JHABUA POWER

JPL/ECC/Phase-I/FHY/2024-2025 November 04, 2024

To,

The Director,
Ministry of Environment, Forests & Climate Change
3rd Floor, Vayu Block,
Indira Paryavaran Bhawan, Jor Bagh Road,
Aliganj, New Delhi-110003

Sub.: Submission of Six Monthly Compliance Report - 1x600 MW Coal Based Thermal Power Plant, Villages- Barela & Gorakpur, Tehsil- Ghansore, Distt.-Seoni, Madhya Pradesh.

Ref.: EC Letter No.: J-13012/105/2008-IA-II (T) dated 17th February, 2010 & Corrigendum dated 22nd December, 2010.

Dear Sir,

Please find attached the **Six Monthly Compliance Report (April' 2024 to September' 2024)** in fulfilment of conditions stipulated in the Environment Clearance (letter issued by MoEF, New Delhi and referenced above) for 1x600 MW Coal based Thermal Power Plant at Villages- Barela & Gorakpur, Tehsil- Ghansore, Distt.- Seoni, Madhya Pradesh of M/s Jhabua Power Ltd. Soft copy is uploaded on MoEF & CC web site-Parivesh.

Kindly acknowledge.

Regards,

For Jhabua Power Ltd.

Authorized Signatory

Enc.: Six Monthly Compliance Report (April' 2024 to September' 2024)

M/s JHABUA POWER LTD.

COMPLIANCE REPORT

In respect of

ENVIRONMENTAL CLEARANCE

MoEF letter no. J-13012/105/2008-IA.II (T) dated 17th February 2010

and

Corrigendum dated 22nd December 2010 & 25 January 2012

COMPLIANCE PERIOD: APRIL 2024 to SEPTEMBER 2024

FOR

Jhabua Power Limited

1 x 600 MW THERMAL POWER PLANT

AT

VILLAGE:- BARELA & GORAKHPUR

TEHSIL: - GHANSORE

DISTRICT: - SEONI

MADHYA PRADESH

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Compliance to conditions stipulated in Environmental Clearance

(Ref MoEF letter no. J-13012/105/2008-IA.II (T) dated 17th February 2010 and Corrigendum dated 22nd December, 2010 & 25 January 2012)

Sl No.	Conditions	Compliance
i	Environmental clearance is subject to submission from the Competent Authority in the state govt. that the project area does not fall within a notified tribal area.	As per corrigendum issued from MoEF dated **22nd December 2010,** this point has been deleted.
ii	No tribal land shall be acquired for the power plant.	As per corrigendum issued from MoEF dated **22nd December 2010,** this point has also been deleted.
iii	A special scheme (as part of CSR activity) for sustainable livelihood of poor tribal and marginalized population within the study area shall be formulated with inbuilt monitoring mechanism of time bound implementation. The status of implementation shall be submitted to the Regional Office of the Ministry and the Competent Authority in the state govt. half yearly.	All CSR related works are being formulated accordingly along with time bound, implementation and its active inbuilt monitoring mechanism.
iv	Environmental clearance is subject to submission to the Regional Office of the Ministry the details of projected affected families (PAF), land losers (homestead as well as ordinary land losers) and compensation paid / proposed per acre and time schedule	R & R plan has been submitted. There will be no rehabilitation of any family/person due to proposed project activity.

	for implementation of R&R scheme.	
v	Hydro-geological study of the area shall be reviewed annually and results submitted to the Ministry and concerned agency in the State Govt. In case adverse impact on ground water quantity and quality is observed, immediate mitigating steps to contain any adverse impact on ground water shall be undertaken.	Hydro-geological study of the area is being reviewed regularly. Recent hydrogeological report of the area reviewed is enclosed as **Annexure -1.** The consistent trend of change in water level from pre monsoon to post monsoon of monitoring wells shows that there is no adverse impact in the ground water table in the project area and adjoining villages because of the project site. Conjunctive use of surface water and sub-surface water is benefiting the area by increase the stream flow duration and ground water level. Quality of ground water is also well within the permissible limits.
vi	A stack of 275 m height shall be provided with continuous online monitoring equipment for SOx, NOx and RSPM ($PM_{2.5}$ & PM_{10}). Exit velocity of flue gases shall not be less than 22 m/sec. Mercury emissions from stack shall also be monitored on periodic basis.	275 m stack height has been constructed and continuous online stack monitoring system along with remote calibration system for the monitoring of emission is installed. The exit velocity of flue gas is maintained not less than 22m/sec. Mercury emission is also periodically monitored during the operation of power plant. Stack monitoring report is enclosed as **Annexure -2.**
vii	High Efficiency Electrostatic Precipitators (ESPs) shall be installed to ensure that particulate emission does not exceed 50 mg/Nm^3.	High Efficiency Electrostatic Precipitators (ESPs) has already been installed and outlet of ESP is integrated with 275 m stack height to restrict the particulate emission below 50 mg/Nm^3.

viii	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.	Effective and adequate dust suppression system like water sprinkling system, Cyclone Separator & Bag Filters have been installed in the dusty areas such as in coal handling and ash handling points, transfer areas. Coal conveyer system is permanently covered to restrict the dust release whereas transportation of fly ash from the AHP to the ash pond is through high concentration slurry disposal system.
ix	Utilization of 100% fly ash generated shall be made from 2nd year of operation of the plant. Status of implementation shall be reported to the Regional Office of the Ministry from time to time.	Fly ash is being utilized as per notification for fly ash by Ministry of Environment & Forest and CPCB guideline for disposal/utilization of fly ash for reclamation of low lying area and in stowing of abandoned mines/quarries. 100% Fly ash utilization is in cement manufacturing, highway construction, bricks manufacturing and low lying area. More such avenues are being constantly explored. Fly ash transportation to cement industries also started through tarpaulin covered railway rake. Disposal of ash from operation ash pond to low-lying area after permission from MPPCB has also been started as per CPCB guideline "March 2019". 106 % fly ash utilization is achieved in the year 2023-24. Fly ash utilization audit report for year 2023-24 by CPCB authorized auditor is enclosed as **Annexure -3.**

x	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. 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.	• Fly ash is being collected in the silo and then given away to the users. Unutilized fly ash is disposed off through high concentration slurry disposal system. • Mercury and other heavy metals (As, Hg, Cr, Pb etc.) is being monitored in the bottom ash as well as effluent of ash pond by third party. We have engaged M/s Vibrant Envirotech, Jaipur registered with Ministry of Environment & Forest and accredited in accordance with standard ISO/IEC/17025:2017 by National Accreditation Board for Testing and calibration laboratories. The analysis report of ash pond effluent is enclosed as **Annexure -4.**
xi	Ash pond shall be lined with HDP/LDP 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.	Ash pond has been lined with 250µm liner to prevent the leachate. Besides, adequate safety measures are being continuously taken to avoid any breach of the dyke. NIT, Department of Civil Engineering, Warangal, Telangana. examine the Ash Dyke with respect to the structural adequacy, Stability and Risk Assessment to establish that our Ash pond is made in accordance with standard design, sustainable and operating concepts with zero failures, and are suitable & healthy with no possibilities of

		breach. The Structural Adequacy report of Ash Dyke of Jhabua Power Limited, certified by NIT, Department of Civil Engineering, Warangal is enclosed as **Annexure -5.**
xii	Closed cycle cooling system with natural draft cooling towers shall be provided. The Effluents shall be treated as per the prescribed norms.	We have installed a closed cycle cooling system with Induced Draft Cooling Towers. Permission of installing the IDCT instead of NDCT has been approved by MoEF vide Corrigendum letter dated 17 January 2012.
xiii	COC 5.0 will be adopted.	Continuous optimization of cycle of concentration is carried out and achieved the COC of 5.
xiv	The treated effluents conforming to the prescribed standards only shall be re-circulated and reused within the plant. There shall be no discharge outside the plant boundary except during monsoon. Arrangements shall be made that effluents and storm water do not get mixed.	Compliance continuously ensured. Zero Discharge condition is being maintained effectively. Separate storm water system is provided to avoid the mixing with effluent.
xv	A sewage treatment plant shall be provided and the treated sewage shall be used for raising greenbelt/plantation.	Sewage treatment plant based on Fixed Film Aerobic Treatment System of adequate capacity has been installed for the treatment of raw sewage. Treated sewage water is being used for greenbelt

		development/plantation. The treated sewage analysis report carried out by MoEF's recognized laboratory is enclosed as **Annexure -6.**
xvi	Rainwater harvesting should be adopted. Central Groundwater Authority/ Board shall be consulted for finalization of appropriate rainwater harvesting technology within a period of three months from the date of clearance and details shall be furnished.	A rain water harvesting & recharging system, designed in consultation with Central Groundwater Authority/ Board. Authentication letter of Central Groundwater Board is already submitted with previous compliance report, is being implemented and followed.
xvii	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.	A well-qualified Safety management team is in place for the implementation of the safety measures. The details of the safety measures undertaken and implemented is given below; ➢ JPL is certified under the ISO 45001:1018 for safety management system. ➢ A safety committee is constituted and safety committee meeting is conducted regularly. ➢ Mock drill is conducted regularly to improve the emergency handling if any. ➢ Fire protection system like fire hydrant is installed in the fire porn area like BTG, T.G., CHP, AHP, BOP & Coal stockyard. Details of fire protection system are given as

		below; • Jockey pump -02 nos. • Electrical operated pump -02 nos. • Diesel operated pump – 01 no. • Electrical booster pump- 01 nos. • Diesel booster pump -01 nos. • Electrical operated foam-pouring system – 01 no. • Diesel operated foam-pouring system – 01 no. • Multi fire tender (5000 ltr water + 1000 ltr foam) – 02 nos. • Fire extinguisher – 395 • DV – 89 • Fire hydrant points with fire hose & box - 154 • Manual Call Points. ➢ High Velocity Water Spray system in transformers and Boiler Firing Floor. ➢ Medium Velocity Water Spray system in conveyors galleries, Oil Storage Tanks, FOPH Pump House and cable galleries ➢ Fire extinguishers are installed in the entire plant. ➢ Emergent gas flooding system in control room ➢ Fire protection & detection system in CHP conveyors galleries, cable galleries and control room. ➢ Personnel protective equipment like

		helmet, safety shoe, safety belt etc. is the part of the measures taken for safety management. Apart from above many other safety measures has been taken as safety management system.
xviii	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 0.5%. Disaster Management Plan shall be prepared to meet any eventuality in case of an accident taking place due to storage of oil.	• Storage facilities for LDO has been made in the plant area in consultation with Department of Explosives, Nagpur after getting the NOC for the same. NOC of Department of Explosives Nagpur, is already submitted with previous compliance report. • Disaster management plan has been prepared and in place to handle the any eventuality in case of an accident taking place due to storage of oil.
xix	Regular monitoring of ground water (especially around ash pond and plant areas) 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 to ensure that the ground water quality is not	Half-yearly ground water Quality monitoring in core and buffer zone including around ash pond is being strictly followed for which we have engaged Ministry of Environment & Forest registered laboratory apart from accredited in accordance with standard ISO/IEC/17025:2017 by National Accreditation Board for Testing and calibration laboratories. Six monthly reports are being submitted regularly to regional office of the ministry.

	adversely affected due to the project.	Ground water report of core and buffer zone is enclosed as **Annexure -7.**
xx	Monitoring of surface water quantity and quality shall also be regularly conducted and records maintained. The monitored data shall be submitted to the Ministry regularly. Further, monitoring points shall be located between the plant and drainage in the direction of flow of ground water and records maintained. Monitoring for heavy metals in ground water shall be undertaken.	The surface water samples are collected from the river/nalla regularly and records maintained effectively. Analysis report of surface water are enclosed as **Annexure-8.**
xxi	Green Belt consisting of 3 tiers of plantations of native species around plant and at least 100 m width shall be raised. Wherever 100 m width is not feasible, a 50 m width shall be raised and adequate justification shall be submitted to the Ministry. Tree density shall not less than 2500 per ha with survival rate not less than 70 %.	We are developing greenery in and around the plant and approximately 186000 trees have been planted. Local plant species have been preferred for the plantation having following characteristics • Fast growing with thick canopy cover • Adequate height with longer duration of foliage • Perennial and evergreen Details of green belt development and supporting photographs are enclosed as **Annexure- 9.**
xxii	First Aid and sanitation arrangements shall be made for the drivers and other contract workers during construction phase.	Power plant is commissioned and under commercial operation since 3rd May 2016. Well-equipped Medical center with doctor and paramedical staff with two well equipped ambulance is in place to attend

		the person required First Aid & emergency round the clock, whereas urinals & toilets facilities are installed at various location in the plant for sanitation for the drivers and other contract workers. COD letter is enclosed as **Annexure -10** and Photographs of medical center & sanitation is enclosed as **Annexure -11.**
xxiii	Noise levels emanating from turbines shall be so controlled such that the noise in the work zone shall be limited to 75 dBA. For people working in the high noise area, requisite personal protective equipment like earplugs/ear muffs 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.	• The noise level in the work zone area is maintained below 75 dBA. • Acoustic hood has been provided for the turbine. • Earplugs /ear muffs being provided as personal protective equipment to the workers. Noise level monitoring report is enclosed as **Annexure 12.**
xxiv	Regular monitoring of ground level concentration of SO2, NOx, RSPM ($PM_{2.5}$ & PM10) 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	• Regular monitoring of ground level concentration of SO_2, NO_x, RSPM ($PM_{2.5}$ & PM_{10}) and Hg is being carried out in the impact zone and records are being maintained. Ambient Air Quality monitoring report is enclosed as **Annexure- 13.** • The location of the monitoring stations has been decided in consultation with

