.

2. GENERAL DESCRIPTION OF THE AREA

2.1 LOCATION

M/S Raipur Energen Limited is a1,370 MW (2 X 685 MW) Supercritical power plant at Village: Raikheda, Taluka: Tilda, Dist:.Raipur, Chhattisgarh.

The co-ordinates of the Plant are 21°26'23" N - 21°27'48" N latitudes and 81°50'34.6" E to 81°52'08.5" E longitudes. For the present study, an area of 10 km of radius has been demarcated which lies between 21°21'46.77" N - 21°32'34" N latitudes and 81°45'22.87" Eto81°56'58.41" E longitudes and falls under the Survey of India Top sheet No. 64 G/14 and G/15in parts (1:50000 scale). The location map of the project site and toposheet of study area is given in **Fig. 2.1, 2.2** and the Satellite image map of the area is given in **Fig. 2.3**.

2.2 ACCESSIBILITY

The area is well connected by metaled and un-metaled road as well as Rail networks. Tilda Railway station, on Mumbai- Howrah Broad Gauge main line of the South-Eastern-Central Railway is situated around 14 kms western direction from plant site. Raipur is nearest Airport and is about 65 km from the study area which is also approachable by road and rail. The block head quarter is Tilda.

2.3 DEMOGRAPHY

There are 59 villages within 10 km radius of plant area. The total population as per 2011 Census is **90074** (for 10 km radius buffer zone). Scheduled Caste population of the study area (10km) is 18462 and Scheduled Tribe is 5212, Percentage of literacy is 65%.The workers those actually engaged in occupation are 40921 Main workers are around 15201while marginal workers are 33952. Rest of the total population, are considered as non-workers. A population detail is presented in table 2.1.

Table 2.1 Population details as per census 2011

Name	NoHH	TOT_P	TOT_M	TOT_F	P_SC	M_SC	F_SC	P_ST	M_ST	F_ST
Nilja	463	2476	1250	1226	25	13	12	655	322	333
Mangasa	186	914	469	445	88	47	41	0	0	0
Mauhagaon	256	1255	628	627	893	442	451	8	3	5
Amlitalab	114	528	275	253	313	165	148	0	0	0
Bahesar	343	1694	847	847	593	301	292	25	14	11
Bangoli	438	1898	956	942	192	87	105	123	68	55

Name	NoHH	TOT_P	TOT_M	TOT_F	P_SC	M_SC	F_SC	P_ST	M_ST	F_ST
Baronda	419	2033	994	1039	556	278	278	13	7	6
Bartori	272	1202	606	596	465	227	238	76	41	35
Bartori 2	285	1573	769	804	2	0	2	125	66	59
Bharuwadih Kala	172	825	412	413	118	63	55	152	67	85
BharuwadihKhurd	151	738	373	365	361	185	176	0	0	0
Bhibhauri	290	1446	726	720	72	34	38	69	35	34
Changori	86	407	212	195	407	212	195	0	0	0
ChhachhanPahri	98	463	232	231	237	125	112	0	0	0
Chhadia	320	1518	746	772	548	289	259	0	0	0
Chhapora	240	1187	589	598	339	181	158	0	0	0
Chhataud	461	2219	1070	1149	231	103	128	40	18	22
Chicholi	236	1103	539	564	472	238	234	11	5	6
Deogaon	281	1245	613	632	388	201	187	84	34	50
Deori	294	1376	711	665	86	43	43	0	0	0
Dhansuli 1	254	1241	607	634	310	151	159	13	7	6
Gaitra	199	892	456	436	427	226	201	29	14	15
Ganiyari	393	2045	1022	1023	162	80	82	2	1	1
Gaurkheda	163	853	425	428	77	41	36	24	11	13
Jalso	200	932	478	454	20	11	9	87	44	43
Janjgira	219	1265	614	651	431	198	233	260	132	128
Kathiya 1	493	2410	1203	1207	541	283	258	326	158	168
Keotara	297	1469	758	711	674	352	322	151	77	74
Khamhariya	264	1252	612	640	80	38	42	287	139	148
Khapri	117	597	303	294	7	4	3	7	4	3
KhauliDabri	89	422	202	220	226	112	114	22	11	11
Khauna	786	3745	1894	1851	933	465	468	176	94	82
Khudmudi	200	969	506	463	235	120	115	0	0	0
Kodawa	290	1382	697	685	446	223	223	22	12	10
Konari	154	772	403	369	8	4	4	0	0	0
Kundru	916	4016	2071	1945	411	210	201	205	104	101
Kurra 1	251	1271	628	643	197	99	98	7	4	3
Madhi	506	2530	1231	1299	87	42	45	396	183	213
Math	453	2501	1434	1067	584	320	264	243	126	117
Mohrenga	525	2555	1275	1280	256	118	138	11	6	5
Mudpar 1	245	1189	573	616	192	98	94	0	0	0
Mura	531	2359	1188	1171	625	311	314	20	10	10

Name	NoHH	TOT_P	TOT_M	TOT_F	P_SC	M_SC	F_SC	P_ST	M_ST	F_ST
Nahardih	156	847	424	423	102	54	48	21	13	8
NaktiKhapri	152	735	365	370	368	180	188	0	0	0
NaktiKumhari	249	1215	599	616	175	83	92	47	23	24
Pachari	381	2112	1045	1067	987	501	486	268	133	135
Pachdeori	88	394	188	206	139	65	74	0	0	0
Paraswani	78	427	209	218	35	16	19	15	8	7
PatharaKundi	77	359	188	171	314	167	147	0	0	0
Pikaridih	256	1067	543	524	268	136	132	0	0	0
Raikheda	696	3541	1734	1807	52	25	27	305	139	166
Rajiya	199	906	435	471	277	139	138	20	10	10
Sirwe	232	1172	580	592	153	75	78	277	136	141
Sontara	227	1084	543	541	459	240	219	0	0	0
Tarasiw	322	1460	726	734	64	33	31	0	0	0
TekariParswani	430	1743	901	842	332	166	166	43	24	19
Tildadih	226	1009	532	477	365	188	177	0	0	0
Kharora (NP)	1961	9236	4632	4604	1057	521	536	547	270	277
Total	**18680**	**90074**	**45241**	**44833**	**18462**	**9329**	**9133**	**5212**	**2573**	**2639**

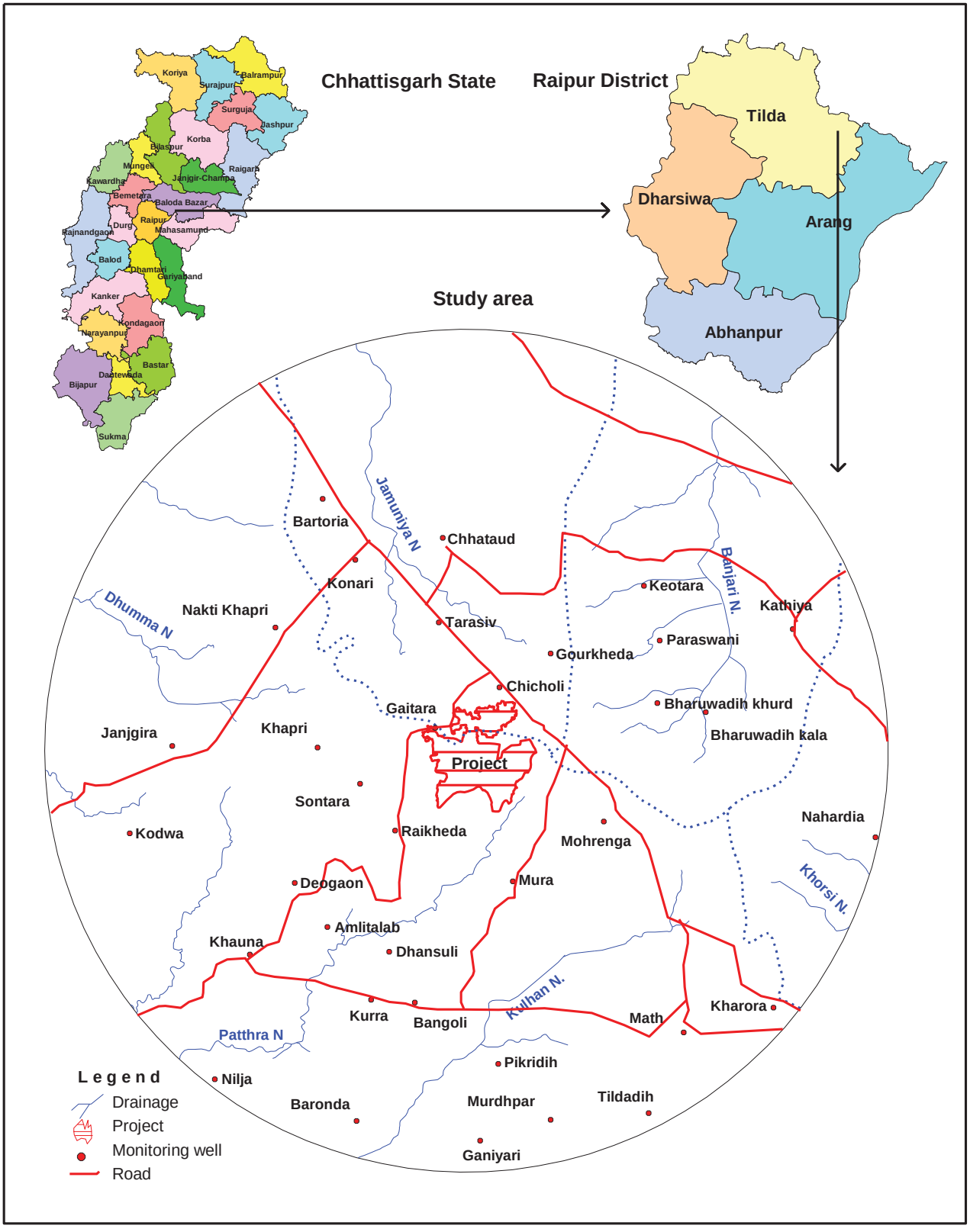


Fig 2.1: Location map the Study area

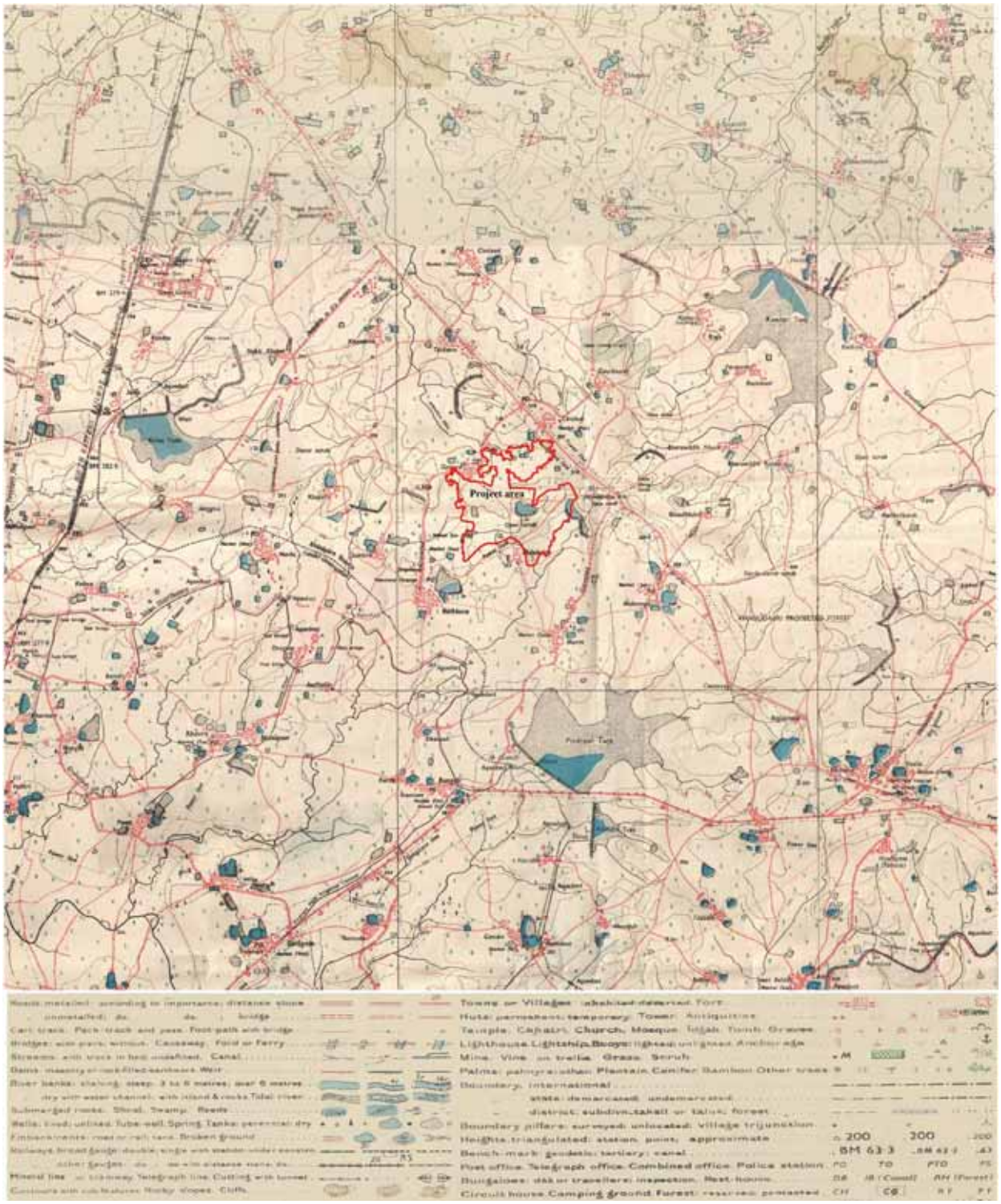


Fig 2.2: Top sheet (1:50000) of the Study area

Fig 2.3: Satellite of the Study area

2.4 LAND USE

In the study area, nearly 3239 ha is covered by irrigated area, 18626 ha is covered by non-irrigated area. Cultivable waste land area comes around 303 ha while 276 ha area is covered by area not available for cultivation. Details of land use pattern of the study area are presented in **Table 2.2** below and **Fig 2.4**.

Table 2.2: Land use Pattern of the Study Area (10 km radius from theProject site)

Sno.	Crop type	Area in Sqkm	Percentage to total area
1	Rabi Crop	15.8699	5.05
2	Kharif Crop	186.264	59.31
3	Double Crop	16.5283	5.26
4	Land Without Scrub	54.3982	17.32
5	Land With Scrub	13.562	4.32
6	Scrub forest	0.793647	0.25
7	Fallows	2.76988	0.88
8	Settlement	3.03294	0.97
9	Water	16.1558	5.14
10	Plant area	4.67	1.49
		314.0447	**100.00**

Source: Satellite Imagery

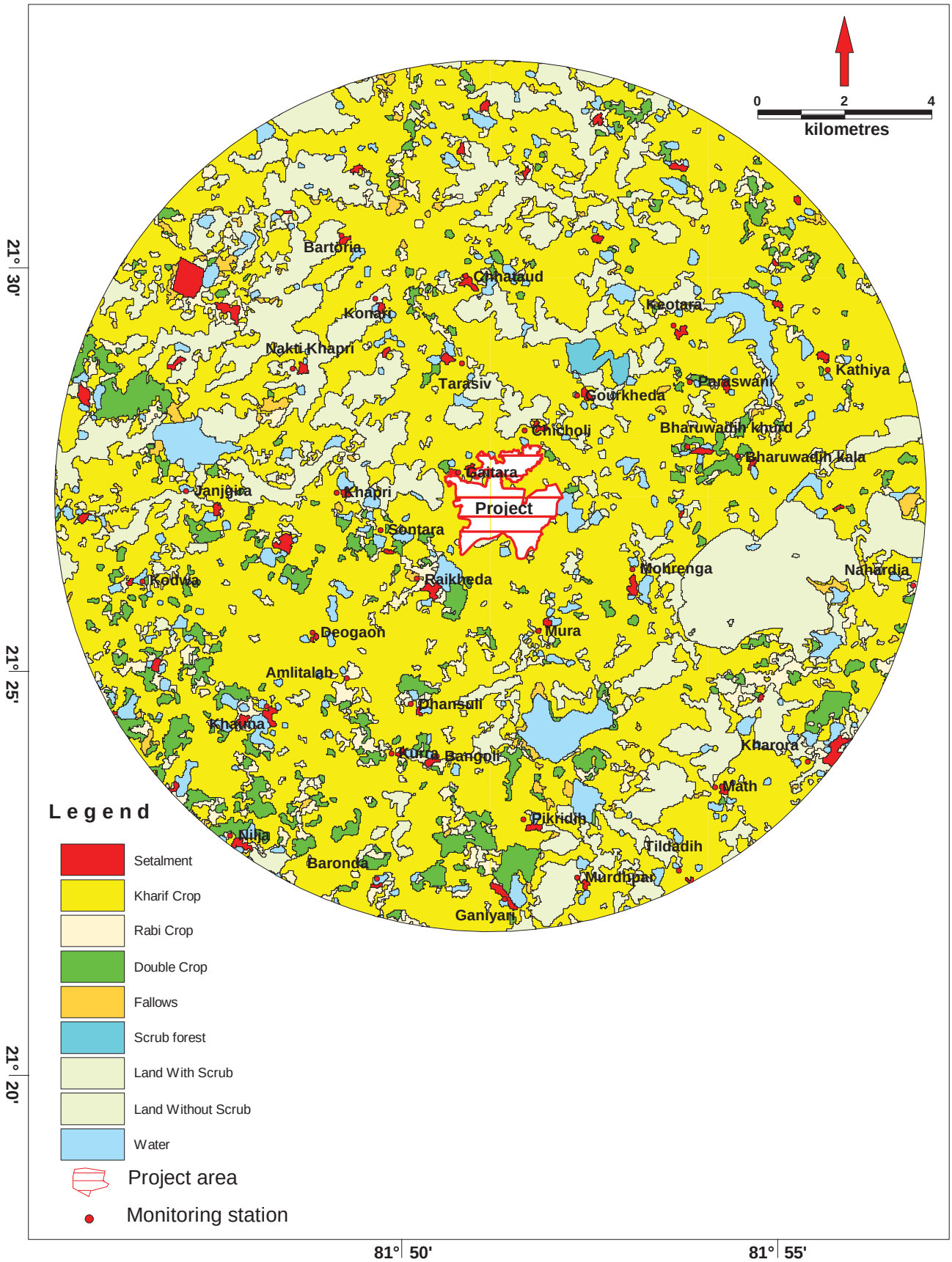


Fig 2.4: Land use map the Study area

2.5 CROPPING PATTERNOF THESTUDYAREA

The study area represents agricultural plain and Green fields and lot of agricultural activities in the surroundings of villages are noticed. Base line data collected from Agriculture Department, Raipur and observed that majority of the area around the 10 Km. radius from the project site is distributed with following crops:

Kharif Crops: - Peddy, Cotton, Wheat, Maize, Jowar, Moong, Sunflower, Soyabean, Groundnut.

Rabi Crops- Gram Wheat, Jow, Tarameera, Sarson, Bhindi, Channa, Pea, Tomato, Palak, Raddish.

Cropping pattern of the area depends upon the climatological conditions and need of the local population of the area. Sometimes cropping pattern may get changed during construction and operational phase because of particular requirement of specified anthropogenic activities.

The study area shows typical agro climatic conditions. In spite of the agriculture being depend mainly on monsoon and underground water, cultivation is the major occupation of this region. The land is mono culture in nature besides the above- mentioned crops, banana, papaya, bar, ginger, methi, tomato, carrots, soya beans etc. are also grown in the area. The growth season of major crops are as shown in t**able 2.**3.

Table 2.3: Growth seasons of major crops

S.NO.	NAMEOFCROP	PLANTATION MONTH	HARVEST SEASON
1.	PEDDY	JUNE-JULY	OCTOBER
2.	WHEAT	JAN.	MAY
3.	JOWAR	JULY	OCT. -NOV.
4.	COTTON	APRIL	JULY-AUGUST

Most of the crops are grown on small farms (located near the village wells) where generally the work is done manually. A very little mechanized (with tractor) cultivation is also seen at times in certain areas.

2.6 CLIMATE AND SOILS

2.6.1 Climate:

The area enjoys tropical climate with hot summer followed by well-distributed rainfall through South-West monsoon season. The winter commences from December and last till the end of February. The period from March to the end of May is hot season. The monsoon season starts from the middle of June and last till the end of September. The average daily annual normal temperature for the area is 32° C. During the summer Season humidity is lowest i.e. about 32% and is highest during the South-West Monsoon period i.e. about 80%. The rainfall increases generally from the north-west to the south-east. About 94 percent of the annual rainfall is received during the period June to October, July and August being the rainiest months. The variation in annual rain fall from year to year is very large on an average the reared 50- 60rainy days in a year**.** There is only one observatory located in Raipur which is about 65 km away from the study area maintained by Indian Meteorology Department. The monthly average of different parameters of weather for the period 1980 to 2020 is presented in **Table-2.4** below.

Table-2.4. Climatological data of Observatory station at Raipur, IMD

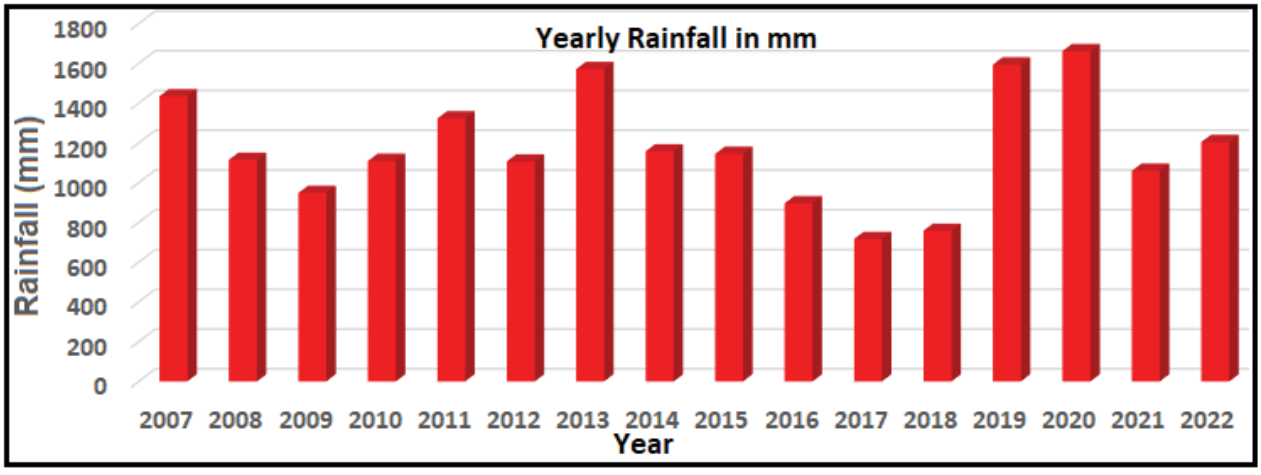
Month	Mean Temp.(°C)		Relative Humidity (%)	Wind Velocity (Km/Hr)	Rainfall (mm)	EPT(mm)
	Max	Min				
January	27	13	50	5	6.2	114
February	30.8	16	39	6	12	132
March	35	20	32	6.9	19	185
April	40	26	30	8.4	13	221
May	42	28.2	31.6	10.4	19	258
June	37	26	58	122.1	205	195
July	30	23	80.1	11.8	392	125
August	30	23	80.1	10	358	122
September	31	23.8	75	7	221	125
October	31	26.1	64	6	57	144
November	29	16.1	53	4	7	114
December	27	13.1	52	4.1	3	104
Avg./Total	32.5	21.2	53.7	16.8	1312.2	153

2.6.2 Rainfall

During the Year 2007 to 2022 the maximum rainfall recorded 1593.85 mm in the year 2019 and minimum rainfall 716.41 mm had been recorded in the year 2017. Details are as shown in **Table 2.5**. In this year very low rainfall recorder, although ground water of this area falls under safe zone as well as forest is very dense, but precipitation was comparably too less. The average rainfall for last eleven year is average1174.85 mm. Out of the total annual rainfall about 90% of the takes place during the South West Monsoon i.e. among the months June to September. Only 8% of the rainfall takes place during the Winter Season from October to February while only 2% of the rainfall takes place during summer Season.

Table 2.5: Rainfall (mm) data (2007-2022) of Raipur District, IMD

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2007	0	19.5	0.2	0.2	4.1	525.2	320.1	284.6	238	28.3	14	0	1434.2
2008	6.5	10.1	2.6	1	5.8	262.8	233.1	279.5	289.7	23.4	0	0	1114.5
2009	0	0	0	2.1	4.9	25.8	571.8	246.4	66.4	20.1	10.5	0.3	948.3
2010	3.4	1	0	1.7	5	53.8	462.4	225	273.8	47.7	23.3	12	1109.1
2011	0	3.7	0.3	116.6	8.6	197.7	293.4	363.8	334.6	4.1	0.1	0	1322.9
2012	0	26.1	7.86	0	3.2	154.9	363.8	349.7	184.7	4.1	8.16	3.72	1106.5
2013	0	64.2	4.9	15.3	4.1	283.1	387.1	433.8	289	89.4	0	0	1570.8
2014	0	64.1	24.4	11.9	15.1	53.4	485.9	217.6	240.1	45.4	0	0	1157.9
2015	15.1	6.4	19.26	43.36	9	331.3	273.8	280.2	158.5	2.44	0	5.44	1144.7
2016	0	8.13	13	14.91	10.42	129.77	299.49	132.09	259.49	28.11	0	0	895.41
2017	0	0	0.5	0	17.3	177.7	170	148.4	111.5	91.45	0	0	716.41
2018	0	11.32	1.1	13.16	27.4	128.9	233.5	221.3	64.36	0	0	57.16	758.09
2019	0	64.2	4.9	15.3	4.1	283.1	387.1	433.8	289	89.4	23	0	1593.8
2020	28.6	77	38.4	22.9	40.4	298.3	216.6	580.6	285.8	72.6			1661.2
2021	12.8	4.8	10		39.6	220.4	315.8	71.4	295.6	25.2	25.2	39	1059.8
2022	10.2	2.4		5.4	6.8	225.4	296.2	460	132.2	65.2			1203.8
Ave.	4.78	22.68	8.49	17.58	12.86	209.5	331.8	295.5	219.5	39.80	7.4	8.40	1174.85



2.7 SOILS

Two main soil categories are present in the study area namely Ultisols and Vertisols, Soil map mop of the study area is presented in **Fig 2.5**.

2.7.1: Ultisols

The Indian equivalent of this soil found in study area is Lateritic and red yellow soil. It is exposed in south-east-north western part& central part in the area. It is the ultimate product of continuous weathering of minerals in a humid climate. This is a highly weathered and leached acid soil with high levels of clay below top layer. They are characterized by a humus-rich surface horizon and by a layer of clay that has migrated below the surface horizon. This soil has variety of clay minerals but in many cases the dominant mineral is Kaolinite. This clay has good bearing capacity and no shrink-swell property. They are red to yellow in color and are quite acidic having pH less than 5. The red and yellow color results from the accumulation of iron oxide which is highly insoluble in water.

2.7.2 :Vertisols

Indian equivalent of this soil is found in the area namely Medium black soil. They are exposed in north east to south western part of the study area. They are characterized by a high content of expanding and shrinking clay known as montmorillonite. They may also be characterized by salinity and well-defined layers of calcium carbonate or gypsum. Vertisols typically form from highly basic rocks such as basalts and are found typically on level or mildly sloping topography in climatic zones that have distinct wet and dry seasons. Depending on the parent material and the climate, they can range from grey or red to the more familiar deep black. Vertisols contain high level of plant nutrients, but, owing to their high clay content, they are not well suited to cultivation without painstaking management. Vertisols are especially suitable for rice because they are almost impermeable when saturated. Rain fed farming is very difficult because vetisols can be worked only under a very narrow range of moisture conditions as they become very hard when dry and become very sticky when wet. Deep black Soil of Vertisols is found in small patches of sounthern side of the study area.

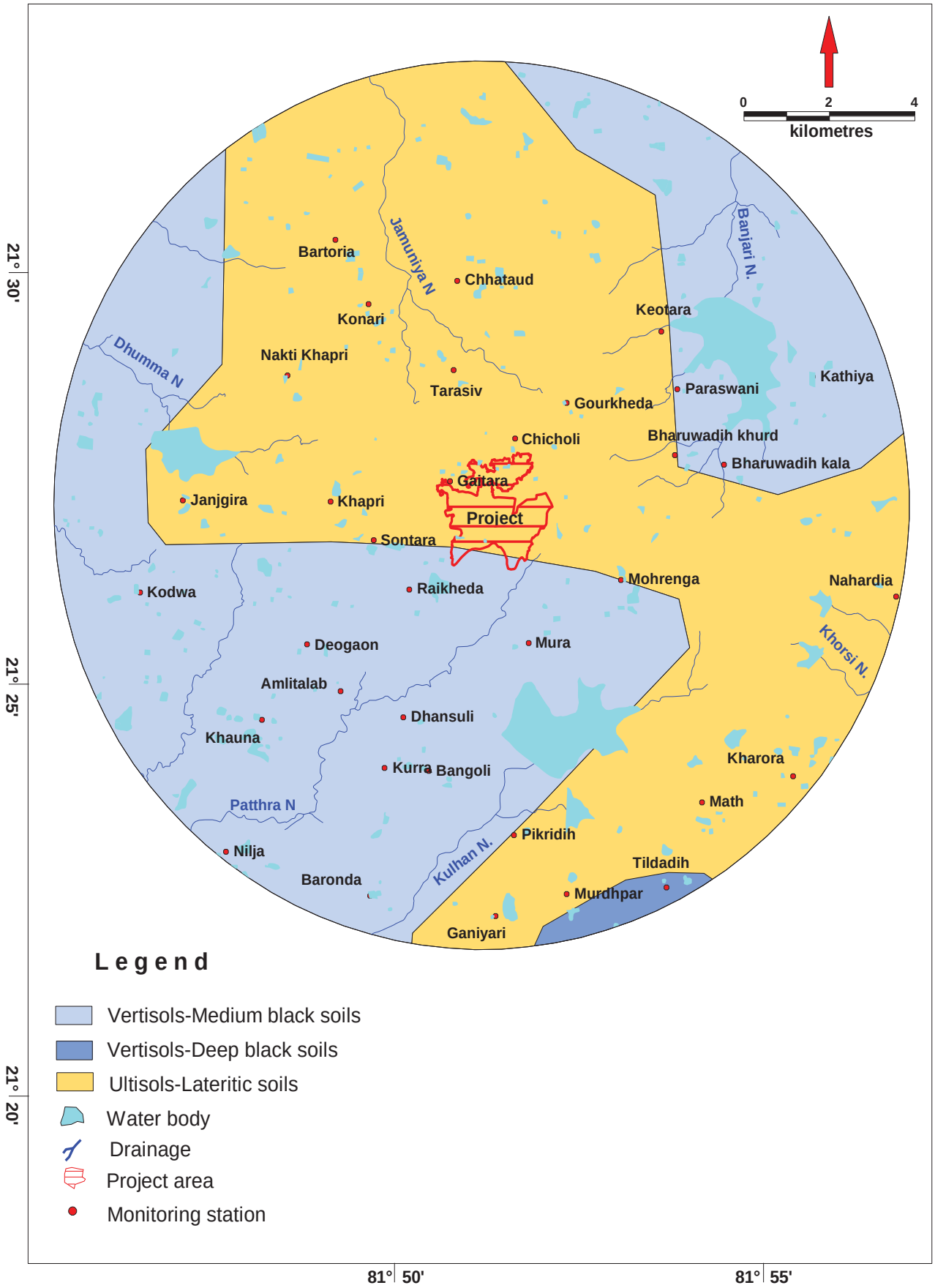


Fig 2.5: Soil map of the Study area

2.8. DRAINAGE AND GEOMORPHOLOGY

2.8.1 Drainage

The area is drained by tributaries of Seonath River especially by Banjari River and Khorsi nala. Banjari River is north flowing tributary to Seonath River and flows in the northern while Khorsi nala flows in the east of project area. Thus, the project area is in the interfluves zone of Banjari & Khorsi and Kulhan. Seonath River is a perennial river while these three tributaries are ephemeral in nature. This tributary system comes under Mahanadi basin. The drainage pattern in the area is sub-parallel and dendritic in nature with medium drainage density indicating the formations in the area are moderately porous& permeable in nature and are having moderate surface run-off. The drainage density in the central part near to project area is low as compare to remaining area. The drainage map of the study area is presented in **Fig 2.6**.

The study area is characterized by flat undulating terrain with regional slope to the north-east. The average elevation in the southern portion is around 270 m while in the central parts is 310 m amsl. The average land slope of the area is works out about 4m per km from top sheets (1:50000 scale), Survey of India.

Drainage network are universal feature of landscape on the earth. Various environmental factors such as climate, relief, lithology, and vegetation play a considerable role in the development of drainage basin. Watershed geomorphology helps in understanding the physical and hydrological behavior of the river regime.

2.8.2 Geomorphology:

Geo-morphologically the study area comes under Pediplain/ pediment & Valleys. The Physiography of the basin is controlled by geological formations namely limestone, shale, and laterite.

The rocks were exposed to renewed post depositional activities and were subjected to intensive and extensive sedimentation, peneplanation and denudation during Pre-Quaternary and Quaternary time. In response to lithology of rocks, the alchemical composition, the irrelative deposition, tectonic setup, they were chiseled into various geomorphic and hydro-geomorphic surfaces; in this case Pediplain/pediment and valley fill. This unit is controlled by fractures, joints and lineaments. Flood Plain is also developed along the river courses. It is formed by extensive deposition of alluvium by major river system. This unit is normally flat/gently undulating land surface and located along river courses. This is primarily composed of

of Khorsi and Banjari nala. The geomorphic features in the study area are shown in **Fig 2.7.**

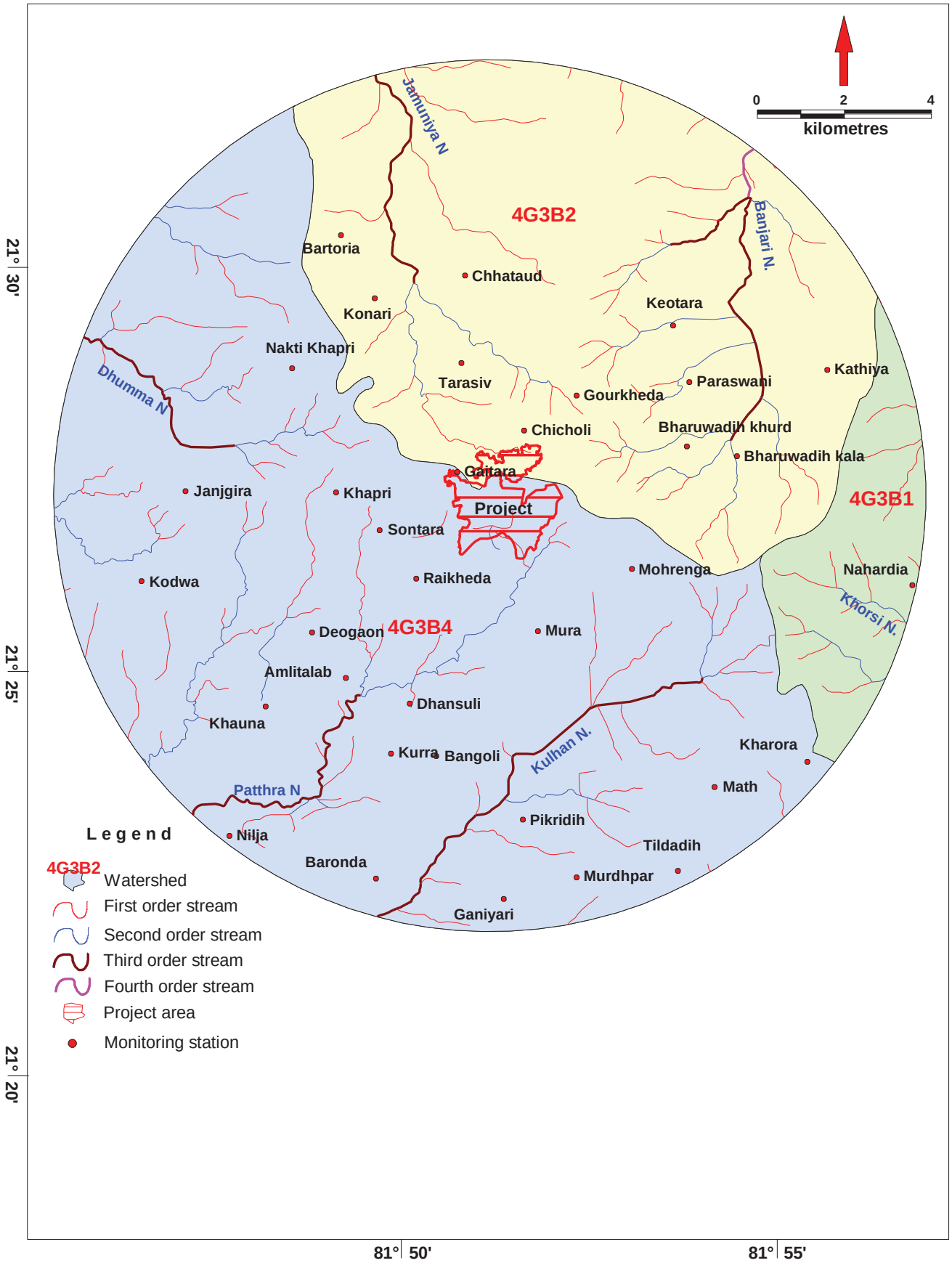


Fig 2.6: Drainage and watershed map of the Study area

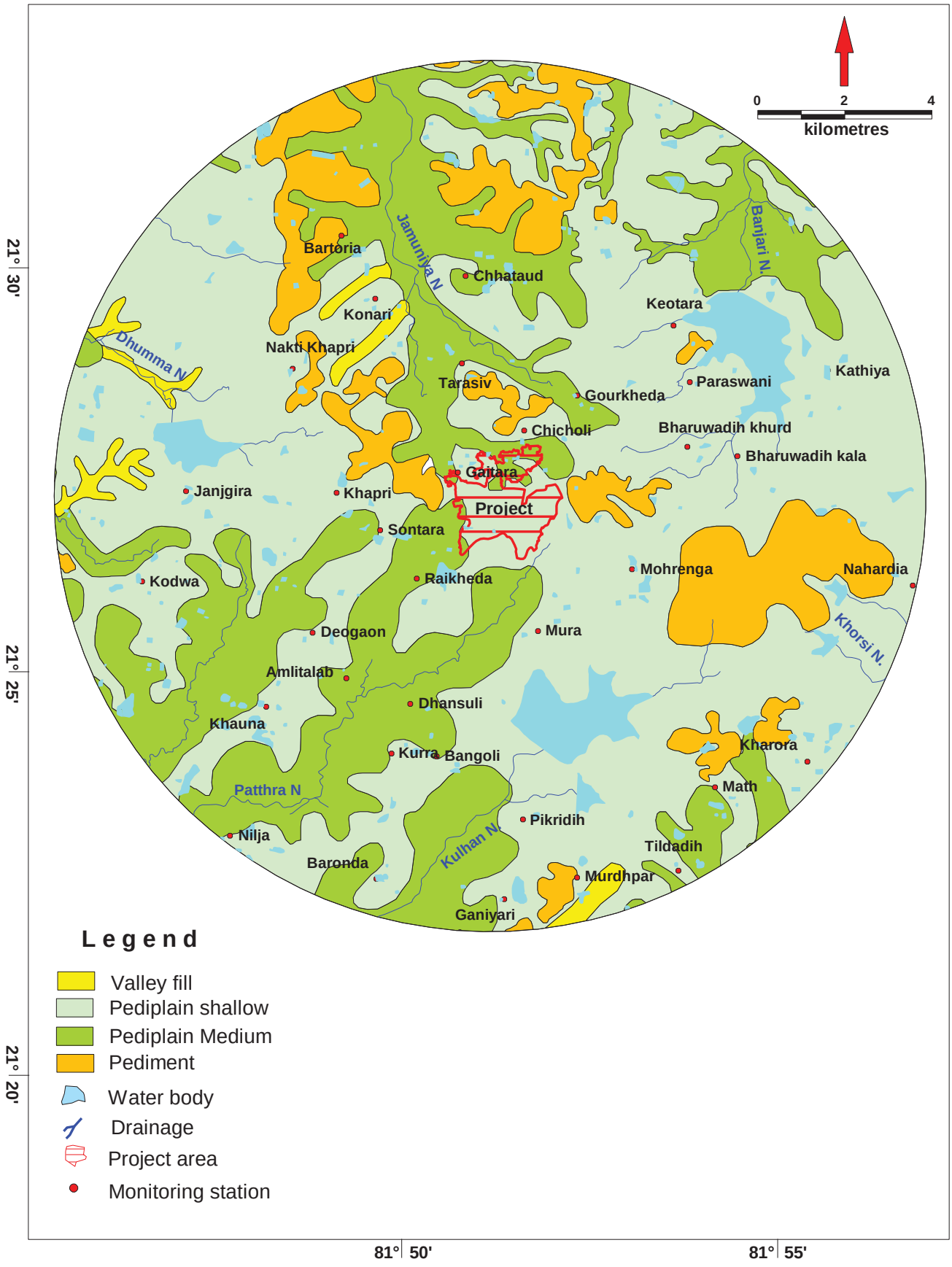


Fig 2.7: Geomorphological map the Study area

3. GEOLOGY

The rocks of the Chhattisgarh super group represented by limestone and shale. A thin layer of alluvium/ laterite belonging to Quaternary period is found on the top surface**.** The generalized stratigraphic sequence of formation in and around the area is given in **Table 3.1** below.