	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.	Regional Office of MPPCB, Jabalpur. Letter of Regional Office of MPPCB, Jabalpur regarding selection of monitoring stations has already been submitted with previous compliance report. • Permanent Online Ambient Air Quality Monitoring Station has been installed and commissioned for the continuous monitoring of PM10, PM2.5, SOx, NOx & CO along with meteorological study like % Humidity, Rainfall, Wind Direction, Wind Velocity, Solar Radiation, Atmospheric Pressure, Maximum & Minimum temperature and connectivity is established with MPPCB & CPCB. • Besides Permanent AAQMS, Mobile Van for monitoring of PM10, PM2.5, SOx, NOx & CO has also been installed & commissioned.
xxv	A good action plan for R&R (if applicable) with package for the project affected persons be submitted and implemented as per prevalent R&R policy within three months from the date of issue of this letter.	R & R plan has been already submitted.
xxvi	An amount of Rs. 12.0 Crores shall be earmarked as one-time capital cost for CSR programme. Subsequently a recurring expenditure of Rs 2.50 Crores	Expenditure details under CSR is enclosed **Annexure -14.**

	per annum shall be earmarked as recurring expenditure for CSR activities. Details of the activities to be undertaken shall be submitted within one month along with road map for implementation.	
xxvii	As part of CSR programme, the company shall conduct need-based assessment for the nearby villages 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 besides 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. This will be in addition to vocational training for individuals imparted to take up self-employment and jobs.	1. Based on need assessment identified verticals for working on agro-based livelihood including improved and sustainable agricultural practices for higher yield and income generation. 2. The capacity building of the community is done from time to time. Demonstration plots of improved seed varieties, cultivation methods on farmer's field. 3. A part from above activities breed improvement in cattle through Artificial Insemination (AI) is done on continual basis. 58 Self Help groups of women are formed for nearby villages promoting savings and carry out income generation activities. For said purpose, regular trainings and exposure visit are carried out. Convergence with govt. scheme (NRLM).
xxviii	Provision shall be made for the housing of construction labor within the site with all necessary infrastructure and facilities such as fuel for cooking,	All necessary facility for workers is provided. After completion of the project activities and start of O&M phase, part of the temporary structure are being used

	mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	for O&M personnel and remaining has been removed.
xxix	The project proponent shall advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned within seven days from the date of this clearance letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the State Pollution Control Board/Committee and may also be seen at Website of the Ministry of Environment and Forests at http://envfor.nic.in.	Not relevant now. However, for records, we had published in three newspapers (Hindustan Times, Dainik Bhaskar & Nai Duniya on 28.02.2010).
xxx	A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parisad / Municipal Corporation, urban local Body and the Local NGO, if any, from whom suggestions/representations, if any, received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.	Not relevant now. However, for records, copy of the clearance letter had been sent to Gram Panchayat, Zila Panchayat / Municipal Corporation, urban local Body and the Local NGO. Regarding this details have been submitted with half yearly compliance report, June 2011.

xxxi	A separate Environment Management Cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.	A separate Environment Management Cell is in place headed by DGM. Environment. Details of Environment Management cell including personnel involved, their designation, qualification and hierarchy is enclosed as **Annexure -15.**
xxxii	The proponent shall upload the status of compliance of the stipulated EC 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; RSPM, SO_2, NO_x (ambient levels as well as stack emissions) shall be displayed at a convenient location near the main gate of the company in the public domain.	Status of compliance of the stipulated EC conditions, including results of monitored data is hosted on company web site. The criteria pollutant levels namely; RSPM, SO_2, NO_x (ambient levels as well as stack emissions) is displayed at the main gate complex.
xxxiii	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well by e-mail) to the respective Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB.	We are regularly submitting the six monthly compliance reports on the status of compliance of the stipulated EC conditions including results of monitored data to the respective Regional Office of MOEF, Bhopal, the respective Zonal Office of CPCB and the SPCB. The receipts of last compliance report submission is enclosed as **Annexure-16.**
xxxiv	The environment statement for each financial year ending 31st March in	The environment Statement report for the year 2023 - 2024 was submitted to Madhya Pradesh State Pollution Control

	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 EC conditions and shall also be sent to the respective Regional Offices of the Ministry by e-mail	Board before 30th September 2023. Submission receipt is enclosed as **Annexure -17.**
xxxv	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board and State Pollution Control Board. The project proponent shall upload the status of compliance of the environment of the environmental clearance conditions on their website, update the same periodically, and simultaneously send the same by e-mail to the Regional Office, Ministry of Environment and Forests.	We are regularly submitting the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment and Forests, its Regional Office, Central Pollution Control Board and State Pollution Control Board.
xxxvi	Regional Office of the Ministry of Environment & Forests will monitor the implementation of the stipulated conditions. A complete set of documents including Environmental	We comply and agreed to the same.

	Impact Assessment Report and Environment Management Plan along with the additional information submitted from time to time shall be forwarded to the Regional Office for their use during monitoring. Project proponent will up-load the compliance status in their website and up-date 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.	
xxxvii	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.	We comply and agreed to the same. The item-wise expenditure break-up from April 2024 to September 2024 is enclosed as **Annexure -18.**
xxxviii	The project authorities shall inform the Regional Office as well as the Ministry regarding the date of financial closure and final approval of the project by the concerned authorities and the dates of start of land development work and commissioning of plant.	No Longer relevant. However, the same has been complied with.

xxxix	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.	We ensure full cooperation to the Scientists / Officers from the Ministry / Regional Office of the Ministry / CPCB/ SPCB who would be monitoring the compliance of environmental status.
4	The Ministry of Environment and Forests reserves the right to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the Ministry. The Ministry may also impose additional environmental conditions or modify the existing ones, if necessary.	Agreed for the same.
5	The environmental clearance accorded shall be valid for a period of 5 years to start operations by the power plant.	Power plant is commissioned and operational.
6	Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Agreed.
7	In case of any deviation or alteration in the project proposed including coal transportation system from those submitted to this Ministry for clearance, a fresh reference should be made to the Ministry to assess the adequacy of	Agreed.

	the condition(s) imposed and to add additional environmental protection measures required, if any.	
8	The above stipulations would be enforced among others under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and rules there under, Hazardous Wastes (Management and Handling) Rules, 1989 and its amendments, the Public Liability Insurance Act, 1991 and its amendments.	Noted & same shall be complied with.
9	Any appeal against this environmental clearance shall lie with the National Environment Appellate Authority, if preferred, within 30 days as prescribed under Section 11 of the National Environment Appellate Act, 1997.	Agreed.

Annexure -1

Recent Hydrogeological Study Report

HYDROGEOLOGICAL REPORT FOR GROUNDWATER CONDITION IN AND AROUND JHABUA POWER LTD (JOINT VENTURE OF NTPC)

SUBMITTED TO

NTPC- JPL THERMAL POWER PLANT

PO: BARELA, BLOCK- GHANSOR, DISTRICT- SEONI, MADHYA PRADESH

REPORT PREPARED BY

MANISH KHATRI

C/O M K ASSOCIATES

ACCREDIATED GROUNDWATER CONSULTANT FROM NABET

CERTIFICATE NO. NABET/GWCO/IA/GW023

ADDRESS: 1413/B-1, GUPTESHWAR ROAD, MADAN MAHAL, JABALPUR MP.

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Service Order No.: 4300005783 Dt 17.07.2023

Report No.: 07/MKA-OTH/2023-24, version: 1.1

Issued Date: 25Th OCTOBER-2023

Mr. Anoop Kumar Shrivastava
Head-Environment, NTPC-JPL
At & PO: Barela, Block Ghansor,
District - Seoni, Madhya Pradesh.

Regarding Hydrological Study around NTPC-JPL, Barela.

Dear Sir,

We are pleased to present you with the final report for the Hydrological study around NTPC-JPL, Barela, District Seoni.

The data & its interpretation from this hydrological assessment will support to assess groundwater assessment around NTPC-JPL project area.

We will be happy to assist you in the future with any questions or comments related to this work and to be of assistance in future stages of this project.

Best regards

MANISH KHATRI Digitally signed by MANISH KHATRI Date: 2023.10.25 13:42:36 +05'30'

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Executive Summary

Jhabua Power Limited (JPL), is a Joint Venture of National Thermal Power Company Ltd (NTPC) and Banks. It is located in district Seoni of Madhya Pradesh. The power plant (earlier Avantha Power) is acquired by NTPC in September 2022. The said site is at a distance of around 56 Km. from Jabalpur, the divisional Head Quarter.

The NTPC- JPL Thermal Power Plant (formerly known as Jhabua Power Limited) has been involved deeply since year 2010 aiming holistic and sustainable development of the communities surrounding the Power plant. To access and understand the drinking water need of the villages in the vicinity of the power plant. Accordingly, "Comprehensive hydrogeological study report" to assess the hydrogeological conditions *i*n the selected habitation around the plant site has been undertaken by Manish Khatri, Accredited Hydrogeologist C/o M.K. Associates (QCI-NABET Accredited Groundwater Consultant Organization) based at Jabalpur.

Objective of the study:

The present report is dealing with qualitative and quantitative assessment of ground water condition in the study area. In this regard, two times field study was conducted during Pre monsoon and Post Monsoon period-2023. For the detail hydrogeological investigation and evaluation of ground water resource an area of 78.5 sq km has been chosen as circular area of 5 km radius from the center point of the project site.

The following objectives were taken into account for hydro-geological investigation of the study area.

1. To assess the present hydrological scenario of the study area.
2. To find out aquifer geometry in the area.
3. To evaluate the status of ground water condition in the area.
4. To assess the ground water resources of the area.
5. To assess the feasibility of Rain water harvesting/Artificial recharge to augment the groundwater regime.

Methodology for Study

- The data collected from the reports available in Central and state Government departments for reference.
- Well monitoring in the selected habitation of the study area has been undertaken to measure the status of the water table in the study area.
- The ground water resources and its utilization have been worked out as per the norms prescribed by the ground water estimation committee, Govt. of India.

Data used and Methodology: Following materials were used for this purpose.

- Survey of Indian topographic sheets (Scale 1:50000) No 55N/13 and 55N/14.
- Secondary data collected from State as well as from central govt. agencies.

Following methodology was applied:

a. Groundwater samples collected from the study area and analyzed in NABL accredited lab as per IS10500:2012.
b. Various thematic maps have been prepared from processed data.
c. Ground truth studies or field checks.
d. GIS (QGIS), has been used for integrating various thematic maps to represent ground water scenario.

Generation of Thematic Maps: The above satellite image was used to generate following thematic maps.

- Base/Vicinity Map
- LULC Map
- Geomorpholgy Map
- Drainage Map
- Geological Map
- Hydrogeology Map
- Depth to Water Level Premonsoon-2023
- Depth to Water Level Post Monsoon-2023
- Fluctuation of Water Levels (Pre & Post Monsooon-2023)
- Groundwater Table Contour Map Premonsoon-2023
- Groundwater Table Contour Map Popstmonsoon-2023
- Groundwater Quality Map of Electrical Conductivity concentration (Contour Map)
- Groundwater Quality Map of Chlooride Concentration (Contour Map)
- Groundwater Quality Map of Nitrate concentration (Point value Map)
- Groundwater Quality Map of Fluoride concentration (Point value Map)

Location: For the detail hydrogeological investigation and to assess aquifer geometry, evaluation of ground water resource, and to explore the possibility of suitable ground water abstraction structures and suitable means of artificial recharge structures, an area of 78.5 sq km has been chosen as circular area of 5 km radius from the 22°48'N to 22°40'N latitudes and 79°57' E to 79°54' E longitudes, covering Binaki, Barela, Gorkhpur, Durjanpur and Gorkhpur villages in Ghansore block of Seoni district of Madhya Pradesh state. The study area falls under Survey of India Toposheet No. 55N/13 and 55N/14. This area is called buffer zone or present area of investigation or study area. It is bounded by Mohgaon and Khairikalan villages in the south and Bagdari village in north. In east it is bounded by Jowa and Binori villages, while by railway line in the west. The location map, and Base/Vicinity map of the study area shown in ***Figure-1*** and ***Figure-2***, respectively.

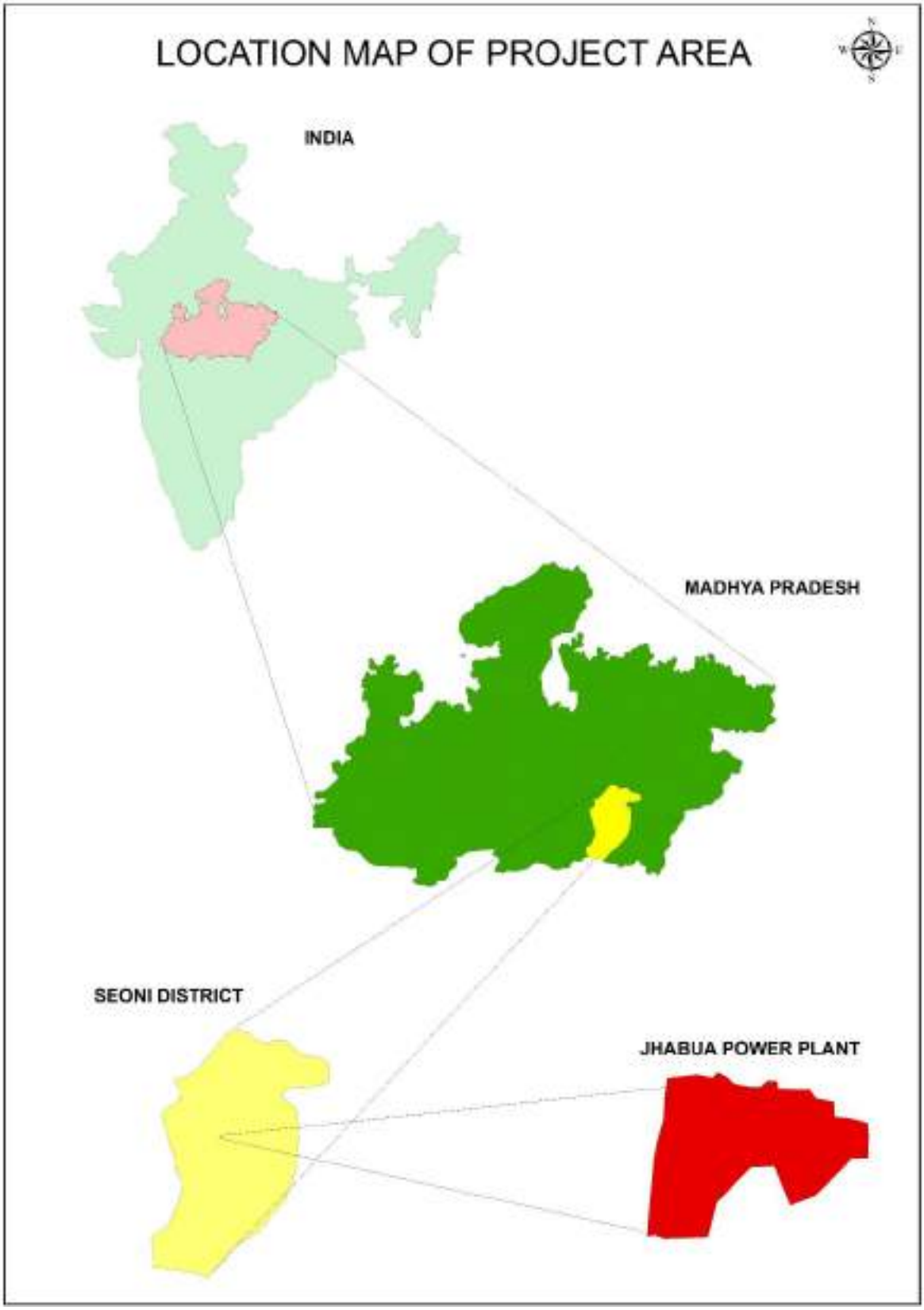


Figure-1: Location Map of Project area

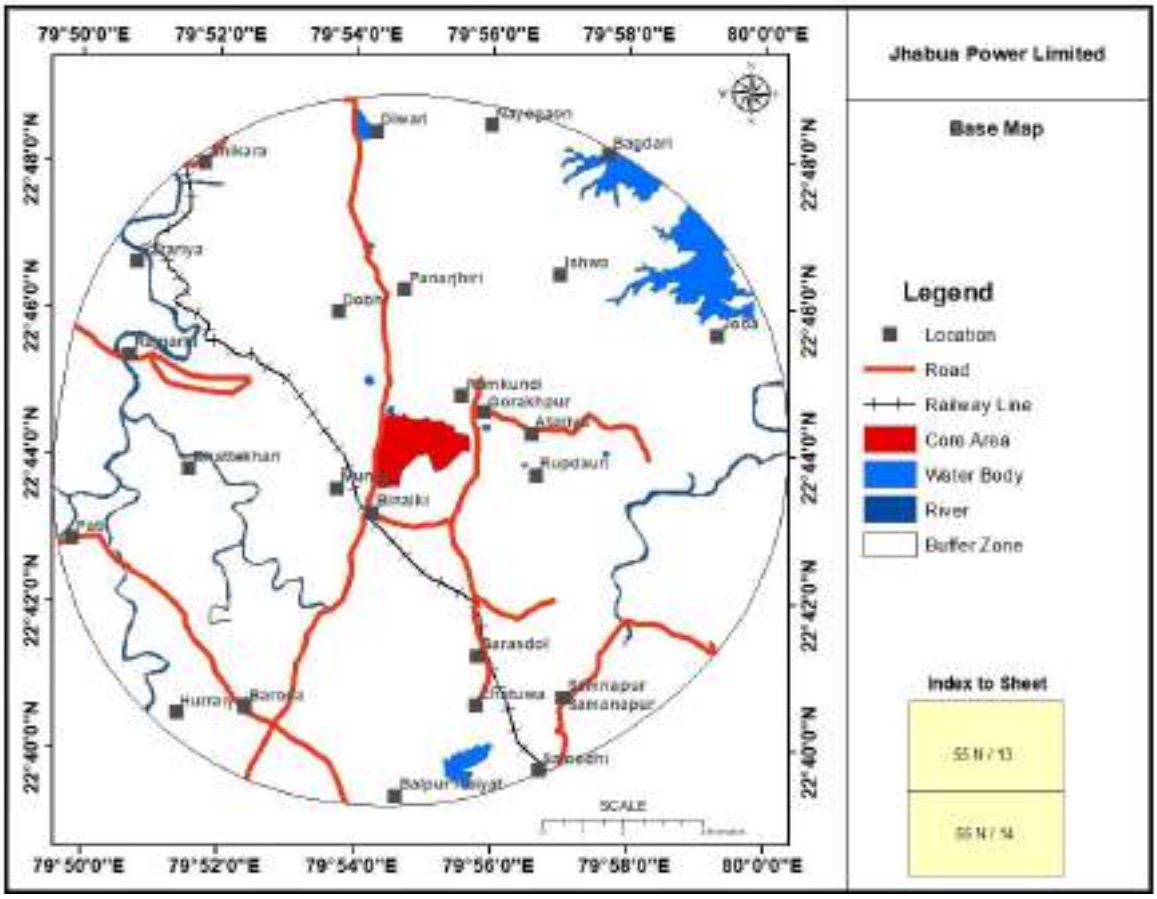
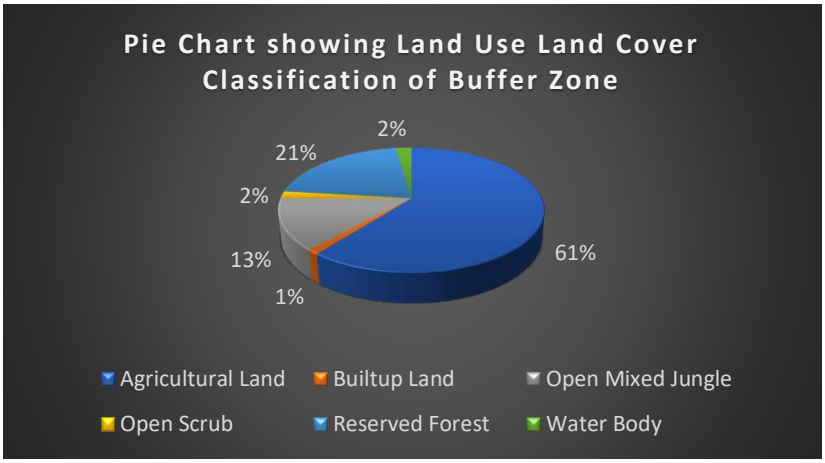


Figure-2: Base Map/Vicinity Map of the study area

Land Use Land Cover of the surrounding area: The land use in the village reflects the socio-economic conditions of the people in addition to the natural environmental factors. The land use is also one of the prime parameters to be considered for the ground water estimation. Primarily, 8 Km radius from the plant site forms part of Agriculture land (about 60.60 %). The second major land use is Reserved Forest (20%). Land use and land cover classification in the buffer zone of 8 km radius is given below in **Table-1**. The Land use map is shown in ***Figure-3.***

Table-1: Land Use/Land Cover Classification of Buffer Zone

S. No	Class	Area in Sq. Km	%
1	Agricultural Land	47.5	60.6
2	Built-up Land	0.91	1.17
3	Open Mixed Jungle	10.43	13.29
4	Open Scrub	1.40	1.79
5	Reserved Forest	16.32	20.79
6	Water Body	1.82	2.32
		78.5	**100**



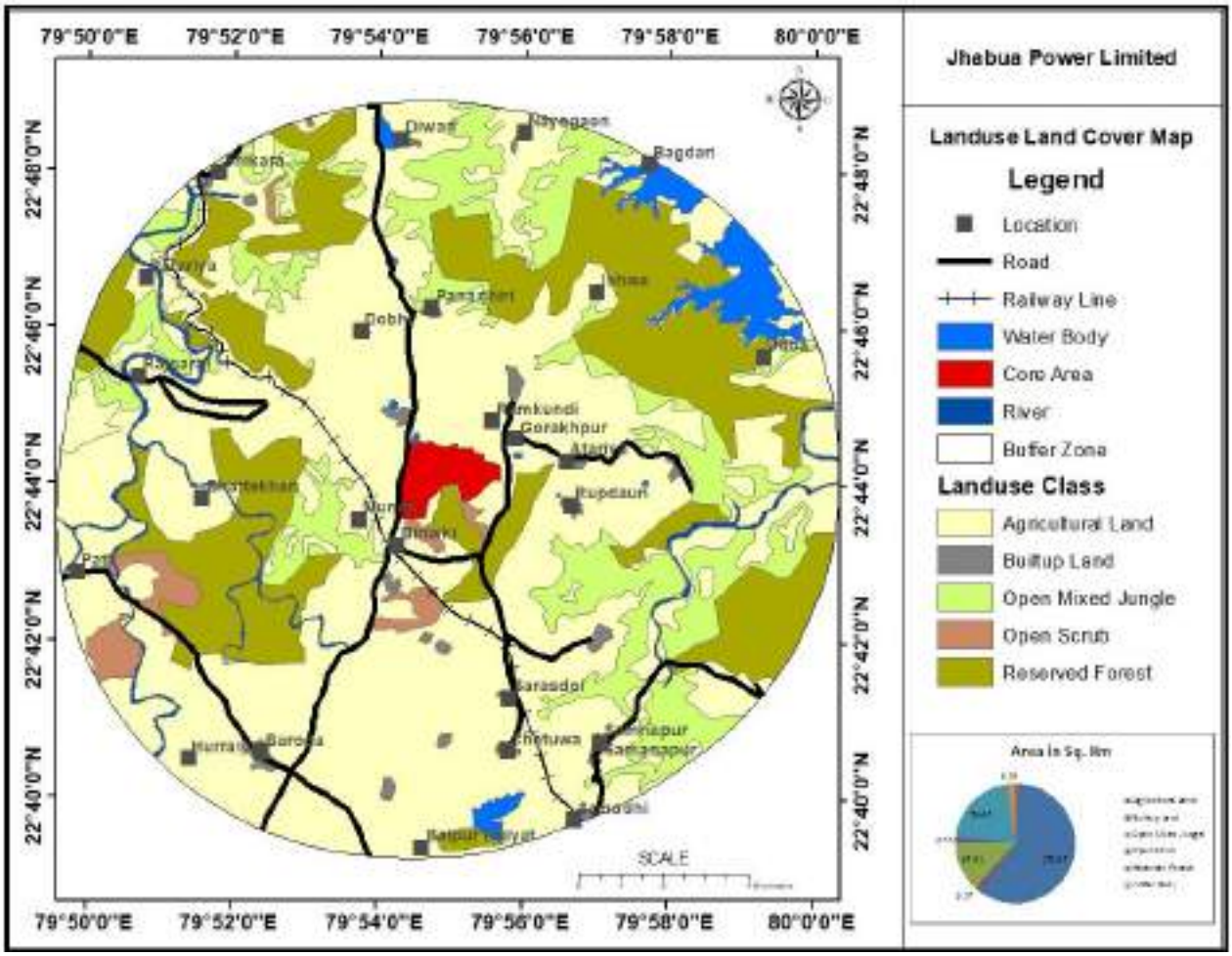


Figure-3: Land Use Map of the study area

Rainfall: The climate of Seoni district is characterized by a hot summer and general dryness throughout the year except during the south-west monsoon season, i.e., June to September. The year may divide into four seasons. The cold season, December to February is followed by the hot season from March to about the middle of June. The period from the middle of June to September is the southwest monsoon. October and November form the post monsoon or transition period. About 86.3% of the annual rainfall received during monsoon season. Only 13.7% of the annual rainfall takes place between October to May period. Thus, surplus water for ground water recharge is available only during the southwest monsoon period.The rain fall data of Seoni district (IMD 2003-2022) has been taken into consideration. The average annual monsoon rainfall of the Seoni district is 1151.89 mm**.** The maximum rain fall was recorded in 2013 (1748.34 mm) and minimum in 2007 (504.55 mm). The actual annual rainfall in district is shown as below ***Table-2***. Annual rainfall is graphically represented in ***Figure-4*.**

Table-2: Actual annual rainfall in Seoni district.

Year	Rainfall (mm)	Year	Rainfall (mm)
2003	1482.93	2013	1748.34
2004	887.47	2014	985.03
2005	1256.81	2015	1041.18
2006	1158.12	2016	1127.14
2007	504.55	2017	853.72
2008	1032.31	2018	928.44
2009	1125.41	2019	1527.28
2010	1345.54	2020	1299.15
2011	1302.28	2021	903.07
2012	1069.78	2022	1470.07

Data Source: IMD Gridded Rainfall, Indiawris Website.

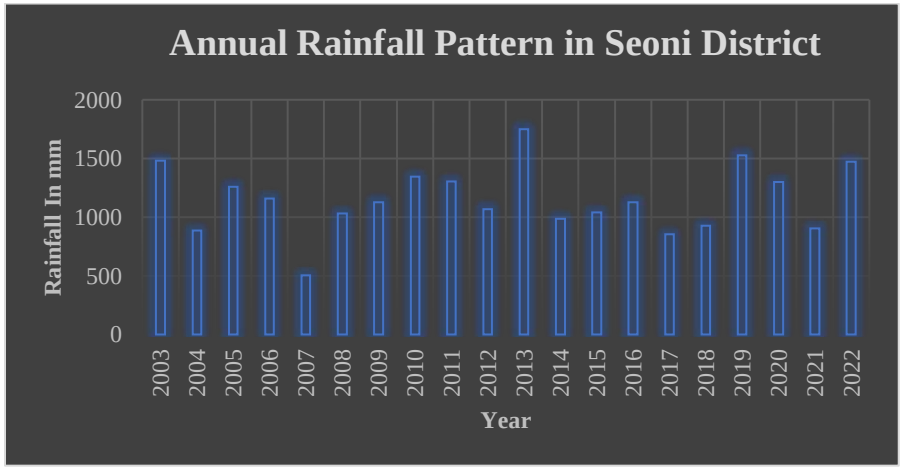


Figure-4: Histogram showing Pattern of Annual Rainfall

DEM/Topography of the study area:

Topography – The terrain elevation (Topography) is derived from the NRSC data. The DEM (Digital Elevation Model) map of the entire buffer zone has shown in ***Figure-5***.

The study area falls under Survey of India Toposheet No. 55N/13 & 55N/14, are marked in toposheet map shown as ***Figure-5A***.

The study area (5 km radius from the center of the JPL plant) elevation ranges from 555 m in the northeast (near Durjanpur village) to 529 m amsl in southeast part (at Dola village) of the study area. The north, west and northeast of the study area comprising the hilly terrain with several ridges and plateaus. The south, southwest, central & east part of the study area are level plains with gentle undulating terrain. The study area is sloping towards Northeast and southwest ward.