Table-3.1 Generalized stratigraphic sequence of Raipur District

Age	Supergroup	Group	Formation	Lithology
QUATERNARY	Recent to sub-recent		Alluvium and Laterite	Sand, Silt, Clay and lateritic Soil
PROTEROZOIC	Chhattisgarh Supergroup	Raipur Group	Maniyarifm	Gypsiferous Shale
			Hirrifm	Dolomitic limestone
			Tarengafm	Shale & Dolomite
			Chandifm	**Limestone & Shale**
			Gunderdehifm	**Shale**
			Charmuriafm	Limestone & Shale
		Chandrapur Group	Kanspatharfm	Sandstone, Siltstone Shale &Conglomerate
			Choparadihfm	
			Lohardifm	
		Bilari group Sonakhan gr Baya group	Intrusive, lakhadabri, Jonk&Chikhali	Quartz veins, basic dyke ,Meta basalt Schist & Gneisses
ARCHAEAN	Basement crystallines- Granite, gneisses ,granulite and Amphibolite			

3.1.1 Basement Crystalline:

The basement crystalline belongs to Archaean age mainly consists of Granite, gneisses, granulite, phyllites and amphibolites. At places it is intruded by quartz veins. The overlying sedimentaries belongs to Chhattisgarh Super group of rocks. The contact between the Achaeans and the sedimentaries is faulted along the western margin of the basin.

3.1.2 Chhattisgarh Super group:

The crescent shaped Chhattisgarh basin within the Central Indian Craton can be subdivided into a small Baradwarproto-basin in the east and main Hirriproto-basin in the west. The entire succession of Chhattisgarh super group is divided into three groups. Lowermost Pairi group consists of sandstone, conglomerate, limestone and shale overlies unconformably on crystalline group and developed in the Baradwarproto-basin. The middle Chandrapur group un- conformably overlying

the Singhora group or older basement and consists of arenite formations and third is Raipur group at the top, comprising argillite-carbonate suite of rock.

3.1.2.1 Chandrapur group:

The sequence of Chandrapur group shows a variable thickness ranging from 20 m to as much as 90 m. The maximum thickness is attained in SE part of the basin, thinning westward as well as NE side and directly overlying the crystalline basement.

3.1.2.2 Raipur group:

The Raipur group comprising of predominantly argillite sequence conformably overlies the Chandrapur group with a gradational contact. The group has been subdivided into six sub-division representing three cycles of carbonate-argillite sediments as follows:

Charmuria formation- dominantly carbonates sequence and is conformably overlain by Gunderdehi formation.

Gunderdehi formation- dominantly a calcareous argillite purple colored shale with intercalated limestone is dominant member.

Chandi formation- comprise a major stromatolytic limestone sequence developed around southern side of Hirri sub-basin as arcuate outcrop pattern and is medium to course grained dolomitic limestone.

Tarenga formation- conformably overlies the Chandi formation and comprises cherty shale, calcareous shale and argillaceous dolomite, green and white clay.

Hirri formation- conformably overlies the Tarenga formation in south and Pandariaformation(coalesce of Charmuria, Gunderdehi, Chandi and tarenga formation) in the north. At places intra-formational conglomerate, dolomite and black shale contained gypsum as layer parallel to bedding.

Maniyari formation- named after the river along which the rock is best developed. It represents the closing phase of deposition in Chhattisgarh basin and consists of lower gypsiferous grey siltstone and shale followed by reddish brown calcareous and non-calcareous shale with limestone and dolomite.

3.1.3 Recent to sub-recent:

3.1.3.1 Laterite:

Insitu and rolled laterite occurs at many places in isolated patches. These are blanket deposits and few centimeters to few meters in thickness. The ferruginous rock formations of Chhattisgarh Supergroup are responsible for the formation of thin capping of laterite due to leaching and concentration of iron oxide from sandstone of Chandrapur group and also of limestone and shale of Raipur group.

3.1.3.2 Alluvium:

The alluvium consists of sand, silt and clay. The sands are fine to coarse grained and poorly sorted. The alluvial soils are mostly of residual in nature and are the weathered products f shale and limestone. The thickness of soil varies from few centimeters to over 10m in places.

3.2 LOCAL GEOLOGY:

The area is underlain by thin layer alluvial/laterite belonging to Quaternary period. Thick pile of rocks belonging to Raipur group of Younger Proterozoic period consisting of limestone and shale, underlie the alluvial sediments **(Fig 3.1).** The formation have general strike in NE-SW direction with very low dips of 2°to 3° due NW. Two sets of vertical joints trending in N50°E- S50°W and NE-SW direction are prominent in the area. The gap between joint plain is large from few centimeters to 5meters and are mostly interconnected. The lithological characters of various formations present in the study area are described as follows:

3.2.1 Soil/Laterite:

The major part of the area is underlain by alluvial residual soil covers which are loam and sandy loam. Laterites occur as capping associated with limestone and shale. The thickness of overburden varies from 2 to 6 m.

3.2.2 Grey shale:

Shale is softer in nature and do not outcrop in the area and lies below thin soil cover. It is buff grey in color and calcareous in nature. It splits easily along the bedding plains. They are generally horizontally laid. At places have low dips of 2 to 3 degrees towards North-west.

3.2.3 Dolomite:

Outcrops of dolomite exhibit typical ‘Elephant Skin’ weathering. It is dirty yellowish to brown in color. It is compact, hard, and massive. Outcrops of dolomite occur mainly in the western part of

the deposit and form a distinct zone. The dolomite occurs overlying the limestone and varies in thickness from 0.5m to as much as 24.0m.

3.2.4 Limestone:

Limestone forms the dominant rock type in the area. It is compact, fine grained, massive and chocolate brown to purple grey to grey in color. Analytical data shows that the limestone is thick and quite uniform in quality both laterally and vertically. Thickness of limestone in general is about 30m. Limestone forms a sharp boundary with dolomite occurring in the area. Shaly patches do occur within the limestone but its thickness is quite less.

3.2.5 Magnesium Limestone:

Limestone in the area is followed by fine grained, massive and compact magnesium limestone having a thickness of about 20m. Exploration data shows that the magnesium limestone occurs at a depth of about 235 amsl.

In order to understand the geological sequence fully well in the project site geological map of study area is **Fig 3.1.**

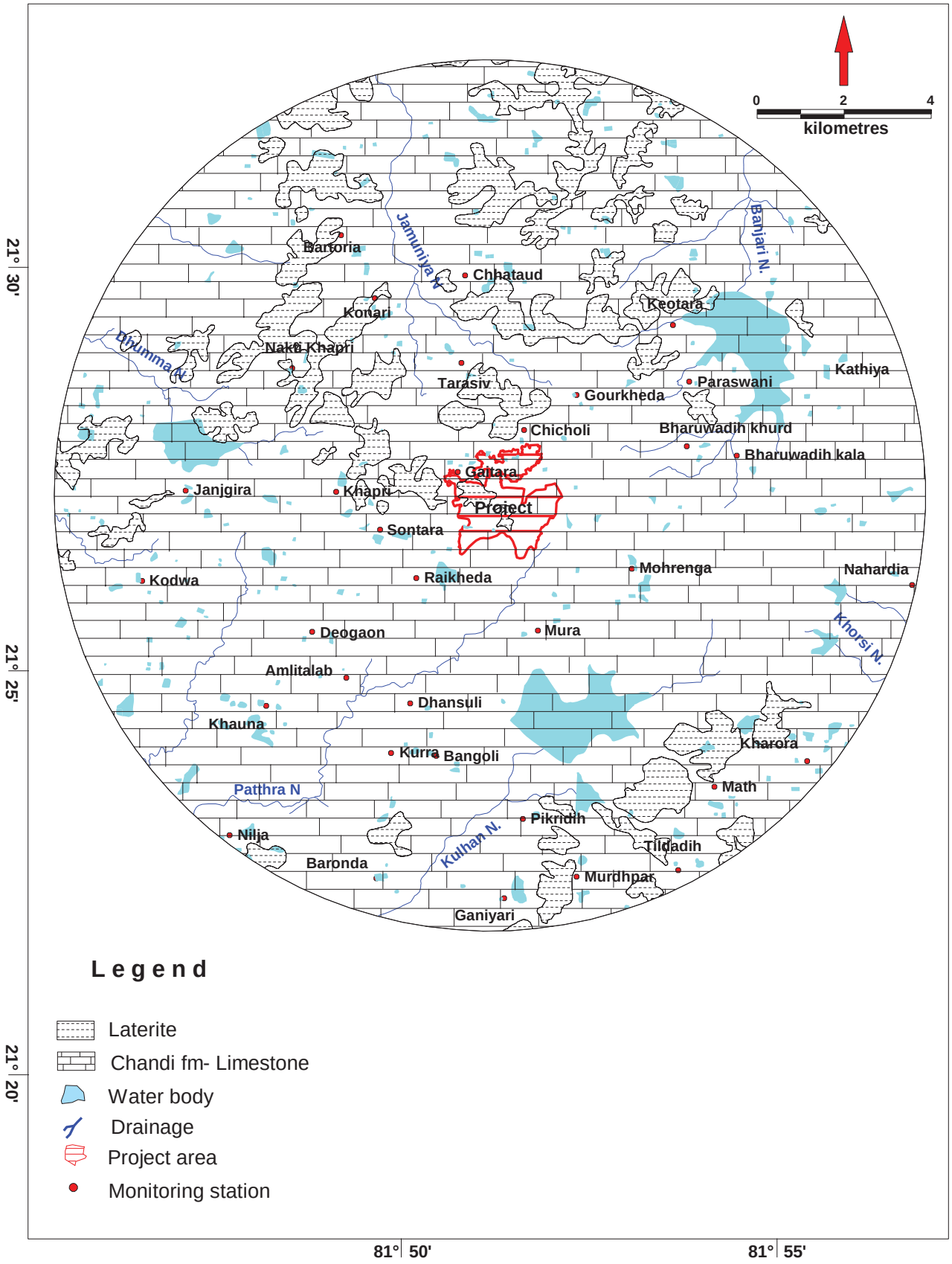


Fig 3.1: Geological map of the Study area

4. HYDROGEOLOGY

4.1 INTRODUCTION

Ground water occurrence is highly influenced by underlying geological formations and their hydro-geological characteristic. Weathered and fractured zones present in the rocks or formation provides scope of ground water occurrence, storage and its movement. Hydrogeology of the area broadly describes the disposition of aquifers, occurrence of ground water its movement, yield potential of water bearing formations, groundwater regime conditions in space and time etc. Detailed hydro-geological investigation has been carried out in and around the project area for elucidating the hydrogeology and establishing the interrelationships between various hydraulic parameters.

4.2 GROUND WATER OCCURRENCE AND AQUIFER SYSTEMS

In the study area, ground water occurs under phreatic or unconfined condition in weathered portion of rocks and semi-confined to confined conditions in fractures/cavernous part of rocks i.e. limestone and shale at depths. The shallow aquifers occur within an average depth of 20m. The configuration of water table in the shallow aquifer follows the topography due to which the ground water movement is generally towards valleys or topographic low. The water bodies such as tanks, canals and streams also influence the occurrence and movement of ground water in shallow aquifers. The shallow aquifers of the area are mostly developed by way of dug wells in the area with depth ranges from 7 to 16 m. In general, the yield of dug wells ranges from 25 to 40m^3/day. Deeper aquifer in the area mainly formed of Raipur group of rocks constituted of Chandi formation comprising limestone and shale. The deeper aquifers of the area are mostly developed by way of bore wells with depth range from 50 to 80 m. In general, the yield of bore wells ranges from 1 to 5 lps.

4.3 WATER TABLE CONFIGURATION AND FLOW DIRECTION

The flow direction is of two directions i.e. in western, central and northern part of the study area it is towards north-west and in southern part of the study area it is in south direction indicating the surface water divide in the central portion of the study area near to project area.

A local variation in flow direction is also observed which indicates the flow towards the mine pit in all directions. The Jamunia and Banjari nala flowing to north over the north-eastern part and Kulhan–

Pathra nala flowing westerly over western part of the study area are effluent in nature. The water table elevation in the study area ranges between 270 to 300 mamsl indicating more or less the plain terrain. North-western part of the area is having low altitude of water table elevation i.e. 270 mamsl while water table elevation increases to central& is maximum i.e. 300 mamsl. The gradient of water table is variable. In the area the yield ranges between 1 to 5 lps in central & eastern indicating the area is covered by stromatolitic limestone while in major part of the area it is 1 to 3 lps which is covered with shale & flaggy limestone. Hydrogeological map is given at **Fig.4.1 and 4.2.**

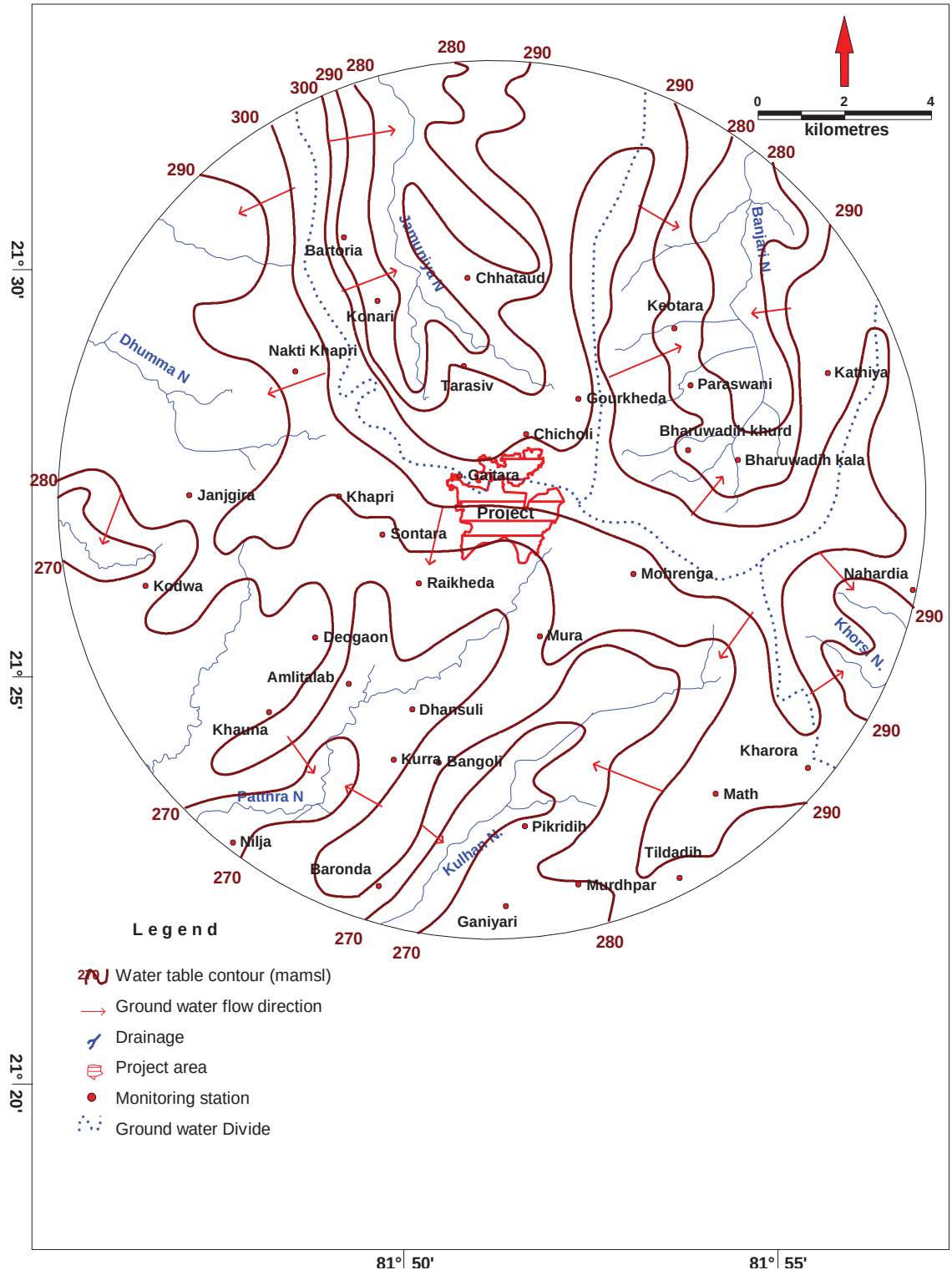


Fig 4.1 Water table contour and ground water flow direction

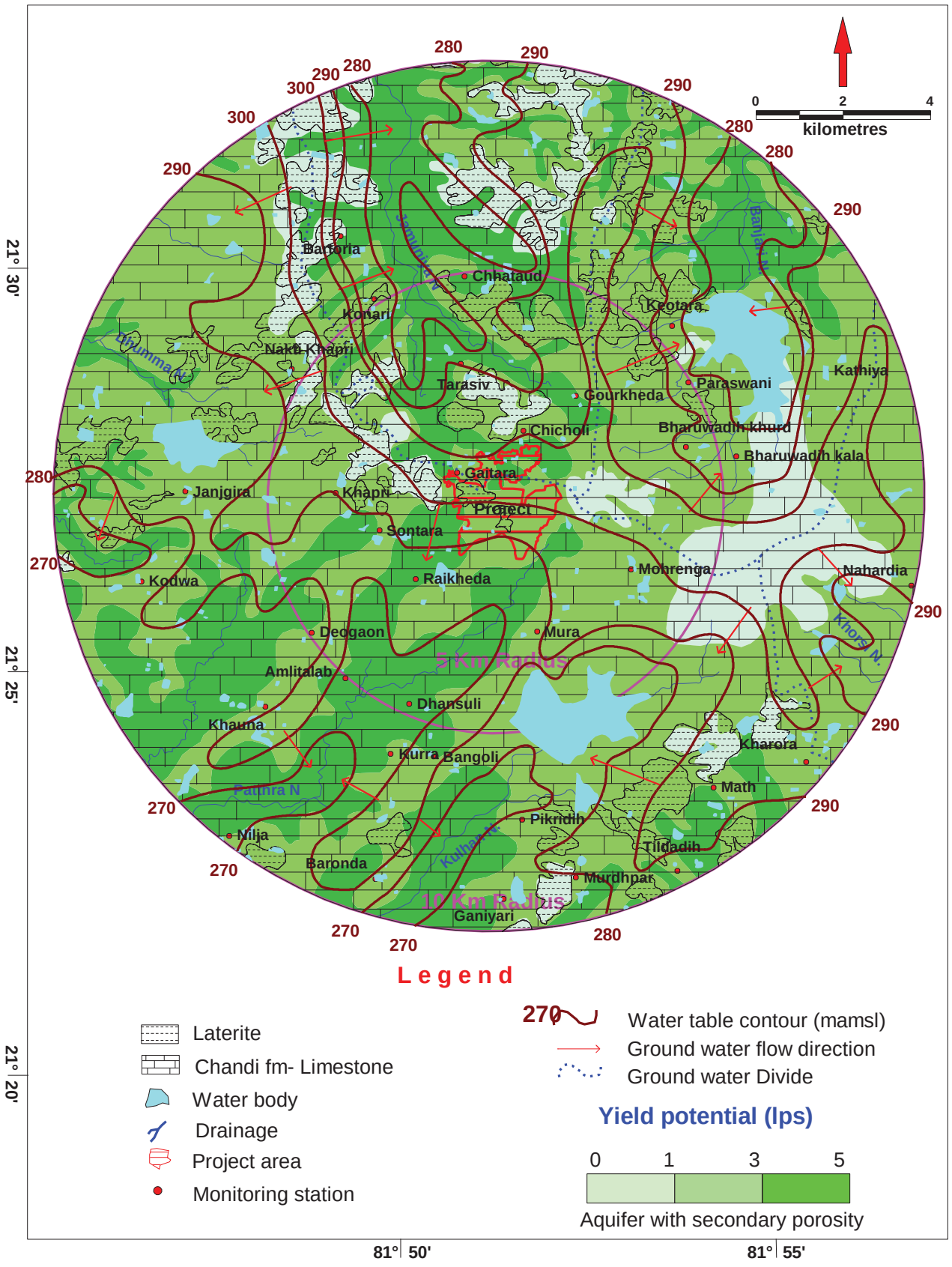


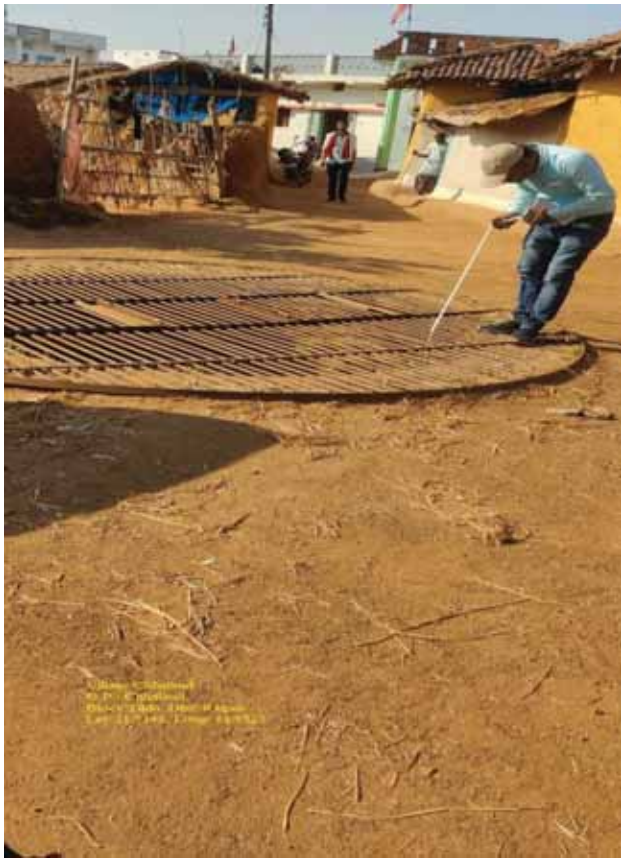
Fig 4.2 Hydrogeological map of the Study area

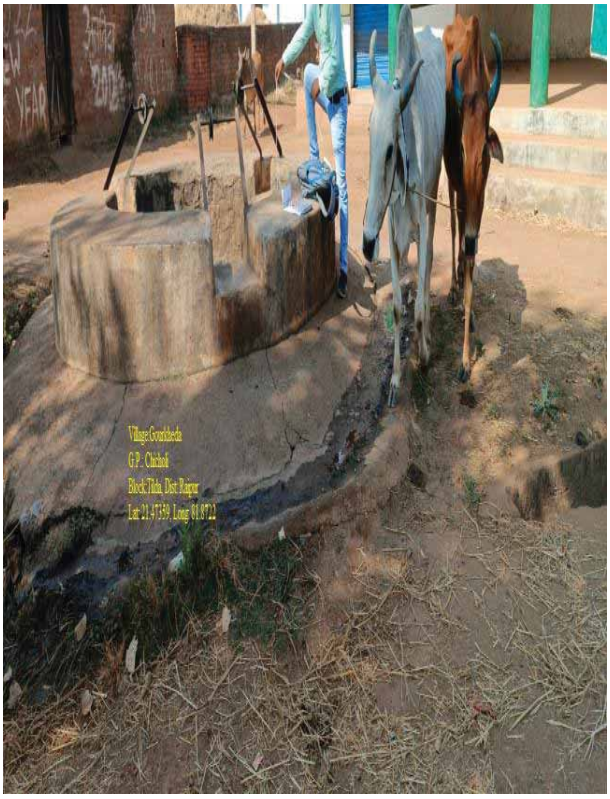
4.4 GROUND WATER REGIME MONITORING

The monitoring of ground water regime is of immense help in management of the water resources as well as protecting the ground water storage. Such study envisages regular monitoring of water level at selected locations to observe the changes in ground water level and variation in ground water quality with respect to time and space. It is pertinent to say that any development of ground water resources in a particular area would bring changes in ground water regime if input to the ground water system is not balanced with output from the same system.

The study aims to observe the changes in ground water levels and quality with respect to the ground water development, which in turn would help in identifying the appropriate measures to be adopted for artificial recharge to ground water and neutralize the impact of the excessive ground water development. In the present report, the monitored data has been presented and the overall picture of ground water regime behavior due to continuous abstraction of ground water has been analyzed for the year 2022. Ground water regime monitoring was carried out four times in a year i.e. January May, August and November. The water level data of the month of May and November are taken as levels of pre-monsoon and post-monsoon respectively, Data presented and analysed for pre and postmonsoon water level data. The photographs of some monitoring stations are indicated in **plate: I**, which was taken during the collection of water level of ground water in all four seasons.


GPS Map Camera
Gaitra, Chhattisgarh, India
Unnamed Road, Gaitra, Chhattisgarh 493225, India
Lat 21.453185°
Long 81.844846°
28/11/22 03:52 PM GMT +05:30
Google



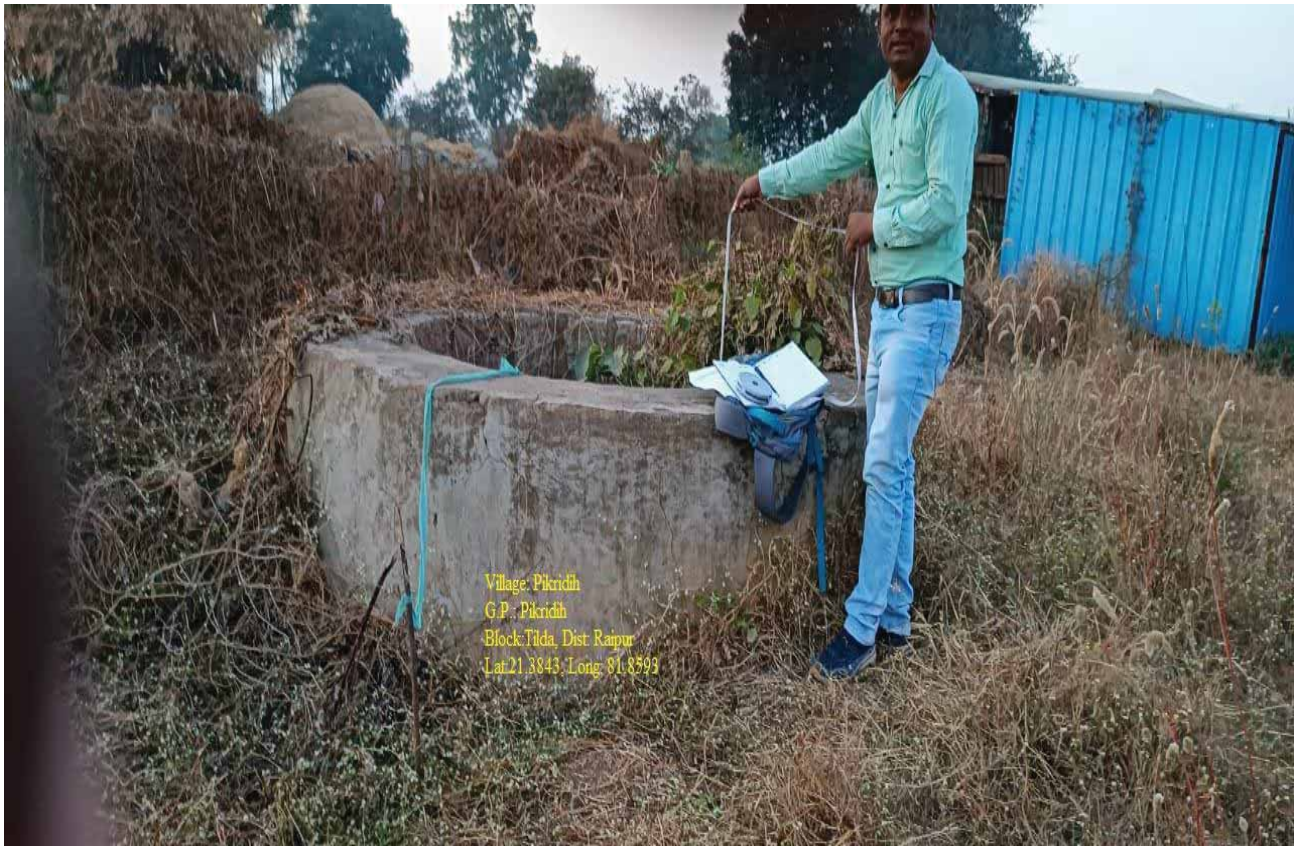

Village Gourtheda
G.P. Chikhali
Block/Tehs. Dist Raipur
Lat 21.47339, Long 81.8721


Village Kevtara
G.P. Kevtara
Block Tilda, Dist Raipur
Lat 21.4859, Long 81.8930


Village Mundipar
G.P. Mundipar
Block Tilda, Dist. Raipur
Lat 21.3729, Long 81.6926


Village Naharda
G.P. Chhadiya
Block Tilda, Dist. Raipur
Lat 21.4292, Long 81.9653


Village Parsawani
G.P. Nakti Kandauri
Block Tilda, Dist. Raipur
Lat 21.4774, Long 81.9634


Village: Pikridih
G.P.: Pikridih
Block:Tilda, Dist: Raipur
Lat:21.3843; Long: 81.8593

4.4.1 Distribution of monitoring stations

To study the change in ground water regime in and around study area, total of 35 monitoring wells were established at different locations for regular monitoring of ground water level. The basic details of these monitoring wells are presented in **Table 4.1**and their distribution is presented in **Fig 4.3.**

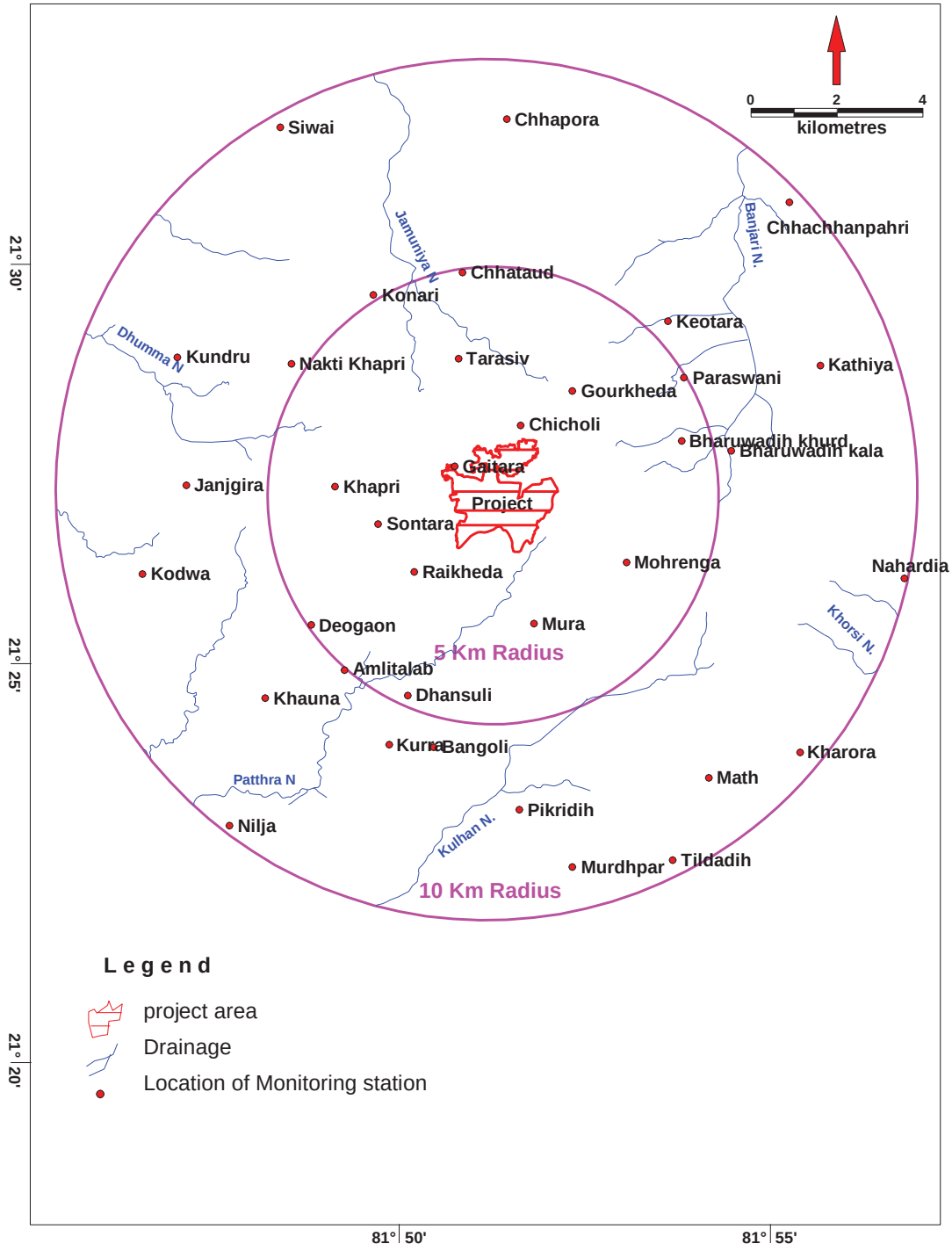


Fig 4.3: location of monitoring wells of the Study area

Table 4.1: Basic details of established monitoring wells

Sn	Village	GP	Block	RL Of ground level	Dia (m)	Lat (X)	Long (Y)
1	Amlitalab	Devgaon	Tilda	279	5.2	81.8211	21.4153
2	Bharuwadih khurd	Bharuwadih Kala	Tilda	295	2.7	81.8967	21.4631
3	Chhataud	Chhataud	Tilda	295	2.8	81.8475	21.4983
4	Chicholi	Chicholi	Tilda	310	1.85	81.8606	21.4664
5	Deogaon	Devgaon	Tilda	282	2.9	81.8136	21.4247
6	Dhansuli	Dhansuli	Tilda	276	2.7	81.8353	21.41
7	Gaitara	Gaitra	Tilda	300	4.4	81.8458	21.4578
8	Gourkheda	Chicholi	Tilda	305	2.45	81.8722	21.4736
9	Khapri	Khapri	Tilda	295	1.75	81.8189	21.4536
10	Mohrenga	Mohrenga	Tilda	300	1.85	81.8844	21.4378
11	Mura	Mura	Tilda	292	2.1	81.8636	21.425
12	Paraswani	Nakti Kumhari	Tilda	295	7.95	81.8972	21.4764
13	Raikheda	Raikheda	Tilda	290	4.5	81.8367	21.4358
14	Sontara	Sontara	Tilda	293	3.9	81.8286	21.4458
15	Tarasiv	Tarasiw	Tilda	295	2.3	81.8467	21.4803
16	Bangoli	Bangoli	Tilda	282	2.05	81.8411	21.3992
17	Bharuwadih kala	Bharuwadih Kala	Tilda	291	2.5	81.9078	21.4611
18	Chhachhanpahri		Tilda	285	0.6	81.9209	21.513
19	Chhapora		Tilda	295	0.3	81.8575	21.5303
20	Janjgira	Janjgira	Tilda	290	3.8	81.7856	21.4539
21	Kathiya	Katiya	Tilda	296	2.4	81.9278	21.4789
22	Keotara	Kevtara	Tilda	292	4.25	81.8936	21.4881
23	Kharora	Kharora	Tilda	304	3.9	81.9233	21.3981
24	Khauna	Khauna	Tilda	280	2.25	81.8033	21.4094
25	Kodwa	Kodwa	Tilda	283	4.5	81.7758	21.4353
26	Konari	Khamriya	Tilda	293	2.9	81.8275	21.4936
27	Kundru		Tilda	283	0.7	81.7836	21.4806
28	Kurra	Kurra	Tilda	278	1.4	81.8311	21.3997
29	Math	Math	Tilda	304	3.2	81.9028	21.3928
30	Murdhpar	Mudhpar	Tilda	292	1.55	81.8722	21.3742
31	Nahardia	Chhadiya	Tilda	305	2.7	81.9467	21.4344
32	Nakti Khapri	Jalso	Tilda	299	2.7	81.8092	21.4792
33	Nilja	Nilja	Dharsiwa	272	2.9	81.7953	21.3828
34	Pikridih	Pikridih	Tilda	285	1.7	81.8603	21.3861
35	Siwai		Tilda	295	0.6	81.8067	21.5286
36	Tildadih	Tildadih	Tilda	291	3.1	81.8947	21.3756

5. ANALYSIS OF WATER LEVELS

5.1 INTRODUCTION

Ground water levels or piezometric heads is resultant of all input and output to ground water system with defined boundaries. Ground water is a dynamic system. The parameters required to be monitored during ground water regime monitoring are ground water level or piezometric heads and chemical quality. These are subject to change due to natural and or anthropogenic causes with respect to dime and space. Rainfall, natural recharge to ground water, ground water draft and seepage from surface water bodies plays important roles in changes in ground water level fluctuations. The quality of water is being recharge, nature of host rock and dilution/concentration of ground water impacts the changes in ground water quality. Monitoring of ground water quality and temperature are one of the essential components for ground water regime monitoring. The monitored data is analyzed in time and space to assess the changes and a relationship is established to determine the impact of ground water development and recharge to the system.

5.2 GROUND WATER LEVELS:

The configuration of the water table depends upon by topography, geology, climate, water yielding and water bearing properties of rocks in the zones of aeration and saturation, which control ground water recharge. The upper surface of the zone of saturation is the water table. In case of wells penetrating confined aquifers, the water level represents the pressure or piezometric head at that point.Ground water monitoring network planning is basic step for ground water regime monitoring and further, for assessment of groundwater resources and planning for development and management programs. The groundwater, being hidden resource can only be analyzed through its signatures in the form of water level fluctuations. The systematic and regular monitoring of groundwater levels can bring out the changes taking place in the regime. The data so generated are of immense help for regional groundwater flow modeling for planning and management of ground water resources and its sustainability. Modeling provides necessary information to the user agencies to frame contingency plans in case of unfavorable groundwater recharge situation.

The data have also immense utility in implementing the legal provisions of groundwater regulation, and to substantiate expert advice in legal issues arising out of conflicting interests of ground water users. Ground water regime data of different seasons have been collected for the year 2022, analyzed for every set of measurements and discussed with maps in following sections.

5.2.1 Analysis of water levels (2022)

The water level data collected four times during the year 2022 from the observation wells in core zone as well as buffer zone is presented in **Table 5.1.**

Table 5.1: Depth to water levels monitored in the study area (during 2022)

Sn	Village	Depth to water level (mbgl) Jan-22	Depth to water level (mbgl) May-22	Depth to water level (mbgl) Aug-22	Depth to water level (mbgl) Nov-22	Fluctuation (m)	RL Pre monsoon water level (mamsl)
1	Amlitalab	2.98	5.20	1.00	2.10	3.10	273.80
2	Bharuwadih khurd	9.30	11.20	3.30	5.30	5.90	285.64
3	Chhataud	6.92	8.36	2.10	4.60	3.76	286.64
4	Chicholi	6.56	7.89	1.40	2.50	5.39	302.11
5	Deogaon	5.30	6.79	2.10	3.80	2.99	275.21
6	Dhansuli	2.21	3.78	1.10	2.00	1.78	272.22
7	Gaitara	4.50	6.84	1.39	2.90	3.94	293.16
8	Gourkheda	4.33	5.64	1.60	2.10	3.54	298.77
9	Khapri	3.12	4.90	1.30	2.50	2.40	290.10
10	Mohrenga	2.70	3.69	1.10	2.10	1.59	296.31
11	Mura	3.10	4.69	1.21	1.80	2.89	287.31
12	Paraswani	6.48	8.88	2.40	3.34	5.54	285.30
13	Raikheda	3.70	4.63	1.80	2.80	1.83	285.37
14	Sontara	5.33	6.70	2.60	3.80	2.90	286.77
15	Tarasiv	4.08	5.78	1.28	2.00	3.78	289.22
16	Bangoli	7.30	9.60	2.10	4.20	5.40	272.40
17	Bharuwadih kala	9.80	12.70	2.80	5.54	7.16	277.31
18	Chhachhanpahri	7.20	10.60	4.00	4.90	5.70	274.98
19	Chhapora	6.40	7.56	2.20	3.45	4.11	288.99
20	Janjgira	7.30	10.40	2.30	5.60	4.80	279.60
21	Kathiya	5.30	7.63	0.90	1.30	6.33	288.37
22	Keotara	6.20	8.03	1.30	4.50	3.53	283.04
23	Kharora	4.30	6.35	1.02	2.50	3.85	297.65
24	Khauna	6.55	8.77	2.11	5.27	3.50	270.30
25	Kodwa	4.35	6.00	1.08	2.00	4.00	277.00
26	Konari	6.14	7.50	1.01	1.30	6.20	285.50
27	Kundru	7.10	9.80	1.80	4.60	5.20	273.20
28	Kurra	9.56	11.47	2.10	5.61	5.86	266.53
29	Math	3.72	5.12	1.08	2.00	3.12	298.88
30	Murdhpar	5.70	7.23	0.98	2.30	4.93	284.77

31	Nahardia	6.21	8.47	2.40	5.20	3.27	296.53
32	Nakti Khapri	9.80	12.60	2.90	7.70	4.90	286.40
33	Nilja	3.12	5.70	1.06	2.01	3.69	266.30
34	Pikridih	5.21	7.56	1.10	2.70	4.86	277.44
35	Siwai	6.30	8.66	2.70	4.81	3.85	286.34
36	Tildadih	3.41	5.71	1.06	2.80	2.91	285.29

5.2.1.1 Pre-monsoon Depth to Water level (May' 2022)

The depth to water level map has been prepared based on ground water monitoring data of May 2022. From the perusal of Table 5.1, it is observed that the overall depth to water level remains between 3.69 to 12.7 meters below ground level. The pre-monsoon depth to water levels ranges between 5 and 10 mbgl in 5 km radius 60% of the villages, water levels more than 10 mbgl are observed in the villages namely Bharuwadih khurd villages and less than 5 observed in 33% villages. In 10 km radius depth to water levels ranges between 5 and 10 mbgl observed in 76% of the villages, water levels more than 10 mbgl are observed in remaining 24 % villages of buffer zone. Water level less than 5 mbgl. recorded at Mohrenga,Dhansuli,Raikheda,Murra and Khapri villages in 5 km radius, shown in **Fig 5.1**.