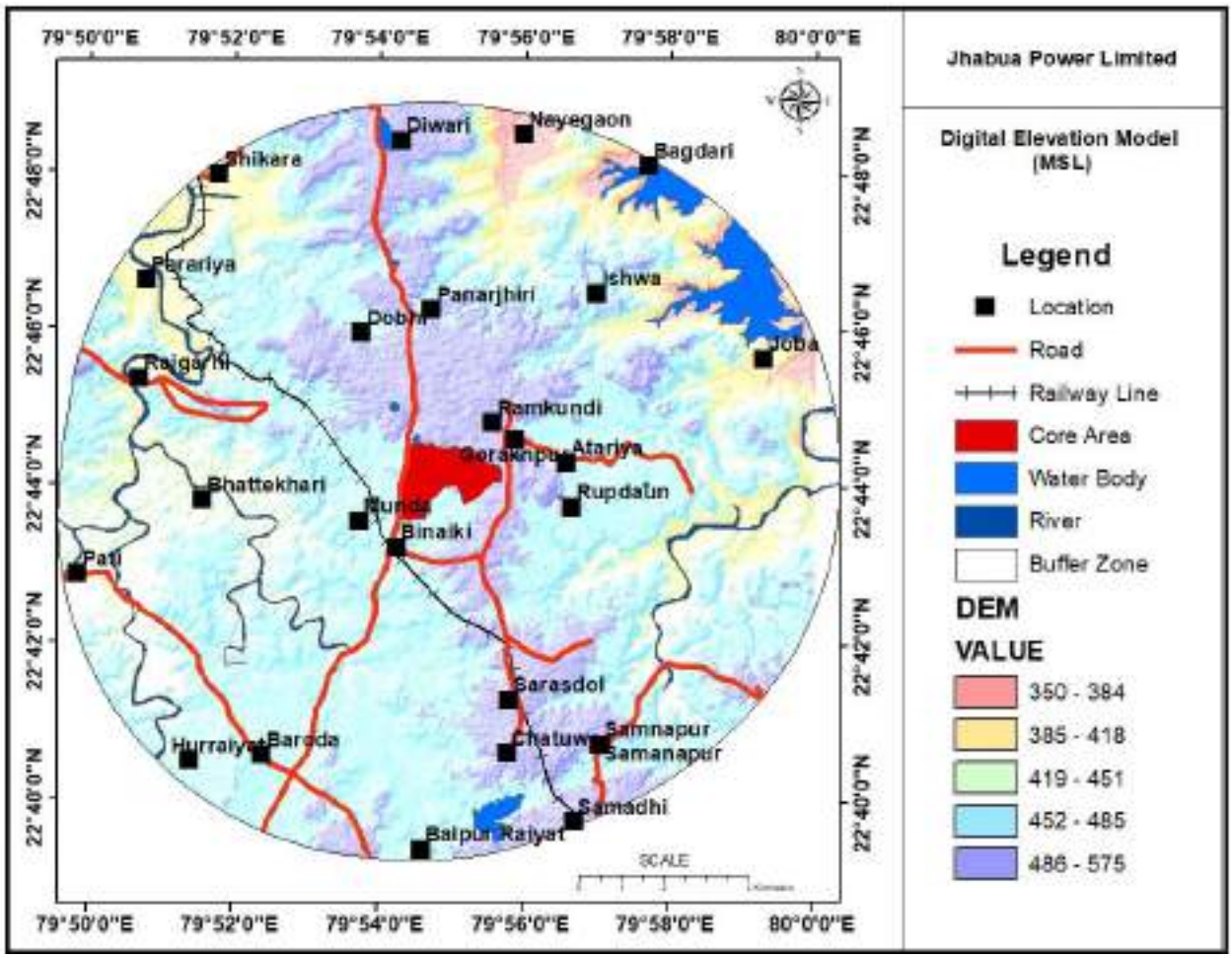


Figure-5: DEM Map of buffer zone

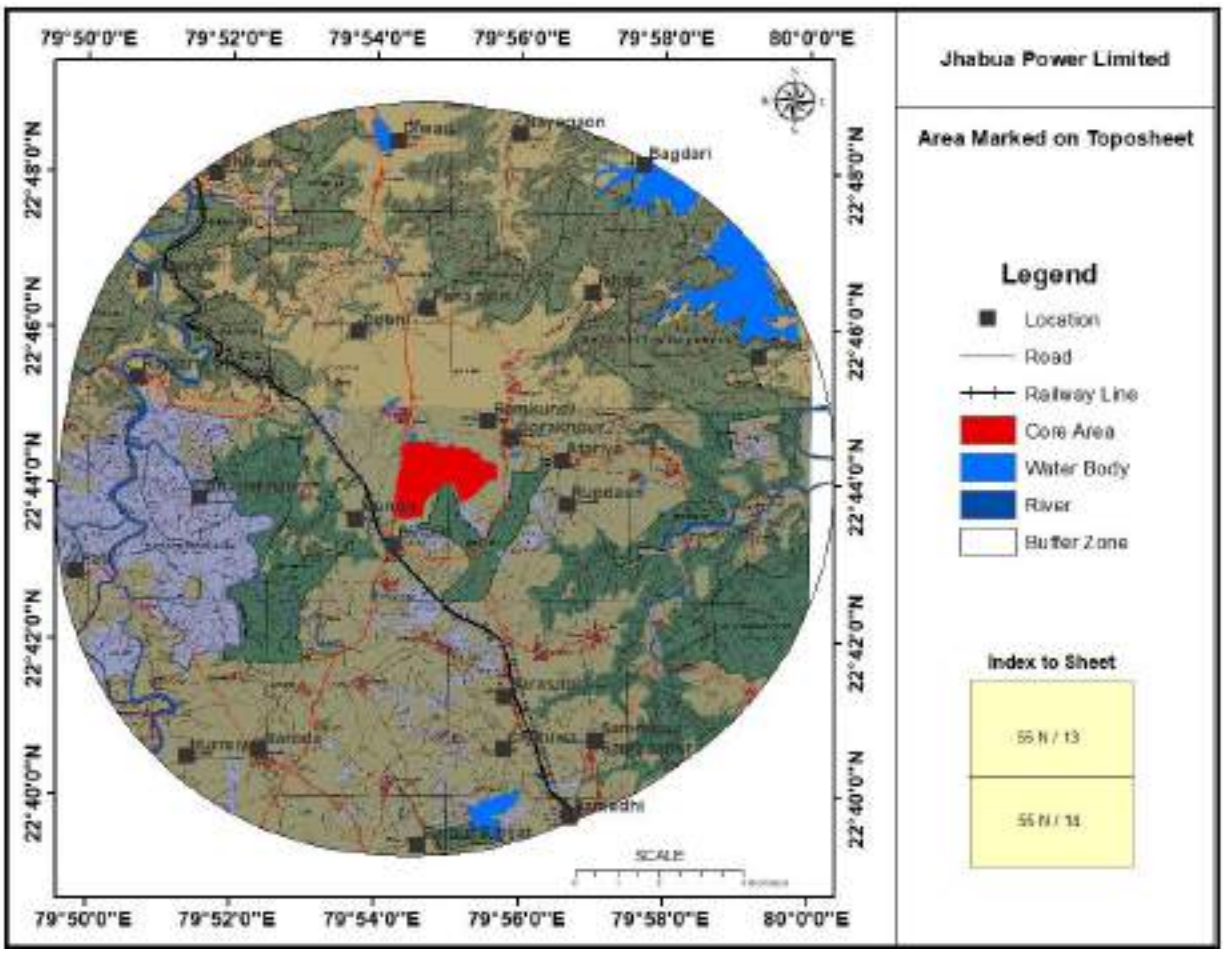


Figure-5A: Study area shown in Toposheet map

Geomorphology and Drainage:

Geomorphology: The land forms / geomorphic units and structures occurring in the study area are mapped. The geomorphology and structures of the area plays the vital role in identifying the ground water potential zones. The majority of the study area covering 8 Km radius from the JPL plant underlying by structural plain. Geomorphologically, the study area has been divided into following unit:

1. Flood plain
2. Structural Hill

The Main hydro geomorphic units are described as below.

1. Structural Hill: Structural hills are main dominating hydromorphic unit in entire buffer zone. This hydromorphic unit comprises of Basalt rocks of Deccan lava of Amarkantak Group. These are structurally controlled plains with numerous joints/fractures facilitating infiltration and mostly

act as run-off zone and rate of infiltration is poor. Ground water potential is poor to moderate. The occurrence and movement of ground water is controlled by the secondary porosity.

2. Flood plain: These are occurred in sporadic distribution in northeaster part of buffer zone. It is represented by a small two hillocks. These have either no structural control or structures are obliterated by denudation and defined by lithology consisting of semi consolidated sediments of sand, silt and gravels etc. The relief is defined by gently sloping surface towards the northeast. The major land use activity is agriculture.

Alluvium occurring along in river and nala courses, these pediplains mostly present in gently undulating topography with a thickness of brownish soil, weathered and fractured basalt in deeply to moderately deposited. These weathered zones form moderate to good aquifer system. Geomorphology of the buffer zone shown in ***Figure-6.***

Drainage: The present area under study falls under the Narmada River basin. The drainage of the study area is controlled by Temar River, which is the tributary of Narmada River. In general, the slope of the Narmada valley is towards North & that of Temar River is towards west. Paryat, Gadheri nadi and Gorriya nala are the tributary of Temar River. Various first and second order streams originates from the southern plateau of the buffer zone. Beside these rivers and nalas there are many small water tanks in the study area. There is another drainage is developing in the northern part of the buffer zone which forms the catchment area of Narmada River, taking a northeastern course and finally merge into the Narmada River. The drainage pattern in the study area is dendritic. Drainage map of entire buffer zone presented in ***Figure-7.***

Geology: Regional Geology of the area is explained in terms of Geology of Seoni district and local geology is in term of Geology of Buffer zone. A geological map of entire buffer zone shown in ***Figure-8***.

Regional Geology: Seoni is a part of ENE-WSW trending Central Indian Tectonic Zone (CITZ) limited by Sone- Narmada South Fault (SNSF) in the north and central India Suture (CIS) in South, while Tan shear zone (TSZ) is located midway between the two.

Geologically, the district comprises of Tirodi Biotite Gniess (TBG) and Supracrustal Sausar Group (SSG) in the southeastern part while major parts are covered with Deccan Trap with few outcrops of lameta, intertrappeans beds, laterite capping and alluvium ranging in age from Meso-proterozoic to recent. TBG form the basement of Sausar Supracrustal and comprises grey stromatic and /or

streaky gniesses with enclaves of high grade metamorphites, pink gneiss with migmatites and ambhibolites.

Lithologically, cratonic assemblage consists of metamorphosed quartzite, pilites and carbonate and intrusive syntectonic strongely foliated granite and post –tectonic massive granite.

Table -3: Generalised stratigraphic sequence at regional level

Group/ Formation	Litho Units	Age
Quaternary Sediment	Alluvium /Laterite	Quaternary
Amarkantak Group/Deccan Trap	Basalt Rock	Upper Cretaceous to Paleogene
Lameta Group	Chert, Cherty limestone and variegated clay and shale	Late Cretaceous(Maastrichtian)
----------Unconfermity----------		
	Granite intrusive	Late Meso Proterozoic
Sausar Group	Limestone, Dolomite, Quartzite, Schist and Calc-silicate rocks	Meso Proterozoic
Tirodi Biotite Gneiss	Gniesses with high grade metamorphites , gniess with migmatite/Amphibolites	Meso Proterozoic

(Source; Geological Map, GSI, DRM Seoni).

Geology of Buffer zone: The entire area of buffer zone is underlain by rocks of Upper Cretaceous to Paleogene period comprises basalt rock belongs to Amarkantak group. Geological map shown in Figure No-8. The generalised stratigraphic sequence in buffer zone is as below.

Table-4: Stratigraphic succession

Age	Group	Geological Formation
Quaternary	Recent	Recent alluvium deposits consisting of sand, clay, silt etc. laterite at places.
Upper Cretaceous to Paleogene	Amarkantak Group (Deccan Trap)	Basalt Rock (Comprises two to fourteen flows)

(Source; Geological Map, GSI, DRM Seoni).

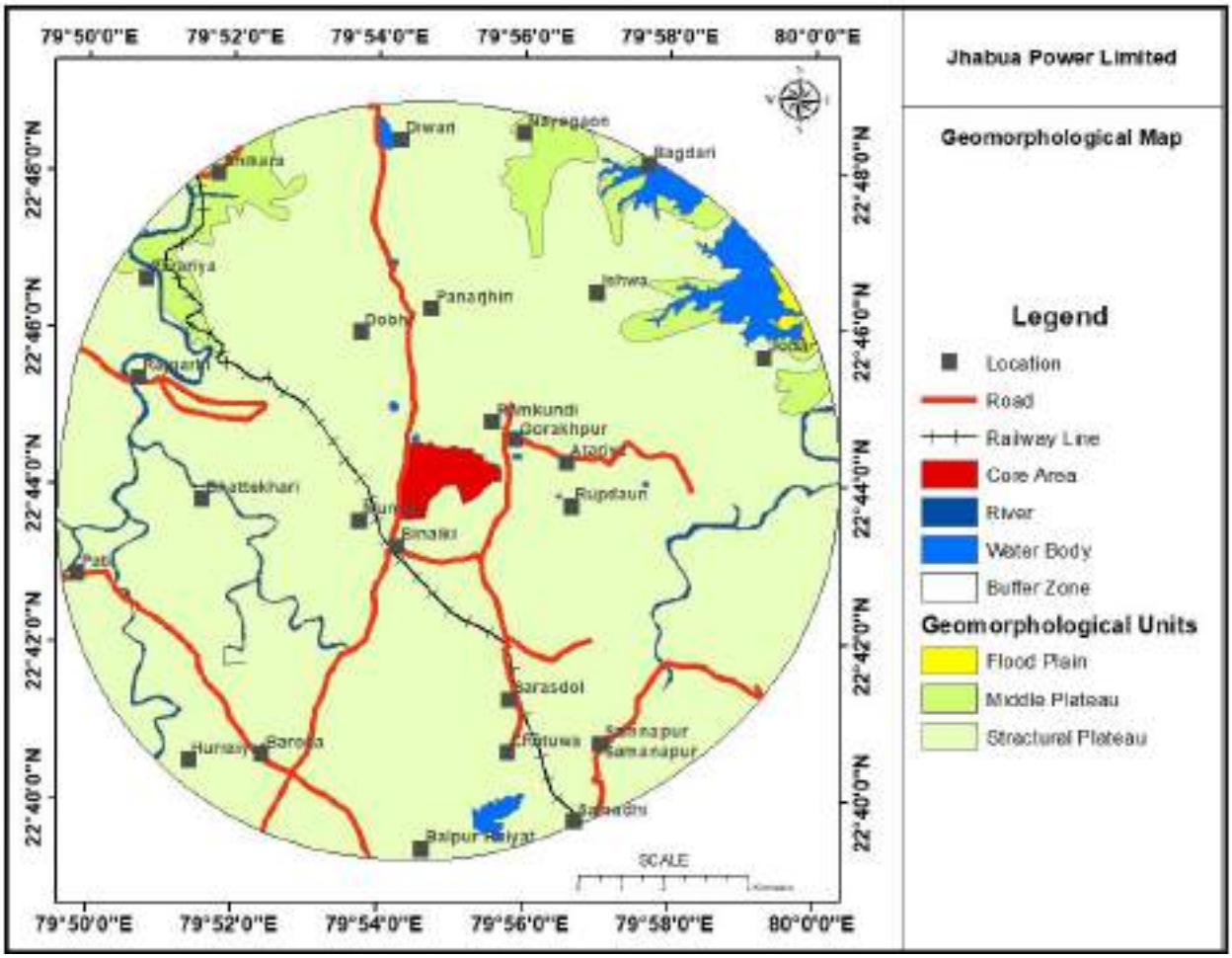


Figure-6: Geomorphology of the buffer area

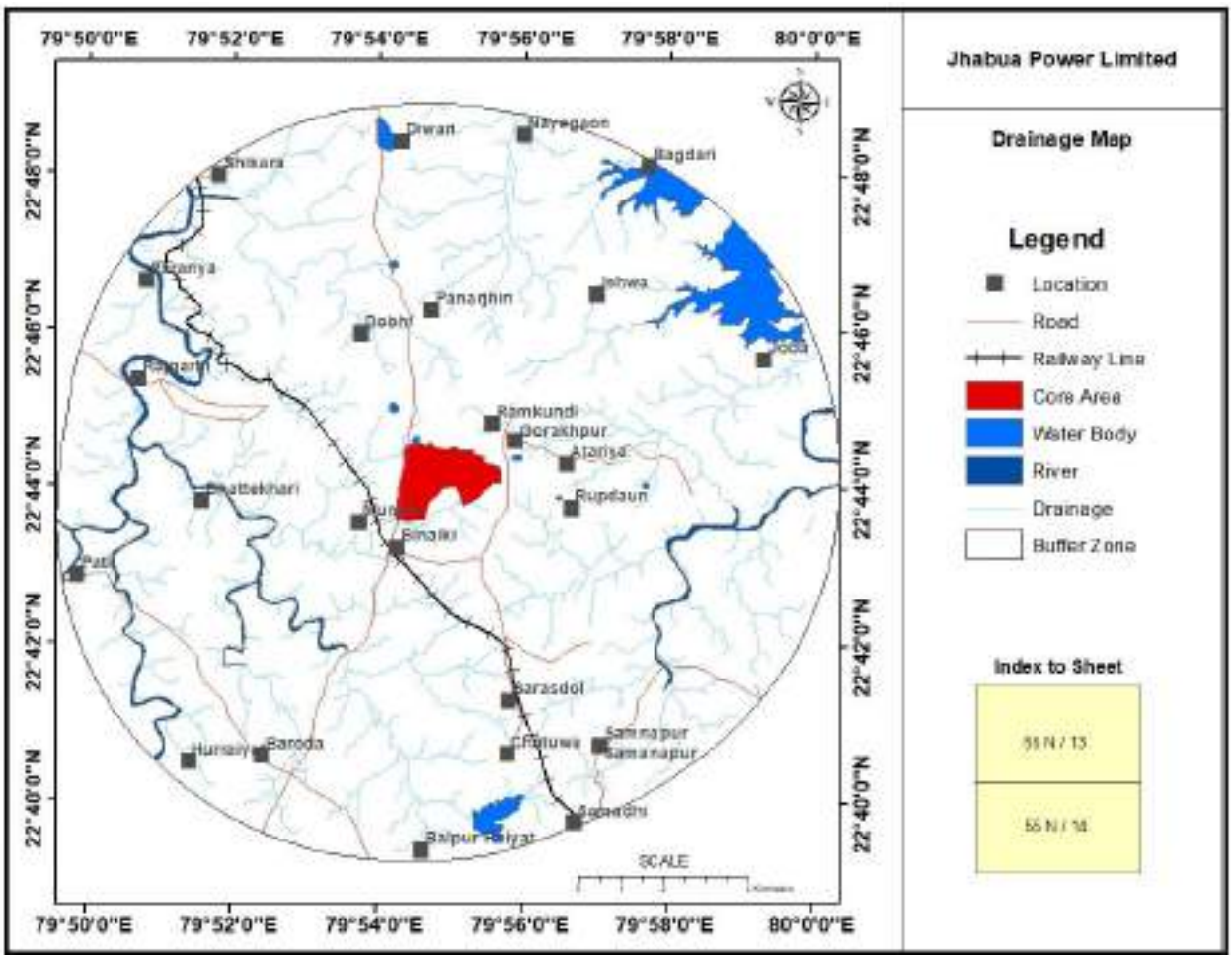


Figure-7: Drainage map of the buffer area

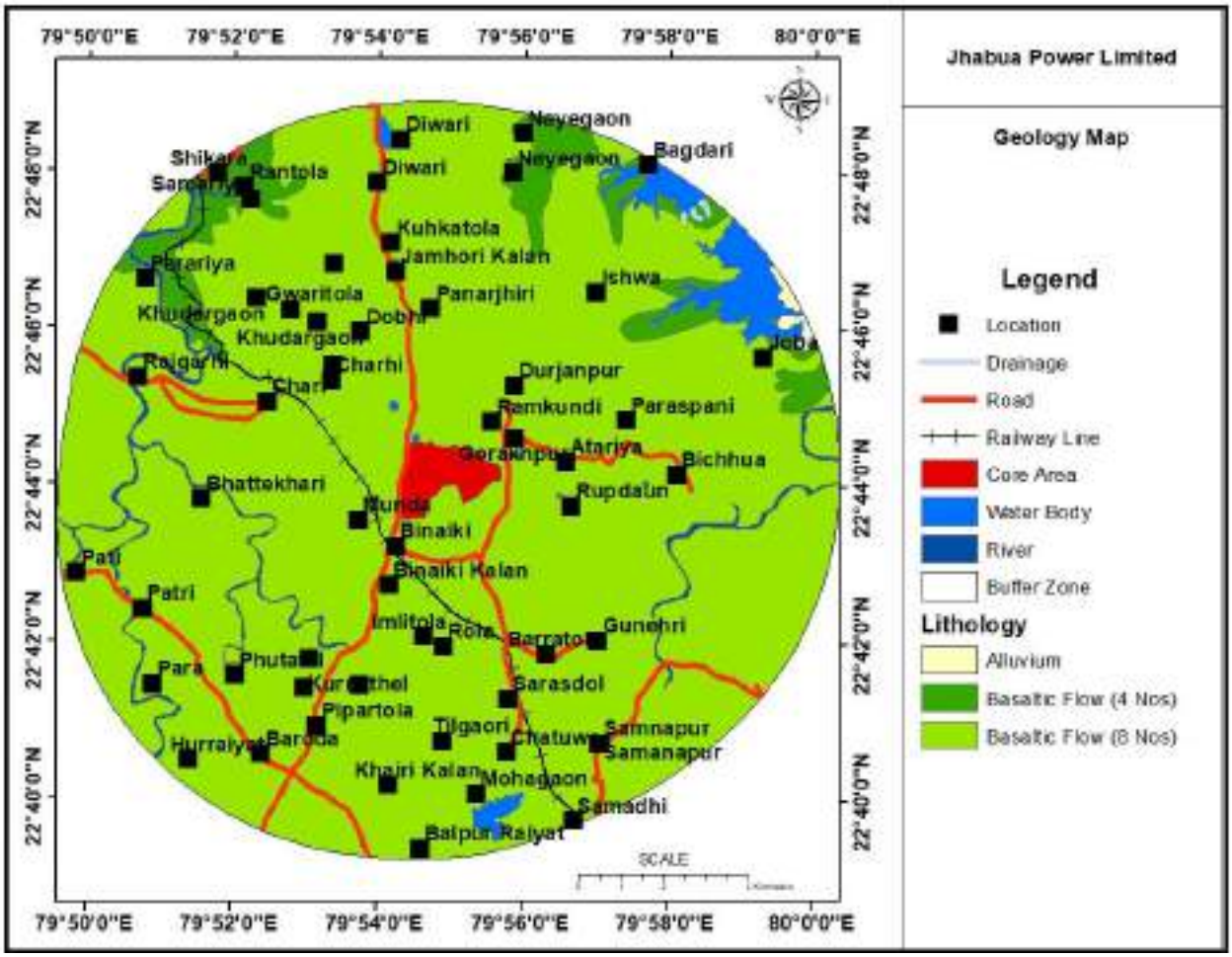


Figure-8: Geology of the buffer area

Hydrogeology:

The hydrogeological frame work of the area is entirely controlled by geological set up, intensity & distribution pattern of rain fall and water bearing and water yielding properties in the prevailing geological formations for storage and movement of ground water. Since the whole area is covered by the hard rock of basaltic composition. The water bearing properties of the formations also depend upon its nature and structures. The present area under investigation is occupied by rocks of basaltic flows of Deccan traps which comprises mainly three geological formations of Amarkantak group i.e. Dhuma formation, Pipardahi formation and Linga formation etc.

Development of lineaments is a witness of low degree tectonic deformations, which are more or less responsible for deep seated fracture systems.

Occurrence of ground water - It has been brought out during hydrogeological study of the area that how the lithology controls the occurrence and distribution of ground water reservoirs and their water bearing and water yielding properties. Precipitation is the major source of ground water in the project area. Ground water occurs in these formations under unconfined and semi confined to confined conditions. As the entire area is dominated by underlying basaltic flows of Deccan traps constitutes consolidated formations. Ground water is stored mainly in the secondary porosity resulting from weathering and fracturing of the basalt rock. The weathered residuum forms the main repository of ground water, which occurs under water table conditions and circulates through deeper fractures and vesicles. Ground Water occurs under unconfined condition in phreatic aquifers and in semi confined to confined conditions in the deeper fractures zones. The water yielding capacity of these fractured basaltic rocks largely depends on the extent of fracturing, openness and size of fractures and extent of their interconnection into the near surface weathered zone. These interconnected joints, fractures in the underlying rocks facilitate circulation of ground water and in turn form deeper aquifers. The massive basalts have poor primary porosity. The secondary porosity is imparted in massive basalts is due to weathering, fracturing and jointing. The main source of recharge for shallow aquifers in the area is local rain fall (average annual monsoon rainfall of the Seoni district is 1151.89 mm {IMD gridded data from 2003 to 2022}). The groundwater circulation occurs in the weathered portion and through the vesicular upper sections and also through the fractured massive portions. The area is also characterized by the presence of some alluvial and laterite which occur as capping over basaltic formations. The Water bearing properties of each formation can be summarized as below –

a. Vesicular Basalts - The water bearing properties of rock formations depend on the open space available for storage of water, which in turn depends on the shape, size, arrangement, interconnection and extensiveness of voids. The individual vesicular units in the different lava flows ranges in thickness from few meters to tens meter and possess primary porosity. The nature and density of these vesicles, their distribution, interconnections, weathering and topography of the area are the factors that govern the occurrence and movement of ground water in the vesicular basalt. Zeolites in the vesicular basalts are highly susceptible to weathering. The porosity is more when the vesicles are not filled up with secondary minerals like zeolite and calcite. The permeability in vesicular basalts depends on the interconnectivity of the vesicles. The weathered vesicular basalts and fractured vesicular basalts give rise moderate to highly potential aquifers.

b. Massive Basalts - The massive basalts in the area are hard and compact and are devoid of primary porosity and permeability. Generally, the massive basalts are not very productive but sometimes give rise to good aquifers when fractured and jointed. The occurrence of groundwater in massive compact basalts totally depends on the presence of fractures and joints, their nature and distribution and also on their vertical and lateral extension.

Weathered and fractured parts of basalts constitute the main aquifer system in buffer zone. Though there are many formations of Deccan lava in the area but from ground water point of view all basaltic formation can be considered as a singly hydrogeological unit. On the basis of ground water exploration carried out by Public Health Engineering Department, Division-Seoni, in such type of formations in the area, it was inferred that thickness of weathered zone which is down to a depth of 1.5 to 8 m and fracture zones were encountered in depth range of 22 to 35 m, 55 to 75 m and 90 to 150 m bgl. However potential zones are generally associated with lineaments. Ground water at places occurs in fractured zones at depth in semi-confined to confined conditions.

Depth to Water Levels; In order to decipher the behavior of the ground water regime, depth to water levels and fluctuation, the water level monitoring was carried out in the study area by collecting primary and secondary data of observations well (mainly fitted with hand pump) at targeted villages within buffer zone during Pre and Post Monsoon-2023). The secondary data of water level are collected from public enquiry and MP PHE Department. The water level data utilized for study is recorded/collected as well as reported. In buffer zone total 08 numbers of borewells were established as key observation wells in the buffer zone for monitoring purposes. The location of key observation well map shown in ***Figure-9***. The details of these wells are given in **Table-5**. The bore wells depth varies from 90 to 182 m bgl, whereas, bore wells depth range from 15 to 21 m bgl. Yield varies from 1.5 to 8 m^3/hour. On the basis of water level data maps are prepared to represent the pre-monsoon season in ***Figure-10,*** depth to water level post-monsoon depicted in ***Figure-11*** and seasonal fluctuation map shown in ***Figure- 12*.**

Depicting water tables in the study area, contours at intervals of 3 m were drawn and shown in the Hydrogeological map (Pre-monsoon groundwater table contour map) as shown in ***Figure-13***. On the basis of water level data collected depth of water table contour map is prepared. There is water divide in north-central part of the study area. Water table contour shows the groundwater flow direction is towards southwest and southeast. Pre and Post-monsoon ground water table map is presented in ***Figure-14 & 15,*** respectively. The same flow pattern is observed in both seasons.

The average groundwater table during pre and post monsoon season are 532 m amsl and 537 m amsl, respectively. The groundwater level fluctuation and the groundwater table show that there is surface (rainfall) and groundwater interaction. The main source of recharge in the study area is from rainfall. Some second and third order streams and nallahs flowing within the buffer zone are intermittent and flow is only observed during monsoon season and no or negligibly small interaction with surface water bodies might be occurring.

Summarized ground water levels in Bore well in buffer zone is tabulated as below:

Parameters	Depth to Water level (m bgl)		Fluctuation (In m) Pre and post -2023
	Premonsoon-2023	Post-monsoon Nov.-2022	
Minimum	3.25	1.65	0.08
Maximum	23.25	13.8	9.45

Depth to Water level in Premonsoon-2023:

The Depth to water level of premonsoon -2023 depict that relatively deepest of ground water level zone of 10 to 23 m falls in the east and southern part of the study near Gorkhpur and Guneri villages.

The shallowest ground water level zone of 3 to 7 m bgl occupies in the west central, northern part of the study area near Binaki, Barela villages and northern part at Panarjhir village.

Post-monsoon Water level (Oct.-2023): The post-monsoon depth to ground water level depict that relatively deepest of ground water level zone of 7 to 14 m falls in the in the east and southern part of the study near Gorkhpur and Guneri villages. The shallowest ground water level zone of 1.6 to 5 m occupies in the west central, northern part of the study area near Binaki, Barela villages and northern part at Panarjhir village.

During the post monsoon period there is considerable rise in the ground water level. It is observed that there is increase of ground water level in the throughout the study area where the ground water level is deep during the pre-monsoon period.

Fluctuation in water level:

Pre and post monsoon -2023 water levels were considered for evaluation of seasonal fluctuation in water level. Fluctuation in water level varies from < 2 to 9 m which indicates that the aquifer of the study area has moderate recharge potential.