5.2.1.2 Post-monsoon Depth to Water level (November' 2022)

The depth to water level map has been prepared based on ground water monitoring data of Nov 2022. On perusal of the data and map given at **Fig.5.2**, it is observed that the overall depth to water level remains between 1.3 and 7.7 meters below ground level. The post-monsoon depths to water level range of 0 to 3 mbgl are observed in 66% villages of core zone (5 km Radius), about 26% villages shows water level in the range of 3 to 5 mbgl and more than 5 mbgl at Bharuwadih khurd village. In the area of 10 km radius ground water levels less than 3 mbgl are observed in the 42% villages, about 29% villages shows water level in the range of 3 to 5 mbgl and more than 5 in 29% villages.

5.2.1.3 Seasonal water level fluctuation (May 2022 Vs Nov. 2022)

Based on the pre-monsoon & post-monsoon data water level fluctuation in the study area is calculated & respective map (**as shown in Fig 5.3**) has also been prepared. It is observed that in the study area water level fluctuation varies from 1.59 to 7.16 meters. Lower range of water level fluctuation is also observed along the river course followed by > 6. 4 to 6, & 2 to 4.

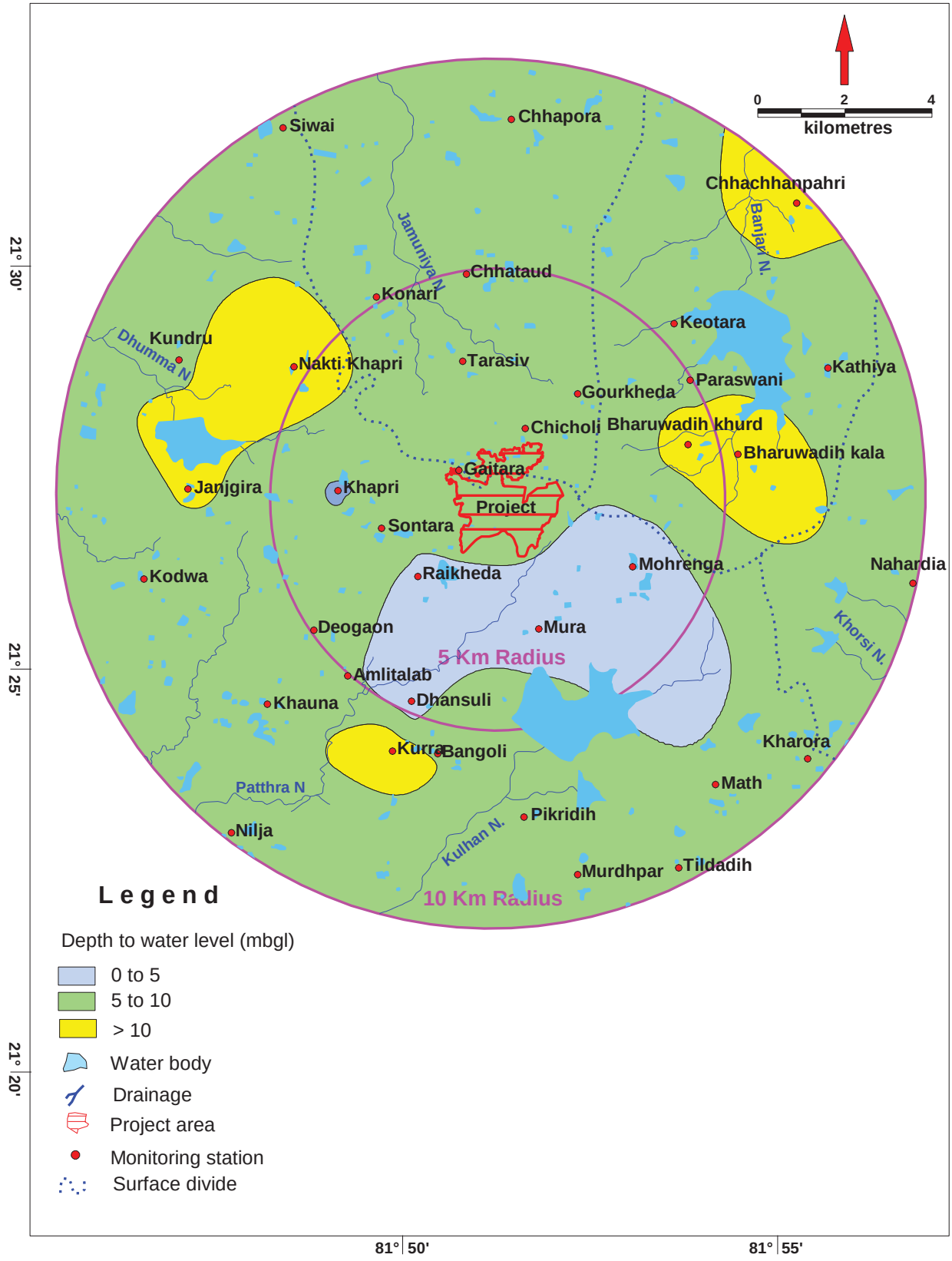


Fig.5.1: Pre-monsoon Depth to Water level map (May'2022)

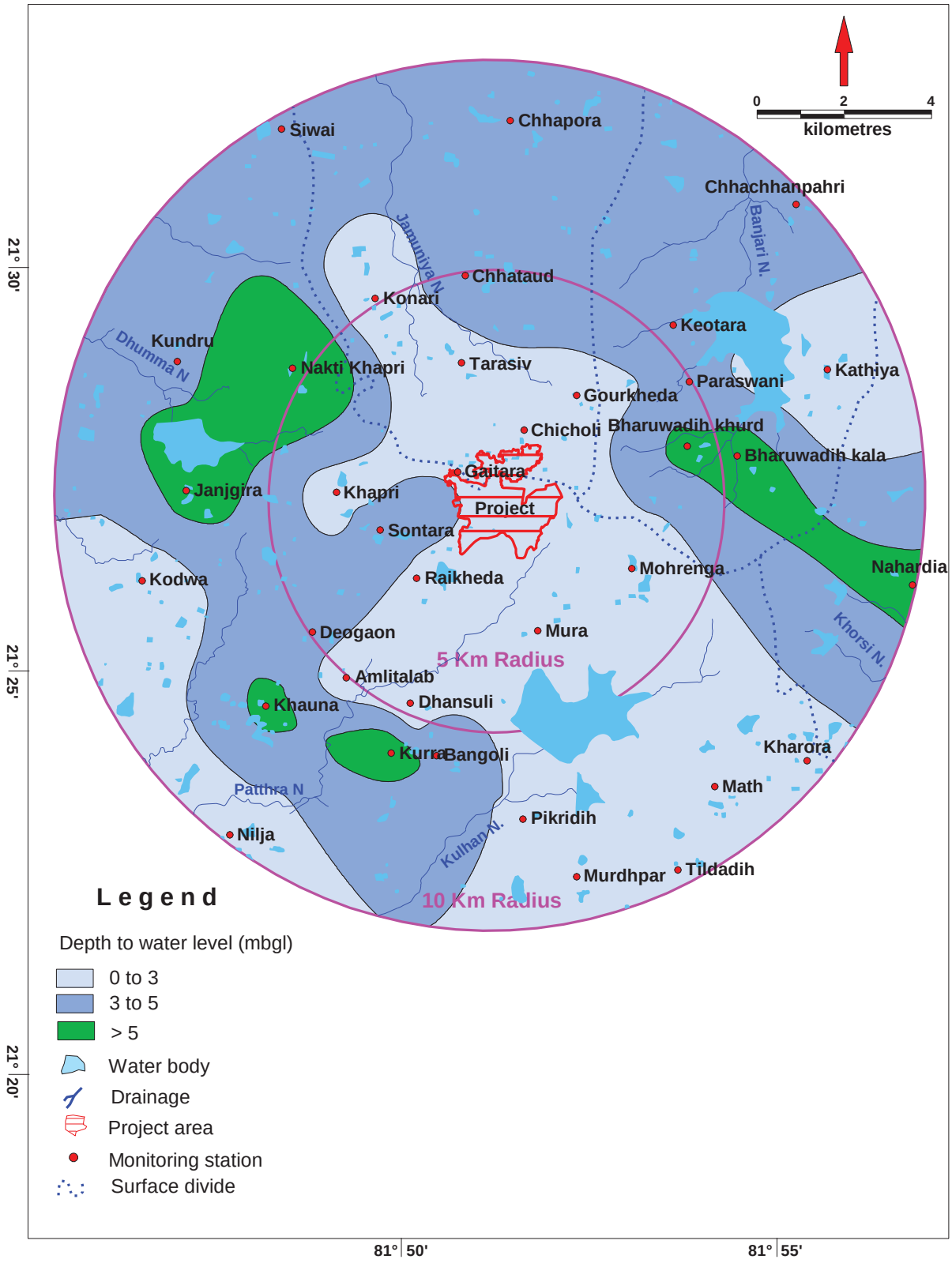
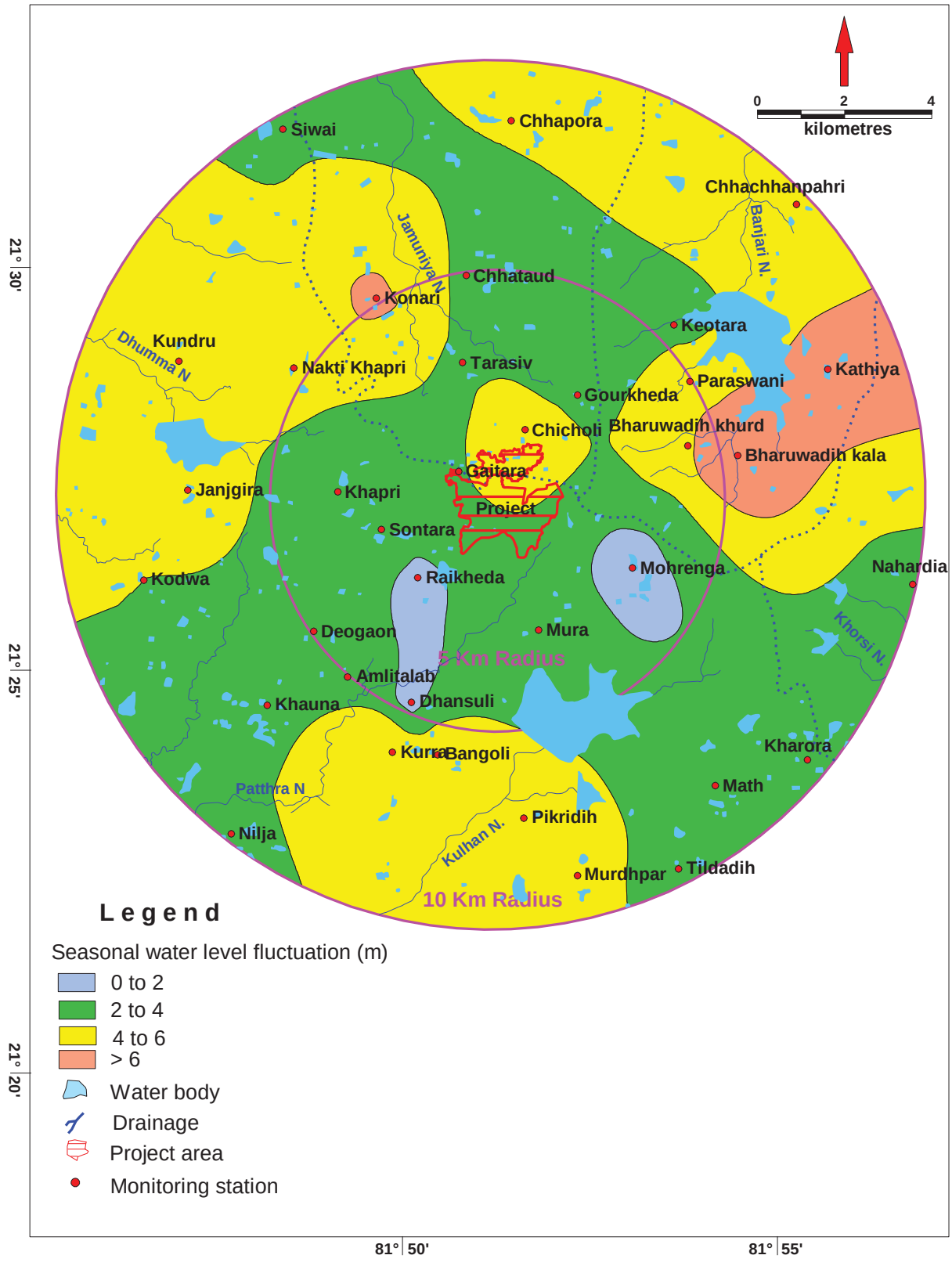


Fig.5.2: Post-monsoon Depth to Water level map (Nov.'2022)



Fig

5.3: Seasonal Water Level Fluctuation map (Nov.' 2022 Vs May' 2022)

5. 3 COMPARISONS OF WATER LEVELS OVER THE YEARS

The ground water levels in the area have been monitored 4 times in a year as mentioned earlier. Mean water level (2019-2021) has been compared with water levels of year 2022, for pre-monsoon and post-monsoon period separately in core and buffer zones, to assess the change in ground water levels over the years. Keeping this in view, the water level data of last twelve years has been analysed to assess the change in water level behaviour. The said water levels of year 2019-2021 (mean) compared with respect to year 2022 both for pre-monsoon and post-monsoon period separately for core and buffer zones are presented in **Table 5.2**.

5.3.1 WATER LEVEL CHANGES

The water level data for last four years have been analysed to assess decline or rise in the ground water level through fluctuation in water level within the study area. Ground water level data for year 2022 has been analysed for core and buffer zones and changes in water levels through fluctuation with respect to the mean water levels (2019-2021) for different seasons is observed and presented in **Table 5.2.**

5.3.1.1 PRE-MONSOON DEPTH TO WATER LEVEL TREND

While comparing mean pre-monsoon average water levels of (2019-2021) with that of 2022 (Table 5.2), it is found that all the villages in core zone (5 Km Radius) which are considered for analysis showing decline in the range of -0.2 to -0.8 m. except Gaukheda and Paraswani villages (Fig 5.5) which are showing rise of water level in the ranges of 0.16 to 0.18 m and 57 % of the villages in buffer zone(10 Km Radius) are showing decline in range of -0.1 to -0.8 m while 43 % villages are showing rising in water level in the range of 0.02 to 4.96 m as shown in **Fig 5.6.** The area showing falling trend more than 20 cm/yr are of considerable significance which is attributed to increase in draft in selective patches. In conclusion, if the decline per year is more than 0.20 m then for the period of four years it will be more than 0.8 m which is considered as significant but in the present scenario all the villages of core zone and buffer zone considered for analysis shows decline less than 0.8 m over the period of four years, so it is evident that in there is a marginal decline in water level trend in pre-monsoon period over the period of four years (**Fig 5.4).**

Table 5.2: Comparisons of water levels (2019-2021) with reference to water levels of the year 2022.

Sn	Village	**Mean pre-monsoon (May' 2011 - May 21) (mbgl)**	**Mean post-monsoon (Nov' 2011 -Nov 21) (mbgl)**	**DTW May' 2022 (mbgl)**	**DTW Nov' 2022 (mbgl**	**Change(m) Pre-monsoon**	**Change (m) post-monsoon**
5 Km Radius							
1	Amlitalab	4.40	1.60	5.20	2.10	-0.80	-0.50
2	Bharuwadih khurd	10.43	5.68	11.20	5.30	-0.77	0.38

3	Chhataud	7.80	3.86	8.36	4.60	-0.56	-0.74
4	Chicholi	7.20	1.72	7.89	2.50	-0.69	-0.78
5	Deogaon	6.03	3.07	6.79	3.80	-0.76	-0.73
6	Dhansuli	3.30	1.28	3.78	2.00	-0.48	-0.72
7	Gaitara	6.30	2.25	6.84	2.90	-0.54	-0.65
8	Gourkheda	5.80	2.33	5.64	2.10	0.16	0.23
9	Khapri	4.70	1.70	4.90	2.50	-0.20	-0.80
10	Mohrenga	2.99	1.51	3.69	2.10	-0.70	-0.59
11	Mura	4.20	1.20	4.69	1.80	-0.49	-0.60
12	Paraswani	9.06	4.34	8.88	3.34	0.18	1.00
13	Raikheda	4.01	2.01	4.63	2.80	-0.62	-0.79
14	Sontara	6.50	3.08	6.70	3.80	-0.20	-0.72
15	Tarasiv	5.01	1.92	5.78	2.00	-0.77	-0.08
10 KM Radius							
16	Bangoli	9.62	4.70	9.60	4.20	0.02	0.50
17	Bharuwadih kala	12.34	6.44	12.70	5.54	-0.36	0.90
18	Chhachhanpahri	9.80	4.30	10.60	4.90	-0.80	-0.60
19	Chhapora	6.80	3.68	7.56	3.45	-0.76	0.23
20	Janjgira	10.02	4.89	10.40	5.60	-0.38	-0.71
21	Kathiya	8.45	2.95	7.63	1.30	0.82	1.65
22	Keotara	8.22	3.74	8.03	4.50	0.19	-0.76
23	Kharora	5.90	1.80	6.35	2.50	-0.45	-0.70
24	Khauna	9.04	5.54	8.77	5.27	0.27	0.27
25	Kodwa	6.20	2.10	6.00	2.00	0.20	0.10
26	Konari	7.80	2.98	7.50	1.30	0.30	1.68
27	Kundru	9.70	4.80	9.80	4.60	-0.10	0.20
28	Kurra	11.05	5.91	11.47	5.61	-0.42	0.30
29	Math	4.55	1.65	5.12	2.00	-0.57	-0.35
30	Murdhpar	12.19	5.80	7.23	2.30	4.96	3.50
31	Nahardia	8.02	4.51	8.47	5.20	-0.45	-0.69
32	Nakti Khapri	12.01	6.90	12.60	7.70	-0.59	-0.80
33	Nilja	5.90	2.05	5.70	2.01	0.20	0.04

34	Pikridih	6.89	1.91	7.56	2.70	-0.67	-0.79
35	Siwai	8.50	4.90	8.66	4.81	-0.16	0.09
36	Tildadih	5.80	2.05	5.71	2.80	0.09	-0.75

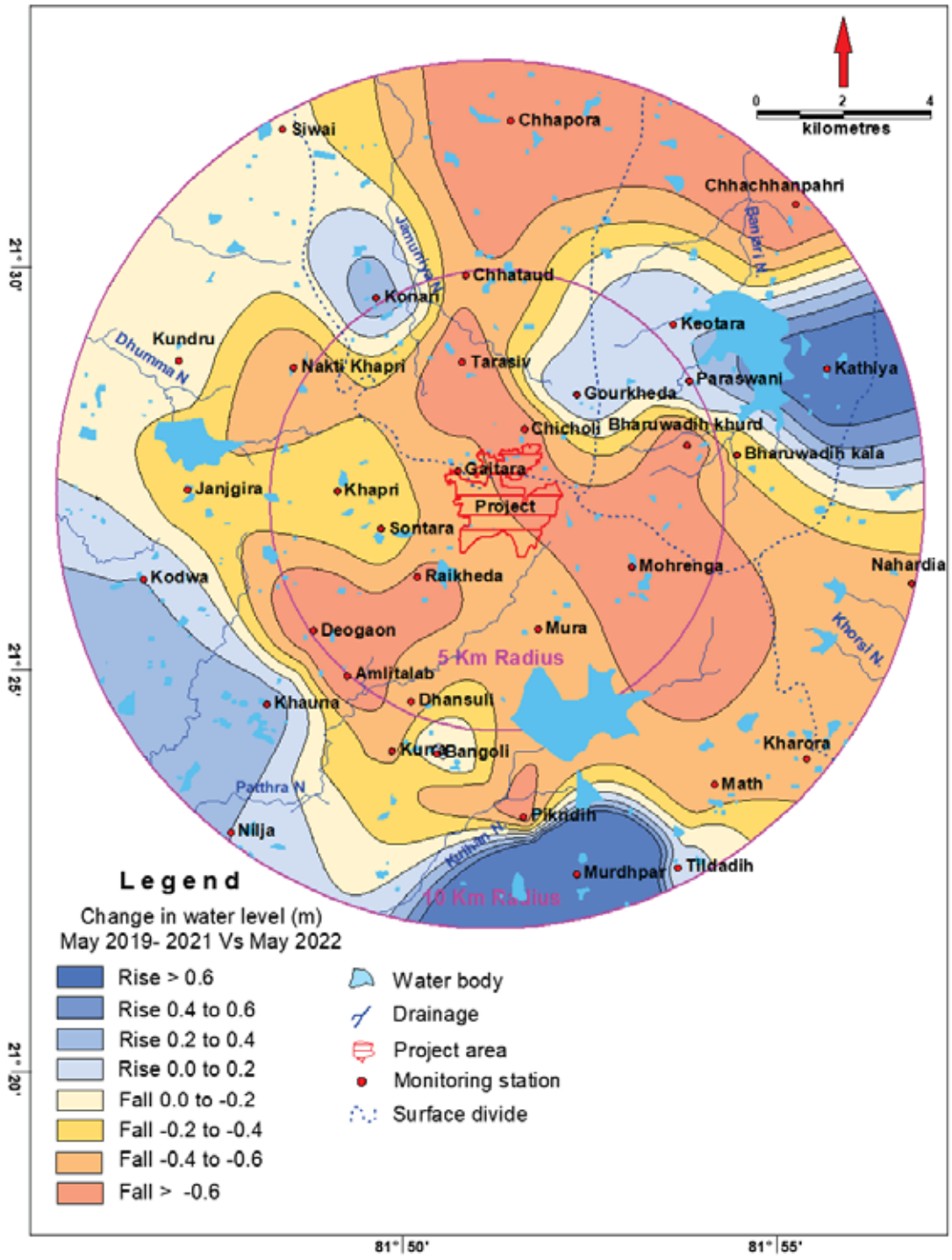


Fig 5.4 : Pre-monsoon water level change (May'2019-2021 Vs May'2022)

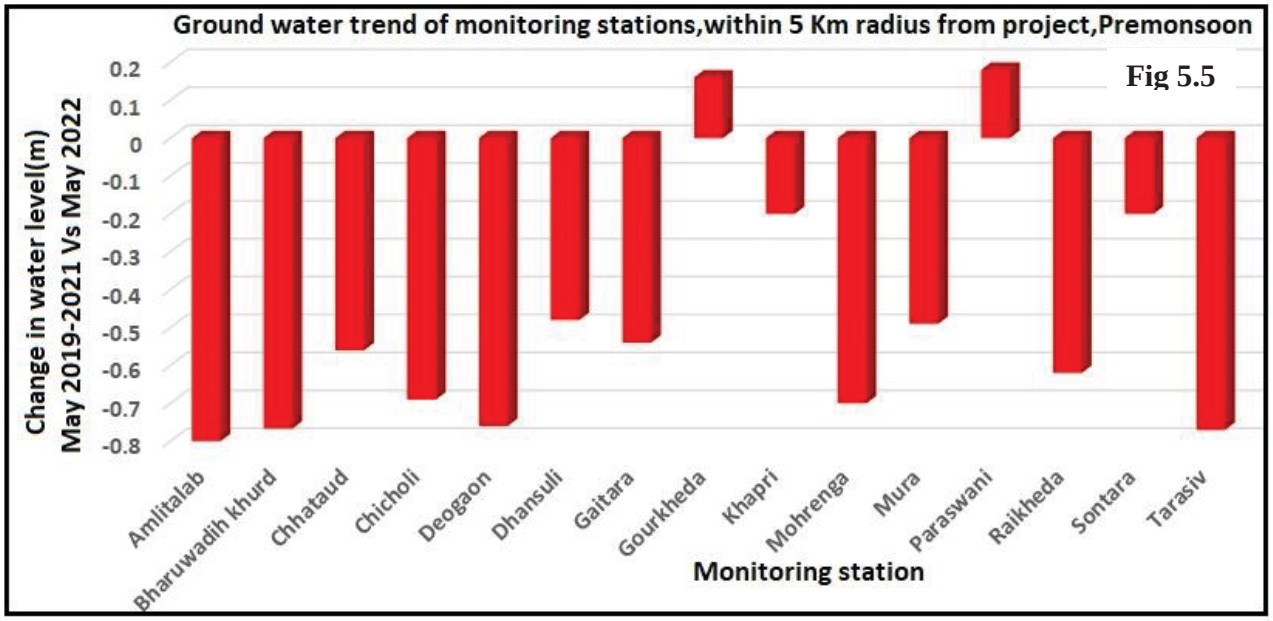


Fig 5.5

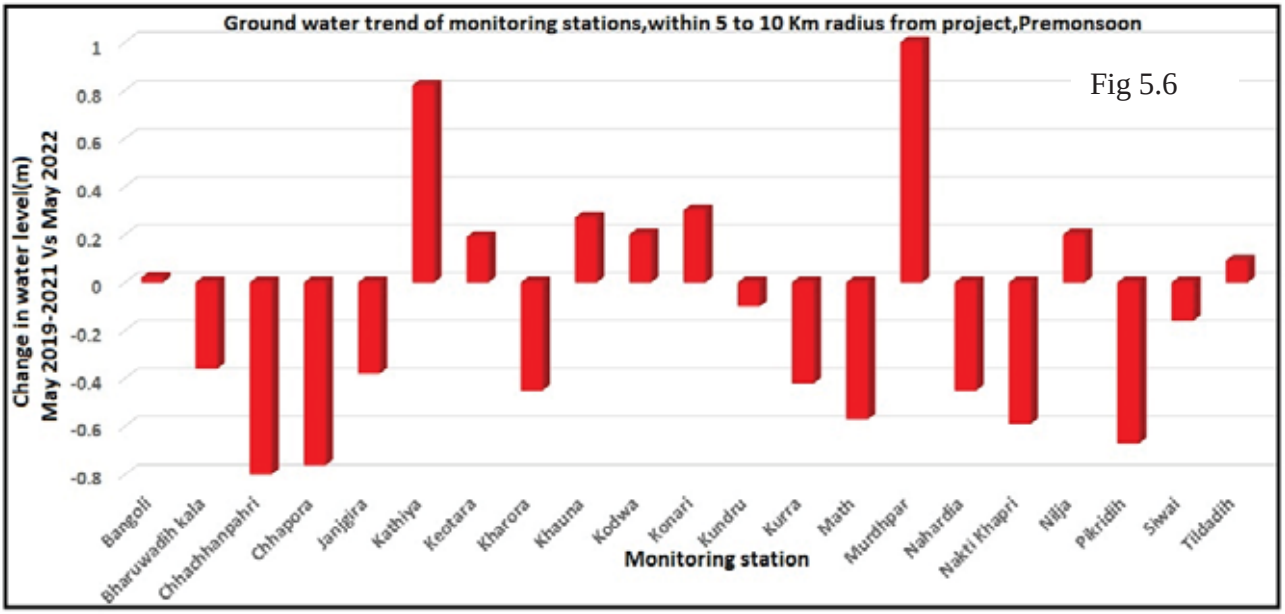


Fig 5.6

5.3.1.2 POST-MONSOON DEPTH TO WATER LEVEL TREND

While comparing mean post-monsoon average water levels of (2019-2021) with that of 2022 (Table 5.2), it is found that 80% the villages in core zone (5 Km Radius) which are considered for analysis showing decline in the range of -0.08 to -0.8 m. remaining 40% of wells are showing rising water level in the range of 0.23 to 1.0 m. 43% village are showing decline in water level of -0.35 to -0.8 m. and remaining 57% village are showing rise in water level of 0.04 to 3.5 m. **(Fig 5.7, Fig 5.8 and Fig 5,9).** The area showing falling trend more than 20 cm/yr are of considerable significance which is attributed to increase in draft in selective patches.

In conclusion, if the decline per year is more than 0.20 m then for the period of four years it will be more than 0.8 m which is considered as significant but in the present scenario all the villages of core zone and buffer zone considered for analysis shows decline less than 0.8 m over the period of four years, so it is evident that in there is a marginal decline in water level trend in post-monsoon period over the period of four years.

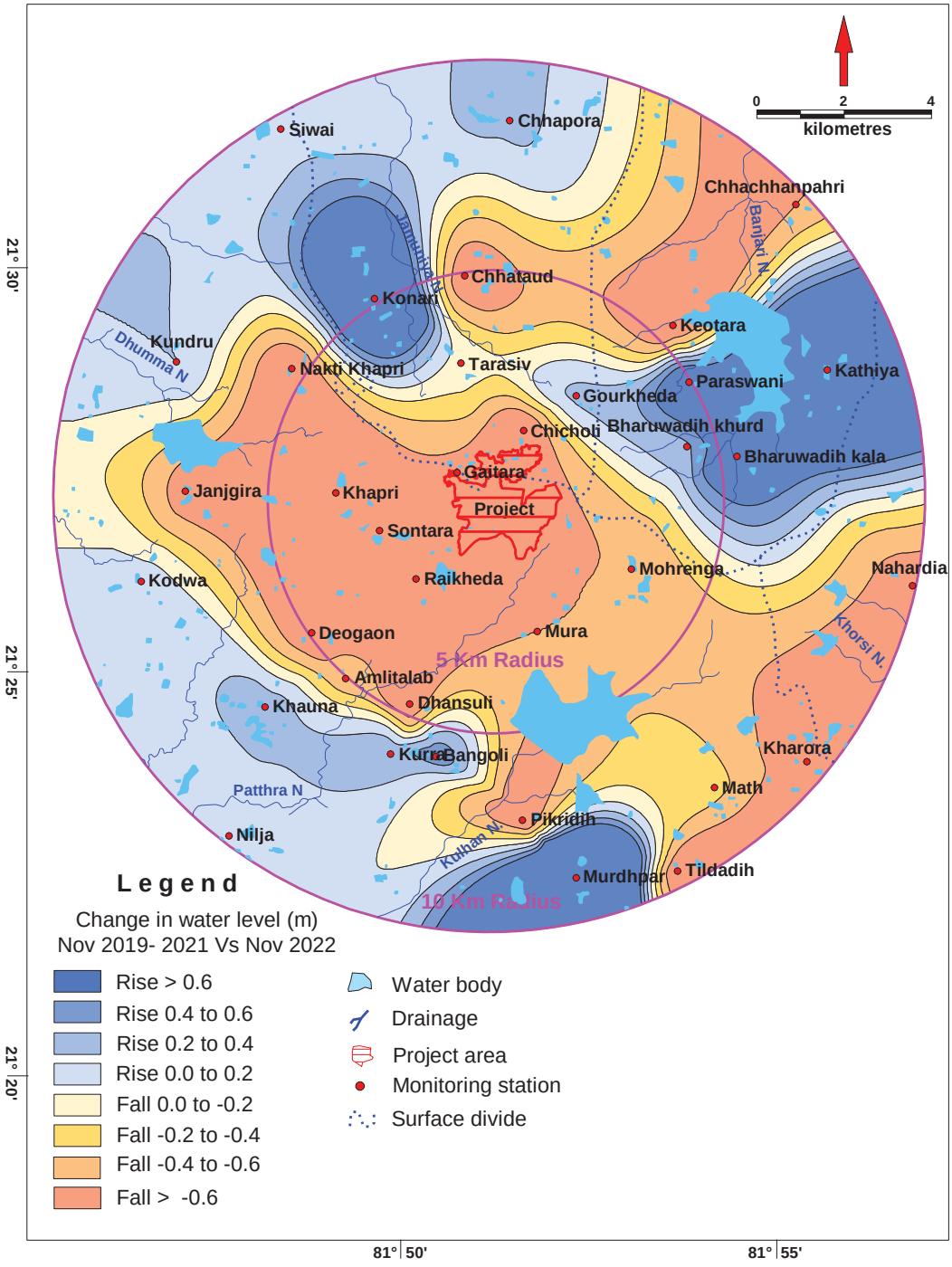


Fig 5.4 : Post-monsoon water level change (May'2019-2021 Vs May'2022)

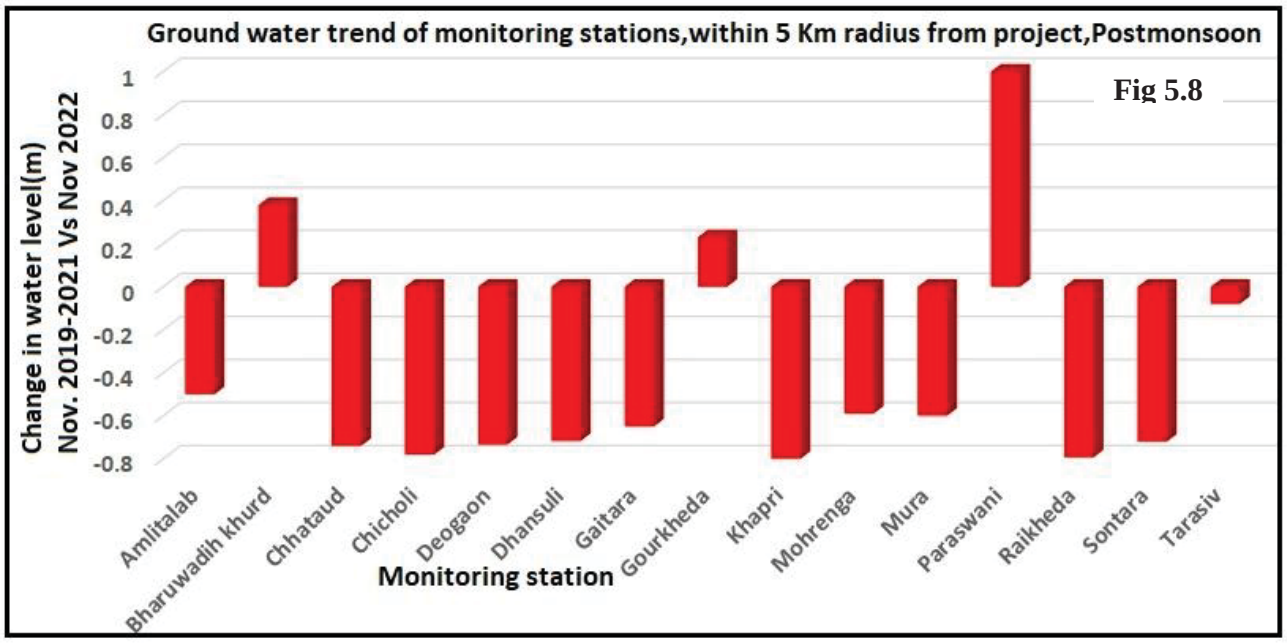


Fig 5.8

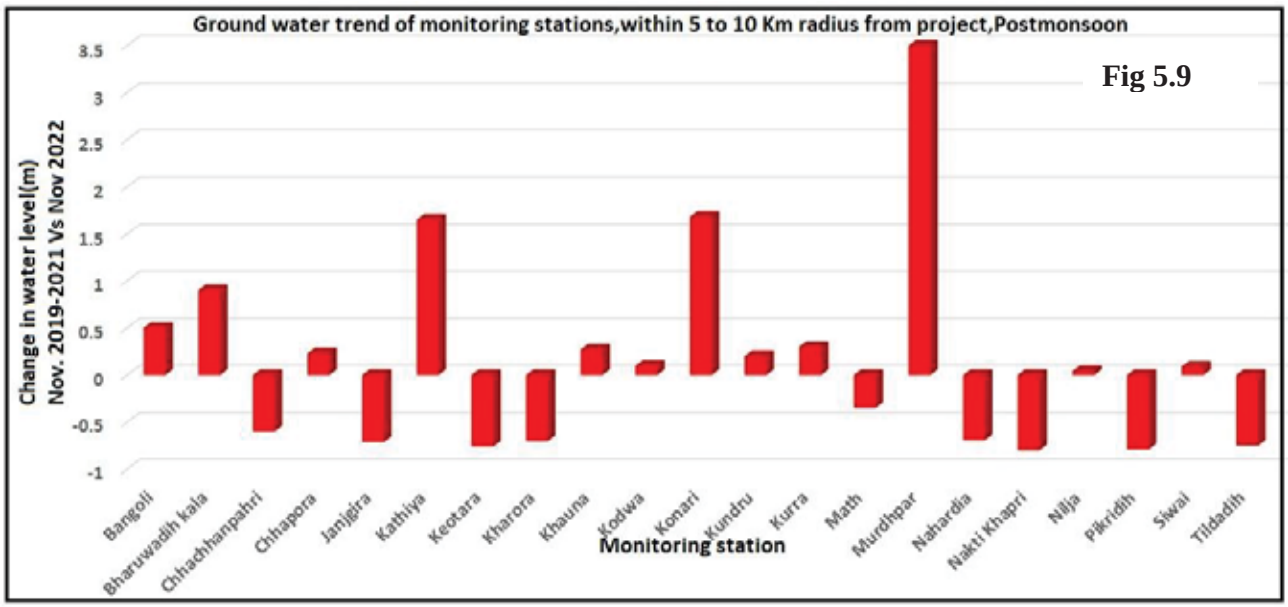


Fig 5.9

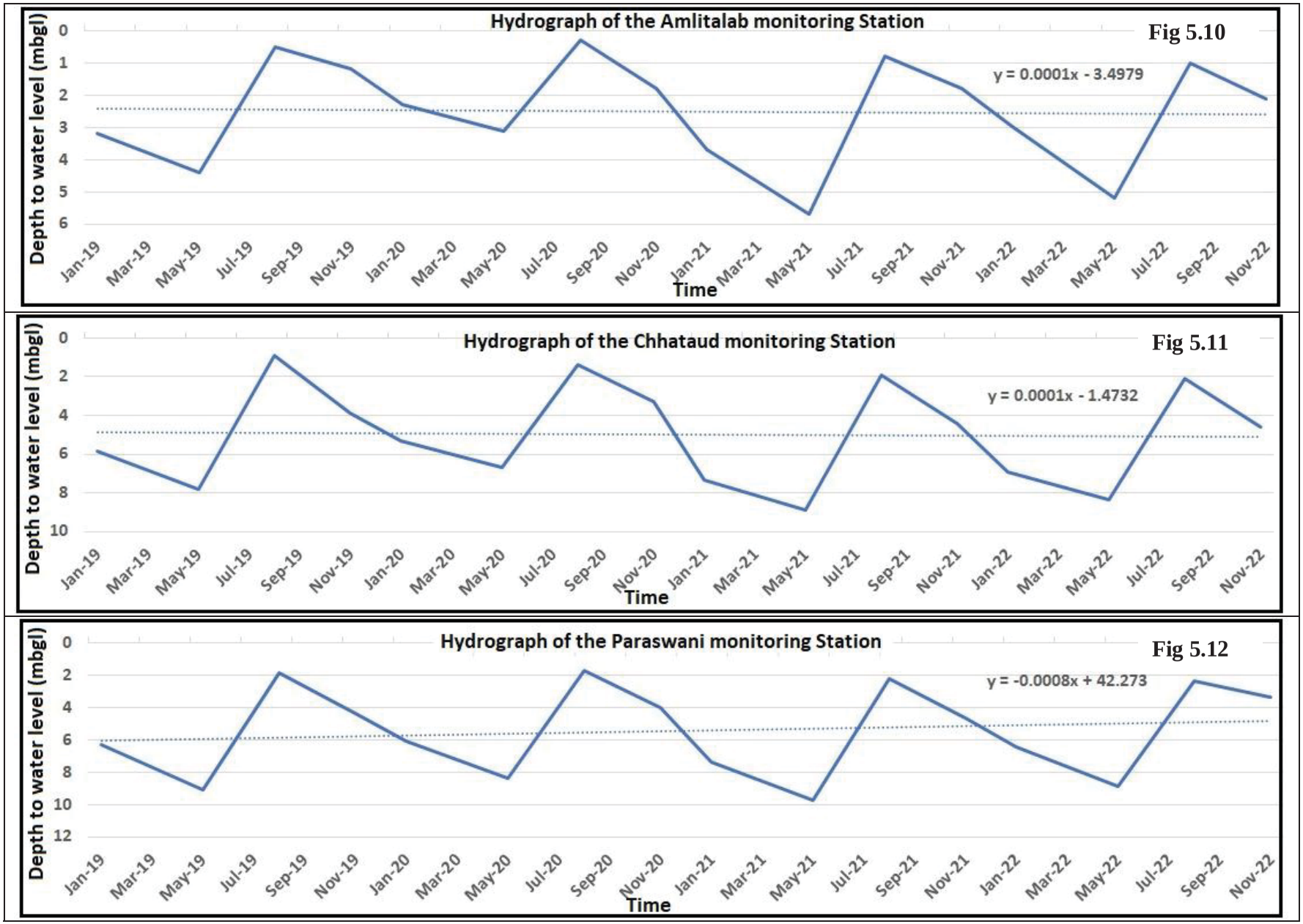
Overall, from the comparison of mean water levels of the year 2019 to 2021 with respect to the years 2022 in pre-monsoon period it is found that all the villages in core zone which are considered for analysis showing decline in the range of -0.2 to -0.8 m. except Gaukheda and Paraswani villages which are showing rise of water level in the ranges of 0.16 to 0.18 m and 57 % of the villages in buffer zone(10 Km Radius) are showing decline in range of -0.1 to -0.8 m while 43 % villages are showing rising in water level in the range of 0.02 to 4.96 m. In post-monsoon period, it is found that 80% the villages in core zone (5 Km Radius) which are considered for analysis showing decline in the range of -0.08 to -0.8 m. remaining 40% of wells are showing rising water level in the range of 0.23 to 1.0 m.In Buffer zone abour 43% village are showing

decline in water level of -0.35 to -0.8 m. and remaining 57% village are showing rise in water level of 0.04 to 3.5 m. The area showing falling trend more than 20 cm/yr are of considerable significance which is attributed to increase in draft in selective patches.