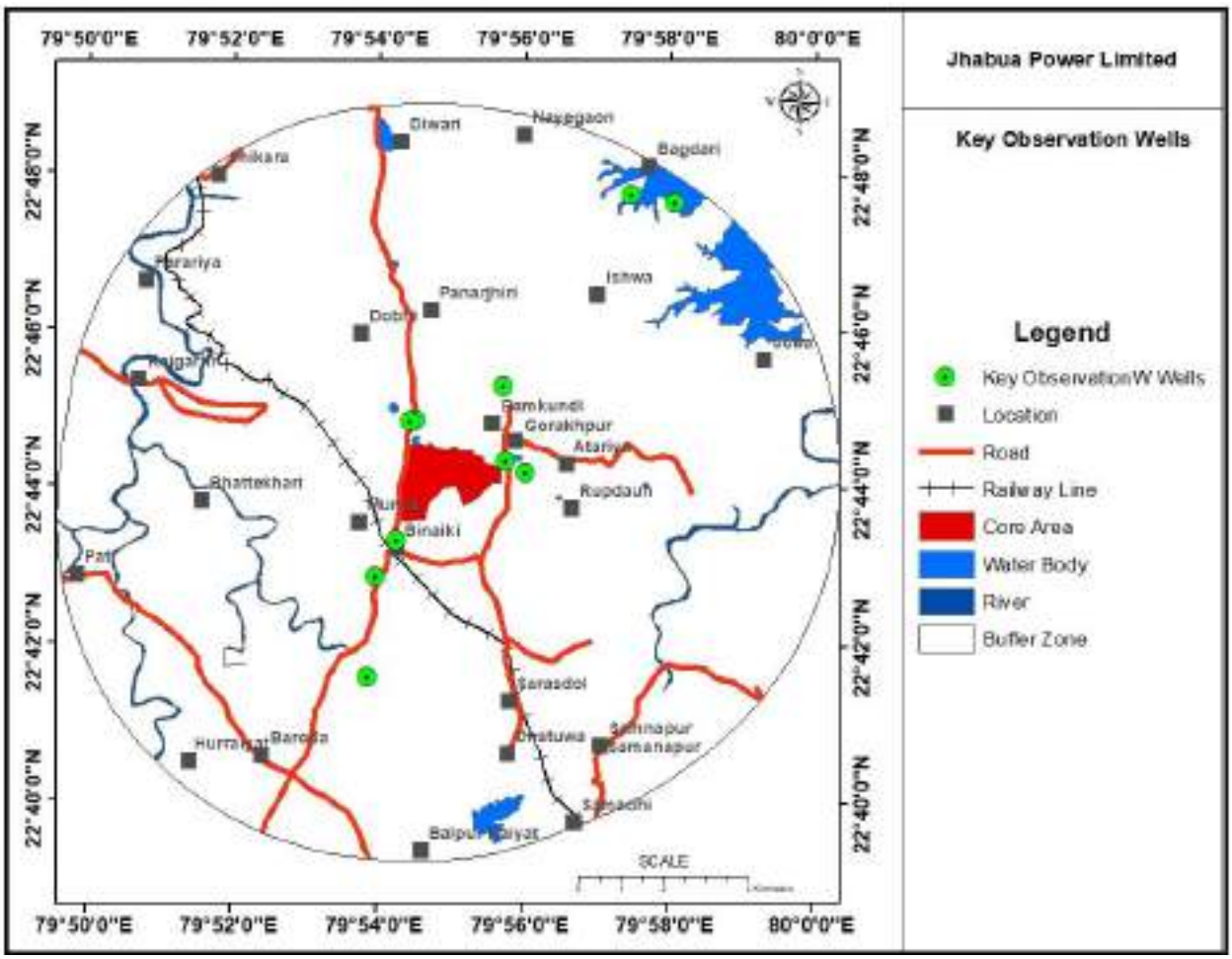


Figure-9: Location map of key observation wells

Table-5: Hydrogeological details of wells monitoring in study area:

Sl. No.	Village	Location	District	Block	Latitude	Longitude	Type BW/DW	Dia in m	Depth (m bmp)	Reported Yield In m3/hr	Usage Irrigation / Domestic / Industry	Depth to Water Level In Premonsoon-2023 (In m bgl)	Depth to Water Level Post Monsoon 2023 (In m bgl)	Flactuation (In m)	Altitude (m amsl)	WT Pre-2023	WT Post-2023
1	Gorakhpur	JPL Gorakhpur Gate	Seoni	Ghansore	N22°44'4.97"	E79°55'38.53"	Bore well	0.152	90	6.2	Domestic	7.8	4.7	3.10	550.3	542.50	545.58
2	Gorakhpur	Infront of gram panchyat bhawan	Seoni	Ghansore	N22°44'26.68"	E 79°56'1.90"	Bore well	0.152	120	8	Domestic	23.25	13.8	9.45	545.2	521.95	539.78
3	Durjanpur	Gangaram Yadav	Seoni	Ghansore	N22°45'3.60"	E79°55'48.06"	Bore well	0.152	142	5.2	Domestic	14.7	12.3	2.40	555.4	540.70	542.00
4	Panarjhir	Near Rangmanch Main Road	Seoni	Ghansore	N22°46'9.39"	E79°54'49.93"	Bore well	0.152	90	3.1	Domestic	3.25	1.65	1.60	543.2	539.95	535.58
5	Barela	Beside Cullvert JPL Road	Seoni	Ghansore	N22°44'51.67"	E79°54'30.23"	Bore well	0.152	90	5.2	Domestic	4.8	4.72	0.08	548.2	543.40	546.55
6	Binaki	Behind Hanuman Mandir	Seoni	Ghansore	N 22°43'19.65"	E79°54'14.97"	Bore well	0.152	90	2.6	Domestic	7.42	5.42	2.00	535.2	527.78	521.40
7	Guneri	Bhadde Singh Bhagdiya	Seoni	Ghansore	N22°41'57.03"	E79°57'1.24"	Bore well	0.152	151	1.5	Domestic	19.2	13.4	5.80	543.2	524.00	535.29
8	Dola	Near Bhagrath House	Seoni	Ghansore	N22°41'56.18"	E79°54'53.71"	Borewell	0.152	182	4.2	Domestic	10.21	7.62	2.59	529.1	518.89	529.10
											Min.	**3.25**	**1.65**	0.08	529.10	**518.89**	**521.40**
											Max	**23.25**	**13.8**	9.45	555.40	**543.40**	**546.55**
											Avg.	**11.33**	**7.91**	3.38	543.73	**532.40**	**536.91**

Geotagged Photographs of the wells monitoring in the study area.

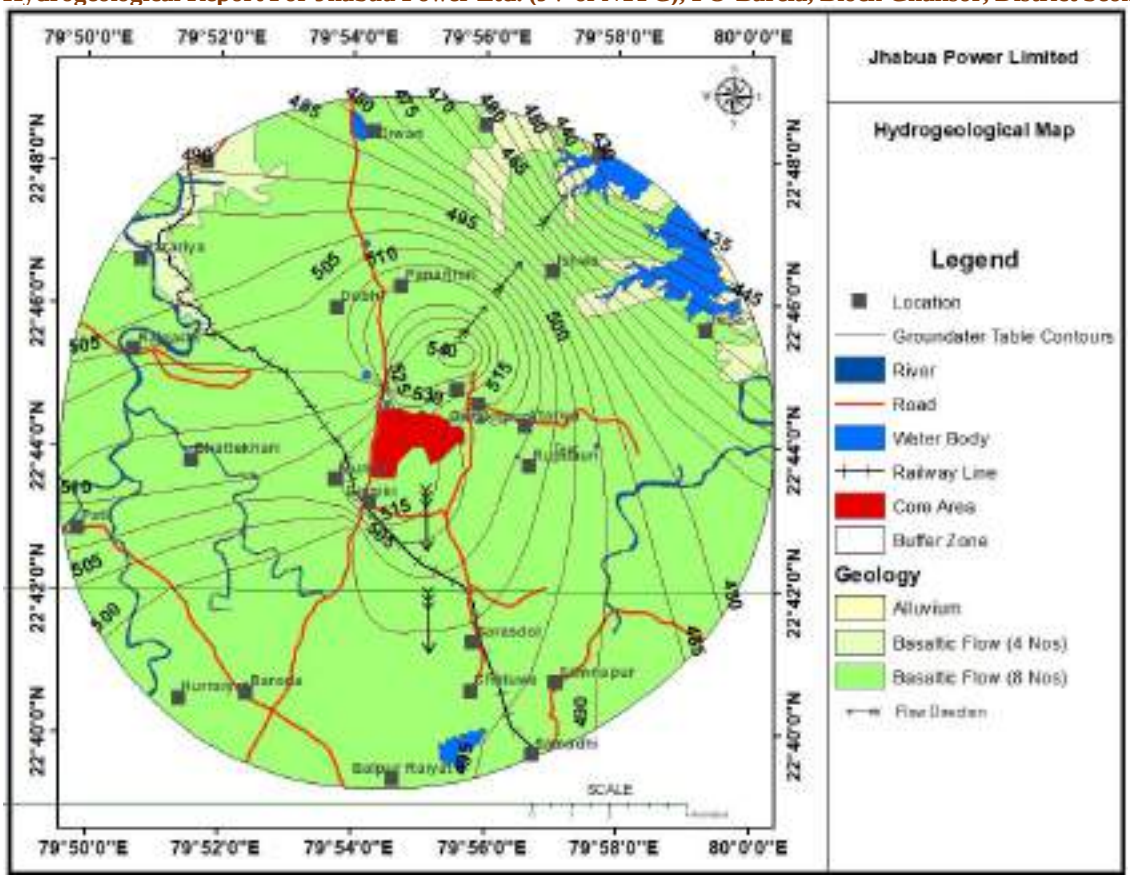


Figure-10: Hydrogeological Map showing groundwater contour elevation and flow directions

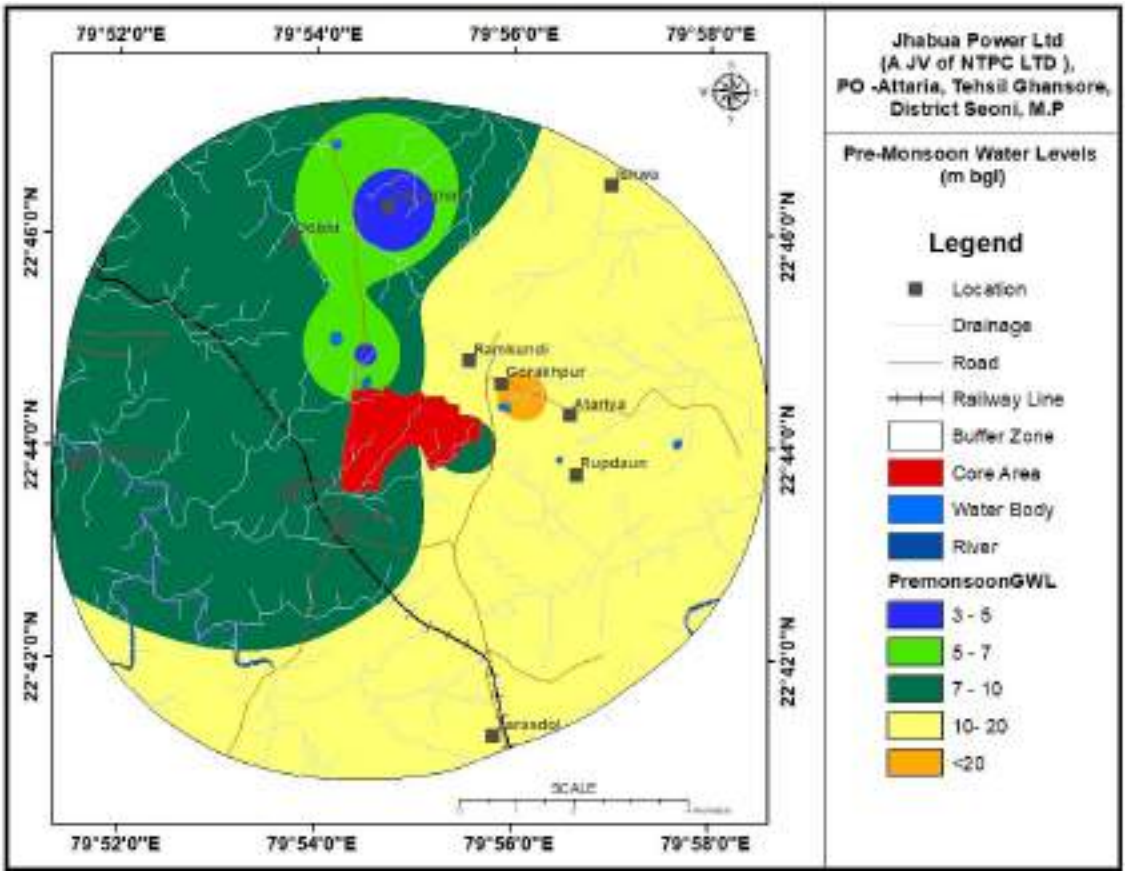


Figure-11: Pre-Monsoon Depth to Water Level of the study area

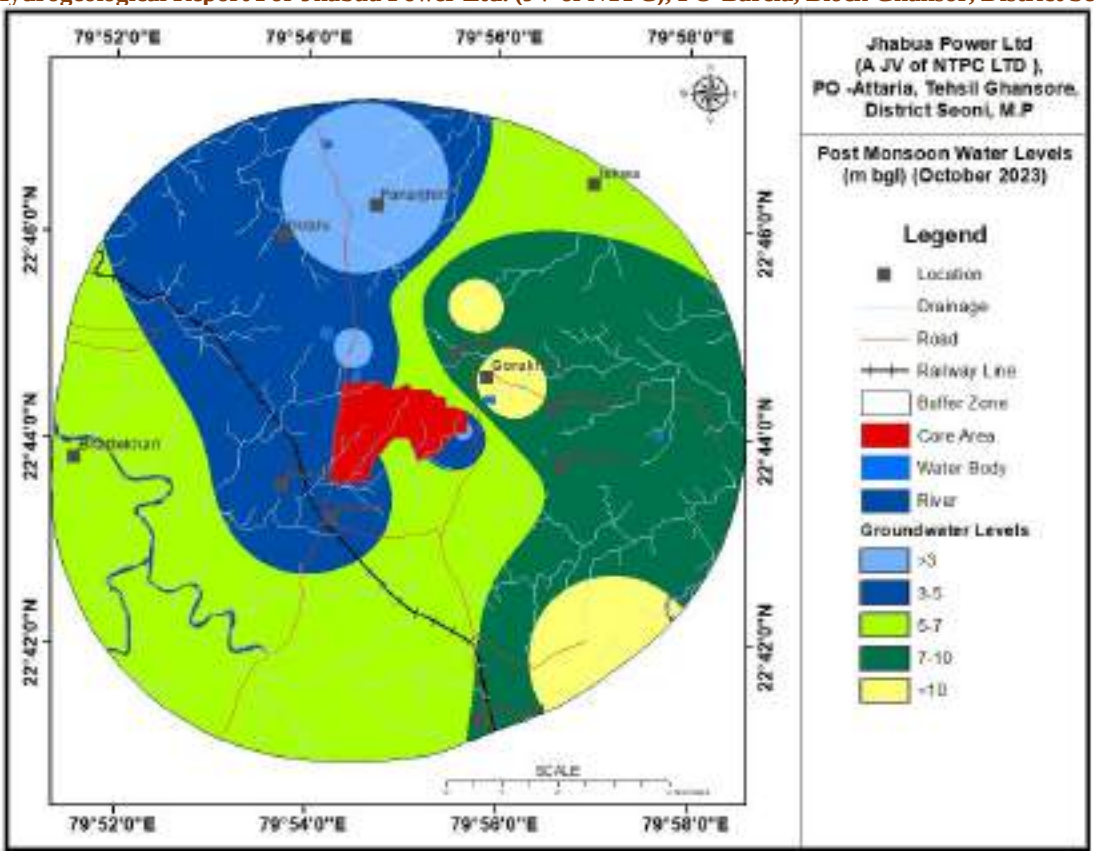


Figure-12: Post-Monsoon Depth to Water Level of the study area

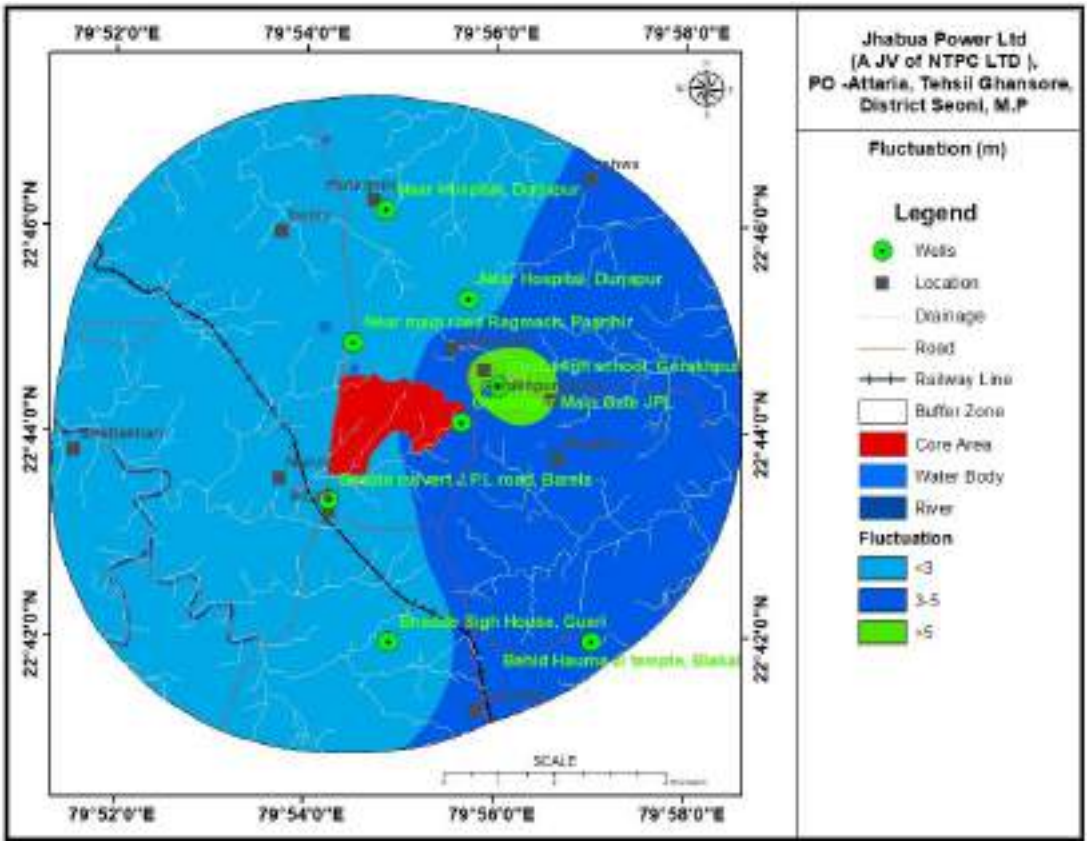


Figure-13: Water Level Fluctuation Map of the study area

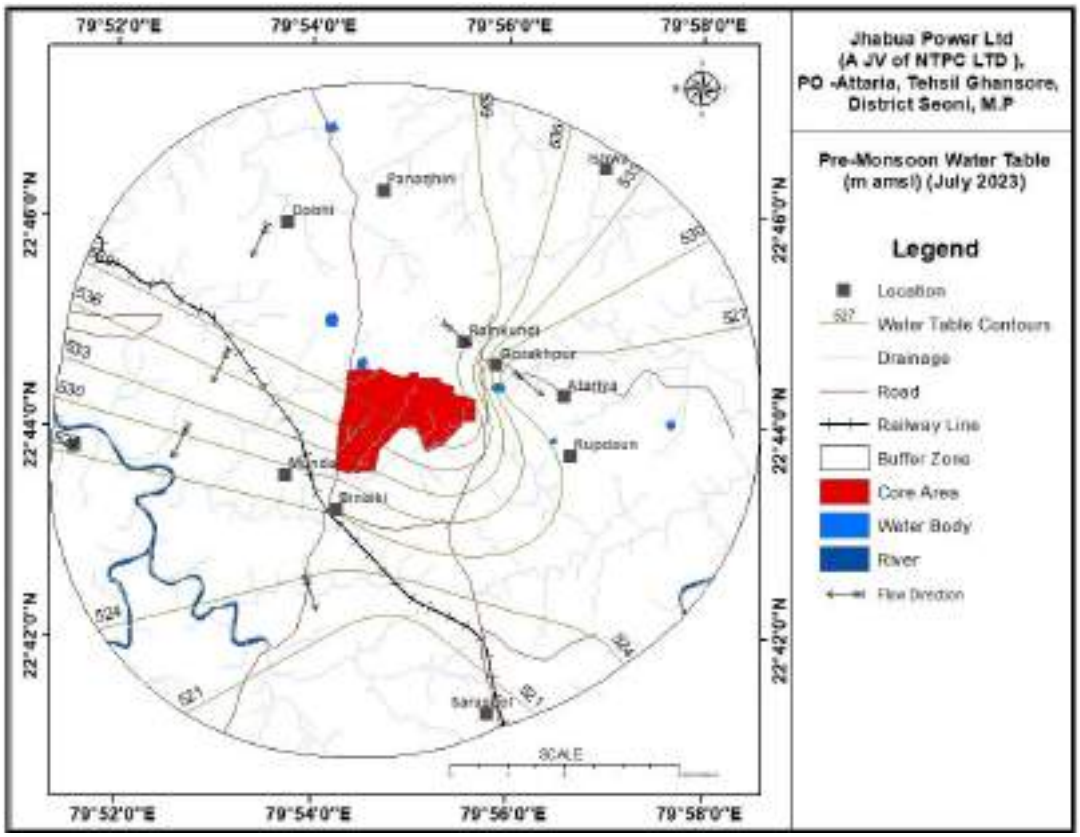


Figure-14: Pre-monsoon Groundwater Table Contour Map of the study area

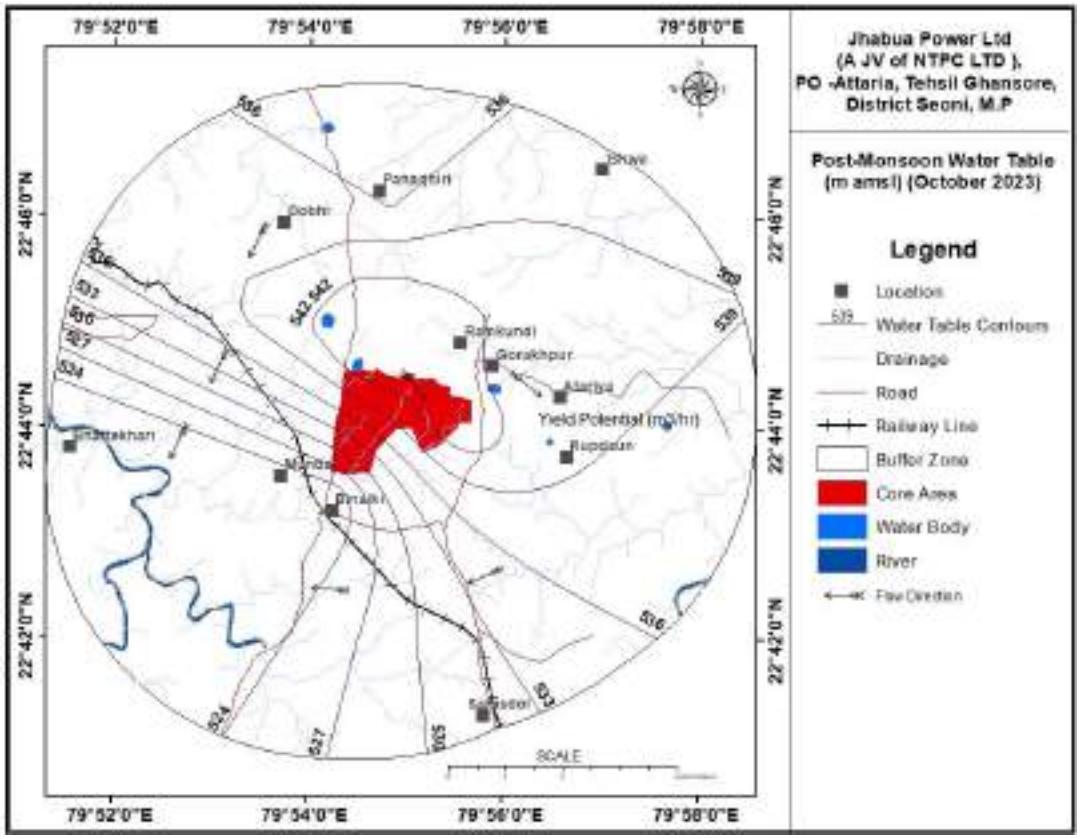


Figure-15: Post-monsoon Groundwater Table Contour Map of the study area

Groundwater Resources

Government Agencies (State Ground Water Department, Govt. of Madhya Pradesh, and Central Ground Water Board- Bhopal Region) had computed block wise ground water resources. The buffer zone of the current project spreads over Ghansor block of Seoni district of Madhya Pradesh. The Ground Water Information available in the DoWR, Ministry of Jal Shakti, Govt. of India for the year 2020 have been used to compute the Net Annual Ground Water Availability and Existing Gross Ground Water Draft on a pro-rata basis. The detailed computation for the buffer zone is shown in the **Table-6** as below.

Table-6: Ground Water Resources in Buffer zone

S. No	Particulars		Ground Water Resource (In Ham)	
			Ghansor Block	Buffer Zone
1	Area (In Hectare)		96300.00	8190.00
2	Net Groundwater Availability		6769.06	575.68
3	Current Annual Ground Water Draft	Irrigation draft	1248.0	106.13
		Domestic and Industry Draft	363.60	30.92
		Existing Gross Groundwater Draft for all uses	1611.6	137.05
4	Stage of Ground Water Extraction (%)		23.80	23.80
5	Category		Safe	Safe

Long term water level data analysis:

In order to understand the long term (7 years) ground water level changes, the CGWB observation wells located in the study area has been downloaded from *https://indiawris.gov.in/* web site. The water levels observed at Gorkhpur ground water level monitoring station of CGWB has been considered for determining the trend. The geographic coordinate of the Gorkhpur monitoring well as follows.

Location	Latitude	Longitude	Direction from Project Site	Distance from Project Site (In meter)
Gorkhpur	N 22°44'32.99"	E 79°54'48.96"	North	139

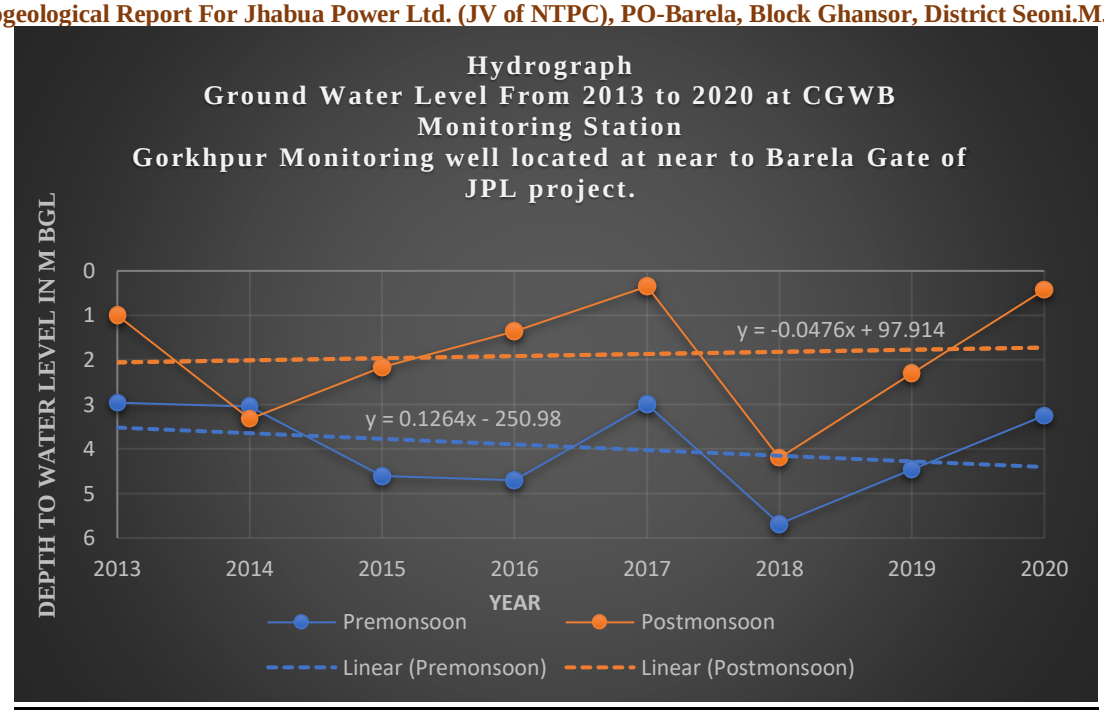


Figure-16: Hydrograph of water level at Gorkhpur Monitoring well of CGWB

Abstract of the long-term groundwater level trend.

Trends for the Hydrograph (Monitoring Well)	Trend – Rise		Trend - Fall	
	Pre-Monsoon Rate of Rise (m/year)	Post-Monsoon Rate of Rise (m/year)	Pre-Monsoon Rate of Fall (m/year)	Post-Monsoon Rate of Fall (m/year)
Gorkhpur	-	0.047	0.126	-

The long-term trend in and around the study area clearly indicates that there is no stress in the Groundwater.

Ground water quality

It is highly essential to assess the quality of groundwater of the area and accordingly its suitability for various purposes viz drinking, irrigation and industrial purposes, etc. For assessing the groundwater quality, groundwater samples were collected from various locations and the water quality parameters were measured to analyze the groundwater quality of the region. The details and coordinates of the water samples collected are shown in **Table-7.** The parameters measured are shown in **Table-8.** Further details on the test of the NABL approved lab are annexed as **Annexure-1.** The water quality maps prepared for Electrical Conductivity concentration, Chloride concentration, Nitrate (point value) and Fluoride (point value) are given in ***Figure-17, 18, 19 and 20,*** respectively.

Table 7: Location of collected water samples.