In conclusion, if the decline per year is more than 0.20 m then for the period of four years it will be more than 0.8 m which is considered as significant but in the present scenario all the villages of core zone and buffer zone considered for analysis shows decline less than 0.8 m over the period of four years, so it is evident that in there is a marginal decline in water level trend in pre and post-monsoon period over the period of four years.

5.4 HYDROGRAPHS:

The variation in ground water level recorded systematically for a longer period can be plotted in the form of graph (hydrograph). This trend is also depicted from the individual hydrographs of monitoring stations. Some representative hydrographs are given below for core and buffer zone for the period of January'2019 to November'2022 in **Fig 5.10 to Fig 5.15.** These representative hydrographs presented here also shows the decline in water levels over the period of observation. The decline rate is more in core zone and comparatively low in buffer zone.


Hydrograph of the Amlitalab monitoring Station
Fig 5.10
y = 0.0001x - 3.4979
Depth to water level (mbgl)
0
1
2
3
4
5
6
Jan-19
Mar-19
May-19
Jul-19
Sep-19
Nov-19
Jan-20
Mar-20
May-20
Jul-20
Sep-20
Nov-20
Jan-21
Mar-21
May-21
Jul-21
Sep-21
Nov-21
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Time
Hydrograph of the Chhataud monitoring Station
Fig 5.11
y = 0.0001x - 1.4732
Depth to water level (mbgl)
0
2
4
6
8
10
Time
Hydrograph of the Paraswani monitoring Station
Fig 5.12
y = -0.0008x + 42.273
Depth to water level (mbgl)
0
2
4
6
8
10
12
Time

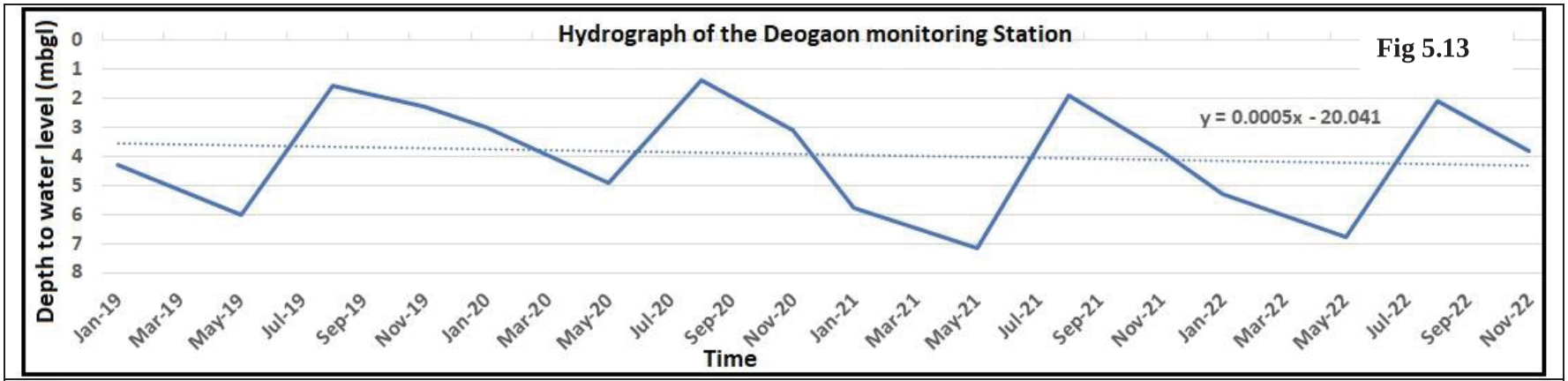


Fig 5.13

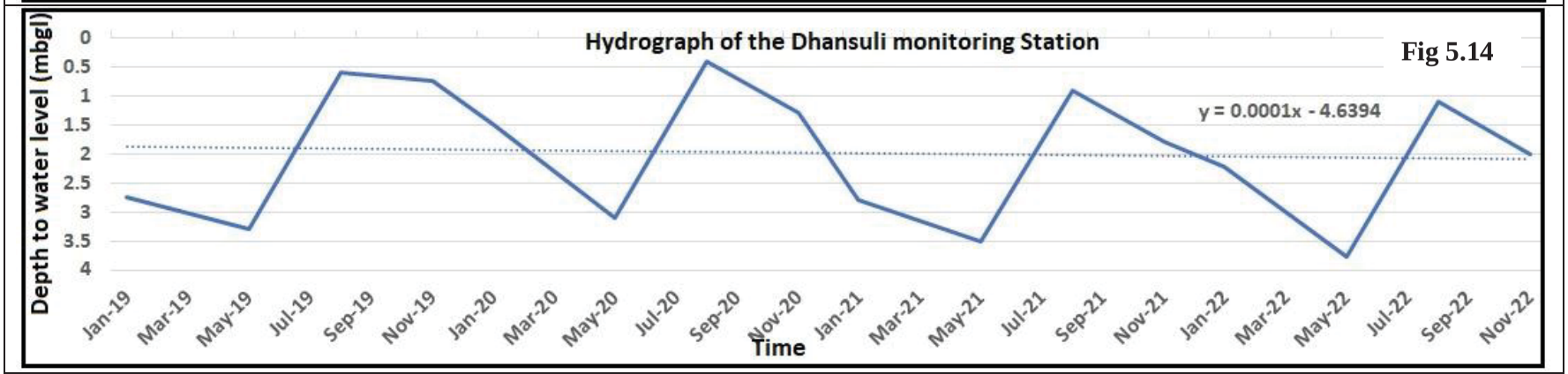


Fig 5.14

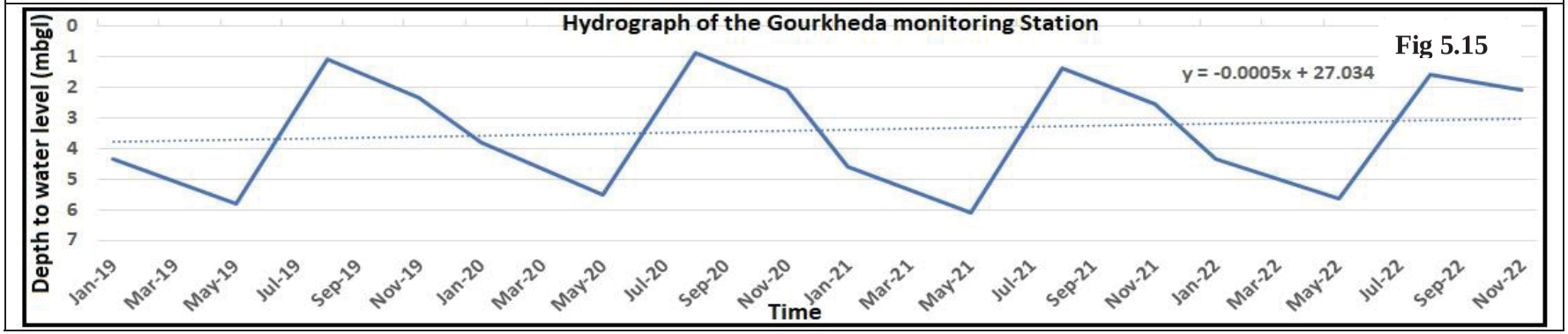


Fig 5.15

5.4 AQUIFER PARAMETERS:

The aquifer parameters are essentially required for the estimation of mine seepage as well as planning the ground water withdrawal for open cast mining. Accordingly, pumping test has been carried out for determination of aquifer parameters accurately. The aquifer parameters of study area covered by limestone are described below.

The transmissivity values of phreatic aquifer tapped in open well in general varies from 4 to 8.5 m^2/day while specific capacity ranges from 15 to 40 lpm/m/day. However, for deep aquifer the transmissivity ranges from 15-32 m^2/day and at places it ranges up to 40 m^2/day. The potential fractures for boreholes up to 100 mbgl depth in the area are recorded at various depths i.e. 40-45, 60-65, 75-80, 90-95 mbgl and are 4 to 5 in numbers.

To verify the aquifer parameters of the aquifer present in the area pumping test has been carried out on a private /public bore well at Raikeda and Mohrenga village (close to Project). The results and data interpretation is discussed below

Village	Raikheda
Block	Tilda
District	Raipur
State	Chattisgarh
Date	28/11/2019
Duration of test	1000 minutes
Capacity of pump	5 hp
Distance of OW from pump well	45 m.
Thickness of the aquifer	10
MP(magl)	0.8
SWL(mbmp)	6.5
Discharge(lps)	5

Table 5.3: Pumping Data observation well

Sl.no.	Time since pumping started (min)	Tape Reading (m)		DTW (mbmp)	Draw Down (m)	Remarks
		Hold	Cut			
1	1	20	13.50	6.50	0.00	
2	2	20	13.30	6.70	0.20	
3	3	20	13.10	6.90	0.40	
4	4	20	13.00	7.00	0.50	

5	5	20	12.95	7.05	0.55	
6	6	20	12.70	7.30	0.80	
7	7	20	12.55	7.45	0.95	
8	8	20	12.40	7.60	1.10	
9	9	20	12.20	7.80	1.30	
10	10	20	12.00	8.00	1.50	
11	12	20	11.60	8.40	1.90	
12	14	20	11.50	8.50	2.00	
13	16	20	11.20	8.80	2.30	
14	18	20	11.01	8.99	2.49	
15	20	20	10.80	9.20	2.70	
16	25	20	10.50	9.50	3.00	
17	30	20	10.20	9.80	3.30	
18	40	20	10.00	10.00	3.50	
19	50	20	9.68	10.32	3.82	
20	60	20	9.30	10.70	4.20	
21	80	20	9.10	10.90	4.40	
22	100	20	8.80	11.20	4.70	
23	200	20	8.30	11.70	5.20	
24	300	20	7.80	12.20	5.70	
25	400	20	7.50	12.50	6.00	
26	500	20	7.35	12.65	6.15	
27	600	20	7.22	12.78	6.28	
28	700	20	7.09	12.91	6.41	
29	800	20	7.00	13.00	6.50	
30	900	20	6.90	13.10	6.60	
31	1000	20	6.88	13.12	6.62	

The pumping test data has been analyzed by Jacob's straight line method of the pumping data of the observation well. The calculation is given below.

Formulae: $T= 2.3Q/4\pi\Delta s$

$K==T/b$ &

$$S = 2.25\ T\ t_o/r^2$$

Where,

T =kD = Transmissivity, m^2/day

K =Permeability

B= Thickness of aquifer

Q = Discharge m^3/day

r = Distance (m) between PW & OW

Δs = Slope of straight line per log cycle of time

S = Storage coefficient

t_o= time in days at zero drawdown

On the basis of above formulae, the calculated parameters are as follows.

T= 30.42 m^2/day, K=2.3765 m/day &

S= 7.041 $X10^{-5}$

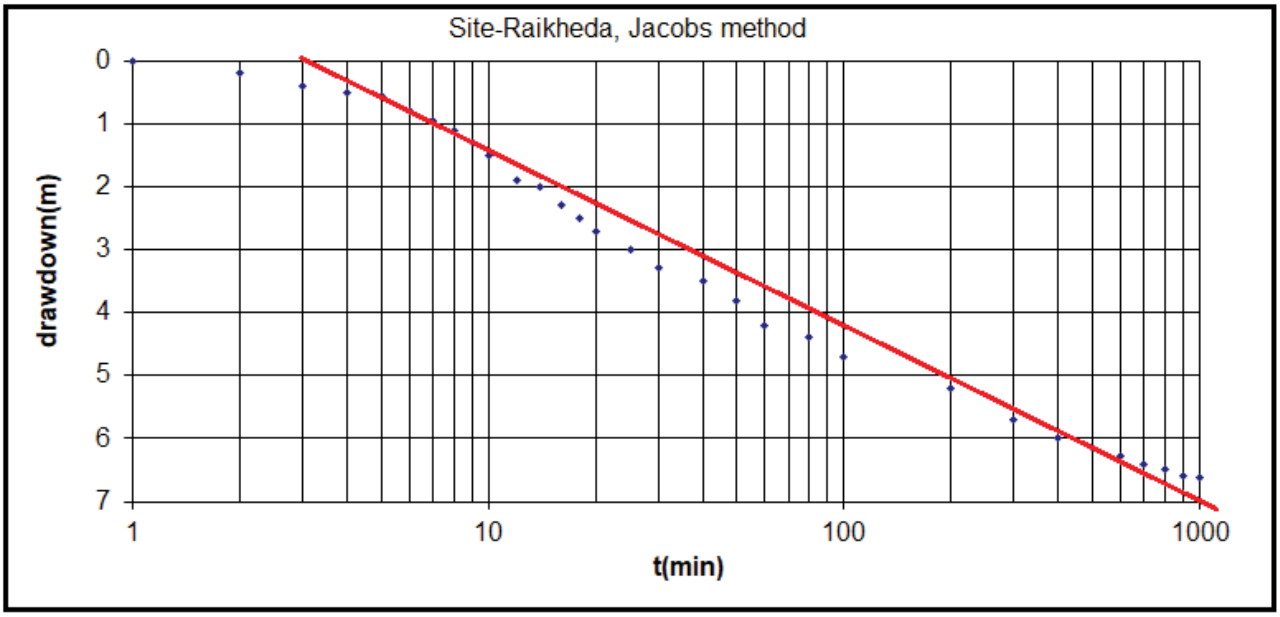


Table 5.3: Recuperation Data

Time since pumping started in min(t)	Time since pumping stopped in min (t')	t/t'	Tape reading (m)		DTW (mbmp)	RDD (m)	Remarks
			Hold	Cut			
1001	1	1001.00	20	6.88	13.12	6.62	
1002	2	501.00	20	7	13	6.5	

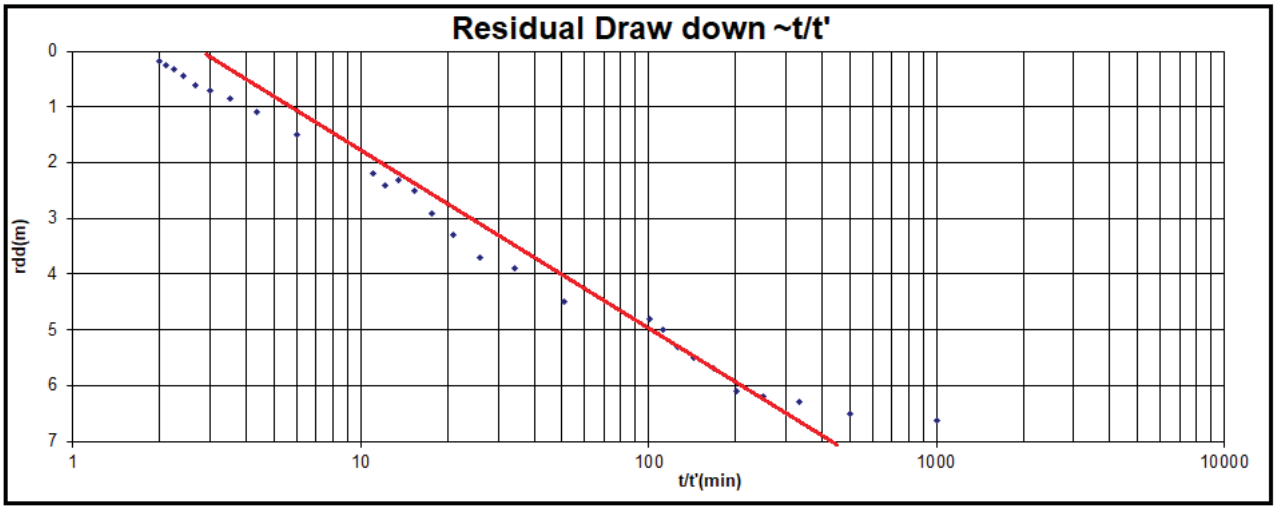
1003	3	334.33	20	7.1	12.9	6.4	
1004	4	251.00	20	7.29	12.71	6.21	
1005	5	201.00	20	7.4	12.6	6.1	
1006	6	167.67	20	7.5	12.5	6	
1007	7	143.86	20	7.66	12.34	5.84	
1008	8	126.00	20	7.89	12.11	5.61	
1009	9	112.11	16	4.1	11.9	5.4	
1010	10	101.00	16	4.5	11.5	5	
1020	20	51.00	16	5	11	4.5	
1030	30	34.33	16	5.6	10.4	3.9	
1040	40	26.00	16	5.8	10.2	3.7	
1050	50	21.00	16	6.2	9.8	3.3	
1060	60	17.67	16	6.6	9.4	2.9	
1070	70	15.29	16	6.99	9.01	2.51	
1080	80	13.50	16	7.18	8.82	2.32	
1090	90	12.11	16	7.1	8.9	2.4	
1100	100	11.00	16	7.3	8.7	2.2	
1200	200	6.00	16	8	8	1.5	
1300	300	4.33	16	8.4	7.6	1.1	
1400	400	3.50	16	8.64	7.36	0.86	
1500	500	3.00	16	8.8	7.2	0.7	
1600	600	2.67	16	8.9	7.1	0.6	
1700	700	2.43	16	9.05	6.95	0.45	
1800	800	2.25	16	9.18	6.82	0.32	
1900	900	2.11	16	9.26	6.74	0.24	
2000	1000	2.00	16	9.32	6.68	0.18	

Formulae:

$T = 2.3Q/4\pi\Delta s$, $K = T/b$

On the basis of above formulae, the calculated parameters are as follows.

$T = 30.42\ m^2/day$, $K = 2.3765\ m/day$



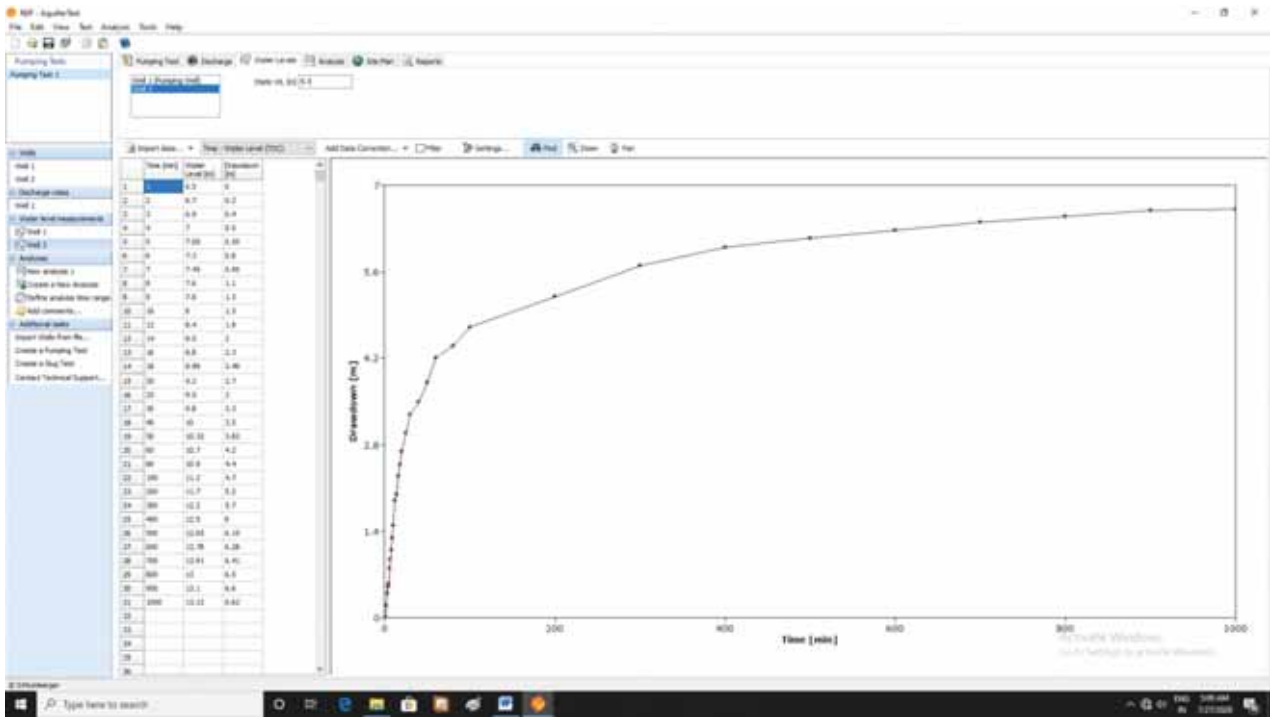


Fig 5.4: Pumping water level data plot in Aquifer test soft ware

Village				Mohrenga				
Block				Tilda				
District				Raipur				
State				Chattisgarh				
Date				26-11-2022				
Duration of test				300 minutes				
Capacity of pump				3 hp				

Distance of OW from pump well			30 m.					
Thickness of the aquifer			20					
MP(magl)			0.8					
SWL(mbmp)			9					
Discharge(lps)			4.8					
Pumping Data				**Recuperation Data**				
Sl.no.	Time since pumping started (min)	DTW (mbmp)	Draw Down (m)	Time since pumping started in min(t)	Time since pumping stopped in min (t')	t/t'	DTW (mbmp)	RDD (m)
1	1	9.1	0.1	301	1	301	15.4	6.4
2	2	9.5	0.5	302	2	151	14.3	5.3
3	3	9.8	0.8	303	3	101	13.7	4.7
4	4	10	1	304	4	76	13.3	4.3
5	5	10.2	1.2	305	5	61	13.2	4.2
6	6	10.45	1.45	306	6	51	13	4
7	7	10.6	1.6	307	7	43.86	12.9	3.9
8	8	10.78	1.78	308	8	38.5	12.8	3.8
9	9	10.9	1.9	309	9	34.33	12.67	3.67
10	10	11	2	310	10	31	12.6	3.6
11	12	11.3	2.3	312	12	26	12.2	3.2
12	14	11.56	2.56	314	14	22.43	11.9	2.9
13	16	11.7	2.7	316	16	19.75	11.7	2.7
14	18	11.89	2.89	318	18	17.67	11.4	2.4
15	20	11.97	2.97	320	20	16	11.1	2.1
16	25	12.3	3.3	325	25	13	11	2
17	30	12.7	3.7	330	30	11	10.9	1.9
18	40	13	4	335	35	9.57	10.7	1.7
19	50	13.2	4.2	340	40	8.5	10.5	1.5
20	60	13.37	4.37	350	50	7	10.2	1.2
21	80	13.6	4.6	360	60	6	10	1
22	100	13.8	4.8	370	70	5.29	9.9	0.9
23	120	13.9	4.9	380	80	4.75	9.8	0.8
24	140	14	5	390	90	4.33	9.7	0.7
25	160	14.09	5.09	400	100	4	9.6	0.6
26	180	14.21	5.21	450	150	3	9.51	0.51
27	200	14.3	5.3	500	200	2.5	9.39	0.39
28	250	14.9	5.9	550	250	2.2	9.27	0.27
29	300	15.3	6.3	600	300	2	9.2	0.2

The pumping test data has been analyzed by Jacob's straight line method of the pumping data of the observation well. The calculation is given below.

Formulae: $T= 2.3Q/4\pi\Delta s$,K==T/b & $S= 2.25\ T\ t_o/r^2$

Where,

T =kD = Transmissivity, m^2/day, K =Permeability.D= Thickness of aquifer

Q = Discharge m^3/day

r = Distance (m) between PW & OW

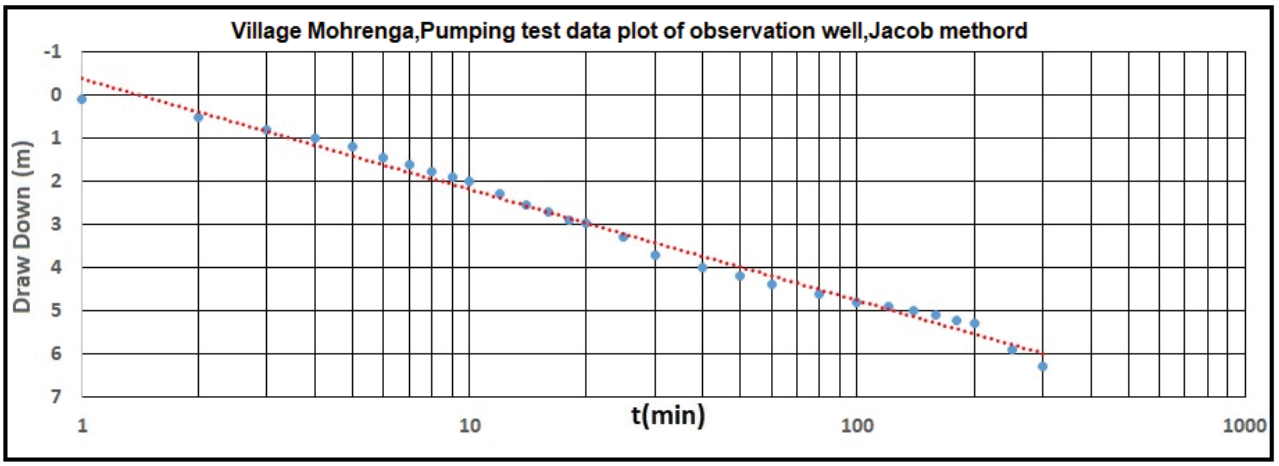
Δs = Slope of straight line per log cycle of time

S = Storage coefficient

t_o= time in days at zero drawdown

On the basis of above formulae, the calculated parameters are as follows.

$T= 38.33\ m^2$/day, K=1.91 m/day& $S= 3.83\ X10^{-5}$

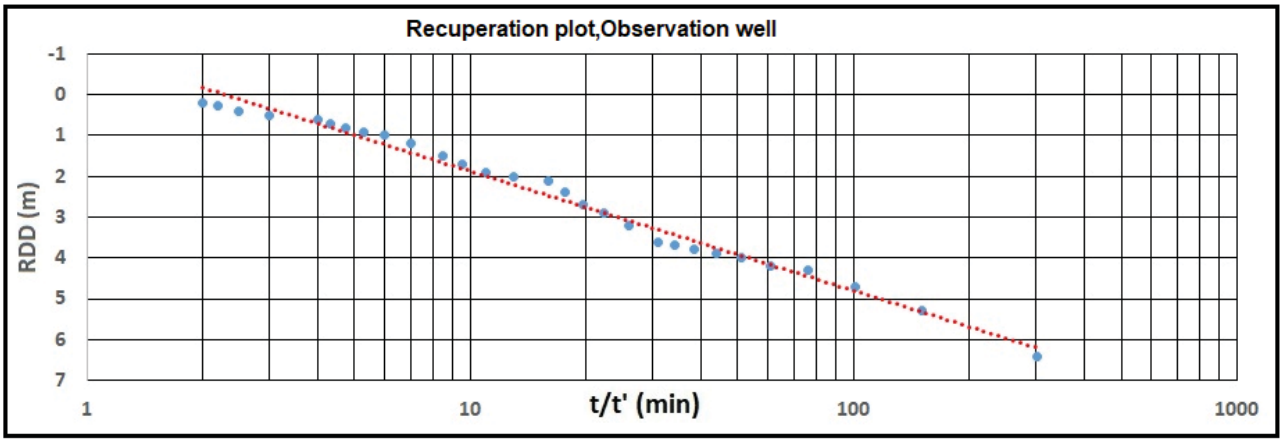


Formulae:

$T= 2.3Q/4\pi\Delta s$, K=T/b

On the basis of above formulae, the calculated parameters are as follows.

$T= 34.37\ m^2$/day, K=1.718 m/day



6. SURFACE GEOPHYSICAL SURVEY

Surface geophysical survey comprised of Ten Vertical Electrical Sounding (VES) have been conducted at ten different locations after S1 during the period 01.07.2020 to 11.07.2020 & 10.11.2022 to 15.11.2022 to know the subsurface condition in parts of Tilda block, Raipur district, Raipur, Chhattisgarh. The VES location is given in Fig No: 6.1.

6.1 Resistivity Survey:

Using Ohm's law electrical resistivity of sub-surface geologic formation is determined through artificially energizing the subsurface and carrying measurements on the ground surface. Contrast in resistivity value of an individual layer with the surrounding or effective presence (dependent of its relative resistivity and thickness) makes it detectable.

In the electrical resistivity method, a known amount of electrical current (I) is sent into the ground through a pair of electrode (called current electrodes) and the potential (δV) developed because of the resistance offered by the subsurface due to the passage of this current is measured across another pair of electrodes (potential electrodes) planted into the ground. The ratio between the potential measured and the corresponding current sent into the ground yields the resistance 'R' of the ground to a depth depending upon the spacing between the two current electrodes. Through the multiplication of this value of `R' by a geometric factor a parameter called the apparent resistivity "ρ_a" is computed. Both the parameters, apparent resistivity 'ρ_a' and the resistance 'R' contain the information on the geo-electric characteristics of the subsurface. In practice, there exist several configurations but most commonly used are the Wenner and Schlumberger configurations.

In this survey microprocessor based resistivity meter CRM-500 was used. For the present study Vertical Electrical Sounding (VES) have been carried out using Schlumberger configuration.Maximum spreads were 200m (AB) for sounding.

6.2 Vertical Electrical Sounding (VES)

VES is a process by which the depth investigation is made. In this, the center is fixed and the measurements are made by successively increasing the electrode spacing. The apparent resistivity values obtained with increasing values of electrode separations are used to estimate the thickness and resistivity's of the subsurface formations. In Schlumberger sounding arrangement (Figure-6), all the four electrodes are kept in a line symmetrically over a point '0', with inner (Potential) electrodes kept closer. For increasing the depth of investigation the current electrodes C_1 and C_2 are moved apart

symmetrically from the centre point `0' keeping the potential electrodes fixed. The separation between the potential electrodes is changed only when the potential between them drops to allow value during the course of sounding. The apparent resistivity for each electrode separation is calculated by multiplying the resistance `R' with Schlumberger configuration factor 'K' (which is called as geometrical factor).

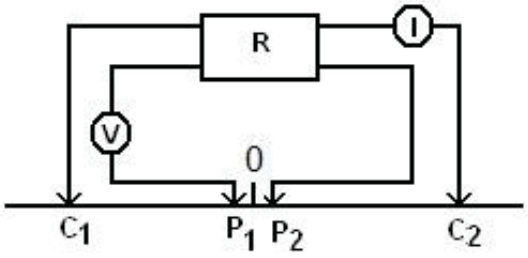


Fig 6.2 (A): Schlumberger electrode configuration

The formula is: $\rho_a = \pi R \{(C_1C_2/2)^2 - (P_1P_2/2)^2\} / P_1P_2$ or $\rho_a = KR$

Where 'K' is the geometric factor for Schlumberger configuration,

C_1C_2 is current electrode spacing

P_1P_2 is potential electrode spacing

Equipment

The geophysical methods are useful in constructing a picture of the subsurface hydrogeological conditions in totally virgin areas. It is based upon measurement of earth electrical properties. In the present study the resistivity surveys have been carried out by using Aquameter CRM 500 an indigenous microprocessor based Resistivity Meter (Fig.-6.2 B).

Aquameter CRM 500 is a high power version (40 Watt) which is useful for any type of soil specially preferred for low resistivity soil of the coastal region. It can penetrate current down to 500 meters. It is a popular instrument, because of its single button operation deep penetration, accurate and reliable result, even in adverse field conditions. The instrument has a facility to measure self-potential (SP) which is useful in mineral prospecting and environmental studies.

Fig 6.2 (B): Aquameter CRM 500

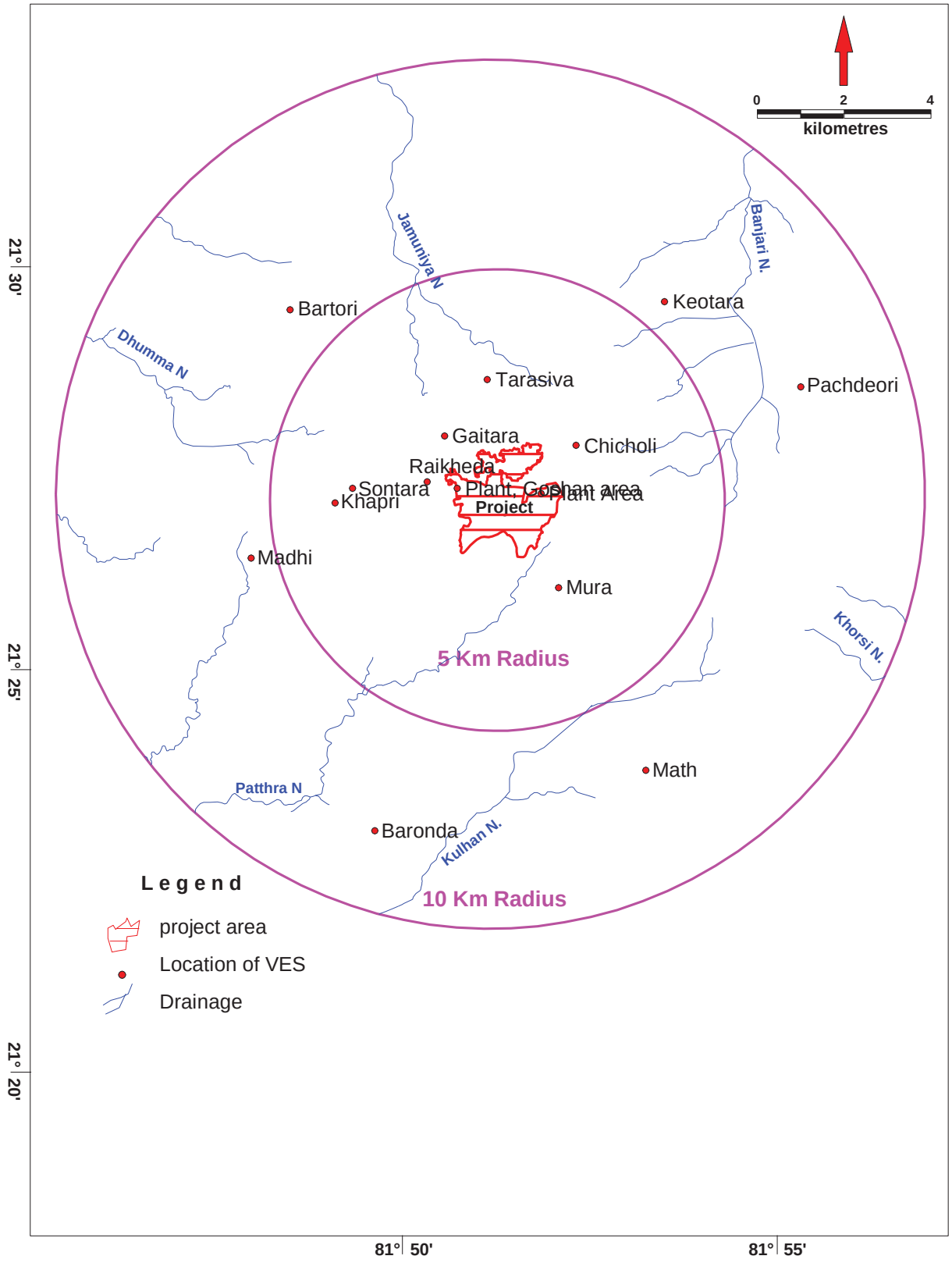


Fig-6.1: Location of VES

6.3 Data Analysis and Interpretation

Surface geophysical survey comprised of nine Vertical Electrical Sounding (VES) has been conducted at ten different locations during the period 01.07.2020 to 11.07.2020 & 10.11.2022 to 15.11.2022 to identify the subsurface condition of the study area. The observed resistance values from the instrument have been multiplied with geometric factor (K) to get the apparent resistivity values for each electrode spacing. The apparent resistivity values for different potential dipole were brought to single common potential dipole. The field apparent resistivity data were plotted on log-log graph paper against the half current electrode separation to get the VES curves (X axis-$C_1C_2/2$ value and Y axis apparent resistivity value).

These data of $C_1C_2/2$ and apparent resistivity were interpreted with the help of two layer master curve by curve matching technique and further checked with the help of IPI2WIN software. The final results were corroborated with the known hydrogeological conditions existing in the area. The geoelectric layer parameters (layer resistivity and layer thickness) were obtained for each VES. The interpreted results are given in the table 6.3.The field curves of VES are given in Fig 6.3, 6.4, 6.5 …….. 6.12 and the field data of VES are shown in Table 6.1 and 6.2.

6.4 Discussion of result

A total 15 numbers of VES has been carried out at various villages of the study area (Details of locations is given in fig.6.1). Aquameter CRM 500 Resistivity meter has been used for conducting the VES. Schlumberger and half Schlumberger configurations have been used for conducting the VES survey. The maximum current electrode spread for conducting VES was 240m (AB). Location of VES points are given below in fig.-6.1.

The data is plotted on double logarithmic graph paper and matched with standard curves to know the true resistivity and thickness of various layers. The data is also interpreted by Computer using IPI2WIN software to verify the results of partial curve matching. From interpreted results of VES the resistivity and thickness of different layers are given in table 6.3.

VES-1:

It is a HA type curve and it has four layer. The topmost layer having resistivity value of 112 Ω-m may be laterite whereas the second layer may be weathered limestone with resistivity of 23.5 Ω-m. The third layer may be fractured limestone with resistivity of 110 Ω-m while, the last layer may be massive

limestone having resistivity of 1405 Ω-m. The thickness of topmost layer was1.7 m and the second layer & third layer thickness were 5.4 and 4.8 m respectively.

VES-2:

It is also a HA type curve and it has four layer. The topmost layer having resistivity value of 50 Ω-m may be top soil whereas the second layer may be weathered limestone with resistivity of 10.5 Ω-m. The third layer may be highly fractured limestone with resistivity of 28 Ω-m while, the last layer may be massive limestone having resistivity of 235 Ω-m. The thickness of topmost layer was1.5 m and the second layer & third layer thickness were 18 and 16 m respectively.

VES-3:

It is also a HA type curve and it has four layer. The topmost layer having resistivity value of 215 Ω-m is lateritic soil whereas the second layer is weathered limestone with resistivity of 30 Ω-m. The third layer may be fractured limestone with resistivity of 125 Ω-m while, the last layer may be massive limestone having resistivity of 550 Ω-m. The thickness of topmost layer is 2.1 m and the second layer & third layer thickness were 14.3 and 10.4 m respectively.

VES-4:

It isa QH type curve and it has four layers. The topmost layer having resistivity value of 175Ω-m is lateritic soil whereas the second layer is weathered limestone with resistivity of 62 Ω-m. The third layer may be highly fractured limestone with resistivity of 16.5 Ω-m while, the last layer may be massive limestone having resistivity of 175 Ω-m. The thickness of topmost layer is 1.3 m and the second layer & third layer thickness were 5 and 32 m respectively.

VES-5:

It is also a QH type curve and it has four layer. The topmost layer having resistivity value of 170 Ω-m is lateritic soil whereas the second layer is weathered limestone with resistivity of 30 Ω-m. The third layer may be highly fractured limestone with resistivity of 14 Ω-m while, the last layer may be massive limestone having resistivity of 165 Ω-m. The thickness of topmost layer is 1.5 m and the second layer & third layer thickness were 4 and 16.5 m respectively.

VES-6:

It is also a QH type curve and it has four layers. The topmost layer having resistivity value of 105 Ω-m is lateritic soil whereas the second layer is weathered limestone with resistivity of 23 Ω-m. The third layer may be highly fractured limestone with resistivity of 13 Ω-m while, the last layer may be massive limestone having resistivity of 105 Ω-m. The thickness of topmost layer is 1.8 m and the second layer & third layer thickness were 2 and 18 m respectively.

VES-7:

It is also a QH type curve and it has four layers. The topmost layer having resistivity value of 245 Ω-m is lateritic soil whereas the second layer is weathered limestone with resistivity of 78 Ω-m. The third layer may be highly fractured limestone with resistivity of 19 Ω-m while, the last layer may be massive limestone having resistivity of 220 Ω-m. The thickness of topmost layer is 1.8 m and the second layer & third layer thickness were 3.5 and 16 m respectively.

VES-8:

It is a HA type curve and it has four layer. The topmost layer having resistivity value of 115 Ω-m is lateritic soil whereas the second layer is weathered limestone with resistivity of 17 Ω-m. The third layer may be fractured limestone with resistivity of 120 Ω-m while, the last layer may be massive limestone having resistivity of 285 Ω-m. The thickness of topmost layer is 1.5 m and the second layer & third layer thickness were 8.5 and 11.3 m respectively.

VES-9:

It is also a HA type curve and it has four layer. The topmost layer having resistivity value of 50 Ω-m is top soil whereas the second layer is weathered limestone with resistivity of 22.5 Ω-m. The third layer may be fractured limestone with resistivity of 30 Ω-m while, the last layer may be limestone having resistivity of 65 Ω-m. The thickness of topmost layer is 1.3 m and the second layer & third layer thickness were 10.6 and 21.2 m respectively.

VES-10:

It is also a QH type curve and it has four layers. The topmost layer having resistivity value of 75 Ω-m is lateritic soil whereas the second layer is weathered limestone with resistivity of 38 Ω-m. The third layer may be highly fractured limestone with resistivity of 12.5 Ω-m while, the last layer may be massive limestone having resistivity of 160 Ω-m. The thickness of topmost layer is 2.8 m and the second layer & third layer thickness were 2.5 and 8.2 m respectively.

6.5 Conclusions & Recommendations

From the interpretation of resistivity survey we got the following outcome.

The thickness of lateritic topsoil varies from 1.3 meter to 2.8 meters with resistivity range from 50Ω-m to 245 Ω-m.

The thickness of weathered formation varies from 2.0 meter to 14.3 meters and the resistivity range is 10.5 Ω-m to 78 Ω-m.

Third layer mostly indicates fracture zones and the thickness of this layer varies from 4.8 meters to 23.2 meters and resistivity range is 13Ω-m to 125 Ω-m.

The last layer is massive formation which shows high electrical resistivity with the range of 65 Ω-m to 550 Ω-m.

Table-6.1: VES Data

VES 1		VES 2		VES 3		VES 4		VES 5	
Location: Mura		**Location: Chicholi**		**Location: Bartori**		**Location: Tarsiva**		**Location: Baronda**	
Latitude: N21°26' 17.52"		Latitude: N21°27' 46.93"		Latitude: N 21° 29' 27.83"		Latitude: N 21° 28' 35.50"		Latitude: N 21° 23' 04.37"	
Longitude: E 81° 52' 04.72"		Longitude: E 81° 52' 19.08"		Longitude: E 81° 48' 29.82"		Longitude: E 81° 51' 08.38"		Longitude: E 81° 49' 37.50"	
Date:		Date:		Date:		Date:		Date:	
Altitude: 303 m		Altitude: 314m		Altitude: 299m		Altitude: 310m		Altitude: 286m	
AB/2	**App. R**	**AB/2**	**App. R**	**AB/2**	**App. R**	**AB/2**	**App. R**	**AB/2**	**App. R**
2	98.69	2	37.57	2	205.53	2	268.75	2	224.69
3	74.32	3	34.38	3	153.85	3	179.55	3	174.34
4	58.50	4	26.14	4	121.97	4	127.57	4	131.31
5	47.81	5	19.52	5	94.65	5	92.70	5	102.46
6	38.02	6	15.49	6	76.03	6	70.40	6	76.03
8	32.60	8	12.54	8	52.67	8	45.14	8	42.64
10	35.30	10	11.77	10	43.14	10	62.76	10	23.53
12	39.68	12	11.70	12	35.78	12	47.75	12	15.25
14	44.12	14	11.77	14	35.53	14	36.38	14	11.77
16	48.26	16	11.23	16	33.31	16	31.04	16	10.30

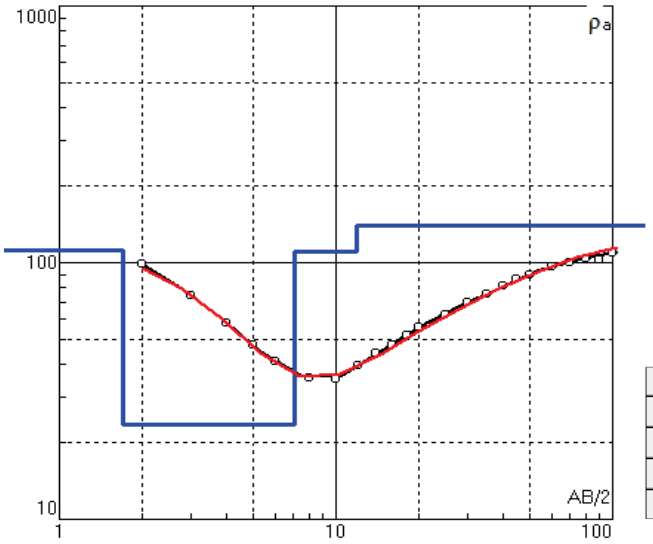
18	53.93	18	12.48	18	36.66	18	30.31	18	11.77
20	57.64	20	11.03	20	38.38	20	26.26	20	12.94
25	66.60	25	13.84	25	49.25	25	23.53	25	15.65
30	68.64	30	14.98	30	55.27	30	16.98	30	18.91
35	77.90	35	15.40	35	67.37	35	19.62	35	23.34
40	80.94	40	16.85	40	77.37	40	21.39	40	26.26
45	81.14	45	18.40	45	77.20	45	22.17	45	27.79
50	80.33	50	20.12	50	86.85	50	24.70	50	30.57
60	96.70	60	23.71	60	112.90	60	24.77	60	40.84
70	92.30	70	27.12	70	119.75	70	31.08	70	46.66
80	94.23	80	30.40	80	136.21	80	34.26	80	52.90
90	102.56	90	34.84	90	159.66	90	37.29	90	60.10
100	116.34	100	38.45	100	148.19	100	41.02	100	67.08

Table-6.2: VES Data

VES 6		**VES 7**		**VES 8**		**VES 9**		**VES 10**	
Location: Raikheda		**Location: Math**		**Location: Sontara**		**Location: Plant Area (Pump House)**		**Location: Plant Area (Goshan Area)**	
Latitude: N 21° 27' 19.50"		Latitude: N 21° 23' 44.91"		Latitude: N 21° 27' 15.25"		Latitude: N 21° 27' 10.55"		Latitude: N 21° 27' 15.19'	
Longitude: E 81° 50' 20.11"		Longitude: E 81° 53' 14.98"		Longitude: E 81° 49' 20.11'		Longitude: E 81° 51' 50.69"		Longitude: E 81° 50' 43.66"	
Date:		Date:		Date:		Date:		Date:	
Altitude: 311m		Altitude: 302m		Altitude: 301m		Altitude: 305m		Altitude: 308m	
AB/2	**App.**	**AB/2**	**App.**	**AB/2**	**App.**	**AB/2**	**App.**	**AB/2**	**App. R**
2	171.12	2	211.86	2	232.99	2	33.80	2	72.88
3	134.06	3	169.14	3	143.43	3	26.74	3	69.46
4	102.06	4	143.13	4	98.95	4	25.51	4	67.83
5	72.21	5	121.00	5	63.43	5	24.40	5	58.55
6	50.69	6	101.38	6	45.06	6	25.34	6	52.10
8	27.59	8	67.72	8	35.11	8	27.59	8	40.13
10	19.61	10	50.99	10	39.22	10	27.46	10	35.30

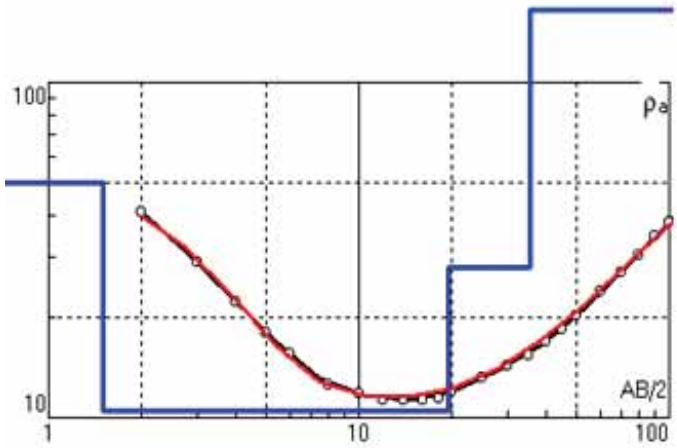
12	14.79	12	36.15	12	37.01	12	26.69	12	28.96
14	16.23	14	28.33	14	41.53	14	28.29	14	26.47
16	15.98	16	24.17	16	45.42	16	28.39	16	25.10
18	14.88	18	21.24	18	49.99	18	33.28	18	26.96
20	17.02	20	21.32	20	57.10	20	30.33	20	27.30
25	19.25	25	23.82	25	59.70	25	25.21	25	28.54
30	20.20	30	28.42	30	79.67	30	26.08	30	34.32
35	20.52	35	31.89	35	84.98	35	27.18	35	39.22
40	22.44	40	36.74	40	97.20	40	26.76	40	41.18
45	23.94	45	43.11	45	101.17	45	26.83	45	45.76
50	25.39	50	48.23	50	116.43	50	28.03	50	48.53
60	29.54	60	59.11	60	133.82	60	28.77	60	58.42
70	34.73	70	69.09	70	157.82	70	29.06	70	63.73
80	36.15	80	81.91	80	177.55	80	30.16	80	62.74
90	39.92	90	91.63	90	201.04	90	32.67	90	66.39
100	44.46	100	101.13	100	209.26	100	33.46	100	65.72

Table-6.3: Interpreted Results of VES							
VES No	Layer Resistivity(in Ohm-m)				Layer Thickness(in m)		
	ρ_1	ρ_2	ρ_3	ρ_4	h_1	h_2	h_3
VES-1	112	23.5	110	140	1.7	5.4	4.8
VES-2	50	10.5	28	235	1.5	18.0	16.0
VES-3	215	30	125	550	2.1	14.3	10.4
VES-4	175	62	16.5	175	1.3	5.0	32.0
VES-5	170	30	14	165	1.5	4.0	16.5
VES-6	105	23	13	105	1.8	2.0	18.0
VES-7	245	78	19	220	1.8	3.5	16.0
VES-8	115	17	120	285	1.5	8.5	11.3
VES-9	50	22.5	30	65	1.3	10.6	21.2
VES-10	75	38	12.5	160	2.8	2.5	8.2



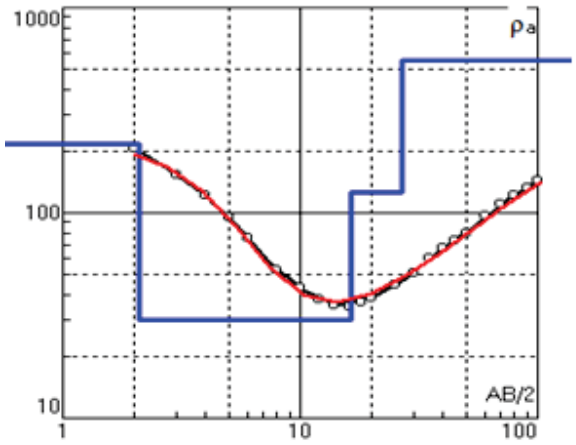
N	ρ	h	d
1	112	1.7	1.7
2	23.5	5.4	7.1
3	110	4.8	11.9
4	140		

Fig-6.3: VES Curve and interpreted results at Mura (VES 1)



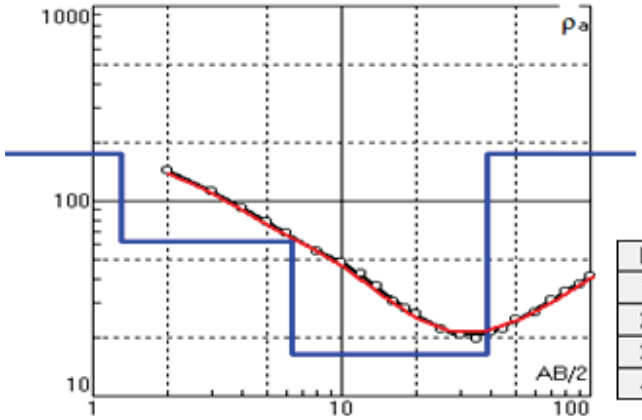
N	ρ	h	d
1	50	1.5	1.5
2	10.5	18	19.5
3	28	16	35.5
4	235		

Fig-6.4:VES Curve and interpreted results at Chicholi (VES 2)



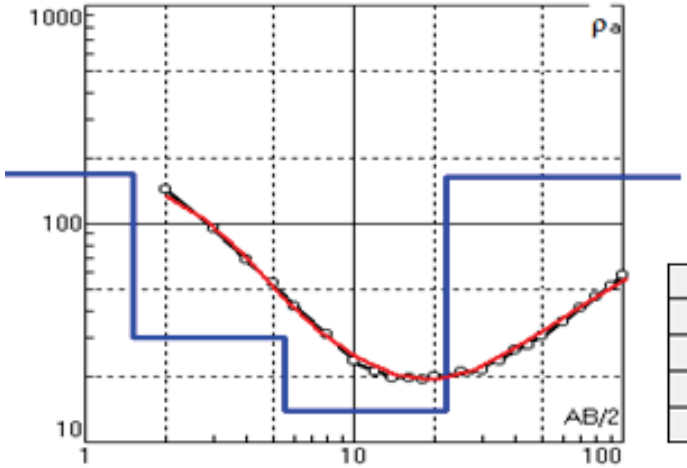
N	ρ	h	d
1	215	2.1	2.1
2	30	14.3	16.4
3	125	10.4	26.8
4	550		

Fig-6.5: VES Curve and interpreted results at Bartori (VES 3)



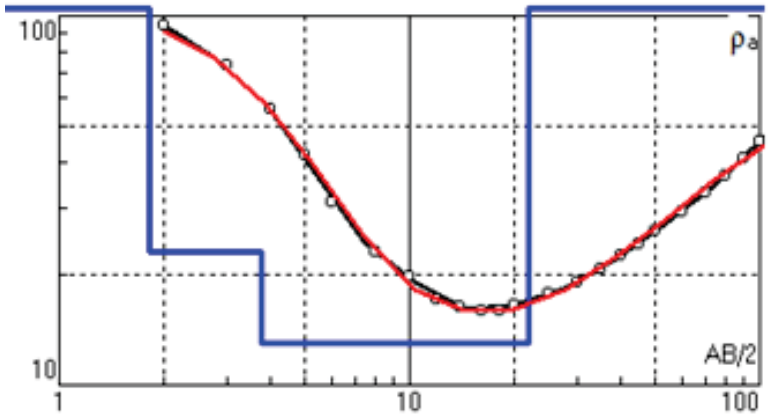
N	ρ	h	d
1	175	1.3	1.3
2	62	5	6.3
3	16.5	32	38.3
4	175		

Fig-6.6: VES Curve and interpreted results at Tarsiva (VES 4)



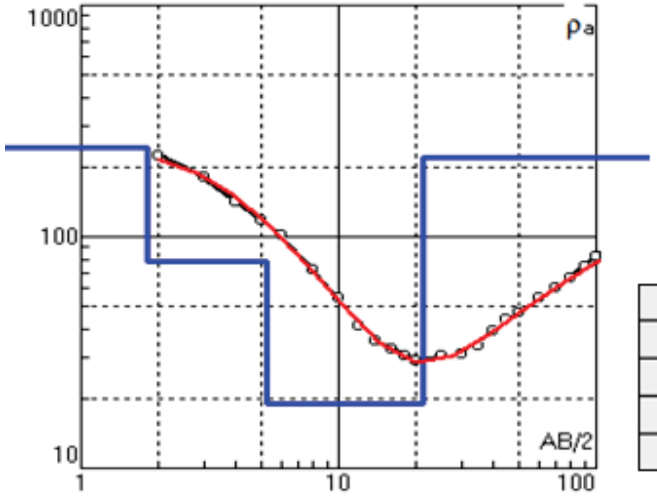
N	ρ	h	d
1	170	1.5	1.5
2	30	4	5.5
3	14	16.5	22
4	165		

Fig 6.7: VES Curve and interpreted results at Baronda - (VES 5)



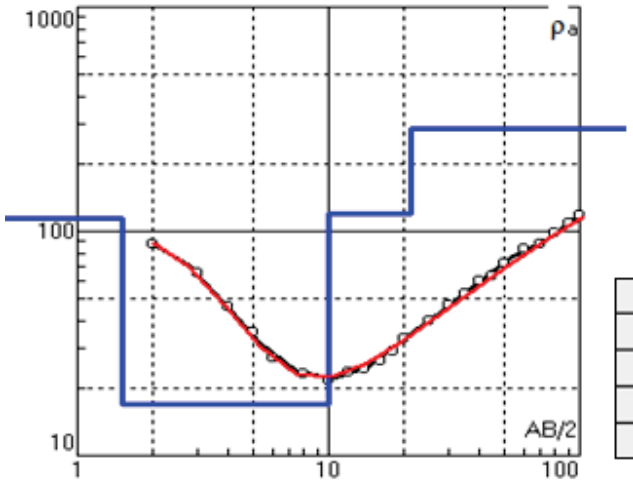
N	ρ	h	d
1	105	1.8	1.8
2	23	2	3.8
3	13	18	21.8
4	105		

Fig-6.8: VES Curve and interpreted results at Raikheda - (VES 6)



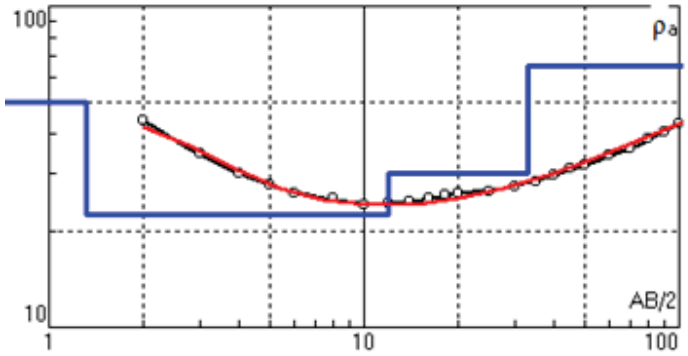
N	ρ	h	d
1	245	1.8	1.8
2	78	3.5	5.3
3	19	16	21.3
4	220		

Fig-6.9: VES Curve and interpreted results at Math(VES 7)



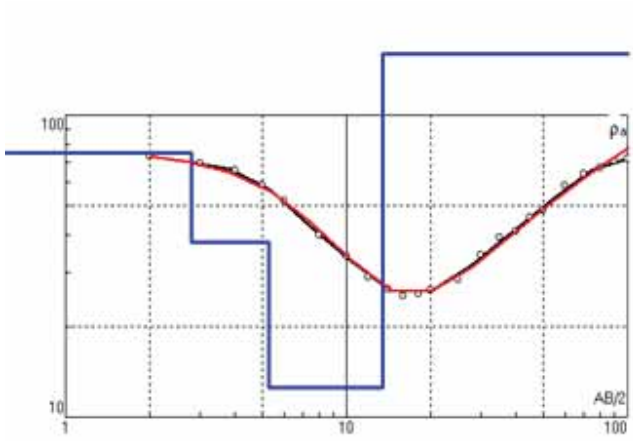
N	ρ	h	d
1	115	1.5	1.5
2	17	8.5	10
3	120	11.3	21.3
4	285		

Fig-6.10: VES Curve and interpreted results at Sontara(VES8)



N	ρ	h	d
1	50	1.3	1.3
2	22.5	10.6	11.9
3	30	21.2	33.1
4	65		

Fig-6.11: VES Curve and interpreted results at Plant Area (Pump House)(VES 9)



N	ρ	h	d
1	75	2.8	2.8
2	38	2.5	5.3
3	12.5	8.2	13.5
4	160		

Fig-6.12: VES Curve and interpreted results at Plant Area (Goshan Area) (VES10)

FIG 6.13: PHOTOGRAPHS OF GEOPHYSICAL SURVEY IN VARIOUS VILLAGES IN STUDY AREA

7. GROUND WATER RESOURCES

The ground water resources for the study area were assessed as per methodology recommended by ground water estimation committee'2015. The resources were calculated by Infiltration method due to non-availability of long term water level data and fluctuation in the area. The rain fall recharge was calculated by Rainfall Infiltration method. Domestic water requirement has been estimated based on population as per Census 2011 by taking the average per capita consumption as 60 liter per day by considering 100% dependence of total population on ground water. The ground water draft for irrigation was calculated from number of ground water abstraction structure.

7.1: GROUND WATER RECHARGE:

a) Total geographical area in ha. = 31400

b) Area not suitable for ground recharge in ha. =Nil

c) Area suitable for ground recharge in ha. =31400

d) Average water level:

Pre-monsoon = 6.81mbgl.

Post-monsoon = 1.88mbgl.

e) Normal annual rain fall = 1.04 m.

f) Normal monsoon rain fall = 0.88 m.

g) Normal non monsoon rain fall = 0.16 m

h) Ground Water Recharge by rain fall infiltration method - The rain fall infiltration factors for different formations have been taken as those recommended by GEC 2015 .The equation used for computation of recharge is

$R_{rf} = NAR \times A \times RFI$

Where,

R_{rf}= Recharge from rainfall

NAR = Normal annual rain fall

A = Area of the unit in ha

RIF = Rain fall infiltration factor

Recharge from rainfall = 1.04 × 31400 × 0.06

= 1959.36 ham.

Return seepage from surface water irrigation

Crop type	Area irrigated (ha)	Average depth of water applied (m)	Irrigation water applied (ham)	Water delivered at 80% efficiency	Seepage factor	Seepage (ham)
Paddy	3239	0.4	1295.6	1619.5	0.4	647.8

i) Seepage from tanks/ ponds

No of tanks = 278

Total water spreaded area in ha = 1570

Seepage factor (m/year) = 0.6

Total non monsoon seepage (ham) = 942

j) Annual ground water recharge =

Rainfall recharge + Seepage from irrigation + Recharge from tanks/ponds

= 1959.36+ 647.8 + 942

= 3549.16 ham

K) Annual Extractable Ground Water Recharge

Annual Extractable Ground Water Rechargehas been computed by deducting the unaccounted natural discharge from the total annual recharge as per the criteria recommended by GEC'2015.In the study area 10% of replenishable ground water is considered to deduct from total recharge as it goes as base flow.

Annual Extractable Ground Water Recharge= Total annual recharge- Base flow

= 3549.16 ham – 354.9 ham

= 3194.26 ham

7.2: ANNUAL GROUND WATER EXTRACTION:

7.2.1: Domestic purposes:

Water draft has been estimated based on population. The average per capita consumption has been taken as 60 liters per day by considering 100% dependence on the ground water. The total annual demand is calculated as follows

Total annual demand in ham = Population × 60 × 365 /1000 × 1000

= 90074× 60 × 365 / 1000 × 1000

= 197.26 ham

7.2.2: Ground water draft for irrigation:

Ground water draft for irrigation was calculated from number of ground water abstraction structures present in the area.

Ground water structure	No of G W structure	Unit draft in ham	Gross extraction in ham
Dug wells	520	1.0	520
Tube wells	500	2.0	1000

7.3: Ground water balance (ham) :

= Annual Extractable Ground Water Recharge – Gross ground water extraction

= 3194.26 ham-1717.26 ham

= 1477.0 ham

From the above it may be seen that the balance ground water resources in the area is of the order of 1477 ham

7.4: Stage of ground water Extraction:

= Gross ground water extraction × 100/Annual extractable ground water recharge

= 1717.26 *100/3194.26= **53.76 %**

According to recommended methodology stage of ground water extraction below 70% is considered safe under all circumstances whereas stage of extraction up to 90% is considered safe, if the long-term water levels do not show any declining trends. So the present study area is come in “SAFE” category.

8. ARTIFICIAL RECHARGE AND RAIN WATER HARVESTING

Artificial recharge to ground water through scientifically designed structures has been proven as a viable option for augmentation of ground water resources. It also provides an opportunity to utilize the surplus monsoon run-off which otherwise lost to sea unutilized.

Artificial recharge aims at augmenting the natural replenishment of ground water storage by some method of construction, spreading of water, or by artificially changing natural conditions. It is useful for reducing overdraft, conserving surface run-off, and increasing available ground water supplies. Recharge may be incidental or deliberate, depending on whether or not it is a by-product of normal water utilization. Artificial recharge is becoming increasingly necessary to ensure sustainable ground water supplies to satisfy the needs of a multi-pronged demand. The benefits of artificial recharge can be both tangible and intangible.

The concept of rainwater harvesting involves 'tapping the rainwater where it falls'. A major portion of rainwater that falls on the earth's surface runs off into streams and rivers and finally into the sea. The technique of rainwater harvesting involves collecting the rain from localized catchment surfaces such as roofs, plain/sloping surfaces etc., either for direct use or to augment the ground water resources depending on local conditions. Construction of small barriers across small streams to check and store the running water also can be considered as water harvesting.

During monsoon season, whatever rainwater is collected in the premises of project area, i.e. through, Building/roof area, Road/Paved area, Green belt area and Open land will be utilized to recharge the ground water. It is proposed to implement rain water harvesting structures at feasible, viable and sustainable location, catchment wise by diverting the runoff that is generated from the roof area, paved area, roads and green belt area for recharging into the specified recharge structure for putting into ground water system. The runoff generated from the two catchments needs to be suitably diverted through storm water drains to the recharge structures in order to augment the ground water. Overflow water from recharge structures is to be stored into two proposed ponds to be constructed at the western fringe of the plant area as a water conservation measures. Special care needs to be taken for locating the recharge structures and water conservation storage ponds so that the ground water augmentation as well as conservation is optimal. Implementation of water conservation structures and recharge mechanism shall ensure the balance between the discharge vis-à-vis recharge relationships of the aquifer system and provide the sustainable ground water supply. Based on the site plan and the land

use pattern of the project area, the computation of runoff for each unit has been worked out and the details are tabulated below.

Total Area available for recharge – **3439950 sq.m.**

Rainfall – 1145 mm. (60-65 rainy days)

Formations –Laterite and Limestrone.

A. Runoff Available for Recharge:

S. N.	Land use type	Area (m^2)	Rainfall (m)	Amount of water that received Through Rain (Cub meter)	Co-efficient of runoff	Quantity of Rainwater (m^3)
1.	Building/ sheds	1719975	1.14	1960771.5	0.85	1666655.77
2.	Green belt area Approx.	1133160	1.14	1291802.4	0.15	193770.36
3.	Open land area	343995	1.14	392154.3	0.20	78430.86
4.	Road area	242820	1.14	276814.8	0.65	179929.62
5.	Total Area	**3439950**	……	……	…….	**2118786.61**
6.	Assuming 10% is not Suitable for recharge, hence available quantum of Rain water for Recharge is about **1906907.95m^3** [90% **2118786.61 m^3**]					

From the above, it is observed that a total potential of **1906907.95** cum of rainfall runoff can be harvested at feasible, viable and sustainable location annually.

B. Estimation of Peak Rain fall Runoff:

Sr. No.	Type of land-use	Area [in m^2]	Peak Rainfall [in m/ hour]	Coefficient of runoff	Rain water collected [in m^3/ hour]	Runoff for 15 min peak intensity (Cu.Mtr)
1.	Building/ sheds	1719975	0.035	0.85	51169.25	12792.31
2.	Green belt area	1133160	0.035	0.15	5949.09	1487.27
3.	Open land area	343995	0.035	0.20	2407.96	601.99
4.	Road area	242820	0.035	0.65	5524.15	1381.03
5.	Total Area	**3439950**	---	…….		16262.6
6.	Assuming 10% is not suitable for recharge, hence available quantum of Rain water for recharge is about **14636.34 m^3**[90% of **16262.6 m^3**]					

Details of Rain water Harvesting Structure Implemented in plant Premises:

Sl No	Name of Structure	Length (In Mtr)	Width (In Mtr)	Depth (In Mtr)	Total Area (In M^3)
1	**Recharge Pond**	**70**	**55**	**10**	**38500**
2	**Recharge Pond**	**48**	**46**	**10**	**22080**

Total recharge potential is received from plant premises is diverted to Recharge pond to recharge the ground water level in the plant premises.

Plant Complex area:

The main interest in rainwater harvesting methods is the collecting and conserving rainwater at an early stage in the water cycle to ensure the best use of rainfall before it runs away into rivers and groundwater, or disappears as evaporation. The appropriate choice of rainwater harvesting and artificial recharge techniques depends on the amount of rainfall and its distribution, land topography, soil type, vadose zone thickness and its hydraulic characteristics, depth and type of aquifers, hydraulic parameters of aquifer systems, source and quality of recharge water, and socio-economic factors, among others; these factors tend to be location specific.

Thus, the selection of water harvesting structures and artificial recharge methods strongly depends on local conditions, which calls for proper scientific investigations prior to the design and execution of artificial recharge and/or rainwater harvesting schemes. Water harvesting methods include such widely differing practices as 'roof top water harvesting', 'land surface water harvesting' and 'groundwater harvesting'. On the other hand, a variety of methods have been developed to artificially recharge groundwater and mostly of combinations of direct surface, direct subsurface or indirect recharge techniques. Commonly used artificial recharge techniques, however, are through drainage canals, from surface water bodies like ponds and lakes, recharge through pits/shafts and tube wells/ bore wells etc.

The increasing stress on ground water needs, preventive measures like rain water harvesting structures and recharge measures are to be taken. It has been found that the plant areas of M/S Raipur Energen Limited offers enough scope and options for rain water harvesting and recharge measures. In view of this, detailed topographical, hydro-geological and hydrological study has been undertaken in the area, so as to formulate a comprehensive recharge plan outlining measures with recommended site specific designs for rain water conservation and recharge measures along with the implementing modalities.

Since, the selection and design of artificial recharge and water harvesting structures are highly dependent on the local feasible and suitable conditions and the availability of local materials for their construction. A successful design of artificial recharge and rain water harvesting structures necessitates proper understanding of hydrology and hydro-geology of the project area.

percolation pits may be with dimension as 1 m (length) x 1 m (width) x 2 m (depth) with 8" dia. injection well of 90 m depth having 8" plain pipe up to 6 m depth Thereafter, 7" dia. necked borehole

in rock may be made up to 84 m depth by DTH drilling machine. Each structure made at minimum spacing of 100 m may be made capable of recharging 195 m^3/day by each pit. The inlet of the structure may be kept 1 m above pond bed leaving, 1 m water column for settlement of silt/dust etc. The annual cleaning/ removal of silt/ dust from the pond bed are suggested before monsoon for efficient working of system. We have already two no's of Recharge pond to recharge the ground water of the study area.

Photographs of Rain water harvesting Structure in Plant Premises:

RECHARGE PIT: On the bed of recharge pit of 1.5m x 1.5m x1.50m will be constructed as per design of pit given in **Figure 8.1.**

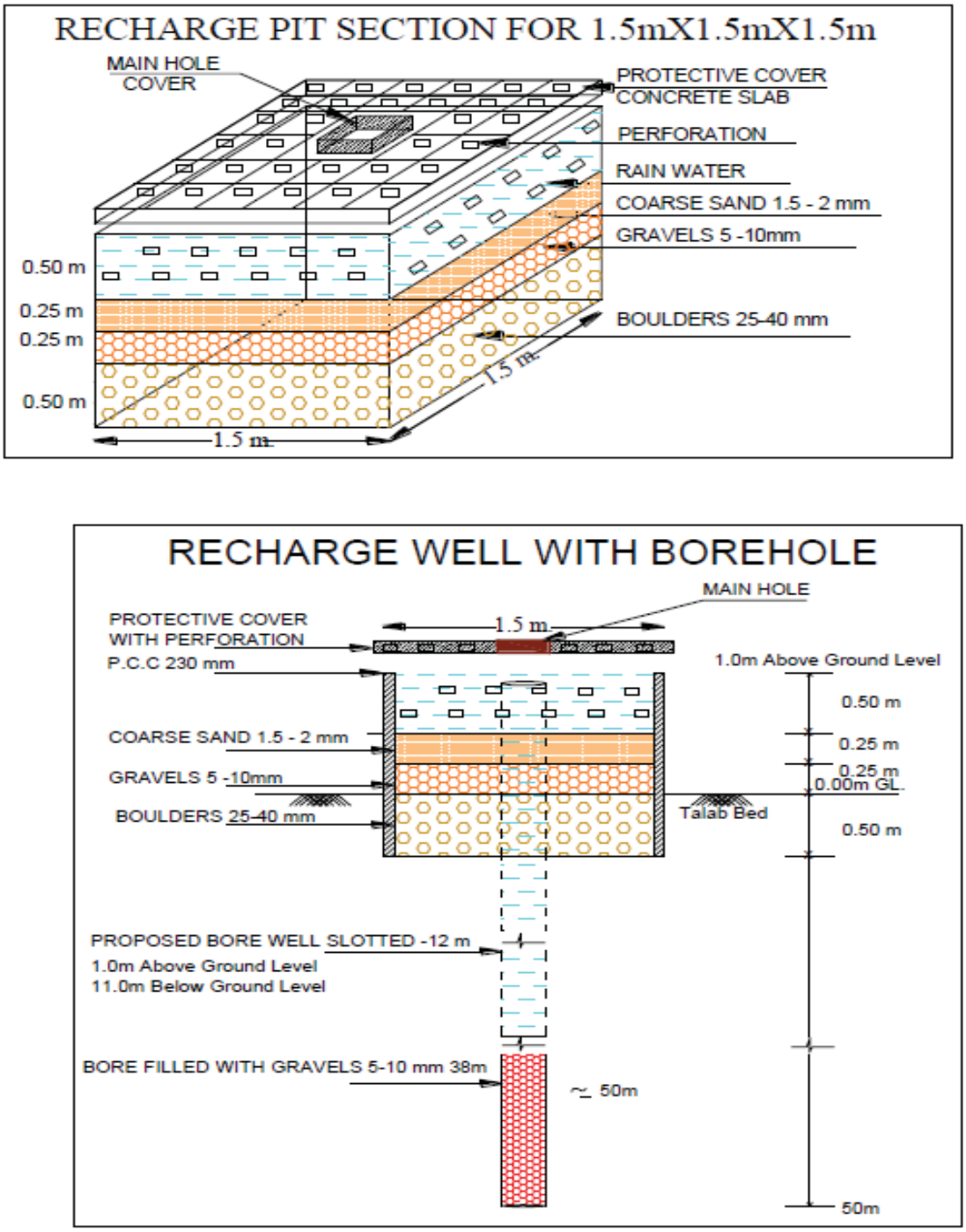


Fig 8.1 Recharge pit with bore well

BOREWELLDESIGN:

The depth of each new bore well will be 90m.The depth of bore well will be 90m below ground level and one meter above ground level that is pit bed. The diameter of bore well will be 150 mm. The cased portion will be top 06 meter and remaining 84 m will be uncase filled with gravel.

The casing of bore wells are slotted down to the depth of 6.00 m. the upper portion of casing above bottom of recharge pit is only 1.00m.This portion will be circumference with coir rope so that entry of fine sand and sl it can be avoided. The top of casing should be capped with stain less steel wire mesh so that clear water can be recharged directly without any floating particle. The relevant design is placed **Figure 8.2**

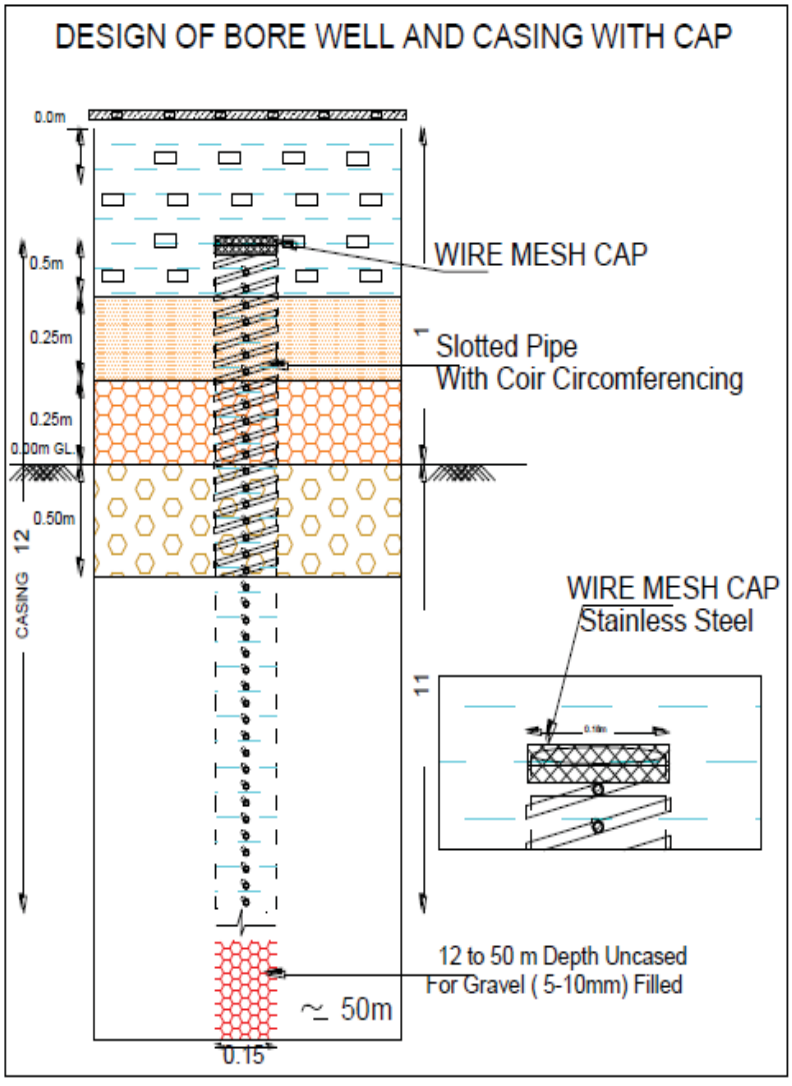


Fig 8.2: Bore well design

COVER TO RECHARGE PIT:

The cover for recharge pit is essential. The rain water harvesting is proposed to catch monsoon months. The recharge pit cover also safe guards the external pollutant like leaf and other local material. It is strongly recommend covering recharge pit by concrete slab with perforation. The design of recharge pit cover is exhibited in design at **Figure No 8.3.**

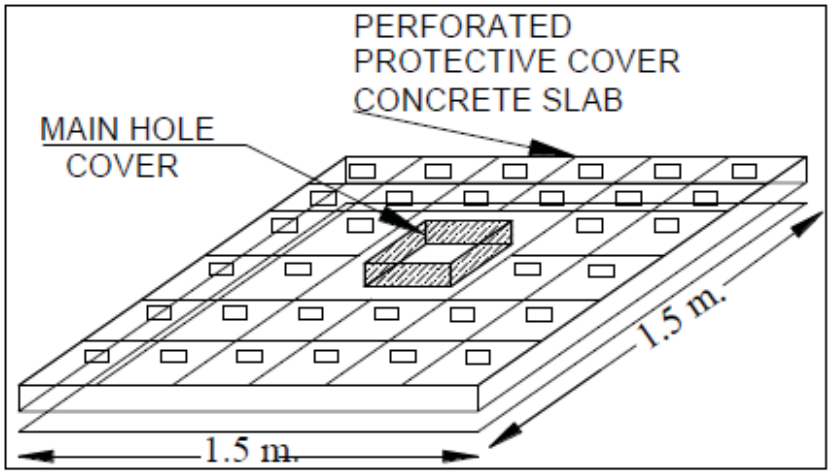


Fig 8.3 Design of recharge pit cover

SIDEWELLOFRECHARGEPIT:

The all four side wall of recharge pit will be perforated down to the depth of 0.50 m from top. The area occupied by perforated portion is in clear water above filter media filling. The design of recharge pit wall is given in **Figure8.4**

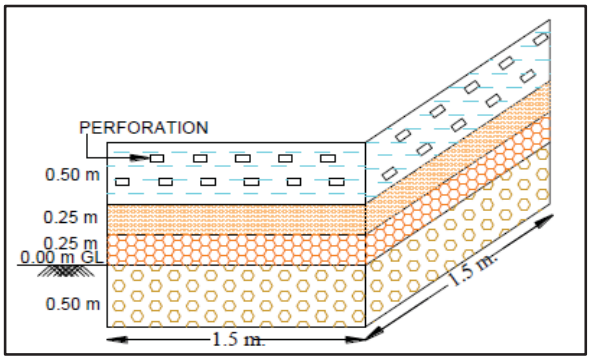


Fig 8.4 Perforation in side wall of recharge pit

9. GROUND WATER QUALITY

The suitability of ground water for drinking/irrigation/industrial purposes is determined keeping in view the effects of various chemical constituents present in water on the growth of human being, animals, and various plants and also on industrial requirement. However, many ions are very essential for the growth of plants and human body but when present in excess, have an adverse effect on health and growth. For estimation of the quality of ground water, 15 ground water & Surface Water samples have been collected from 10 k.m. radius area. The ground water samples were analyzed for major as well as heavy chemical constituents. The ranges of different chemical constituents present in ground water are given in Table 9.1 and details are given in **Annexure I** and location of water sampling is given in **fig 9.1**.

Table 9.1: Aquifer wise ranges of chemical constituents

SN	Parameters	Prescribed limits as per IS 10500 2012		Observed value	
		Desirable limit	**Permissible limit**	**Min**	Max
1	PH Value	6.5-8.5	No relaxation	6.98	7.98
2	Turbidity (NTU)	1	5	0.22	6.3
3	Total Disolved Solid (mg/l)	500	2000	100	700
4	Total Hardness (as Caco3) (mg/l)	200	600	108	512
5	Calcium (Ca) (mg/l)	75	200	33.66	147.49
6	magnesium (As mg) (mg/l)	30	100	0.97	58.32
7	chloride (As Cl) (mg/l)	250	1000	20.27	141.94
8	Fluride (as F) (mg/l)	1	1.5	0.05	2.98
9	Sulphate as So4	200	400	3	115
10	Iron as Fe	0.3	No relaxation	<0.1	0.03
11	Nitrate (As No3) (mg/l)	45	No relaxation	<1	2.2
12	Sodium (Na) (mg/l)			4	28
13	Potasium (K) (mg/l)			1	12

SN	Parameters	Prescribed limits as per IS 10500 2012		Observed value	
		Desirable limit	Permissible limit	Min	Max
14	manganese as Mn	0.1	0.3	<0.1	<0.1
15	Barium as Br	0.7	No relaxation	<0.7	<0.7
16	Copper (as Cu) (mg/l)	0.05	1.5	<0.05	<0.05
17	Aluminium as Al	0.03	0.2	<0.03	<0.03
18	Lead as Pb	0.01	No relaxation	<0.01	<0.01
19	Silver as Ag	0.1	No relaxation	<0.1	<0.1
20	Boron as B			<0.1	<0.1
21	Arsenic as As			<0.1	<0.1
22	Chromium as Cr			<0.1	<0.1
23	Carbonate Hardness			27.306	235.06
24	Bi-carbonate as Hardness			40.262	349.72

According to above table, majority of chemical constituent of all samples are within permissible limit and suitable for drinking, irrigation and industrial use, fluoride contamination is observed only at Bottom Ash Pond 02, Plant Area may be due to ash, and Iron concentration is slightly higher in all sample due to leaching of iron from laterite. Higher concentration of Mn observed at Mohrenga village and Mg contamination observed at Mura. Rest of the parameters is within permissible limit.

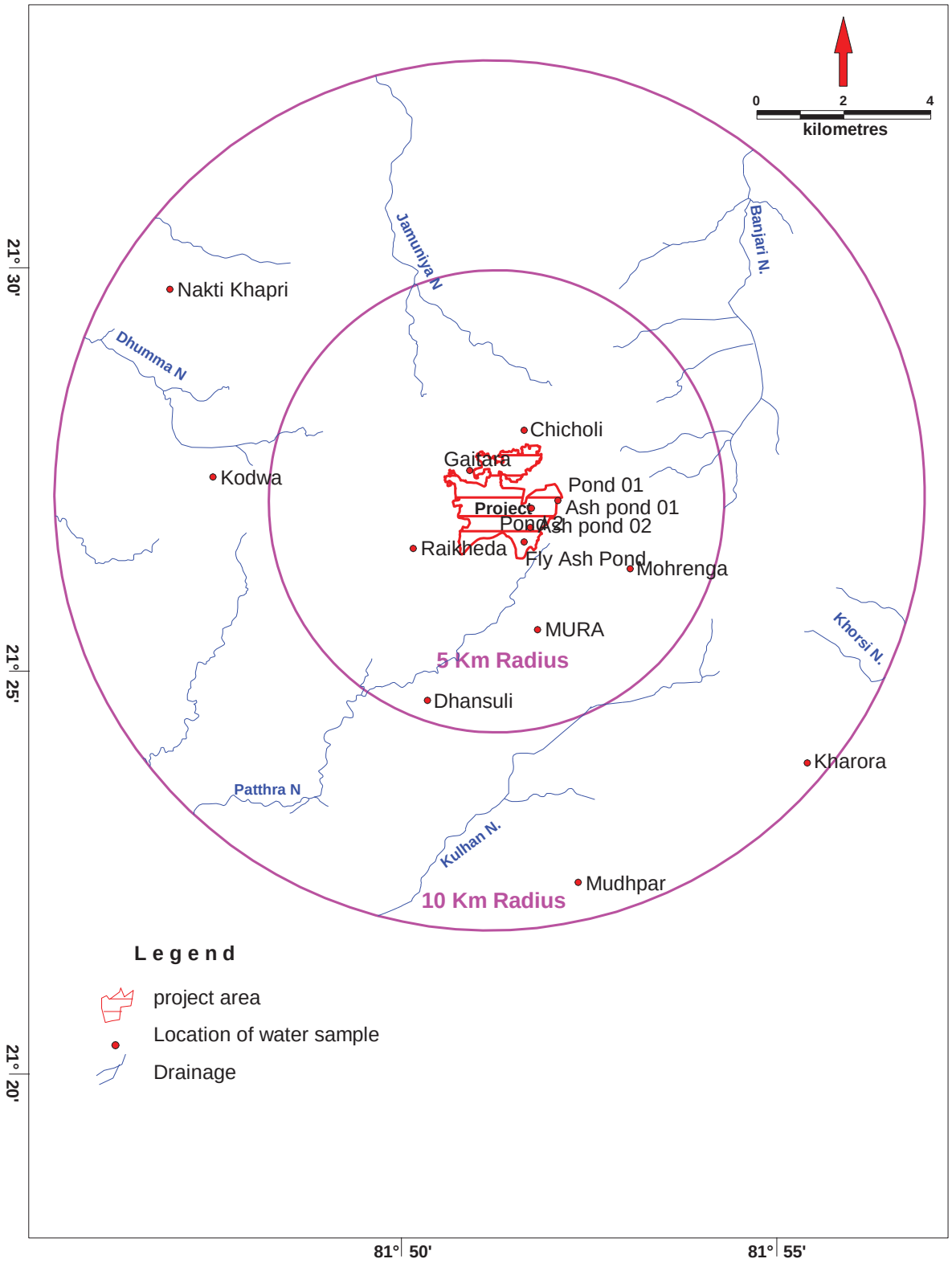


Fig-9.1: Location of water sampling

9.1 GEOCHEMICAL CLASSIFICATION OF GROUND WATER

The geochemical classification of ground water, of study area has been carried out by using Piper Diagrams the ground water is of Ca/Mg/Na-HCO_3 Cl type. The analysis of ground water samples collected from the area suggests that type of water in the major part is bicarbonate dominating type, **Table 9.2.** The type of ground water found in each ground water sample collected is given in the **Table 9.2**.

Table 9.2: The type of ground water

S. N	Sample ID	Village	X	Y	Elevation (m(asl)	Water Type
1	SW1	Reservoir Pond 01	81.86806	21.45194	295	Ca-HCO3-Cl
2	SW2	Reservoir Pond 2	81.86194	21.45027	296	Mg-Ca-HCO3-Cl
3	SW3	Ash pond 01	81.86222	21.45028	298	Ca-Mg-HCO3-Cl
4	SW4	Ash pond 02	81.86195	21.44639	299	Ca-Mg-Cl-HCO3-SO4
5	SW5	Fly Ash Pond	81.86056	21.44333	293	Ca-Mg-Cl-SO4
6	SW6	Raikheda	81.83593	21.44197	290	Ca-Mg-HCO3
7	SW7	Chicholi	81.8606	21.4664	310	Ca-Mg-HCO3-Cl
8	SW8	Dhansuli	81.83915	21.41056	276	Ca-Mg-HCO3
9	SW9	Gaitara	81.84848	21.45809	300	Mg-Ca-HCO3
10	SW10	Nakti Khapri	81.78195	21.49554	299	Ca-Mg-Cl-HCO3
11	SW11	Kharora	81.92344	21.39763	304	Ca-Mg-HCO3-Cl
12	SW12	Kodwa	81.79152	21.45681	283	Ca-Mg-HCO3
13	SW13	Mohrenga	81.88416	21.43777	300	Ca-Mg-HCO3-Cl
14	SW14	Mudhpar	81.87262	21.37294	292	Ca-Cl-HCO3
15	SW15	MURA	81.86354	21.42523	292	Mg-Ca-HCO3-Cl

9.2 SUITABILITY OF GROUND WATER FOR DRINKING AND IRRIGATION PURPOSE

9.2.1 The suitability of ground water for drinking purpose

The suitability of ground water for drinking purpose is determined keeping in view the effects of various chemical constituents present in water on the biological system of human being. The standards

proposed by the Bureau of Indian Standards (BIS) for drinking water (BIS-2003, revised) were used to decide the suitability of ground water that occur in study area for drinking purpose. The classification of ground water samples falling below desirable limit (DL), between desirable & maximum permissible limit (DL-MPL) and above maximum permissible limit (MPL) for drinking water purpose limit is shown in the following **Table 9.3**

Table 9.3: Classification of Ground Water Samples for Drinking Purposes.

Parameters	Drinking water Standards (IS-10500-91, Revised 2003)		Total No. of GW Samples	Samples (< DL)		Samples (DL-MPL)		Samples (>MPL)	
	Desirable Limit (DL)	Maximum Permissible Limit (MPL)		No.	%	No.	%	No.	%
PH	6.5-8.5	No relaxation	15	0	0	15	100	0	0
TDS (mg/L)	500	2000	15	8	53.33	7	46.67	0	0
TH (mg/L)	300	600	15	6	40	9	60	0	0
Ca (mg/L)	75	200	15	5	33.33	10	66.67	0	0
Mg (mg/L)	30	100	15	9	60	6	40	0	6.67
Cl (mg/L)	250	1000	15	15	100	0	0	0	0
SO_4 (mg/L)	200	400	15	15	100	0	0	0	0
NO_3 (mg/L)	45	-	15	15	100	0	0	0	0

It is observed from the above **table 9.3**, that than 100% of samples are suitable for drinking purposes. It is also observed that only 39% of samples show the PH,TH, Mg and Ca concentration above the Desirable Limit but below maximum permissible limit of BIS Standards. Therefore, it is concluded that the portability of ground water in major part of study area.

9.2.2 The suitability of ground water for Irrigation purpose

Water is one of the most important constituents, which is required for plant growth, which not only provides the liquid for food processing of the plants but also provides important nutrients for the growth of the plants. But when concentration of ions, are found in excess in the water, it affects the plant growth and reduces the plant yield. Therefore, it is necessary to know the quality of the water before applying in the field, so that the maximum crop yield can be obtained.

Sodium Adsorption Ratio (SAR)

SAR is an expression pertaining to action makes up of water and soil solution and is used for characterizing the sodium hazard of irrigation water. The main problem with high sodium concentration is its effect on soil permeability & water irrigation. Sodium also contributes directly to the total salinity of the water and may be toxic to sensitive crops such as fruit trees. SAR is calculated from the following equation-

$$SAR = \frac{Na^{+}}{\sqrt{(Ca^{2+} + Mg^{2+})/2}}$$

Where the concentration of cations are expressed in meq/L.

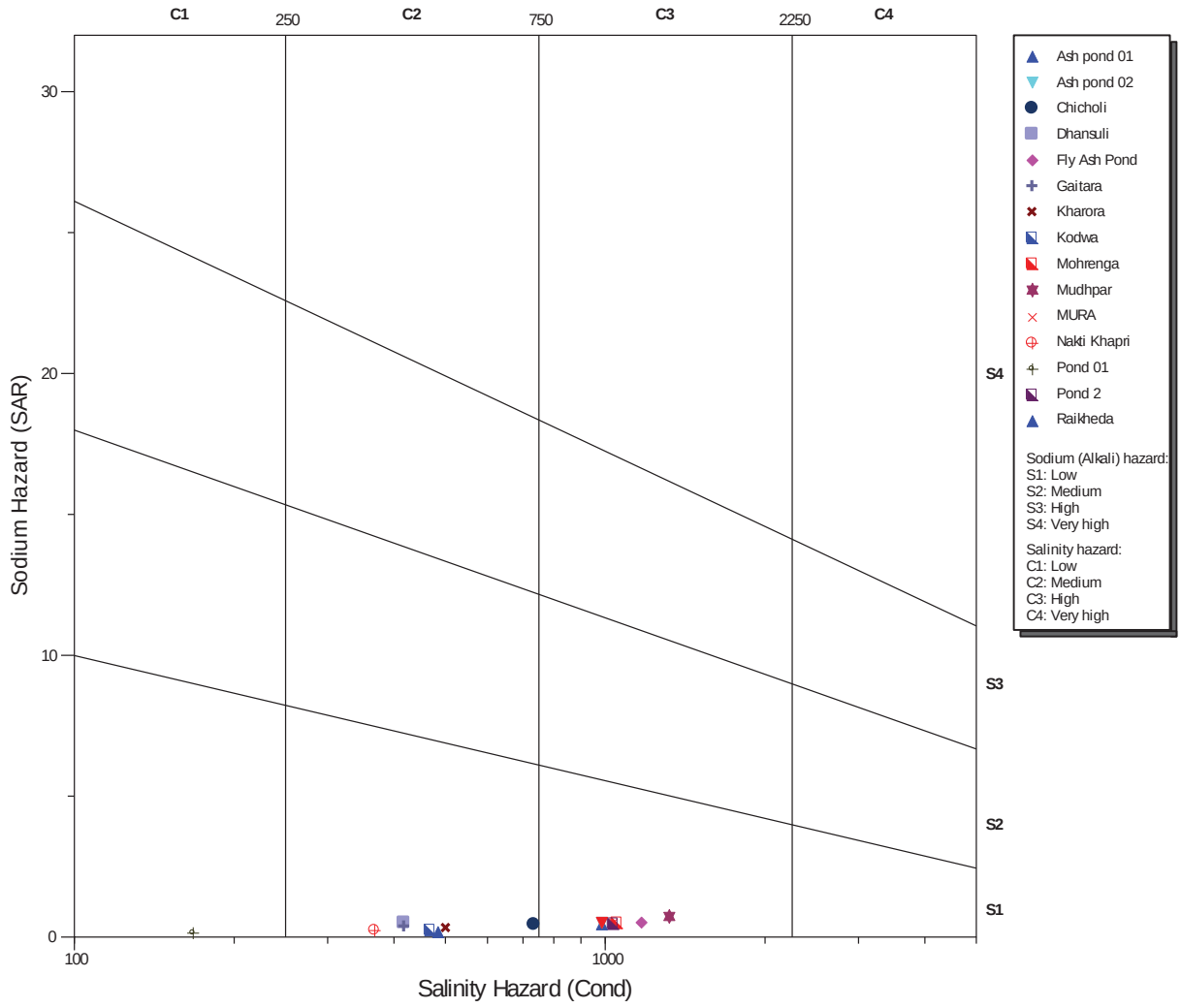


Fig 9.2 Wilcox Diagram

Residual Sodium Carbonate (RSC)

Water containing carbon dioxide on way gets saturated with carbon dioxide and forms bicarbonates. The excess bicarbonates of Mg and Ca are precipitated out as carbonates. This produces impermeability to the top soil. Bicarbonate concentration of water has been suggested as additional criteria of suitability of irrigation water. Residual sodium carbonate is determined by using the following formula.

RSC = (CO3+ HCO3) - (Ca+Mg)

The suitability of ground water of study area for irrigation purpose was considered on the basis of U. S Salinity diagram in which electrical conductivity value in μS/cm at 25°C upto 5000 μS/cm at 25°C is plotted on one axis and the SAR values upto 30 on the other. The electrical conductivity and the corresponding SAR & RSC values of each ground water sample collected from the study area is given in the **Table 9.4**, and the EC and SAR values are plotted in **Wilcox Diagram (Fig 9.2)** and **Piper (Fig 9.3).**

The number of ground water samples based on Sodium Absorption Ratio (SAR) characteristics falling under Good, Good to Permissible, Doubtful & Bad (Unsuitable) categories is shown in the following **Table 9.4.**

Table 9.4: Classification of ground water for irrigation based on SAR values

EC microsiemens/cm at 25°C		**SAR Value**			
		<10 (S1)	**10-18 (S2)**	**18-26 (S3)**	**>26 (S4)**
	Quality	**Good**	**Good to Permissible**	**Doubtful**	**Bad (Unsuitable)**
	Total No. of GW Samples	No. of samples	No. of samples	No. of samples	**No. of samples**
< 100	-	-	-	-	-
100-250 (C1)	1	1	-	-	-
250-750 (C2)	7	7	-	-	-
750-2250 (C3)	7	7		-	-
2250-5000 (C4)					
> 5000					
Total	15	15			
Overall Percentage		100%			

From the Table 9.4, it is observed that 100% of samples show SAR values below 10 and falling in the Low Sodium (alkali) Hazard Zone (S1). Such type of water can be used for irrigation on almost all soils with little danger of development of sodium exchangeable problem**.** Out of 15 samples collected from study area is having EC above < 2250 μS/cm at 25°.

The High Salinity Water (C3) cannot be used on soils with poor drainage. Even with adequate drainage, special management for salinity control may be required and plants with good salt tolerance should be selected.

The Very High Salinity Water (C4) is not at all suitable for irrigation under ordinary conditions, but may be used occasionally if the soil is permeable by providing adequate drainage and irrigation water must be applied in excess to provide considerable leaching and very salt tolerant crops should be selected.

Based on above **table 9.4**, ground water samples are classified with respect to salinity and sodium hazard is presented in **Table 9.5.**

Table 9.5: Classification of ground water samples with respect to salinity and sodium hazards

Type of Classification	Characteristics	No. of samples falling	%
C1S1		1	8
C1S2			
C2S1	Medium salinity and low sodium water	7	46
C3S1	High salinity and low sodium water	7	46
C4S1	Very high salinity and low sodium water		
Total		**15**	**100**

10. IMPACT ASSESSMENT OF THE STUDY AREA

10.1: IMPACT ON THE GROUND WATER REGIME

The REL occupies a small part of Tilda Block of Raipur district. The total area of Tilda Block is 740 sq km (Dynamic Ground Water Resource Estimation as on 2022). The stage of Ground water extraction in Tilda Block is 53.76%, as discussed earlier. The block has been categorized as "Safe". There is an improvement in category of the block as compared to 2020 categorization.

from the comparison of mean water levels of the year 2019 to 2021 with respect to the years 2022 in pre-monsoon period it is found that all the villages in core zone which are considered for analysis showing decline in the range of -0.2 to -0.8 m. except Gaukheda and Paraswani villages which are showing rise of water level in the ranges of 0.16 to 0.18 m and 57 % of the villages in buffer zone(10 Km Radius) are showing decline in range of -0.1 to -0.8 m while 43 % villages are showing rising in water level in the range of 0.02 to 4.96 m. In post-monsoon period, it is found that 80% the villages in core zone (5 Km Radius) which are considered for analysis showing decline in the range of -0.08 to -0.8 m. remaining 40% of wells are showing rising water level in the range of 0.23 to 1.0 m. In Buffer zone about 43% village are showing decline in water level of -0.35 to -0.8 m. and remaining 57% village are showing rise in water level of 0.04 to 3.5 m. The area showing falling trend more than 20 cm/yr are of considerable significance which is attributed to increase in draft in selective patches.

In conclusion, if the decline per year is more than 0.20 m then for the period of four years it will be more than 0.8 m which is considered as significant but in the present scenario all the villages of core zone and buffer zone considered for analysis shows decline less than 0.8 m over the period of four years, so it is evident that in there is a marginal decline in water level trend in pre and post-monsoon period over the period of four years.

10.2: IMPACT ON SURFACE WATER SOURCES

• In the study area around the REL, ground water occurs in the weathered and the cavernous part of the formation and also the fractured zones in the area. The top soil and shallow aquifer existing down to the depth of about 20 metres below ground level generally supports the dugwells which is used for domestic purpose only.

• There are several water bodies including ponds and tanks, which are natural water conservation structures and also augment the ground water resources through natural recharge. Presence of river and

canals running from north to south are additional water sources in the area. The availability of surface water through rivers and ponds etc, release the stress on ground water resources.

• Thus, a good annual rainfall along with favourable features such as landuse, water bodies, rivers, canals etc. makes the area excellent repository of ground as well as surface water sources.

As per the water level trend analysis from the year 2019-2022 in the study area indicates that the decline in water levels over the period of observation. The decline rate is more in core zone and comparatively low in buffer zone.

10.3: IMPACT ON WATER QUALITY

From the water testing report of the study area 100% of samples are suitable for drinking purposes. It is also observed that only 39% of samples show the PH,TH, Mg and Ca concentration above the Desirable Limit but below maximum permissible limit of BIS Standards. Therefore, it is concluded that the portability of ground water in major part of study area.

The chemical analysis of water samples for major parameters indicates that there is no visible or significant adverse impact on groundwater quality of buffer zone due to Plant activities. All the parameters are under permissible limit of as per drinking water norms IS: 10500 from chemical analysis of ground water collected in the study area it is evident that ground water quality is well within permissible limits for domestic as well as irrigation purposes

10.4: MITIGATION MEASURES

From the well inventory data, it can be clearly established that most of the villages have good ground water source and the water level is also shallow. In general, the hydrogeological condition varies depending on the geological and climatological setting of the project site. Hydrogeological consequences of plant area are governed by the nature and duration of rainfall. And it can be seen from the hydrographs that there is a declining trend which creates the potential zone for recharging. The industry has to adopt measures for recharging ground water within the premises and adopting suitable water conservation techniques such as recycling and reuse. Through RWH recharging the rainwater in to aquifer has been undertaken in the premises of the plant. During monsoon rain water in the plant is stored, used and re-circulated for industrial use. Since, plant is operating above water table and zero discharge; there will not be any adverse effect on local water body due to plant activity.

10. CONCLUSIONS & SUMMARY

Adani Power Limited (APL), India's largest private sector thermal power producer, announced the completion of acquisition of Raipur Energen Limited, which owns and operates a 1,370 MW (2 X 685 MW) Supercritical power plant at Raikheda village, in Raipur District of Chhattisgarh.

The area is drained by tributaries of Seonath River especially by Banjari River and Khorsi nala. Banjari River is north flowing tributary to Seonath River and flows in the western part of the project area while Khorsi nala flows in the east of project area.

The study area is characterized by flat undulating terrain with regional slope to the north-east and south west. The average elevation in the southern portion is around 280m while in the north is 275 mamsl. The average land slope of the area is works out about 4 per km from toposheets (1:50000scale), Survey of India.

Geomorphologically the study area is represented by Pediment, Pediplain, Buried plain and Flood Plain. The Pediplain is developed in the major parts of the study area. They are also control by fractures and joints. They are having gently sloping smooth surface of erosional bed rock.

In the area, ground water occurs under phreatic or unconfined condition in weathered portion of rocks and semi-confined to confined conditions in fractures/cavernous part of rocks i.e. limestone & shale at depths.

The depth to water level on ground water of May 2022, it is observed that the overall depth to water level remains between 3.69 to 12.7 meters below ground level. The pre-monsoon depth to water levels ranges between 5 and 10 mbgl in 5 km radius 60% of the villages, water levels more than 10 mbgl are observed in the villages namely Bharuwadih khurd villages and less than 5 observed in 33% villages. In 10 km radius depth to water levels ranges between 5 and 10 mbgl observed in 76% of the villages, water levels more than 10 mbgl are observed in remaining 24 % villages of buffer zone. Water level less than 5 mbgl. recorded at Mohrenga,Dhansuli,Raikheda,Murra and Khapri villages .

The depth to water level of Nov 2022 remains between 1.3 and 7.7 meters below ground level. The post-monsoon depths to water level range of 0 to 3 mbgl are observed in 66% villages of core zone (5 km Radius), about 26% villages shows water level in the range of 3 to 5 mbgl and more than 5 mbgl at Bharuwadih khurd village. In the area of 10 km radius ground water levels less than 3 mbgl are observed in the 42% villages, about 29% villages shows water level in the range of 3 to 5 mbgl and more than 5 in 29% villages.

Seasonal ground water level fluctuation in the study area is varies from 1.59 to 7.16 meters. Lower range of water level fluctuation is also observed along the river course followed by > 6. 4 to 6, & 2 to 4.

Overall, from the comparison of mean water levels of the year 2019 to 2021 with respect to the years 2022 in pre-monsoon period it is found that all the villages in core zone which are considered for analysis showing decline in the range of -0.2 to -0.8 m. except Gaukheda and Paraswani villages which are showing rise of water level in the ranges of 0.16 to 0.18 m and 57 % of the villages in buffer zone(10 Km Radius) are showing decline in range of -0.1 to -0.8 m while 43 % villages are showing rising in water level in the range of 0.02 to 4.96 m. In post-monsoon period, it is found that 80% the villages in core zone (5 Km Radius) which are considered for analysis showing decline in the range of -0.08 to -0.8 m. remaining 40% of wells are showing rising water level in the range of 0.23 to 1.0 m.In Buffer zone abour 43% village are showing decline in water level of -0.35 to -0.8 m. and remaining 57% village are showing rise in water level of 0.04 to 3.5 m. The area showing falling trend more than 20 cm/yr are of considerable significance which is attributed to increase in draft in selective patches.

In conclusion, if the decline per year is more than 0.20 m then for the period of four years it will be more than 0.8 m which is considered as significant but in the present scenario all the villages of core zone and buffer zone considered for analysis shows decline less than 0.8 m over the period of four years, so it is evident that in there is a marginal decline in water level trend in pre and post-monsoon period over the period of four years.

In the study area, the ground water flow direction is towards north-east and north- west. However, in the core zone, the flow direction is North-West and South-East. A local variation in flow direction is also observed, the mining lease is located in the zone of surface water divide.

In the major portion of the area the yield ranges between 1 to 5 lps indicating the area is covered by flaggy limestone and cavernous while in rest of the area it is 1to 3 lps covered with shale.

In the study area both shallow and deep aquifer occurs. The shallow aquifers of the study area occur within an average depth of 20 m. In general, the yield of dug wells ranges from 40 to 60 m^3/day. Deep aquifer system in the area mainly formed by the Raipur group of rocks mainly Chandi formation which comprises of limestone and shale. The deep aquifers of the area are mostly developed by way of bore wells in the area whose depth varies from 60 to 80m. Tarenga formation in the area is more productive & yield around 1to 8 lps, while limestone in the area along & nearby river courses yield 1to5 lps of water.

The aquifer parameters of the study area covered by limestone for deep aquifer the transmissivity values of phreatic aquifer tapped in open well in general varies from 4 to 8.5m^2/day while specific capacity ranges from 15 to 40 lpm/m/day. However, for deep aquifer the transmissivity ranges from 15-32 m^2/day and at places it ranges up to 40m^2/day. The potential fractures for boreholes up to 100 mbgl depth in the area are recorded at various depths i.e. 40-45, 60-65, 75-80, 90-95 mbgl and are 4 to 5 in numbers.

The ground water resources within 10 km of radius estimated on the basis of norms as per GEC'2015 indicate that the total ground water resource of the present study area is of the order of 3549.16 Ham while the total extractable ground water resources in the area are of the order of 3194.26 Ham. Gross ground water extraction in the area is around 1717.26 Ham while Balance ground water resources are1477 Ham. The stage of ground water extraction in the area is around 53.6 % which comes in "SAFE" category.

Total recharge potential of **1906907.95** cum of rainfall runoff can be harvested at feasible, viable and sustainable location annually, based on hydrogeological condition trench and recharge pits use for ground water artificial recharge.

percolation pits may be with dimension as 1 m (length) x 1 m (width) x 2 m (depth) with 8" dia. injection well of 90 m depth having 8" plain pipe up to 6 m depth Thereafter, 7" dia. necked borehole in rock may be made up to 84 m depth by DTH drilling machine. Each structure made at minimum spacing of 100 m may be made capable of recharging 195 m^3/day by each pit. The inlet of the structure may be kept 1 m above pond bed leaving, 1 m water column for settlement of silt/dust etc. The annual cleaning/ removal of silt/ dust from the pond bed are suggested before monsoon for efficient working of system. We have already two no's of Recharge pond to recharge the ground water of the study area.

The detailed chemical analysis for water samples drawn at six locations at plant area (Ash Dyke ponds RESERVOIR POND) and 9 villages of buffer zone for non-metallic ingredients like pH, Turbidity, TDS, TSS, CaCO3, Ca, Cl, Mg, SO4 & SiO2 and metallic ingredients like Pb, Hg, Ag,Mn,Zn, Fe, & Cr etc. were done in-2020. The data indicates that the ground water quality is improved in downstream for most of metallic and non-metallic ingredients and most of the ingredients are in permissible limit as per IS:10500-2012.

The majority of chemical constituent of all samples are within permissible limit and suitable for drinking, irrigation and industrial use, fluoride contamination is observed only at Bottom Ash Pond 02, Plant Area may be due to ash, and Iron concentration is slightly higher in all sample due to leaching of

iron from laterite. Higher concentration of Mn observed at Mohrenga village and Mg contamination observed at Mura. Rest of the parameters is within permissible limit.

The geochemical classification of ground water, of study area has been carried out by using Piper Diagrams the ground water is of Ca/Mg/Na-HCO_3 Cl type. The analysis of ground water samples collected from the area suggests that type of water in the major part is bicarbonate dominating type, The suitability of ground water of study area for irrigation purpose was considered on the basis of U. S Salinity diagram in which electrical conductivity value in μS/cm at 25°C upto 5000 μS/cm at 25°C is plotted on one axis and the SAR values upto 30 on the other. The electrical conductivity and the corresponding SAR & RSC values of each ground water sample collected from the study area.

It is observed that 100% of samples show SAR values below 10 and falling in the Low Sodium (alkali) Hazard Zone (S1). Such type of water can be used for irrigation on almost all soils with little danger of development of sodium exchangeable problem**.** Out of 15samples collected from study area is having EC above < 2250 μS/cm at 25°.

The High Salinity Water (C3) cannot be used on soils with poor drainage. Even with adequate drainage, special management for salinity control may be required and plants with good salt tolerance should be selected.

The Very High Salinity Water (C4) is not at all suitable for irrigation under ordinary conditions, but may be used occasionally if the soil is permeable by providing adequate drainage and irrigation water must be applied in excess to provide considerable leaching and very salt tolerant crops should be selected.

The present study reveals that there is no adverse impact of Ash Dyke Ponds on ground water regime of the area both on water levels as well as water quality.

List of Pollution Control Equipment/Devices

Sr. No.	Plant Activities	Pollution Control Measures
1	Coal Yard	Dust Suppression System
2	Coal Handling system: • Wagon Tippler • Crusher House • Coal Bunker • Coal Transfer House	 Dust Suppression System Dust Extraction & Dry fog diffusion systems Dust Extraction System Dry Fog diffusion system
3	Boilers	Electrostatic Precipitators (ESPs)
4	DM Plant	ETP & Neutralization Pit.
5	Domestic Effluent	Sewage Treatment Plant (STP)
6	Fly Ash Storage Silos	Dust Extraction System (Bag Filters)
7	Fly Ash & Bottom Ash Disposal	Ash Pond /Dyke
8	Vehicle Movement	Concrete Road & Road Sweeping Water Sprinkling System in Ash Dike Area.
9	Dispersion of Emission	275 m Height Chimney
10	Reduction of Gaseous Emission	Low NOx Burners FGD for SO2 removal (proposed)
11	Flue Gas Desulphurization System (FGD)	As per MoEF&CC's Notification dated 31st March 2021, Raipur TPP is falling under Category "C" Non- retiring TPPs and the timelines for compliance of SO2 emission is up to December 2026. Accordingly, the work is under progress

Annexure- V

Fly Ash Generation & Utilization Details - Oct. 2023 to Mar 2024 Adani Power Limited, Raipur											
Sl. No.	Ash Generation and Utilization (in MT)						Mode of Ash Utilization and Utilization in each Mode (in MT)				
	Month	Fly Ash Generation	Bottom Ash Generation	Total Ash Generation	Ash Utilization	% age Utilization	In making of Fly Ash based Bricks / Blocks / Tiles etc.	In construction of Portland Pozzolana Cement	In construction of Highways & Roads including Flyovers	In Reclamation of Low Lying Area	In Mine Filing
1	**Oct-23**	**171118**	**42779**	**213897**	**178743**	**83.56**	**884**	**72704**	**837**	**72263**	**32054**
2	**Nov-23**	**143897**	**35974**	**179871**	**176392**	**98.07**	**591**	**64053**	**624**	**73569**	**37556**
3	**Dec-23**	**86289**	**21572**	**107861**	**146898**	**136.19**	**1797**	**70727**	**1120**	**22003**	**51251**
4	**Jan-24**	**155645**	**38911**	**194556**	**196675**	**101.09**	**2517**	**103036**	**1128**	**46884**	**43110**
5	**Feb-24**	**156266**	**39067**	**195333**	**190184**	**97.36**	**2135**	**105277**	**1103**	**42982**	**38687**
6	**Mar-24**	**184496**	**46124**	**230620**	**234004**	**101.47**	**2171**	**144606**	**988**	**35599**	**50640**
TOTAL		897710	224428	1122138	1122896	100.07	10094	560403	5799	293301	253298

REPORT ON "MONITORING AND EVALUATION OF PLANTATION" AT

M/S ADANI POWER LIMITED

Village - Raikheda, Block - Tilda, Raipur - 493225 (C.G.)

Year – September 2023

"NAV AASTHA JAN VIKAS SEVA SAMITI"

8/5, "JASMATI BHAWAN", NEAR OLD KATTHA FACTORY,
GODHANPUR, AMBIKAPUR – 497001
CONTACT – #99261-54460 #94255-80401
WEBSITE – www.navaastha.in **Email – najvss@gmail.com**

INDEX

S.NO.	CONTENTS	PAGE NUMBER
1.	Who We Are?	3
2.	Central Pollution Control Board	4
3.	Introduction to Greenbelt Development	5 - 6
4.	Regulations for Greenbelt Development	7 - 8
5.	Provisions of Greenbelts for Industries	9
6.	Planning of Greenbelts	10 - 11
7.	Advantages of Greenbelts	12
8.	Plant's Layout	13
9.	Plantation Report	14 - 23
10.	Evaluation of Natural Forest	24 - 25
11.	Conclusion	26
12.	Grading	26
13.	On Site Photographs	27 - 33

WHO WE ARE?

NAV AASTHA JAN VIKAS SEVA SAMITI is a registered NGO under societies registration act. 1973 of Indian constitution, registered on 07th April 2005 at Raipur (C.G.). The working area of the organization is whole Chhattisgarh. Our main focus is towards the youth development as well as women and child empowerment of the state.

We have been working continuously in betterment of the people of Chhattisgarh *(chhattisgarhiya)* in educational, physical and many more sectors by the help of schemes of govt. The organization works under many schemes of the respectable govt. like – **Green India Mission** (GIM), **Bio-diversity Program, Integrated Watershed Management Program** (IWMP), **SGSY**, **SHG** forming, **JFMC** and many more. We are also engaged in **Monitoring and Evaluation** of plantations of government entities as well as private entities. We are also enlisted for the monitoring and evaluation of various entities working in Chhattisgarh by PCCF, Raipur under the ministry of Environment and Forest GoCG.

"New challenges new innovations....."

CENTRAL POLLUTION CONTROL BOARD

The **Central Pollution Control Board (CPCB)**, statutory organization, was constituted in September, 1974 under the Water (Prevention and Control of Pollution) Act, 1974. It also provides technical services to the Ministry of Environment and Forests of the provisions of the Environment (Protection) Act, 1986.

CPCB along with its counterparts **State Pollution Control Boards (SPCBs)** are responsible for implementation of legislations relating to prevention and control of environmental pollution.

The Central Pollution Control Board (CPCB) and the Ministry of Environment and Forests (MoEF) have guidelines for green belt development. The guidelines state that **33% of the total land area should be kept as greenbelt**. The greenbelt should be developed along the boundary by planting tall, evergreen trees.

The guidelines also state that:

- The species selected should be capable of **growing fast, wind firm, and long lived.**
- The **width** of the 3 tier green belt should vary from **15m to 100m** depending on the type of project.
- The **density** of the green belt should be in the range **1500 to 2500 plants per ha.**
- The green belt species should be **native species**.
- Certain species of plants can **absorb pollutants** while others can **thrive** in polluted atmosphere.

INTRODUCTION TO GREENBELT DEVELOPMENT

For India's industrial and other developmental operations, environmental protection has been prioritized. The **Ministry of Environment & Forests (MoEF)** has advocated for the inclusion of environmental considerations in the development of projects through a number of policy & measures. According to the terms of the **Environment (Protection) Act of 1986**, one such initiative is the notification on **Environmental Impact Assessment (EIA)** of developmental projects, which was first issued in 1994 and then updated in 2006. Greenbelts are proactively discussed in the EIA Guidance Manual for building, construction, township, and area development projects.

The term "greenbelt" refers to a boundary established beyond of which industrial development is prohibited. Greenbelts are now present not only for the purpose of protecting sensitive areas to maintain ecological balance but are also found in urban areas so as to act as a sink for the harmful gases released by vehicles and industries operating in the city area. This idea has evolved through a long line of cases. The Central Pollution Control Board has created extensive Guidelines for Developing Greenbelts in this regard [Refer Probes/75/1999-2000].

The establishment of green belts is advantageous in many ways, contributing to biodiversity preservation, soil moisture retention, ground water recharging, and sustaining the region's pleasant microclimate. Additionally, the plants in a green belt can absorb environmental toxins and aid in efficient pollution control.

Green belts are designed open spaces that are protected against construction of new structures, factories, dams, etc. Safeguarded in the sense that only vegetation growth will be permitted on such designated locations, and no infrastructure development will be permitted there. The ecological health of any particular region depends on the presence of green belts in and around urban and industrial regions.

According to MoEF prerequisites, tall, evergreen trees must be planted all along the boundary to create a greenbelt. The overall green area, including the landscaping area, will make up 1/3rd (or around 33%) of the plant area. This will contain a lay-down space that will thereafter become a green area. Two rows of tall, evergreen plants must be planted at a rate of 600–1000 per Acre (1500–2500 per Hectare),

depending on the size, activity, and environmental effects of the industry; the amount of land available; and the agro-climatic conditions. Plants should be spaced apart from one another by around 10 meters for the road side. Trees having a lot of branches and a canopy, such as peepal, banyan, kadamb, neem, and Conocarpus lancefolius, should be grown as these kinds of avenue trees. Plantations must use gathered rainwater and treated effluent water.

A list of plants suitable for greenbelt and to the local agro climatic conditions is given in Table below:

S.No	Botanical Name	Family	Common Name	Habitat	Height (m)
1.	*Acacia auriculiformis A.cunn*	Mimoseae	Australian Wattle	Tree	16
2.	*Acacia nilotica (Linn) Wild*	Mimoseae	Indian gum	Tree	8
3.	*Albizia lebbeck Benth*	Mimoseae	Sirisha		15
4.	*Anthocephalus chinensis (Lamk.)*	Rubiaceae	Kadambama	Tree	20
5.	*Azadirachta indica*	Meliaceae	Neem	Tree	20
6.	*Bambusa arundinacia (Retz)Roxb*	Poaceae	Thorny Bamboo	Shrub	20
7.	*Bambusa vulgaris Schrad*	Poaceae	The Golden Bamboo	Shrub/ Tree	15
8.	*Bauhinia purpurea Linn*	Caesalpinaceae	Butterfly tree	Tree	7
9.	*Bauhinia varigata Linn*	Caesalpinaceae	Budhist bauhinia	Tree	5
10.	*Cassia fistula Linn*	Caesalpinaceae	Golden showers	Tree	12
11.	*Citrus aurantium Linn*	Rutaceae	Citrus tree	Tree	5
12.	*Cocos nucifera Linn*	Arecaceae	Coconut tree	Tree	15
13.	*Delonix regia (Boijer) Rafin.*	Caesalpinaceae	Flame tree	Tree	15
14.	*Emblica officinalis Gaertn.*	Euphorbiaceae	Gooseberry	Tree	5
15.	*Eucalyptus citriodora Hook*	Myrtaceae	Lemon scented gum	Tree	20
16.	*Ficus benghalensis Linn*	Moraceae	Banyan tree	Tree	20
17.	*Ixora undulate*	Rubiaceae	Ixora	Tree	6
18.	*Madhuca longifolia (Koen)*	Sapotaceae	The butter tree	Tree	15
19.	*Mangifera indica Linn*	Anacardiaceae	Mango tree	Tree	15
20.	*Nerium indicum*	Apocynaceae	Pink oleander	Shrub	5
21.	*Peltophorum pterocarpum*	Caesalpinaceae	Copper pod tree	Tree	20
22.	*Polythia longifolia*	Anonaceae	Ashoka tree	Tree	20
23.	*Terminalia catappa*	Combretaceae	The Indian almond	Tree	10

REGULATIONS FOR GREENBELT DEVELOPMENT

Environmental Guidelines for Industries, created by the MoEF, recommend corporations undertake environmental protection seriously and work to reduce the negative effects of their operations both locally and beyond. As a result, these regulations require project owners to keep certain distances between their companies and places like ecologically sensitive areas, coastal areas, flood plains of riverine systems, transportation and communication systems, and major settlements.

These rules also require that, when citing industry, economic and social factors be acknowledged and evaluated. The following are the main guidelines that all industries must adhere to when establishing manufacturing or processing facilities in specific locations. which are;

1. No forest land shall be converted into non-forest activity for the sustenance of the industry.
2. No prime agricultural land shall be converted into industrial site.
3. Within the acquired site the industry must locate itself at the lowest location to remain obscured from general sight.
4. Land acquired shall be sufficiently large to provide space for appropriate treatment of waste water still left for treatment after maximum possible reuse and recycle. Reclaimed (treated) wastewater shall be used to raise **green belt** and to create water body for aesthetics, recreation and if possible for aquaculture. **The green belt shall be 1/2 km wide around the battery limit of the industry. For industry having odour problem it shall be a kilometer wide.**
5. **The green belt between two adjoining large scale industries shall be one kilometer**.
6. Enough space should be provided for storage of solid wastes so that these could be available for possible reuse.
7. Lay out and form of the industry that may come up in the area must conform to the landscape of the area without affecting the scenic features of that place.
8. Associated township of the industry must be created at a space having physiographic barrier between the industry and the township.
9. Each industry is required to maintain three ambient air quality measuring stations within 120 degree angle between stations.

Environment Management Plan (EMP) prepared by **MoEF** mandates that community buildings and townships should build 1-1.5 kilometer of greenbelt. This is suggested to restrict air and noise pollution in the vicinity.

As per the stipulations of MoEF, **green belt is to be provided all around the power station boundary by planting trees** and the total green area including landscaping area will be 1/3rd (About 33%) of the plant area. This will include Lay down area which will be later on converted into Green area.

In India, there is no exclusive green belt regulation/policy. However, under the purview of other regulations such as Environmental Guidelines for Industries, Environment Management Plan, National Forest Policy, Forest Conservation Act, etc; certain percentage of land designated for green belts is recommended for different categories of industrial projects. Expansion of agricultural, urban and industrial activities are causing additional burden on natural resources. Industrial development is causing severe health hazards due the exceeded level of pollution. Green belt not only restrict environmental pollution but it helps to maintain the ecological balance of the region.

PROVISION OF GREENBELT FOR INDUSTRIES

Adequate greenery in industrial establishment helps in creating better environment in many ways:

1. It provides a sylvan surrounding to improve the aesthetical conditions which, in turn, improve the working condition of the workers.
2. Tall trees attract birds to roost and also provide shelter to small creatures like squirrel, snacks etc. thus biodiversity is restored.
3. A properly designed green belt of adequate width alts as a filter of our pollutants for outside. Fugitive emissions are mainly controlled by the green belt.
4. Plantation of pollution indicating species at strategic locations can indicate the air pollution status of the area. These plant species are sensitive to air pollutants. Such species serves as “bio indicators”.
5. Green belt acts as a noise barrier for outside.
6. Treated waste water of an industry is always recommended for maximum utilization with in the premises. If the waste water is used for irrigation of green belt and other plantation within, the objective is partially achieved.

PLANNING OF GREENBELT

Planting of green belt requires the following considerations:-
1. Choice of the species
2. Design of the belt
3. Width of belt

Choice of the plants species depends upon the nature of fugitive gaseous pollutants coming from the industries. Obviously those plants should be resistant to the pollutants. Besides, trees with large crown are preferred because they served as a good barriers for particulate and gaseous emissions. In between the resistant, species and within the industrial premises, some strategic locations as these species indicate the status of pollution.

The design of the greenbelt should be such that it should form an effective shield against pollutants to outside. A three tier plantation of small medium and large size plants can achieve the same. Typical 50 m width green belt may have 3 layers may consist of bushes (small tree). The inner layer may have large tree with good crown and under growth. The middle layer in between can have bushes and shrubs (small and medium size tree).

The width of the green belt should be carefully & judiciously decided; because of the cost of the land there is always a demand from the industry to a narrow belt. Ideally the width should be such to have maximum attenuation. The attenuation factor can be expressed as :

$$AF = \frac{\text{Pollution level at a point a just outside without the greenbelt}}{\text{Pollution level at a with the green belt}}$$

The attenuation factor for a well-designed green belt attains a limiting value after a certain width and becomes more effective with the increasing height at trees. For the green belt, with Indian trees species (tropical forest species) longer width may not be necessary for maximum attenuation.

Generally for a large industry, a belt width of 150 – 200 mtrs may be adequate but these can be increased where pollution level is high. For a less polluting industry, a belt less than 150 mtr can also do.

The design and nature of green belts will vary according to the place and the type of industry. Some of the factors which influence the design of green belts are-

- Climatic factors such as wind velocity, temperature, rainfall, sunlight, humidity etc.
- Assimilation capacity of the ecosystem.
- Height and canopy of trees.
- Topography.
- Size of land available.
- Distance from source.
- Soil and Water quality.
- Nature and extend of pollutants.

ADVANTAGES OF GREENBELTS

- **Noise control-** A green belt reduces the intensity of sound. Function as a barrier. Trees can either deflect, refract or may absorb sound to reduce its intensity. The intensity reduction depends on the distance sound has to travel from source. Trees can also modify suitably the humidity and climate which affects sound intensity.
- Help in **soil erosion control**. Plant species help in improving soil quality and bind soil particles thereby preventing erosion. Green belts also help in containing water run offs.
- **Climate Control**
- **Air Pollution control-** Trees help in removing carbon dioxide and other pollutants from air and by release of oxygen into the air thereby improving air quality. A green belt development can also help in removing particulate matter from the air by trapping such particulate matter.
- **Water Pollution control-** Some species can remove some pollutants from water. Example- copper absorbed by *Chlorella vulgaris* and Scandium buy *Astragalas*, zinc by *Typhalatifolia*, chromium by *Salvinianudans*.

PLANT'S LAYOUT

PLANTATION REPORT

Name of Unit - Adani Power Limited, Raikheda Green Zone Details Upto 31.08.2023								
Sr. No.	**Green Zone**	**Location**	**Area in (Hect.)**	**Tree (No.)**	**Tree Spp.**	**Shrubs (Sq. Mt.)**	**Green Carpet (Sq.Mt.)**	**Palm (No.)**
1	90/1	Main gate, Hostel premises, Chemistry, Fire, Stores, SY, CHP premises.	2.88	1800	Dalbergia sisoo (Sisum)	0	0	0
			1.920	1200	Azadiracta indica (Neem)	0	0	0
			2.240	1400	Peltophorum	0	0	0
			0.480	300	Delonix regia	0	0	0
			0.192	120	Tamarindus indica	0	0	0
			0.108	120	Phyllanthus emblica	0	0	0
			0.027	30	Eagal marmelose	0	0	0
			0.083	52	Ficus religiosa	0	0	0
			0.077	48	Ficus bengalensis	0	0	0
			2.688	1680	Pongamia pinnata	0	0	0
			2.400	1500	Cassia siamia	0	0	0
			0.499	312	Callistemon (Bottle Brush)	0	0	0
			0.736	460	Mangifera indica	0	0	0
			0.960	600	Cassia fistula	0	0	0
			0.154	96	Ashoka pendula	0	0	0
			0.17	0	Palm	0	0	106
			0.16	0	Shrubs	1600	0	0
			0.12	0	Lawn	0	1200	0
			0.15	0	Pots	1500	0	0
	2020-2021		**16.04**	**9718**		**3100.00**	**1200.00**	**106.00**
2	90/2	Hostel Premises	0.150	60	Ficus religiosa	0	0	0
			0.150	60	Ficus bengalensis	0	0	0
			4.500	1800	Azadiracta indica (Neem)	0	0	0
			4.500	1800	Cassia fistula	0	0	0
			1.920	1200	Delonix regia	0	0	0
			1.280	800	Mimusoaps illengii	0	0	0
			0.064	40	Ashoka pendula	0	0	0

Name of Unit - Adani Power Limited, Raikheda Green Zone Details Upto 31.08.2023								
Sr. No.	**Green Zone**	**Location**	**Area in (Hect.)**	**Tree (No.)**	**Tree Spp.**	**Shrubs (Sq. Mt.)**	**Green Carpet (Sq.Mt.)**	**Palm (No.)**
			0.000	0	Plam	0	0	0
			0.000	0	Lawn	0	0	0
			0.000	0	Shrubs	0	0	0
			0.030	0	Pots	300	0	0
			12.594	**5760**		**300**	**0**	**0**
3	90/3	Fire building to Technical building.	0.544	0	Lawn	0	5441	0
			0.002	0	Cycus Palm	0	0	16
			0.001	0	Fox Tail Palm	0	0	12
			0.001	0	Royal Palm	0	0	8
			0.001	0	Phoenix Palm	0	0	12
			0.001	0	Coconut Palm	0	0	12
			0.002	0	Plueria Red	0	0	20
			0.128	0	Shrubs	1280	0	0
			0.007	0	Hedges	70	0	0
			0.687	**0**		**1350**	**5441**	**80**
4	90/4	Nursery Development (Capacity: 144000 Number Saplings incl. all species)	0.250	100	Mangifera indica	0	0	0
			0.150	60	Sapota	0	0	0
			0.150	60	Psidium guavajava	0	0	0
			0.150	60	Lemon	0	0	0
			0.170	68	Azadiracta indica (Neem)	0	0	0
			0.075	30	Pongamia gabra	0	0	0
			0.075	30	Delonix regia	0	0	0
			0.075	30	Cassia fistula		0	0
			0.189	210	Cono carpus	0	0	0
			0.150	60	Mimusoaps illengii	0	0	0
			0.063	210	Ashoka pendula	0	0	0
			0.030	12	Eagal marmelose	0	0	0
			0.030	12	Ficus religiosa	0	0	0
			0.030	12	Ficus bengalensis	0	0	0
			0.006	0	Seasonal Flower Beds	60	0	0

Name of Unit - Adani Power Limited, Raikheda Green Zone Details Upto 31.08.2023								
Sr. No.	**Green Zone**	**Location**	**Area in (Hect.)**	**Tree (No.)**	**Tree Spp.**	**Shrubs (Sq. Mt.)**	**Green Carpet (Sq.Mt.)**	**Palm (No.)**
			0.030	0	Seasonal Pots	300	0	0
			0.030	0	Ornamental Pots	300	0	0
			0.120	0	Ornamental Shrubs	1200	0	0
			1.773	**954**		**1860**	**0**	**0**
	2021-2022		**15.05**	**6714.00**		**3510.00**	**5441.00**	**80.00**
5	90/5	Plantation at Nursery and CHP surrounding area.	0.17	12	Ficus religiosa	0	0	0
			0.17	12	Ficus bengalensis	0	0	0
			0.10	41	Conocarpus	0	0	0
		Plantation at Guest House Premises.	0.08	50	Mimusoaps illengii	0	0	0
			0.08	50	Pongamia pinnata	0	0	0
			0.08	50	Azadirachta indica	0	0	0
		Stacker - I South	0.02	80	Conocarpus	0	0	0
		Nursery Surrounding	0.04	24	Anthocephalus cadamba	0	0	0
			0.04	24	Cassia fistula	0	0	0
			0.04	24	Mimusoaps illengii	0	0	0
			0.04	24	Delonix regia	0	0	0
		Phillips yard premises	0.01	6	Ficus bengalensis	0	0	0
		CSR area	0.01	8	Mimusoaps illengii	0	0	0
		Phillips Workshop back side	0.14	360	Tectona grandis	0	0	0
		Brick Plant approach and surrounding	0.07	186	Tectona grandis	0	0	0
		Guest House Premises	0.05	120	Tectona grandis	0	0	0
		Guest House Premises	0.01	34	Tectona grandis	0	0	0
		Guest House Premises periphery	0.04	100	Tectona grandis	0	0	0
		Scrap yard to NDCT internal road side.	0.09	213	Tectona grandis	0	0	0
		Scrap yard to NDCT internal road side.	0.20	500	Tectona grandis	0	0	0
		Helipad & Scrap yard between area	0.78	1940	Tectona grandis	0	0	0
		CHP: WTP & Phillps office between area	0.58	1460	Tectona grandis	0	0	0

Name of Unit - Adani Power Limited, Raikheda Green Zone Details Upto 31.08.2023								
Sr. No.	**Green Zone**	**Location**	**Area in (Hect.)**	**Tree (No.)**	**Tree Spp.**	**Shrubs (Sq. Mt.)**	**Green Carpet (Sq.Mt.)**	**Palm (No.)**
			2.84	**5318**		**0**	**0**	**0**
6	90/6	CWPH & SYCR Between area.	0.10	0	Lawn Carpet	0	1000	0
			0.00	0	Phoenix Palm	0	0	5
			0.00	0	Cycus palm	0	0	10
			0.00	0	Furcaria	2	0	0
			0.0240	60	Putranjeeva	0	0	0
			0.0064	16	Casuarina	0	0	0
			0.0128	32	Delonix regia	0	0	0
			0.03	86	Mahogany	0	0	0
			0.10	62	Bauhinia blackiana	0	0	0
			0.10	62	Cassia fistula	0	0	0
			0.21	132	Conocarpus	0	0	0
			0.01	0	Hedge Plantation	132	0	0
			0.00	0	Group Plantation	48	0	0
			0.00	0	Road side FRP Parrot Green colour pots.	46	0	0
			0.61	**450**		**228**	**1000**	**15**
7	90/7	Main Security Gate Entrance / Friendship park.	0.012	0	Lawn Carpet	0	120	0
			0.001	0	Hedge Plantation	12	0	0
			0.001	0	Group Plantation	12	0	0
			0.048	0	Lawn Carpet	0	484	0
			0.0628	**0**		**24**	**604**	**0**
8	90/8	All internal approach roads of plant premises. (Murum Roads available in Natural Jungle)	**2.9472**	**7368**	Teak	**0**	**0**	**0**
9	90/9	Precison Workshop surrounding.	**0.1440**	**90**	Bauhinia blackiana, Ficus bengalensis, Swietenia macrophylla, Azadirachta indica, Pongamia pinnata, Delonix regia Mixed plants Each 15 No.	**0**	**0**	**0**
10	90/10	AWRS	0.0888	222	Mahogany	0	0	0
			0.0712	178	Conocarpus	0	0	0

Name of Unit - Adani Power Limited, Raikheda Green Zone Details Upto 31.08.2023								
Sr. No.	**Green Zone**	**Location**	**Area in (Hect.)**	**Tree (No.)**	**Tree Spp.**	**Shrubs (Sq. Mt.)**	**Green Carpet (Sq.Mt.)**	**Palm (No.)**
			0.6204	22	Bauhinia blackiana	0	0	0
			0.7332	26	Cassia fistula	0	0	0
			1.4100	50	Casuarina	0	0	0
			0.0022	0	Group Plantation	22	0	0
			0.0042	0	Palm (Bottle Palm)	0	0	42
			0.0012	0	Hedges	12	0	0
			0.0098	0	Lawn	0	98	0
			2.9410	**498**		**34**	**98**	**42**
11	90/11	Safety Park	0.4124	1031	Mixed Plantation (Mahogany, Conicarpus, Ficus Black, Cassia fistula, Delonix regia, Bauhinia blackiana)	0	0	0
			0.0096	0	Group Plantation	96	0	0
			0.0120	0	Palm	0	0	120
			0.0036	0	Hedges	36	0	0
			0.1463	0	Lawn (Instant 663 + Dibbling 800)	0	1463	0
			0.5839	**1031**		**132**	**1463**	**120**
12	90/12	Security main Gate to CSR premises, Safety park back side and Hostel premises.	0.0864	54	Mahogany	0	0	0
			0.0032	2	Bauhinia blackiana	0	0	0
			0.0032	2	Cassia fistula	0	0	0
			0.0544	34	Delonix regia	0	0	0
			0.0272	17	Ficus black	0	0	0
			0.0544	34	Avelandea	0	0	0
			0.0592	37	Sizizium cumini	0	0	0
			0.0151	0	Group Plantation	151	0	0
			0.0056	0	Palm (Bottle Palm)	0	0	14
			0.0022	0	Erika palm	0	0	11
			0.0087	0	Hedges	87	0	0
			0.6499	0	Lawn	0	6499	0
			0.9695	**180**		**238**	**6499**	**25**
13	90/13	Helipad Ground	0.0028	7	Casuarina	0	0	0

Name of Unit - Adani Power Limited, Raikheda Green Zone Details Upto 31.08.2023								
Sr. No.	**Green Zone**	**Location**	**Area in (Hect.)**	**Tree (No.)**	**Tree Spp.**	**Shrubs (Sq. Mt.)**	**Green Carpet (Sq.Mt.)**	**Palm (No.)**
			0.0896	896	Conocarpus	0	0	0
			0.0340	0	Bottle Palm	0	0	34
			0.0340	34	Bogunvellia	0	0	0
			0.6000	0	Washingtonia ff	0	0	300
			0.0000	0	Hedge	79	0	0
			0.0000	0	Lawn	0	9623	0
			0.7604	**937**		**79**	**9623**	**334**
	2022-2023		**11.7987**	**15872**		**711**	**18683**	**536**
14	90/14	WTP	0.2704	169	Plumeria & Pulchurima	0	0	0
			0.0272	17	Casuarina	0	0	0
			0.0192	12	Putranjeeva	0	0	0
			0.1376	0	Washingtonia ff	0	0	86
			0.0320	40	Bogunvellia	0	0	0
			0.0200	50	Mahogany	0	0	0
			0.0160	0	Group plantation. (Ornamental Spp.)	160	0	0
			0.0107	0	Hedge	107	0	0
			0.5430	0	Lawn	0	5430	0
			1.0761	**288**		**267**	**5430**	**86**
15	90/15	NDCT Central and North.	0.3840	0	Washingtonia ff	0	0	240
			0.0156	0	Hedge	156	0	0
			1.3913	0	Lawn	0	13913	0
			1.7909	**0**		**156**	**13913**	**240**
16	90/16	NDCT Central and South.	0.0072	0	Cycus palm / Phoenix Palm.	0	0	18
			0.1920	480	Mixec plants(Bauhinia, A. indica, Mahogany, Putranjeeva, Bakul, Delonix, Cassia fistula)	0	0	0
			1.2061	0	Lawn	0	12061	0
			0.0480	30	Washingtonia ff	0	0	30
			0.0186	0	Hedge	186	0	0

Name of Unit - Adani Power Limited, Raikheda Green Zone Details Upto 31.08.2023								
Sr. No.	**Green Zone**	**Location**	**Area in (Hect.)**	**Tree (No.)**	**Tree Spp.**	**Shrubs (Sq. Mt.)**	**Green Carpet (Sq.Mt.)**	**Palm (No.)**
			0.0098	0	Ornamental Group plantation.	98	0	0
			1.4817	**510**		**284**	**12061**	**48**
17	90/17	Guesthouse area	0.004	40	conocarpus	**0.00**	**0.00**	**0.00**
			0.009	93	Delonix regia (mini)	**0.00**	**0.00**	**0.00**
			0.002	16	Bauhinia blakeana	**0.00**	**0.00**	**0.00**
			0.001	6	Mahogany	**0.00**	**0.00**	**0.00**
			0.002	15	Ashoka pendula	**0.00**	**0.00**	**0.00**
			0.017	**170**		**0.00**	**0.00**	**0.00**
18	90/18	Zone A and others	0.47	4740.00	Teak wood	0.00	0.00	0.00
			0.13	1280.00	Mohogany	0.00	0.00	0.00
			0.05	460.00	Arjuna	0.00	0.00	0.00
			0.65	**6480.00**				
19	90/19	Zone A, B and Old project office side, loko side	0.077	773	conocarpus	0.00	0.00	0.00
			0.004	35	Gulmahor	0.00	0.00	0.00
			0.007	72	Baunia	0.00	0.00	0.00
			0.004	35	Amaltas	0.00	0.00	0.00
			0.106	1060	Anjan	0.00	0.00	0.00
			0.004	39	Bouganvalia	0.00	0.00	0.00
			0.004	44	Ashoka	0.00	0.00	0.00
			0.144	1440	Teak	0.00	0.00	0.00
			0.010	98	Jamun	0.00	0.00	0.00
			0.001	9	Casurina	0.00	0.00	0.00
			0.005	53	Kadam	0.00	0.00	0.00
			0.031	309	Karanj	0.00	0.00	0.00
			0.397	**3967**				
20	90/20	ZoneA, Zone B and Zone C	0.014	139	Ashoka	0.00	0.00	0.00
			0.002	20	Bottle Brush	0.00	0.00	0.00
			0.002	23	Royal Palm	0.00	0.00	0.00
			0.004	42	Casuarina	0.00	0.00	0.00
			0.004	40	Fox Tail Palm	0.00	0.00	0.00

Name of Unit - Adani Power Limited, Raikheda Green Zone Details Upto 31.08.2023								
Sr. No.	**Green Zone**	**Location**	**Area in (Hect.)**	**Tree (No.)**	**Tree Spp.**	**Shrubs (Sq. Mt.)**	**Green Carpet (Sq.Mt.)**	**Palm (No.)**
			0.054	540	Conocarpus	0.00	0.00	0.00
			0.005	53	Kadam	0.00	0.00	0.00
			0.022	216	Bahunia blackinia	0.00	0.00	0.00
			0.017	167	Putranjeeva	0.00	0.00	0.00
			0.013	126	Anjan	0.00	0.00	0.00
			0.008	80	Mohogany	0.00	0.00	0.00
			0.002	18	Bouganvalia	0.00	0.00	0.00
			0.146	**1464**				
21	90/21	ZoneA, Zone B and Zone C	0.003	25	Ashoka			
			0.000	4	Royal Palm			
			0.004	37	Fox Tail Palm			
			0.000	3	Fish tail palm			
			0.010	99	Fox Tail Palm			
			0.001	6	Black ficus			
			0.015	150	Arjuna			
			0.015	150	Karanj			
			0.047	**474**				
		2023-24 till Sep 2023	**5.60**	**13353**		**707.00**	**31404.00**	**374.00**
Total (2000- till 30.09.2023)			**48.50**	**45657**		**8028.00**	**56728.00**	**1096.00**

Details of Plantation (Adani Power Ltd., Raipur)				
Sr. No.	**Description of Area**	**Hectare**	**Area in Acre**	**Total no. of Plants/Saplings**
Natural Forest & Plantation done during Project State (till FY: 2017)				
1	Garden outside main gate	1.00	2.47	2500
2	Near Main Gate	0.10	0.25	250
3	Left side of Road to Hostel Indravati	0.40	0.99	1000
4	Right side of Road to Hostel Indravati	10.00	24.71	25000
5	South side of SEW Batching plant area	4.00	9.88	10000
6	Near Gammon Batching plant area	1.50	3.71	3750
7	Left side of the main road near Rain water Harvesting pond	30.00	74.13	75000
8	Near Simplex Batching plant area	1.00	2.47	2500
9	Near Ion Exchange Batching plant area	6.00	14.83	15000
10	Opposite Gammon store yard	1.50	3.71	3750
11	Area opposite first Aid centre and near Truck Tippler	1.50	3.71	3750
12	Near GMR old office area	1.50	3.71	3750
13	Along the plant boundary wall near STP	4.00	9.88	10000
14	South side of Doosan equipment laydown area RWHP	1.50	3.71	3750
15	Near Lioyd warehouse	0.20	0.49	500
16	Near Loco shed	1.50	3.71	3750
17	At Road shoulder	3.00	7.41	7500
18	CSR Office area	1.00	2.47	2500
	Total	69.70	172.23	174250
19	Natural Forest	42.00	103.74	52968
	Total till FY 2017	**111.70**	**275.97**	**227218**

Plantation period: Jan. 2020- Sep 2023	19.63	48.50	45657
Total Green Belt	**131.33**	**324.47**	**272875**

Name of Unit - Adani Power Limited, Raikheda					
Sr. No.	**Location**	**Area (in Hect.)**	**Tree (Nos.)**	**Tree Species**	**Remarks**
1.	Kausrangi	0.02	170	Conocarpus	Plantation in RIPA area
		0.01	100	Karanj	
		0.00	30	Jamun	
		0.00	30	Amla	
		0.00	25	Kadam	
		0.00	35	Gulmohar	
		0.00	35	Jack fruit	
		0.01	80	Neem	
Total			**505**		
2.	Mura	0.02	190	Anjan	Plantation in Mura
		0.02	150	Karanj	
		0.01	70	Neem	
Total			**410**		
3.	Naya Raipur	0.01	112	Cassia grandis	Plantation in Naya Raipur
		0.01	130	Spathodia compunalata	
		0.01	142	Bahunia blackinia	
		0.03	310	Bouganvilia	
		0.04	419	Nerium dwarf	
		0.02	245	Thewatia nerifolia	
		0.03	324	Pulchurima	
Total			**1682**		
Grand Total			**2597**		

EVALUATION ON NATURAL FOREST

Forest vegetations are the most diverse in the vegetation structure and composition which directly or indirectly responsible for the existence of other ecosystem. All forest regions are being affected by several means and thus scientific and ecological monitoring is obligatory for conseration of the forest. Thus proper ecological monitoring of plants provide the elementary status of the vegetation. The present evaluation is thus aimed to reveal the ecological status of the plants naturally present at **Adani Power Limited, Raikheda** campus premises spread across an area of around **100 Hectares.**

Field Investigation and Data Collection: The composition of plant community of the Forest in the campus was investigated by using following methodology:

A total of **16 quadrats** (randomly) were selected which were on the corner as well as centre of the forest area having quadrate size of **20m x 20 m(400m²).** We further systematically placed **five 5m×5m shrub quadrates** (one at the centre and the other four atthe corners) to investigate shrubs, and **five 1m×1m herbquadrates** were fixed to the centre of each shrub quadrate to investigate herbs in each plots, including **80 shrub quadrates** and **80 herb quadrates** from natural forest sites. Plant species found within each sampling plot were photographed and identified by their vernacular and scientific names.

Density: Density is the study of the number of plant species in the quadrate per unit area. By quadrate method, samplings are made at random at several places and the number of plant of every species was summed up for all the quadrates divided by the total number of quadrates. It is represented by the formula:

$$\text{Density} = \frac{\text{No. of individual of the plant species}}{\text{Total number of plots in which the species is present}}$$

Tree Species in Natural Forest Name of Unit - Adani Power Limited, Raikheda			
Location	**Area**	**Tree (Nos.)**	**Tree Species**
Campus of Adani Power Limited, Raikheda, Tilda, Raipur	42 Hectares	52968	Teak (*Tectona grandis*)
			Sal (*Shorea robusta*)
			Shisham (*Dalbergia sissoo*)
			Harra (*Terminalia chebula*)
			Baheda (*Terminalia bellirica*)
			Mahua (*Madhuca indica*)
			Amla (*Phyllanthus emblica*)
			Semul (*Bombax ceiba*)
			Kusum (*Schleichera oleosa*)
			Chandan (*Santalum album*)
			Tendu (*Diospyros melanoxylon*)
			Palas (*Butea monosperma*)
			Amaltas (*Cassia fistula*)
			Bel (*Aegle marmelos*)
			Khair (*Senegalia catechu*)
			Dhawra (*Anogeissus latifolia*)
			Saja (*Terminalia elliptica*)
			Bija (*Pterocarpus marsupium*)
			Bamboo (*Bambusa vulgaris*)
			Others

Remarks:

1. Quantitative Interpretation:

Trees calculated as per the density formula to be approx. **1261.14 plants per hectare.**

2. Qualitative Interpretation:

Precipitation, Soil, Topography and Climatic condition signifies the forest to be a **Dry Decideuos Forest.**

CONCLUSION

The Survival percentile of plantation done by **"M/S Adani Power Limited, Village - Raikheda, Block - Tilda, Raipur - 493225 (Chhattisgarh)** upto **August 2023** is about **96%** which is **Excellent** for the company. The **current action plan (CAP) targets** of planting **30000 saplings** in current **assessment year of 2023-24** from which almost 70% of the target is achieved by the time of this evaluation. The overall growth of plantation was **satisfactory** as the company actively manages the greenbelt development very well.

The official staff of the company were co-operative, enthusiastic and helpful towards the work. We convey our best regards to the environmental branch of the company for successful greenbelt development following the norms of **MoEFCC**, **Govt of India and Govt of Chhattisgarh**.

GRADING (ON SCALE OF 1 to 10)

GRADING	Excellent (8-10)	Very Good (5-8)	Good (3-5)	Poor (<3)
	9.6			

ON SITE PHOTOGRAPHS

==END OF REPORT==

Annexure-VII

adani
Foundation

Annual CSR REPORT

Adani Power Limited, 2023-24


Introduction
About Adani Power Limited, Raipur
Message from Business Head Desk
Geographical Area & Demographic Details
CSR Thematic Areas of Operation
CSR Press Releases

WE ARE: -

Since 1996, the Adani Foundation, the community engagement arm of the Adani Group, has remained agile and deeply committed to making strategic social investments for sustainable outcomes across India. It is empowering and enriching the lives of children, women, youth, and marginalized communities in the core areas of education, community health, sustainable livelihood, community development, and climate action. The strategies of the Foundation are integrated in national priorities and global Sustainable Development Goals (SDGs). The Foundation is known for its inquisitive and innovative approach to problem-solving. It challenges the status quo and adopts new solutions that lead to sustainable impact. By building institutions of people and focusing on sustainability, the Foundation contributes to the dignity, well-being and wealth of the communities surrounding the Group's businesses and beyond.

As it continues to grow and evolve, the Foundation is well-positioned to address the emerging needs of New India. The Adani Foundation's reach is extensive, currently operating in 5,753 villages across 19 states, positively impacting 7.3 million lives.

Vision: -

To accomplish a passionate commitment to social obligations towards communities, fostering sustainable and integrated development, thus improving quality of life"

Mission: -

"To play the role of a facilitator for the benefit of the people without distinction of caste or community, sector, religion, class, or creed, in the field of education, community health and promotion of social and economic welfare and upliftment of the people in general."

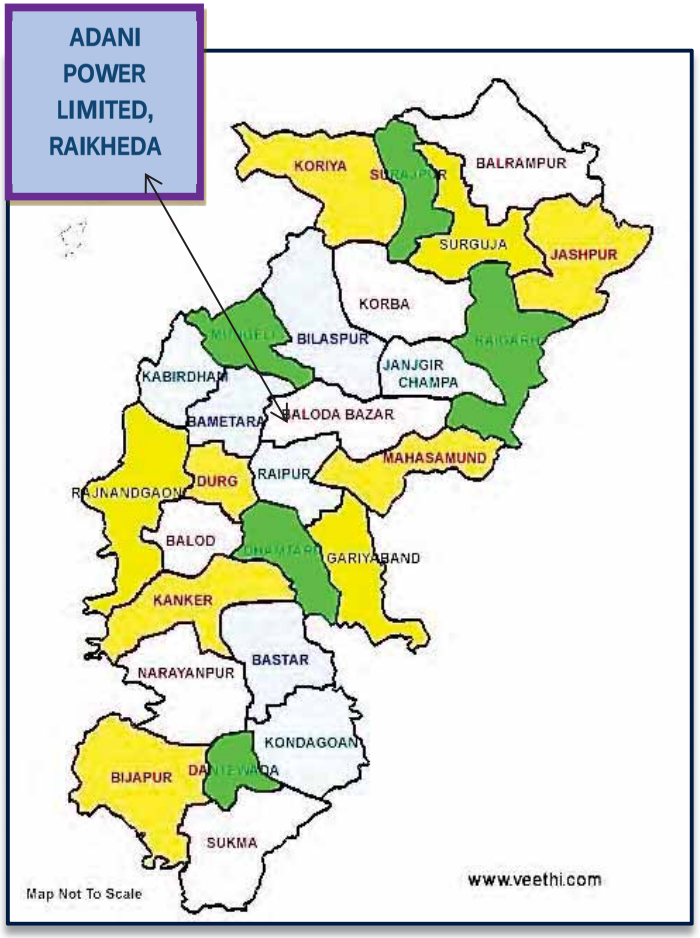
About "ADANI POWER LIMITED- RAIPUR"

Adani Power (APL) a part of the diversified Adani Group, is the largest private thermal power producer in India. The company has an installed thermal power capacity of 15,250 MW. Our nine power plants are spread out across the states of Gujarat, Maharashtra, Rajasthan, Karnataka, Chhattisgarh, Madhya Pradesh and Jharkhand, Adani Power is on course to achieve its growth potential. The company is harnessing technology and innovation to transform India into a power-surplus nation and provide quality and affordable electricity for all. The Company completed the acquisition of GMR Chhattisgarh Energy Ltd. (GCEL) in FY 2019-20 following an approval of the Company's resolution plan (after which the name of GCEL was changed to Raipur Energen Ltd.). REL owns and operates a 1,370 MW (2 x 685 MW) supercritical power plant at Raikheda (Raipur district, Chhattisgarh). The Company enjoys a power purchase agreement with the distribution companies in APL Raipur, Thermal Power Station is a coal-based thermal power plant located in Raikheda village in Tilda Tehsil in Raipur district in the Chhattisgarh State. This power plant having Boiler and Turbine Generator equipment supplied by Doosan Heavy Industries, S. Korea, is situated closed to the capital city of Chhattisgarh- Raipur.

Demographic Profile of the Project: -

Adani Power Limited (APL, Raipur) is located at village Raikheda about 20 Kms from Tilda & situated between Tilda Kharora Road. The nearest railway station, Bus stand CHC, Degree college is located at Tilda Town. Tilda is well connected with state Capital Raipur by rail & road route.

Tilda comes in between MP-Orissa-Maharashtra railway connectivity. Block administration officials like SDM, Tehsildar, BMO, BEO, BMO offices are located at Tilda. On 3rd of August 2019, Adani Power Limited or Adani Group Chhattisgarh took over control of the power plant from GMR Chhattisgarh Energy Ltd. Thereafter since takeover the entire CSR implementation part is carried over by Adani Foundation, the CSR arm of Adani Group of companies has footprints more than fifty-two sites pan India.



"Message from Business Head, APL Raipur"

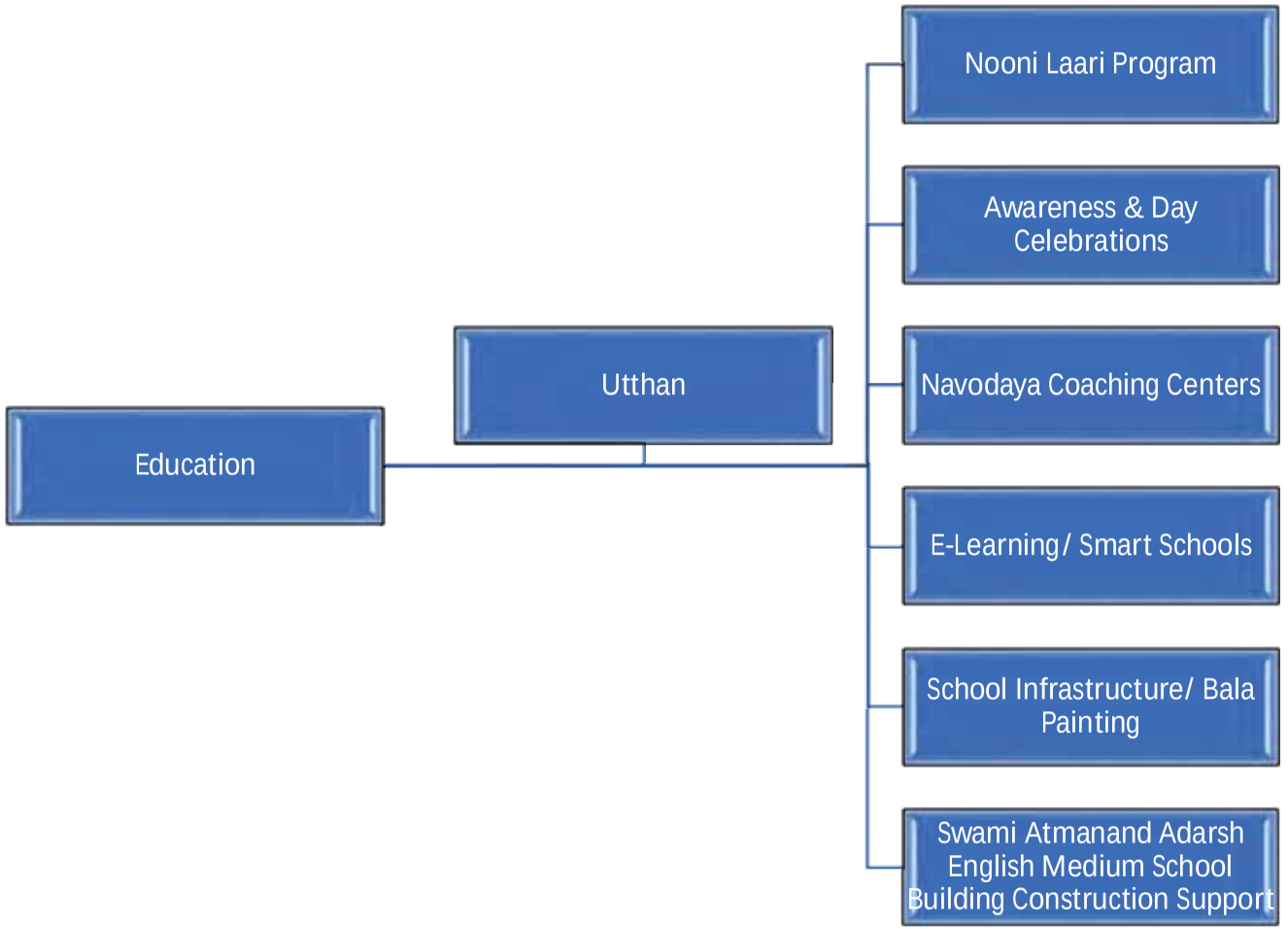
It gives me immense pleasure to present the Annual Report of Adani Foundation – Raipur for FY 2023-24. As a responsible corporate citizen, we always believe in creating long term values for our stakeholders with the motto of "Growth with Goodness". We are committed to building a sustainable future by driving positive changes in the areas of Education, Healthcare, Sustainable livelihood Development, Community Development & Climate Change. Over the past year, we have continued to focus on our core values of "Courage, Trust, Commitment".

Our efforts have resulted in achieving valuable connection between communities where we serve. We are proud to report that our CSR initiatives have touched the lives of thousands of people directly or indirectly across the intervention area. Our education programs have provided quality education to underprivileged children, our Healthcare interventions have brought medical facility close to the communities, and our Sustainable Livelihood Programs have empowered many people with skills and resource to become self-reliant. We have supported community SHG women to operate Garment Production Center, that provides self-employment opportunity to 104 Women & earn fruitful sustainable livelihood for themselves. Expansion of units is already placed in 3 more villages & planned to add 500+ women for sustainable social business enterprise model to benefit 500 household directly in preceding years.

I feel delighted to share, our operational Navodaya Coaching Center has facilitated 07 students to clear Jawahar Navodaya Entrance Exam at F.Y 2023-24, facilitating free of cost quality education, food & boarding of students at central government aided school. The selection counting has added 39 students since 2019.Our efforts have given sustained access to health, sustainable livelihoods, access to quality education which will eventually upgrade their standard of living. We would like to take this opportunity to thank our employees, partners and stakeholders for their unwavering support and commitment towards our shared vision of a better tomorrow. We remain steadfast in our commitments to creating positive impact and contributing to the sustainable development of the communities we serve. We hope you find this report informative and insightful, and we look forward to your continued support as we embark on another year of Growth with Goodness.

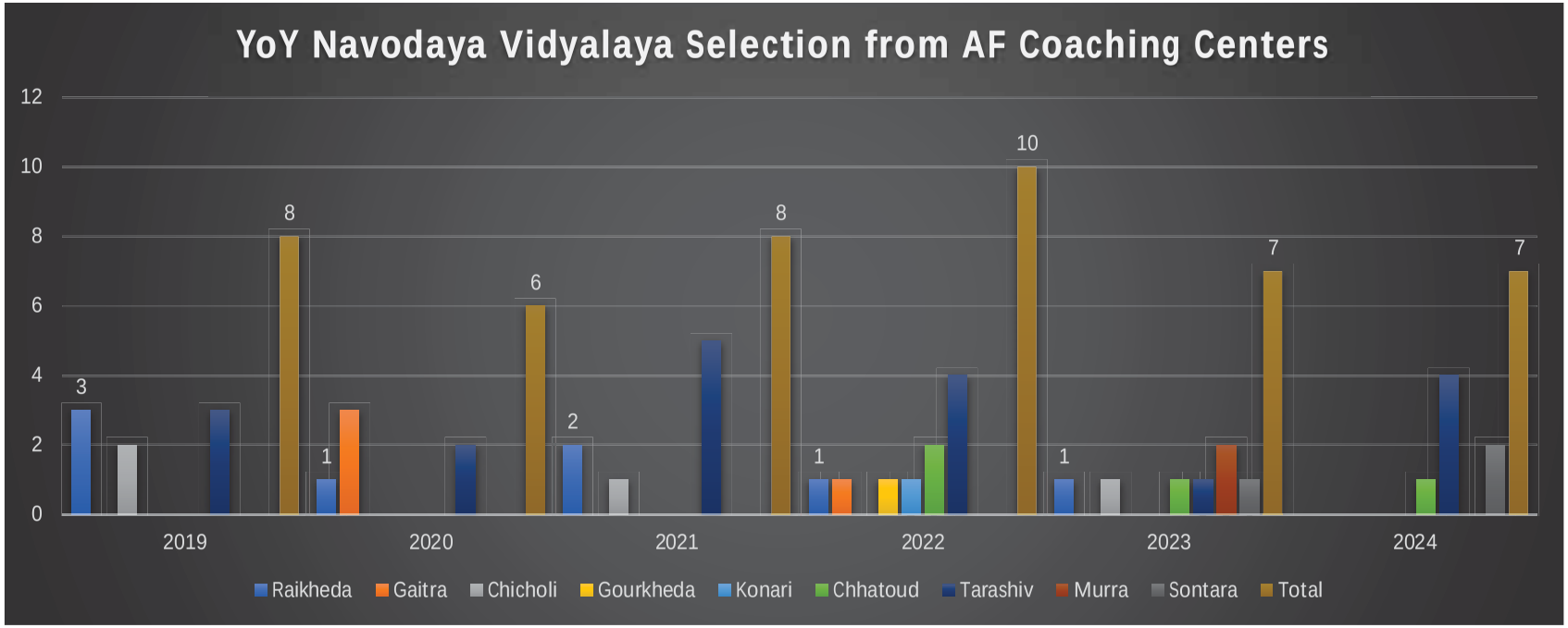
CSR Thematic Areas of Operation

EDUCATION


Education
Utthan
Nooni Laari Program
Awareness & Day Celebrations
Navodaya Coaching Centers
E-Learning/ Smart Schools
School Infrastructure/ Bala Painting
Swami Atmanand Adarsh English Medium School Building Construction Support

NONI LAARI: - Transportation facility "Noni Laari" exclusively for girls for their further studies from our 6 Project Affected Villages (PAV), The girl students who desire to pursue their higher education can opt for this facility for commuting to PG College-Tilda, which is about 25 kms. away from PAV.400 girls from PAV's have completed their graduation from PG College as far as there was no transport facility available to reach out for college & peruse their studies. The connection between the girls' students & their studies was re-established by adani foundation. Availing this free facility by girls, in return they are providing free coaching to children at their village. Each girl will provide education to minimum 5 students as **"Swa-daan".** It will help in raising the primary level education standard in villages. Swa-Daan benefits approximately 250 -300 primary school students of local communities.

NAVODAYA COACHING CENTER: In view of the Jawahar Navodaya school entrance examination, foundation has established 12 Navodaya Coaching Centers at villages Raikheda, Bhatpara, Gaitara, Khapari, Tarashiv, Chhatoud, Sontara, Mura, Konari, Khamharia, Gaurkheda and Chicholi. Since 2019, total 39 students from our coaching centers have secured their seats and studying in Jawahar Navodaya School–Mana. Total 120 Students have been registered for the Navodaya Coaching in 2023-24 session at Adani Foundation's running Navodaya Coaching Center. Online classes as well as offline center-based classes are continued in our Six centers. Navodaya faculties conclude students counselling, parents counselling & extended service of individual's child home visit.



E-Learning/ Smart Classes: - "*Education is the way to succeed……"* Right to good education is basic birth right of all the children born. Framing individual in better shape and thereby facilitates for a healthy society. Here is the story that talks about a primary school candidate, who paved his path towards a better life by attaining good education and knowledge with the help of Adani foundation Gaurav Mirjha from village Gaitara is a student of IInd standard. His father performs a labor job at surrounding factory & have big dreams for his son. But Gaurav finds difficulty in studies & archives bottom grades in class. His father, Vijay Mirjha was very worried about his son's future and lost all hopes. Gaurav was promoted to second grade despite weak academic result. However, His absenteeism from classes and inconsistency continued.

Adani foundation started e-learning program at Government Primary Schools in Project villages. Under this initiative smart television was installed with CPU, Keyboard, mouse, speaker & inbuilt digital package for standard Ist to Vth at Gaitra village. Shortly after the installation of digital education system, it was adopted by teachers while teaching students through animation, media, picture & videos. Students now find it easy & fun while teaching through digital space. Under e-learning schedule fixed schedule and online teaching materials was provided.

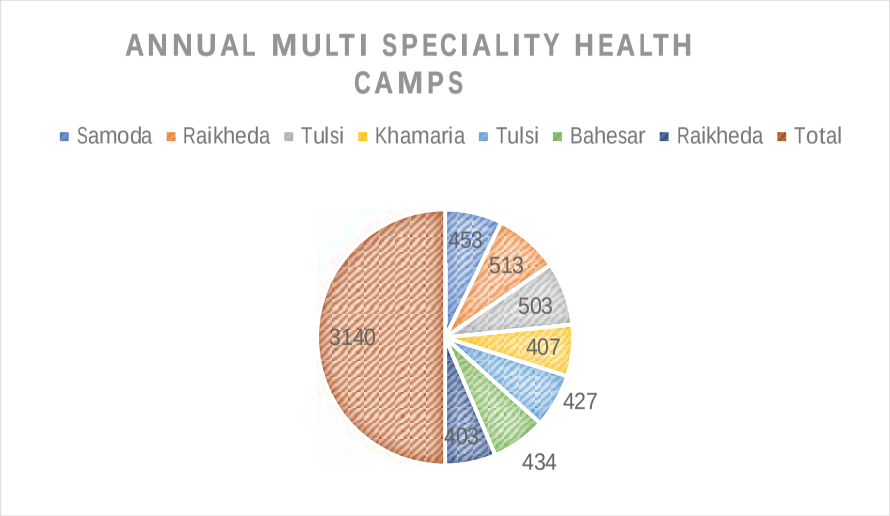
The students started enjoying this new mode of learning and they used to share this with their friends, family, and community. Learning then became fun for the students. When Gaurav heard about this, he got even excited. inquisitive and attend school He wanted to this new and learn about father was technology. His to see how equally delighted regular in his Gaurav became grades started curriculum. His to come back improving. He used share his from school and father. Not only experience with his about his did Gaurav learnt had a good overall development. studies but also

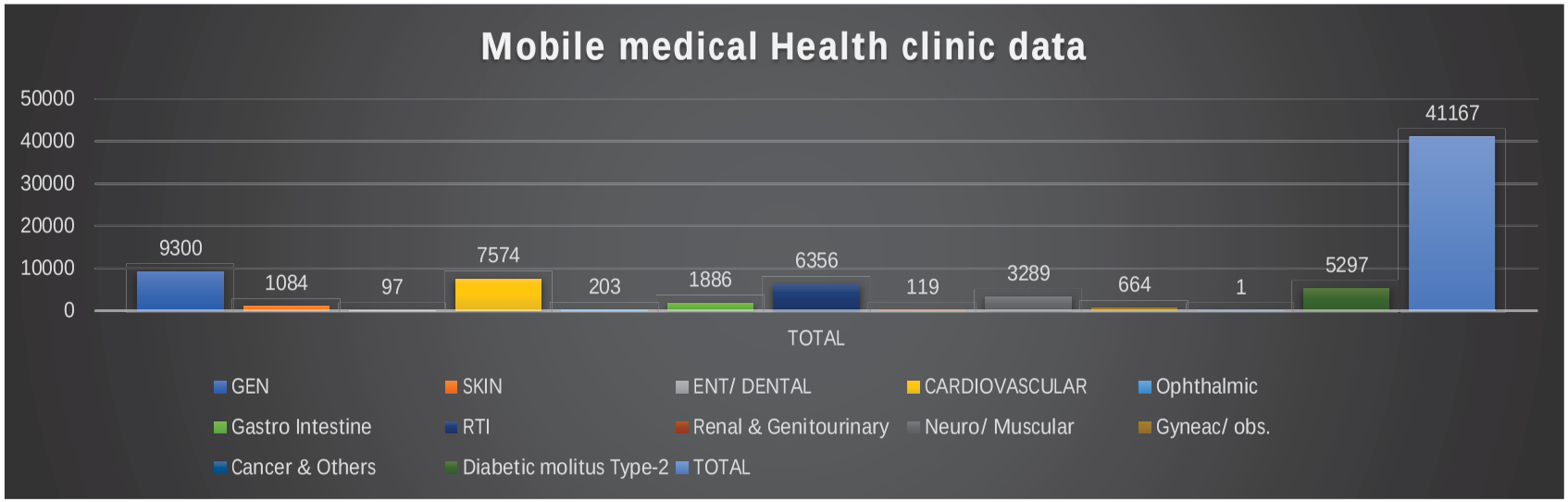
All the parents, teachers and especially Vijay expressed his deep gratitude to Adani foundation. It was only by the initiative made my Adani foundation not only Gaurav, but many other students started attending school. During the initial days of development, the big help that Adani foundation has extended has helped in framing the life of many Gaurav in the village.

Bala Painting & Awareness: - BALA Painting is a way to educate, facilitate purposeful & holistically plan for enhance learning of children through use the school infrastructure. It incorporates the ideas of activity-based learning, child friendliness and inclusive education for children with special needs (CWSN). Adani Foundation Raipur have taken 10 government Primary Schools for Bala Painting work. Thus, providing additional learning tool for students that also resulting in beatification of School Infrastructures.

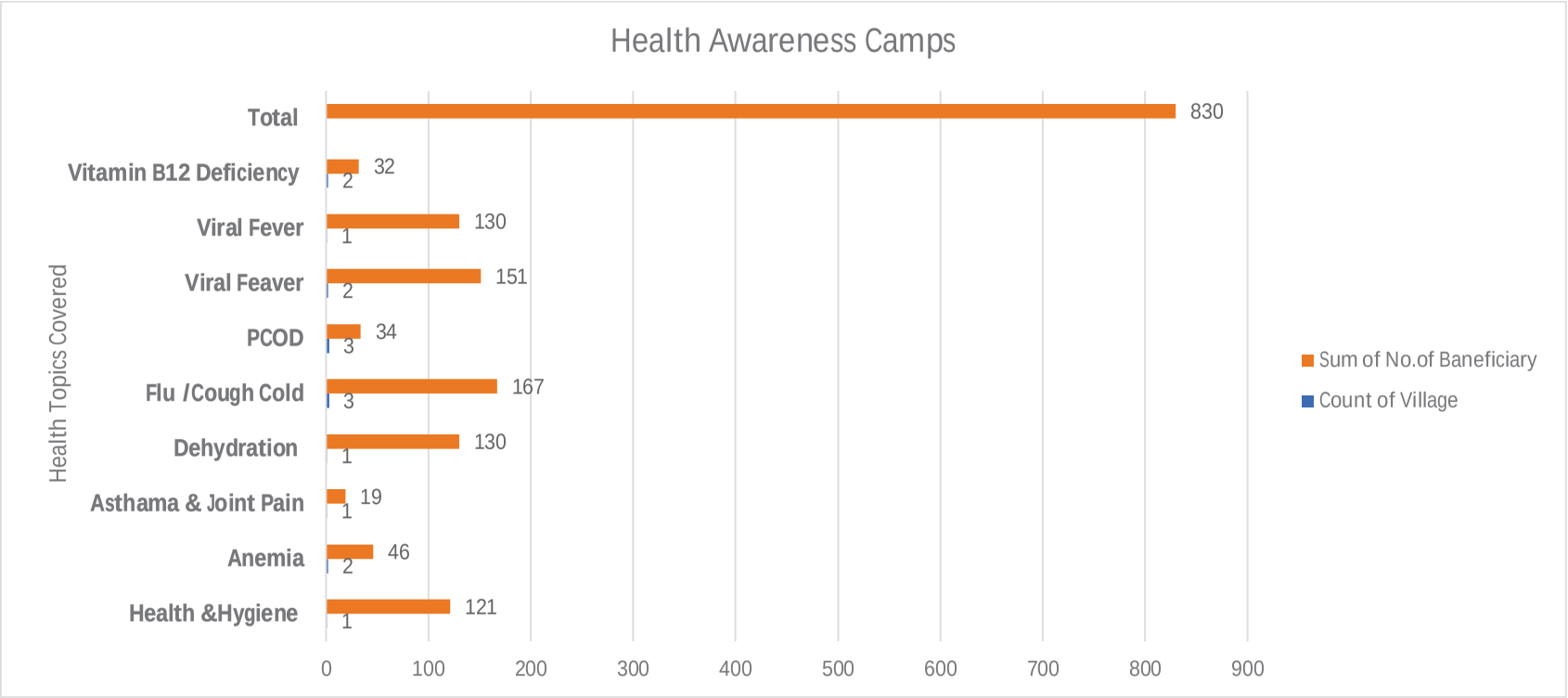
Swamiatmanand School :- Adani Fountation Raipur supported in construction of Swamiatmanad Adarsh English Medium school's building at Kharora Tehsil, District Raipur, Chhattisgarh. Swamiatmanand Adarsh English medium school has played a vitol role in providing quality english

COMMUNITY HEALTH Mobile Medical Health Care Clinic – "Swasthya apke dwaar": - Foundation beliefs in facilitating health care services at doorstep in villages. To provide best primary medical facilities for community majorly addressing on women, child & old age's health issues, area specific dieses like diabetes, hypertension, BP & general health problems. Below table gives a glimpse of monthly patients diagnosed with disease category wise. Medical Mobile clinic visits 16 villages on daily basis with experienced staff consists of doctor; pharmacist & Nurse provide free primary medical treatment to patients & medicines are given free of cost. Total patients benefitted during year 2023- 24 was 41,167 & 3148 benefitted through multi -specialty health camps.





Apart from regular mobile medical health Care unit, total seven multi-specialty health camps, gynecology health camps & monthly several Health initiatives like specialized health Camps organized focusing more on women & child health care services & also organized health talk session for community targeting old age, women, child, cardiac patients. Adani Foundation organized Blood Donation Camp to support critical patients through Red Cross Society Raipur & successfully achieved the 635 units of blood collection by APL employee, business associates & community people.



Above table reveals that adani foundation health team has mostly focused on communicable viral fever. That effects during any season change/ weather change. It badly targets children below 5 years age & if immediate precautions or medication doesn't takes place timely it may result in diminish of any suffering individual. Secondly the POCD (Pulmonary obstructive Chronic Dieses) was the major awareness health topic. APL Raikheda is located at the industrial belt of Raipur, being this mass labor smokes & addicted to alcohol consumption. This particular habbit raises the chance of POCD deadly dieses. Adani Foundation Health team take-up all above health issues to aware more & more people to stay safe & healthy life.

Project SuPoshan: - Launched in year 2016, an initiative of Adani Wilmar and implemented by Adani Foundation. It aims to reduce the prevalence of malnutrition in children below five years and anemia in adolescent girls and women of reproductive age group to transform India into a healthy well-nourished nation, SuPoshan strives to identify, train, and constantly empower the community, volunteers; known as SuPoshan Sanginis, who plays a vital role in this program. SuPoshan Sangini acts as a community resource pool to make the community aware about the consequences of malnutrition and anemia and educating them on prevention and cure; also help the community to access Government schemes and services. Her interventions include screening of malnourishment and anemia, family counselling, focus group discussion, community events and conduct household level demonstrations. In Raipur our interventions include screening of malnourishment and anaemia, family counselling, focus group discussion, community events and conduct household level demonstrations. Project operates in five Villages (Raikheda, Gaitra, Chicholi, Bhatapara, Gaurkheda) at eight Anganwadi with six Suposhan Sanginis. Mission to control the vicious cycle of malnutrition by enabling utilization of Government resources and bring positive behavior change at the community level.

- Improving health & nutrition status of acute malnourished children up to 5 years of age, with timely identification and curative action
- Strengthening health & nutrition status of children, adolescent girls, pregnant & lactating women. Creating a pool of sustainable resources at the community level
- Instilling positive knowledge for appropriate behavior changes.

Sustainable Livelihood Development

“A WOMEN Enterprise Development Initiative”

Garment Production Center- Readymade

Garment Production House operated by

“Saheli Mahila Samuh Raikheda.”

Adani Power Limited under the scope of CSR activities operates Garment Production Center- Rural Industrial Park (RIPA) at Tarashiv village. During the year 2023, Garment Production Center was inaugurated in Tarashiv village in association with RIPA Gram Samiti.

Government of Chhattisgarh State launched RIPA- Mahatma Gandhi Rural Industrial Park program to promote village level cottage & small-scale industries at village. RIPA includes huge infrastructure support like building, water, light & sanitation facilities for beneficiaries’ women.

Self Help Group formed under the core guidance of Adani Foundation, named as Saheli Mahila Silai Samuh, Raikheda was registered under all legal compliance paper of Society registration Act with the common

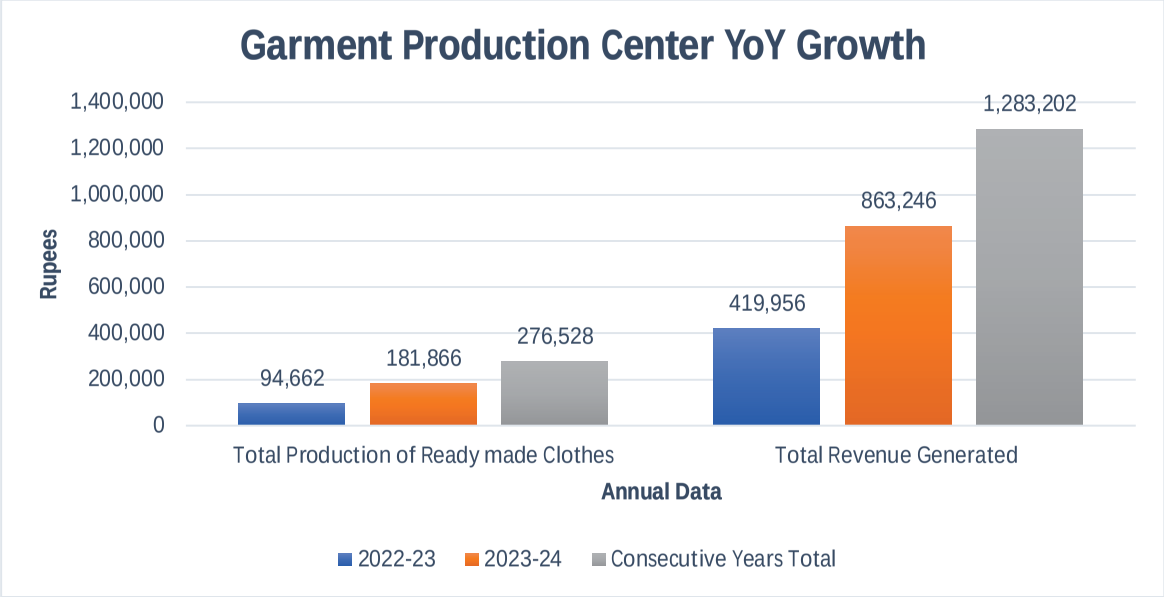
interest to collectively involve in sewing work as an economic activity & earn their livelihood. Saheli Mahila Shashkt Silai Samuh was formed on dated 25.06. 2021.

Adani Foundation supported Saheli Mahila Samuh to start stitching work by providing professional tailoring training & 129 Hy-speed electric sewing machines at RIPA. MOU between Saheli Mahila Samuh, Adani Foundation & RIPA Prabandhan Samiti is signed with effect from 1st April 2023 under individual organization's roles & responsibility. Concrete infrastructures like land, Building, water & other is provided by RIPA committee of Tarashiv village. Adani Foundation will provide soft skill of sewing training, support staff like trainers, sewing machines & support of raw material & finished product transportation. The GPC RIPA was inaugurated by Sh. Jaydeb Nanda (COO, Adani Power Limited). SHG is engaged in stitching women readymade dress items, which is further supplied to a private vendor under buyback scheme. The raw & semi-finished dress material is

supplied by vendor in thousands quantity which is stitched & returned to vendor. Vendor transfers stitching charges to SHG bank account number which is further distributed to each individual member who stitches according to their quantity stitched.

During the start of GPC-RIPA at Village Tarashiv, 15 women were initially engaged at stitching work. Adani Foundation SLD team took continuous meetings with community women. It was addressed during meetings by foundation team that '" steps will be converted into double if women take one step forward to engage themselves in economic generation activity through sewing work". During the initial phase of trainings, working continuous 8 hours on sewing machine was not an easy task

for any individual. Many of them left the training in between one months scheduled training. AF team members visit individual trainees' home to follow up & aware importance of the self-employment that they got easily but left in between the training. Total of 29 high speed electric motor equipped sewing machines were donated at RIPA-GPC by adani Foundation (APL) to support Saheli Mahila Silai Samuh, Raikheda to engage women for income generation through ready-made cloth manufacturing.



Additional 100 sewing machines were added into assets base for training & development of more community women. The strength of 15 women in April'23 rose to 94 women added at sewing & stitching work through Adani Foundation intervention at Garment Production Center. All the 94 women gainfully engaged in o4 garment production centers opened in different villages like Raikheda, Bhatapara, Chicholi & RIPA Tarashiv.

Adani Foundation Raipur has a mission to add 500 women at garment manufacturing activity till 2025-26, to facilitate them a respectfully & gainfully self-employment opportunity for community women. These village women who earlier find difficult to work outside have now developed the habits of connecting with each other, banking for money transfer, deposits, withdraw money. It has boosted their self -confidence.

Since inception 1st April'23, total ready-made garments, production stood **1,81,866** & revenue generated by women group is Rs, **8,63,246/-**

CSR Garment Production Center visits:-

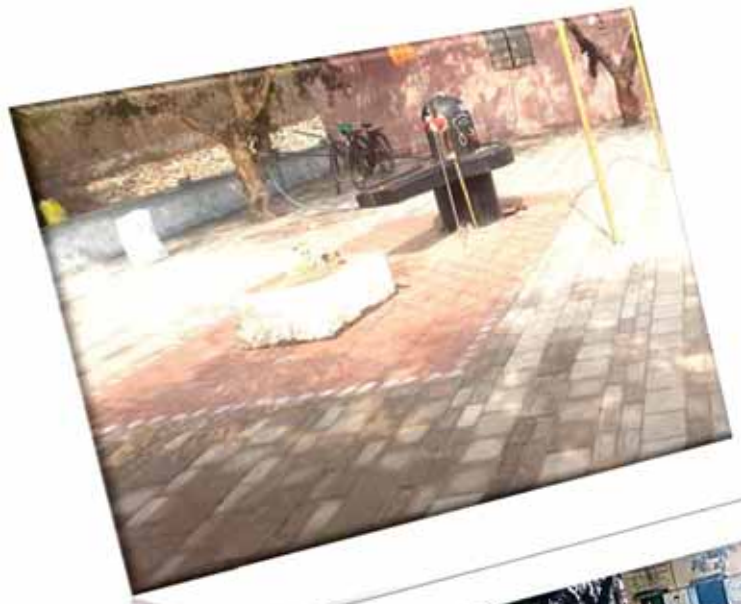
ABEM Auditors Visit at RIPA

tradition & culture with daily routine life starts & ends with it. Essential water requirement is affected due to less rainfall & ponds silt deposition effects the water holding capacity of ponds.

Gram Panchayat PRIs requested Adani Foundation to undergo pond deepening activities in villages. On request from Gram Panchayat, Adani Foundation team conducted the survey of 05 ponds & farms fields & household families located near ponds.

Based on survey, AF civil team concluded excavation of 05 ponds to regain extra water catchment area of 21,500 CUM.

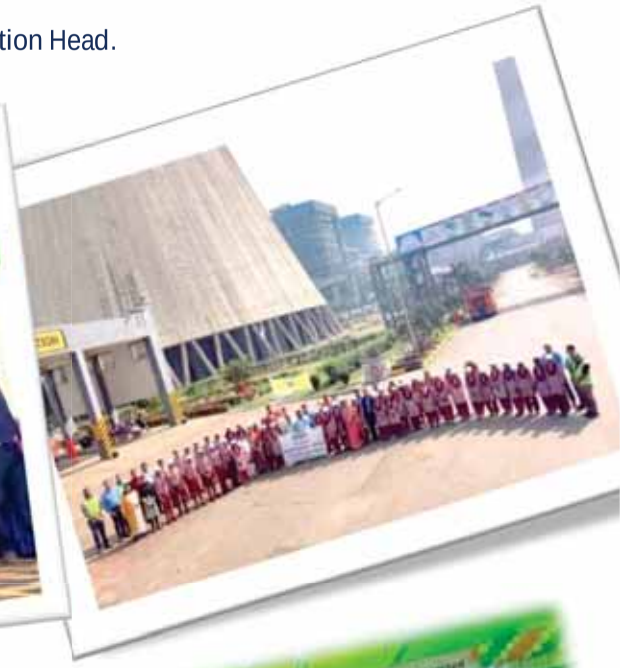
Adani Foundation Raipur also marked their efforts for the infrastructure development of government primary school, construction of women Self Helf Group for sustainable livelihood development. Village community places have pvitol role in community mobilization as people connect with eachother at common village places like panchayat bhavan, religious places, mela, merriage ectras. In view of goot connectivity within villagers Adani Foundation performed beautification of Banjari Mata Community place at villages.



Events Celebration: -

Adani Foundation is always striving hard to strengthen those values & principles of the society. We respect the co-factors in the development of the society. Therefor we organize events celebration at schools & communities to honor the hands who laid support for society welfare & development. We organized various events as below: -

- World Environment/ Ozone/ Global Handwash/ Earth Day
- International Youth Day by supporting Sports Tournament at Khamariya & Youth Counselling by Station Head.
- School Sports Tournament “Chhattisgarh Olympics at Raikheda.
- Football Tournament at Kharora & Cricket Tournament at Raikheda.



International Youth Day

Celebration

INTERNATIONAL WOMEN'S DAY CELEBRATED BY FELICITATING 200 WOMEN FROM COMMUNITY VILLAGES

Annexure - VIII

O/C

adani
Power

Ref. No: REL/ENV/CECB/22-23/202
Date: September 10, 2022

To

The Member Secretary,
Chhattisgarh Environmental Conservation Board
Paryavas Bhavan, North Block, Sector 19, Atal Nagar,
Nawa Raipur, Dist.- Raipur, Chhattisgarh (492002)

Sub: Submission of Environmental Statement Report (Form-V) for our 1370 MW (2×685 MW) coal based thermal power plant at Village-Raikheda, Block – Tilda, District-Raipur, and Chhattisgarh.

Dear Sir,

With reference to above subject, kindly find enclosed herewith Environment Statement Report (FORM- V) for the financial year 2021-22 duly filed as per format of Environment Statement prescribed by the Board for the period of April' 2021 to March' 2022.

Submitted for kind information and record please.

Thanking You,

Yours's faithfully
For, **Raipur Energen Limited (REL)**

Gattu Rambhav
Station Head

Encl.: As cited above

CC : Regional Officer, C.E.C.B. Kabir Nagar, Raipur (C.G.).

R.O.C.E.C.B.
L.R.No
DATE
RAIPUR

Raipur Energen Limited
(Formerly Known as GMR Chhattisgarh Energy Limited)
Adani Corporate House,
Shantigram, Near Vaishno Devi Circle,
Khodiyar, Ahmedabad-382421,
Gujarat, India
CIN: U40108GJ2008PLC116835

Tel +91 79 2656 7555
Fax +91 79 2555 7177
info@adani.com
www.adani.com

Registered Office: Adani House, 56, Shrimali Society, Navrangpura, Ahmedabad-380009, Gujarat, India

H.O.C.G. Environment Conservation Board
14/9/2022

ANNUAL ENVIRONMENT STATEMENT REPORT

(For Year 2021- 22)

1370 (2×685) MW

RAIPUR THERMAL POWER PLANT

At

VILLAGE RAIKHEDA, GAITARA & CHICHOLI,

BLOCK TILDA, DISTRICT RAIPUR

CHHATTISGARH

Submitted to:

CHHATTISGARH ENVIRONMENT CONSERVATION BOARD,
RAIPUR, Chhattisgarh

Submitted by:

adani

Power

Environment Management Department

Raipur Energen Limited

Village Raikheda, Gaitara & Chicholi,
Block Tilda, District Raipur
Chhattisgarh

FORM – V

(See Rule 14)

ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING 31ST MARCH 2021

PART – A

(i)	Name and address of owner/occupier of the industry operation or process.	:	Mr. Rambhav Gattu. **Raipur Energen Limited** (Formerly Known as GMR Chhattisgarh Energy Limited) Village: Raikheda, Block: Tilda Distt.: Raipur, Chhattisgarh PIN: 493225
(ii)	Industry categories	:	Large scale industry
(iii)	Production capacity	:	1370 (2x685) MW
(iv)	Year of establishment	:	2014
(v)	Date of last environmental statement submitted	:	30.09.2021

PART – B

WATER AND RAW MATERIAL CONSUMPTION

I. **Water Consumption (m^3 / Day)**

Process :	1937.7	m^3/day
Cooling :	48843.7	m^3/day
Domestic:	90.4	m^3/day

SN	Name of product	Water consumption per unit of product output for plant operation	
		During the current financial Year 2020-21	During the current financial Year 2021-22
1	Electricity	0.0061 m3/MWh	0.0066 m3/MWh

II. **Raw Material Consumption**

SN.	Name of raw material	Name of product	Consumption of raw material per unit of output	
			During the Previous financial Year 2020-21	During the current financial Year 2021-22
1	Coal	Electricity	0.72 MT/MWh	0.70 MT/MWh

PART – C

POLLUTION DISCHARGED TO ENVIRONMENT/ UNIT OF OUTPUT

(Parameter as specified in the consent issued)

SN	Pollutants	Quantity of pollutants discharged (Ton/day)	Concentrations of pollutants in discharges (mg/Nm3)	Percentage of variation from prescribed standards with reason
a	Water	0.00	0.00	Plant is designed for zero discharge
b	Air: PM	3.99	45.00	Within the standards of CECB/CPCB
	SO2	88.36	1105.75	Communicated with MoEF & CC regarding time of alignment with CEA phasing plan for achievement of new emission standards.
	NOx	14.03	382.8	Communicated with MoEF & CC regarding time of alignment with CEA phasing plan for achievement of new emission standards.

Monitoring report of Ambient Air Quality, Ground water quality, Surface water quality, Noise level are being submitted regularly to MoEFCC, CPCB and CECB.

PART – D

HAZARDOUS WASTES

AS SPECIFIED UNDER HAZARDOUS WASTES (MANAGEMENT, HANDLING AND TRANS BOUNDARY MOVEMENT) RULES, 2016

Hazardous wastes	Total quantity (KL)	
	During the previous financial year 2020-21	During the current financial year 2021-22
a) From process	9.5 KL used oil	11.340 KL used oil
b) From pollution control facility	0.00	0.00

PART – E

SOLID WASTES (ASH)

SN	Solid Wastes	Total Quantity in MT	
		During the previous financial year 2020-21	During the current financial year 2021-22
(a)	From Process (Ash)	1,601,531	2,040,886
(b)	From pollution control facility	0.00	0.00
(c)	(1) Quantity recycled or re-utilized within the unit	0.00	0.00
	(2) Sold	0.00	0.00
	(3) Disposed	1,665,252	2,001,279

PART- F

PLEASE SPECIFY THE CHARACTERIZATIONS (IN TERMS OF COMPOSITION OF QUANTUM) OF HAZARDOUS AS WELL AS SOLID WASTE AND INDICATE DISPOSAL PRACTICE ADOPTED FOR BOTH THESE CATEGORIES OF WASTES.

Hazardous waste: Used oil which is generated from power plant process & are being collected in MS drum from source; disposed of through Authorized recyclers.

Solid waste: Fly ash is generated as solid waste from the plant process & we are putting every effort as illustrated below for 100% utilization of Ash:

- We have made agreements with various cement manufacturers in Dist: Raipur, Balodabazar, Bhilai-Chhattisgarh for utilization of fly ash.
  Presently, we are providing fly ash to M/S Shree Cement, Ultratech Cement units (Hirmi, Rawan & Baikunth), M/s J. K. Lakshmi Cement, M/s Ambuja Cements and M/s Aditya Cement plant etc.

- We have established Flyash based Brick manufacture unit having capacity: 15000 bricks/day inside REL plant premises and also having agreements with various other Bricks & Blocks manufacturers units in Dist.: Raipur, Chhattisgarh for utilization of fly ash.
  Presently, we are providing fly ash to M/s Ecorex Buildtech Private Limited, M/s R. K. Bricks, Sun Bricks and M/s Positive Associates etc.

- In addition to above, we are providing fly ash to Road Projects to M/s. Bilaspur Pathrapali Road Project, M/s UMSL Odisa Road Projects, Punjab Roadways and in other construction activities and also in discussion with various other Road Projects to maximize ash utilization.

- We have made agreement & signed MOUs with M/s. Shree cement Limited for providing Pond Ash approx. 2.0 Lac MT /month

- We made agreements with M/s. Sharma construction and M/s Rajlaxmi Treders for lifting Bottom ash and filling for abandoned Mine Pits/stone quarries exist in nearby vicinity.

- We are in discussion with Local red bricks manufactures for "Use of Bottom Ash in production of Red Bricks and also, we planning to supply bottom ash in fly ash bricks manufactures for replacement of sand.

PART - G

IMPACT OF THE POLLUTION ABATEMENT MEASURES TAKEN ON CONSERVATION OF NATURAL RESOURCES AND ON THE COST OF PRODUCTION

(1) Extensive tree plantation has already been done, in compliance of EC & consent order greenbelt development/plantation, which will be mitigate & optimize the ambient temperature as well Air emission of surrounding area. Copy of Green Belt Development status is attached as ***Annexure – I***

(2) We have constructed the rainwater harvesting ponds in our plant premises to recharge ground water. in the form of conservation of monsoon run off, reuse, and recycle of water is in place. Rainwater harvesting pond photographs is attached as ***Annexure – II***

(3) We have been using fly ash brick for all the construction activities in our plant.

PART - H

ADDITIONAL MEASURES / INVESTMENT PROPOSALS FOR ENVIRONMENTAL PROTECTION INCLUDING ABATEMENT OF POLLUTION, PREVENTION OF POLLUTION

(1) REL have obtained Single-use Plastics free Certification as verified by the Confederation of Indian Industry, under the provisions of the Plastics-use Protocol: Verification and Certification (1.0), having validity upto 14 March 2023. Copy of SUP Free Certificate is attached as ***Annexure – III*** for information please.

(2) Separate fund allocated for implementation of Environmental Protection measures. The funds earmarked on environmental protection are not diverted for any other purpose and year-wise expenditure report submitted to CECB/MoEFCC. Copy of expenditure incurred towards implementation of environment protection measure at REL in the FY: 2021-22 are summarized and attached as ***Annexure IV***

(3) Adoption of Good House-Keeping practices, in which proper & systematic stacking & movement of construction materials, packing material etc. has been implemented.

(4) All the internal roads have been made pucca in order to reduce fugitive dust emission.

(5) 03 Nos. Online ambient air quality monitoring systems as well as meteorological monitoring system is installed which helps us to take corrective action instantaneously in case of any deviation. Data of all CAAQMS is connected to board.

(6) ETP has been installed to treat industrial wastewater if any with online quality monitoring system and PTZ Camera. Data of the same is connected with Board.

(7) STP is also provided for domestic water treatment.

(8) Organic Waste Converter is being installed at site for scientific disposal of food waste. The generated manure has been using in green belt development.

(9) Water sprinkling systems has been provided for CHP area.

(10) Integrated Management System has been implemented in plant.

(11) Waste management policy has been implemented and we are working for zero landfill.

(12) Rainwater Harvesting system will be strengthened to increase the water recharge quantity.

Green Belt Development Details at Raipur Energen Limited, Raikheda
2021-22

Sr. No.	Description	Quaintly / Unit
1	Plantation on 33% land of 850 acres	280 acres
2	Density of plantation	2500 plants / Hectare
3	Area required per plant	4.0 SQM
4	Total plantation since commissioning	217762 Nos.
5	Total no. of plantation in FY 2020-21	9718 Nos.
6	Total no. of plantation in FY 2021-22	6714 Nos.
7	Survival Rate	>90%

Plant species Planted at Raipur Energen Limited, Raikheda
2021-22

Sr. No.	Location	Area in (Hect.)	Tree (No.)	Tree Spp.	Shrubs (Sq. Mt.)	Green Carpet (Sq.Mt.)	Palm (No.)	Remarks
1	Hostel Premises	0.150	60	Ficus religiosa	0	0	0	Planted in Sept'2021
		0.150	60	Ficus bengalensis	0	0	0	
		4.500	1800	Azadiracta indica (Neem)	0	0	0	
		4.500	1800	Cassia fistula	0	0	0	
		1.920	1200	Delonix regia	0	0	0	
		1.280	800	Mimusoaps illengii	0	0	0	
		0.064	40	Ashoka pendula	0	0	0	
		0.030	0	Pots	300	0	0	
		12.594	**5760**		**300**	**0**	**0**	
2	Fire building to Technical building	0.544	0	Lawn	0	5441	0	01.02.2022 to 28.03.2022
		0.002	0	Cycus Palm	0	0	16	
		0.001	0	Fox Tail Palm	0	0	12	
		0.001	0	Royal Palm	0	0	8	
		0.001	0	Phoenix Palm	0	0	12	
		0.001	0	Coconut Palm	0	0	12	
		0.002	0	Plueria Red	0	0	20	
		0.128	0	Shrubs	1280	0	0	
		0.007	0	Hedges	70	0	0	
		0.687	**0**		**1350**	**5441**	**80**	
3	Nursery Development (Capacity: 144000 Number Saplings incl. all species)	0.250	100	Mangifera indica	0	0	0	23.12.2021 to 28.03.2022
		0.150	60	Sapota	0	0	0	
		0.150	60	Psidium guavajava	0	0	0	
		0.150	60	Lemon	0	0	0	
		0.170	68	Azadiracta indica (Neem)	0	0	0	
		0.075	30	Pongamia gabra	0	0	0	
		0.075	30	Delonix regia	0	0	0	
		0.075	30	Cassia fistula	0	0	0	
		0.189	210	Cono carpus	0	0	0	
		0.150	60	Mimusoaps illengii	0	0	0	
		0.063	210	Ashoka pendula	0	0	0	
		0.030	12	Eagal marmelose	0	0	0	
		0.030	12	Ficus religiosa	0	0	0	
		0.030	12	Ficus bengalensis	0	0	0	
		0.006	0	Seasonal Flower Beds	60	0	0	
		0.030	0	Seasonal Pots	300	0	0	
		0.030	0	Ornamental Pots	300	0	0	
		0.120	0	Ornamental Shrubs	1200	0	0	
		1.77	**954**		**1860**	**0**	**0**	
2021-2022		**15.05**	**6714**		**3510**	**5441**	**80**	**Survival 90%**

ANNEXURE - II

Rainwater Harvesting Ponds at our Site

ANNEXURE-III

CII-ITC Centre of Excellence for Sustainable Development

Confederation of Indian Industry

SUP SINGLE-USE PLASTIC free

Certificate

Single-use Plastic Free

Raipur Energen Limited

Village – Raikheda, Block-Tilda, District-Raipur
Raipur-493225, Chhattisgarh, India

This is to certify that Raipur Energen Limited, (a subsidiary of Adani Power Limited) at the location mentioned above, is Single-use Plastics free as verified by the Confederation of Indian Industry, under the provisions of the **Plastics-use Protocol: Verification and Certification (1.0)**.

This Certificate is valid from 15 March 2022 to 14 March 2023.

PLASTICS-USE PROTOCOL

CONFEDERATION OF INDIAN INDUSTRY CII NEW DELHI

Ms Seema Arora
Deputy Director General
Confederation of Indian Industry (CII)
Centre of Excellence for Sustainable Development (CESD)

Certificate Date: 23 March 2022

Certificate No.: CII/PuP/2022/003

This certificate has been awarded after the overseer has verified the requirements for phasing-out single-use plastics and provided evidence for it. Responsibility for the data provided to CII rests solely with the company. The conditions of certification, and terms are detailed in the Annex.

ANNEXURE-IV

Expenditure incurred towards the implementation of Environmental Protection – 2021-22 (Rs in Lac.)

Capital Expenditure (Establishment & strengthening of Environment Management System):		
1	Procurement of weather monitoring system, & 02 Nos. of $PM_{2.5}$ & PM_{10} samplers each for manual ambient air quality monitoring and required consumables (spares & filter papers etc.) for smooth operation of existing laboratory equipment/analyzers	25.11
2	Procurement of Organic Waste Composter (OWC) for environment friendly disposal of food waste and generation of green manure for utilization in horticultural development activity inside plant premises.	7.80
	Total Capital Expenditure (Rs. In lakhs)	**32.91**
Recurring Expenditure (Waste disposal, emissions treatment and remediation costs):		
1	Expense on Ash handling and dust suppression system at Ash Handling Plant:	
•	Procurement of spares and consumables of Ash conveying system for smooth conveying of ash from ESP hopper to silo area	36.71
•	Cost incurred on hiring services for: **a)** Water Washing of Unit#2 ESP and **b)** Conveying pipeline repairing and Ash Slurry Line replacement activity	24.34
2	Expense on Coal handling and dust suppression at Coal Handling Plant:	
•	Establishment of 02 Nos. of new Coal Settling Pits (Crusher House and TP#2) for collection and reutilization of runoff water	7.00
•	Procurement of 02 Nos. of submersible Pumps for Coal runoff water lifting for reutilization on dust suppression activity.	6.50
3	Expense on Ash utilization/disposal System:	
•	Hiring of Machinery & Equipment for excavation & loading of pond ash for further disposal in allocated abandon mine void and other low laying areas inside plant premises.	160.03
•	Transportation & Disposal of ash from plant site to abandon Mine Voids	150.94
4	Procurement of lamp assembly, filters & gratings, PCI Cards, refilling of calibration gas cylinders and other spare & consumables for 03 Nos. of online air quality monitoring (AAQM) Systems inside plant premises.	12.87
5	Cost incurred on hiring services for environmental monitoring by CECB/MoEFCC authorized Environmental Monitoring agency as per compliance requirement.	19.35
6	Cost incurred on development and maintenance of green belt area (Horticultural activities) inside and around plant premises	52.50
7	Cost incurred on chemical treatment of Effluent at Water Treatment Plant	1.60
	Total Recurring Expenditure (Rs. In lakhs)	**471.85**
	Grand Total (Rs. In lakhs)	**504.75**

Hkkjr ljdkj
ijek.kq Åtk foHkkx
fofdj.k ,oa vkblksVksi izkS|ksfxdh cksMZ

Government of India
Department of Atomic Energy
Board of Radiation & Isotope Technology

Certificate Tracking ID / CTID : 2400624
Date of Issue / DOI : 23-Feb-2024
Certificate Serial No. / CSN : ULR-TC1170324000001748F

TC-11703

Radioanalytical Laboratory

RADIOACTIVITY TEST CERTIFICATE

Ref : BRIT/RAL/DOM/1198-1205/MISC/875-882/23-24

To :
M/S. ADANI POWER LIMITED
1, BLOCK TILDA, RAIKHEDA,
RAIPUR - 493225
CHHATTISGARH
INDIA.

This is regarding the sample of "COAL, FLY ASH & BOTTOM ASH & POND ASH" sent for radioactivity analysis vide your letter ref. APL/ENV/23-24/301 dt. 25.01.2024 which as per above letter is drawn from consignment with the following markings, as shown in italics:

NAME & ADDRESS OF COMPANY : M/S. ADANI POWER LIMITED 1, BLOCK TILDA, RAIKHEDA, RAIPUR- 493225 CHHATTISGARH INDIA.

Sr. No	SAMPLE NO	TYPE OF SAMPLE	PLACE	DATE OF SAMPLE	WEIGHT (IN KG)
1	SAMPLE NO 1	COAL	APL, RAIPUR	23/01/2024	01
2	SAMPLE NO 2	FLY ASH	APL, RAIPUR	23/01/2024	01
3	SAMPLE NO 3	BOTTOM ASH	APL, RAIPUR	23/01/2024	01
4	SAMPLE NO 4	POND ASH	APL, RAIPUR	23/01/2024	01

DATE OF RECEIPT OF SAMPLE: 31.01.2024 **DATE OF COMPLETION OF TEST: 21.02.2024**

The Samples provided were analysed for U-238 and Th-232 radioactivity content by HPGe gamma spectrometry and the values obtained are as follows :

Sr. No	SAMPLE DESCRIPTION	U-238 (Bq/Kg)	Th-232 (Bq/Kg)
1	COAL	43.4 ± 2.1	60.8 ± 6.4
2	FLY ASH	96.5 ± 2.6	149 ± 5.8
3	BOTTOM ASH	73.8 ± 2.1	109 ± 10.8
4	POND ASH	65.3 ± 2.1	92.2 ± 9.4

Opinion: The measurement values are below the clearance level for radionuclides of natural origin in bulk solid materials, as per AERB directive 01/2010 (table-3) dated 26/11/2010.

Note: (i) The report pertains to the given sample only. (ii) The sample will be retained in this laboratory for a period of 1 month from certificate date and thereafter it will be disposed off. (iii) This report shall not be reproduced except in full, without written approval of the laboratory. (iv) The sampling is not done by this laboratory.

Checked by:
GANPAT B NAKTI
Assistant

Authorized Signatory:
AJAY NANA THAMKE
OIC, RAL

********** End of Report **********

fo'kdkdk@ ch,vkj lh ifjlj] lDVj 20] ok'kh] uoh eqacbZ & 400 703 ¼egkjk"Vª½
BRIT/ BARC Vashi Complex, Sector 20, Navi Mumbai – 400 703 (Maharashtra)
0kcIkbV@ Website: www.britatom.gov.in; njHkk"k@ 022 2788 7002/ 7006