S. No.	Source	Village/Location	Structure	Coordinates	
				Latitude	Longitude
1	Groundwater	Gorthkpur Main Gate	Bore well	N22°44'4.97"	E79°55'38.53"
2	Groundwater	Gorkhpur Govt High School	Bore well	N22°44'26.68"	E 79°56'1.90"
3	Groundwater	Durjanpur , Nr. Hospital	Bore well	N22°45'17.80"	E79°55'42.57"
4	Groundwater	Panarjhir, Nr Rangmunch	Bore well	N22°46'9.39"	E79°54'49.93"
5	Groundwater	Barela, Nr. culvert JPL Road	Bore well	N22°44'51.67"	E79°54'30.23"
6	Groundwater	Binaki, Nr Hanuman Mandir	Bore well	N 22°43'19.65"	E79°54'14.97"
7	Groundwater	Guneri, Nr. Bhadde Singh House	Bore well	N22°41'57.03"	E79°57'1.24"
8	Groundwater	Dola, In Main village	Bore well	N22°41'56.18"	E79°54'53.71"

Some Geotagged Photographs during groundwater samples collection in study area

Table-8: Results of chemical analysis of ground water samples analyzed by NABL.

S.No.	Test Parameters	Unit	GROUND WATER (Borewell) Gorakhpur Main Gate JPL	GROUND WATER (Borewell) Govt. High school, Gorakhpur	GROUND WATER (Borewell) Near Hospital, Durjanpur	GROUND WATER (Borewell) Near main road Rangmanch, Panarjhir	GROUND WATER (Borewell) Beside culvert J.P.L road, Barela	GROUND WATER (Borewell) Behind Hanuman Ji temple, Binakai	GROUND WATER (Borewell) Bhadde Singh House, Guneri	GROUND WATER (Borewell) Main road near Bhagrath House, Dola
		Coordinates	N22°44'4.97" E79°55'38.53"	N22°44'26.68" E 79°56'1.90"	N22°45'17.80" E79°55'42.57"	N22°46'9.39" E79°54'49.93"	N22°44'51.67" E79°54'30.23"	N 22°43'19.65" E79°54'14.97"	N22°41'57.03" E79°57'1.24"	N22°41'56.18" E79°54'53.71"
1	pH	-	7.23	7.33	7.31	7.21	7.21	7.28	7.26	7.09
2	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
4	Temperature	-	Ambient	Ambient	Ambient	Ambient	Ambient	Ambient	Ambient	Ambient
5	Chloride	mg/I	38.98	29.77	54.59	10.89	31.99	63.81	36.86	34.98
6	Calcium	mg/I	34.46	8.81	55.67	56.11	32.06	68.13	46.49	28.85
7	Total Dissolved Solid	mg/I	311	211	322	439	312	252	306	400
8	Conducfivity	µmhos/cm	410	430	380	540	590	850	450	560
9	Alkalinity	mg/I	114	128	140	116	110	151	128	176
10	Fluoride	mg/I	0.61	0.64	0.54	0.61	0.59	0.63	0.81	0.78
11	Phosphate	mg/I	1.54	1.73	1.45	3.19	1.58	0.84	1.21	2.37
12	Sulphate	mg/I	35.60	31.52	25.86	33.69	25.39	25.83	35.30	32.42
13	Nitrate	mg/I	3.32	2.9	6.21	0.68	9.40	1.56	14.5	7.63
14	Magnesium	mg/I	4.37	3.40	9.97	13.60	2.91	17.70	17.98	12.91
15	Total hardness	mg/I	198	238	179	190	135.6	175	190.0	260
16	Total Arsenic As	mg/1	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
17	Cadmium Cd	mg/1	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
18	Chromium Cr	mg/l	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
19	CopperCu	mg/l	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
20	Iron Fe	mg/l	0.14	0.11	0.14	0.13	0.14	0.14	0.22	0.22
21	Mercury Hg	mg/I	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
22	Manganese	mg/l	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
23	Lead Pb	mg/l	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
24	Zinc Zn	mg/I	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLO	BLQ
25	Boron	mg/l	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
26	Turbidity	NTU	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
27	Selenium Se	mg/l	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
28	Aluminium	mg/1	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
29	Residual Free	mg/l	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
30	Phenolic Compound	mg/I	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ
31	Total Coliform	Per 100 ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
32	E. Coli	Per 100 ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent

Analytical Result of water quality

The perusal of chemical analysis results of ground water and surface water samples collected and analyzed as depicted in above tables that water in general is safe as majority of the constituents are within the permissible limit. From the study of the above table following inferences can be drawn.

1) **pH:** pH value of ground water indicates that water is in general a bit alkaline in nature in Ground Water samples it varies from 7.09 to 7.33 with average value of 7.89 and in surface water sample value of pH is determined as 7.83.
2) **Electrical Conductivity:** The Electrical Conductivity in the water represents concentration of soluble salts as such the high electrical conductivity indicates high concentration of dissolved salts. The maximum and minimum EC concentration in ground water is 850 and 380 µmhos/cm which is potable as per the CPHEEO Standards. The project is located in 530-410 µmhos/cm zone. The spatial distribution of EC concentration reveals that the area is not falls under ground water quality affected zone.
3) **Total Hardness**: Total Hardness is considered as a major character of drinking water. Hardness is defined as the concentrations of calcium and magnesium ions. Ca and Mg are dissolved from most soils and rocks. Total Hardness varies from 135 to 260 mg/l with an average value of 195.6 mg/l in ground water samples and within the permissible limit.
4) **Total Dissolved Solids**: To ascertain the suitability of groundwater for any purposes, it is essential to classify the groundwater depending upon their hydro-chemical properties based on their TDS values. The ground water of the area is fresh water. Most of the groundwater samples are within the maximum permissible limit for drinking as per WHO international standard. TDS concentration varies from 211to 439 mg/lit in with an average value of 319 mg/ lit in groundwater samples. Most of the groundwater samples are within the maximum permissible limit for drinking as per CPHEEO standard.
5) **Chloride:** Chloride concentration varies from 10.8 to 63.8 mg/lit with an average value of 37.7 mg/lit.
6) **Nitrate:** The concentration of nitrogen in groundwater is derived from the biosphere. Nitrogen is originally fixed from the atmosphere and then mineralized by soil bacteria into ammonium. Under aerobic conditions nitrogen is finally converted into nitrate by nitrifying bacteria. All samples show nitrate concentration within the permissible limit. Nitrate concentration varies from from 0.68 to 14.5 mg/lit with an average value of 5.78 mg/lit.
7) **Sulphate:** Sulphate concentration varies from 25.3 to 35.6 mg/lit with an average value of 30.7 mg/lit. The sulphate concentration in the water samples is less than the desirable range of 200 mg/l. This could be due to less ingress of irrigation water rich in sulphatic fertilizers and absence of sulphide minerals in appreciable quantities in the subsurface geologic formations and moreover less air pollution.

8) Fluoride: The fluoride concentration in the water samples is less than the prescribed limit (<1.5 mg/l). However, all samples examined exhibit suitability for drinking.

The other parameters such as Copper, Chromium, Iron, Magnesium, Mangnese, Sodium, Alluminium. Phosphate, Selenium, Zinc etc are found to be safe and within the permissible limit.

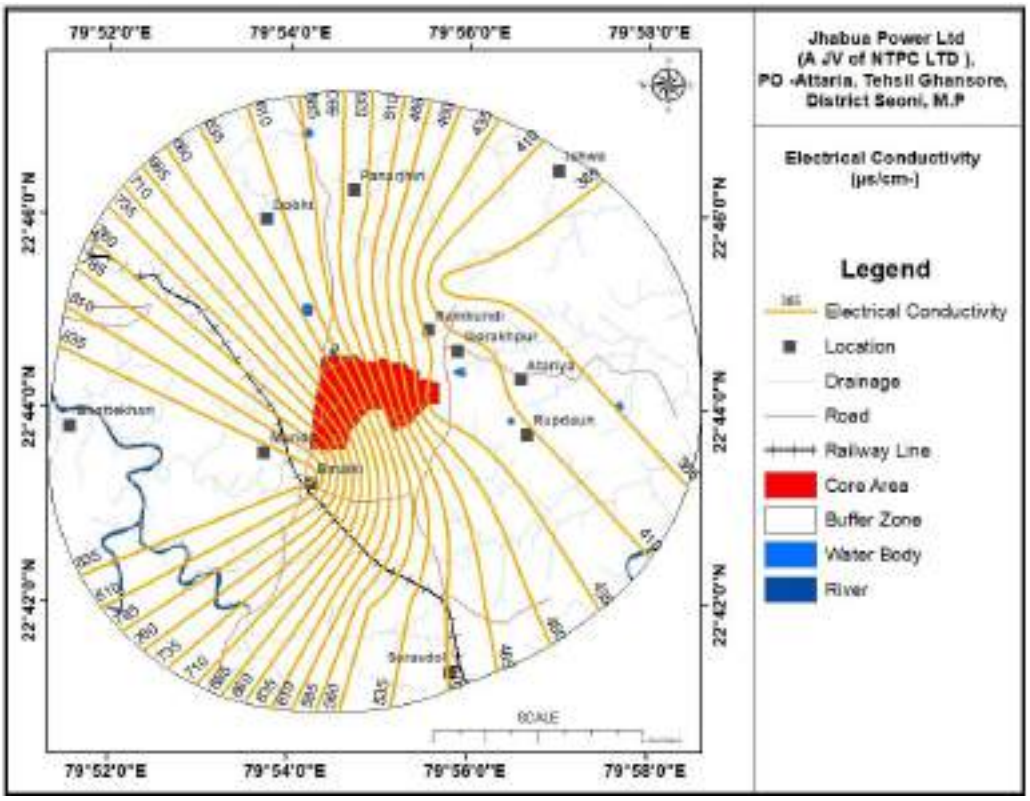


Figure-17: Groundwater Quality Map of Electrical Conductivity

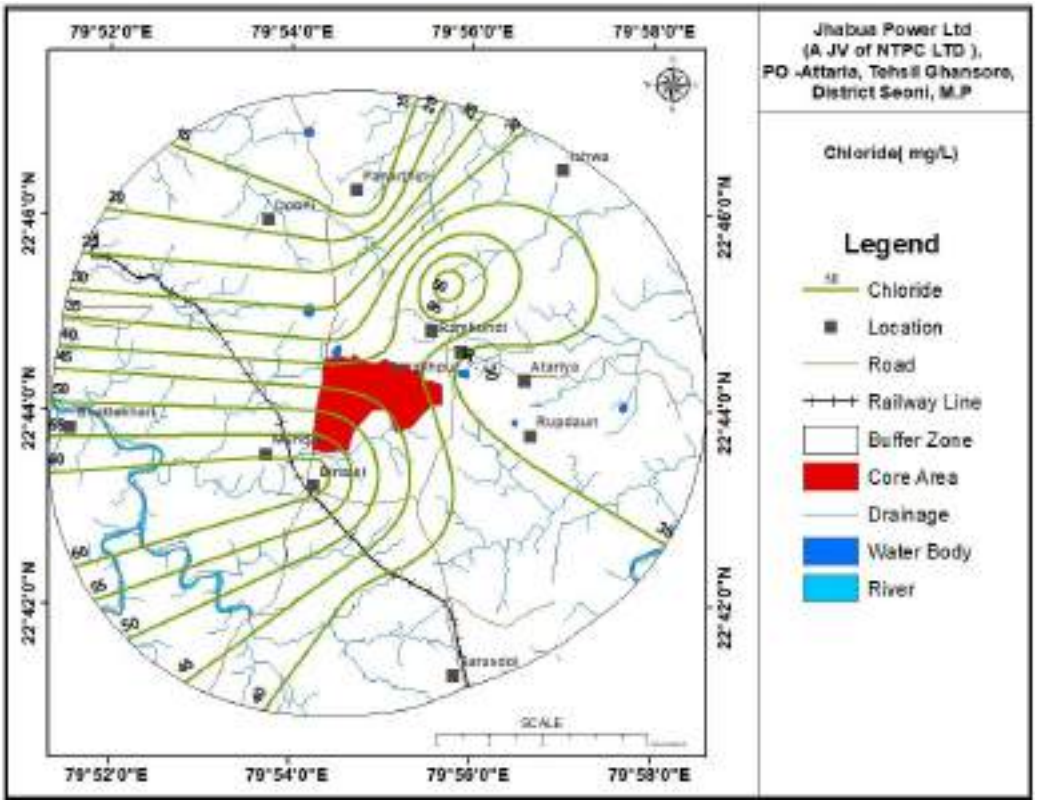


Figure-18: Groundwater Quality Map of Chloride

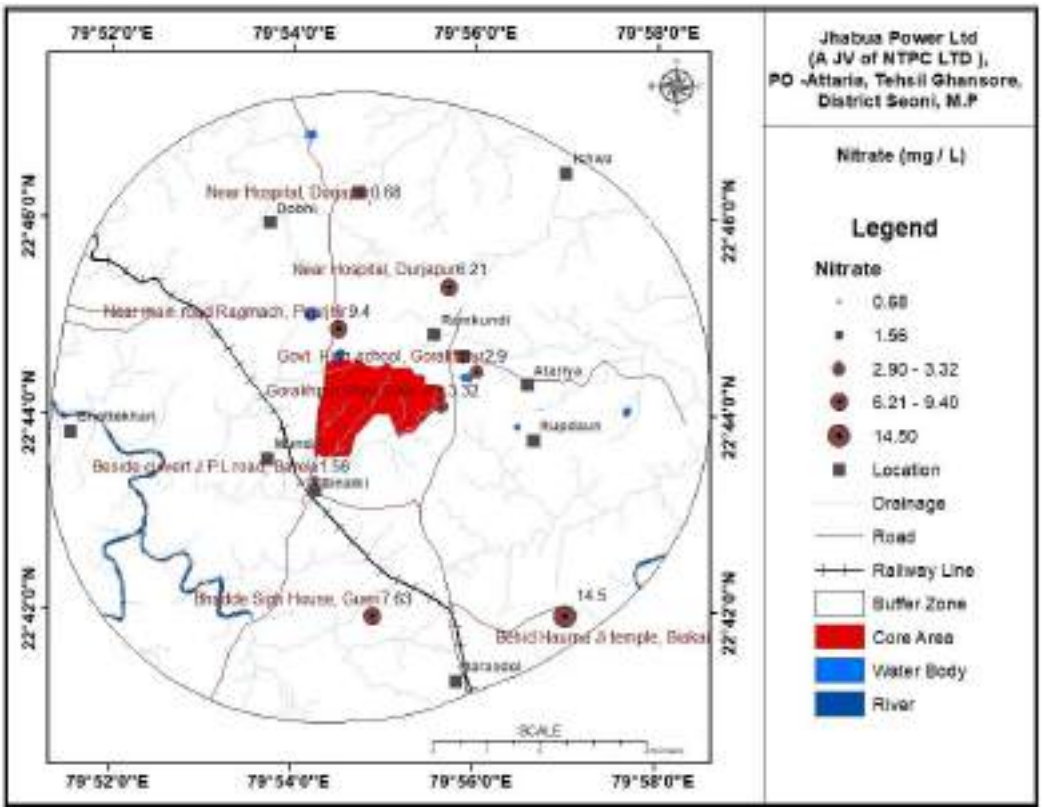


Figure-19: Groundwater Quality Map of Nitrate

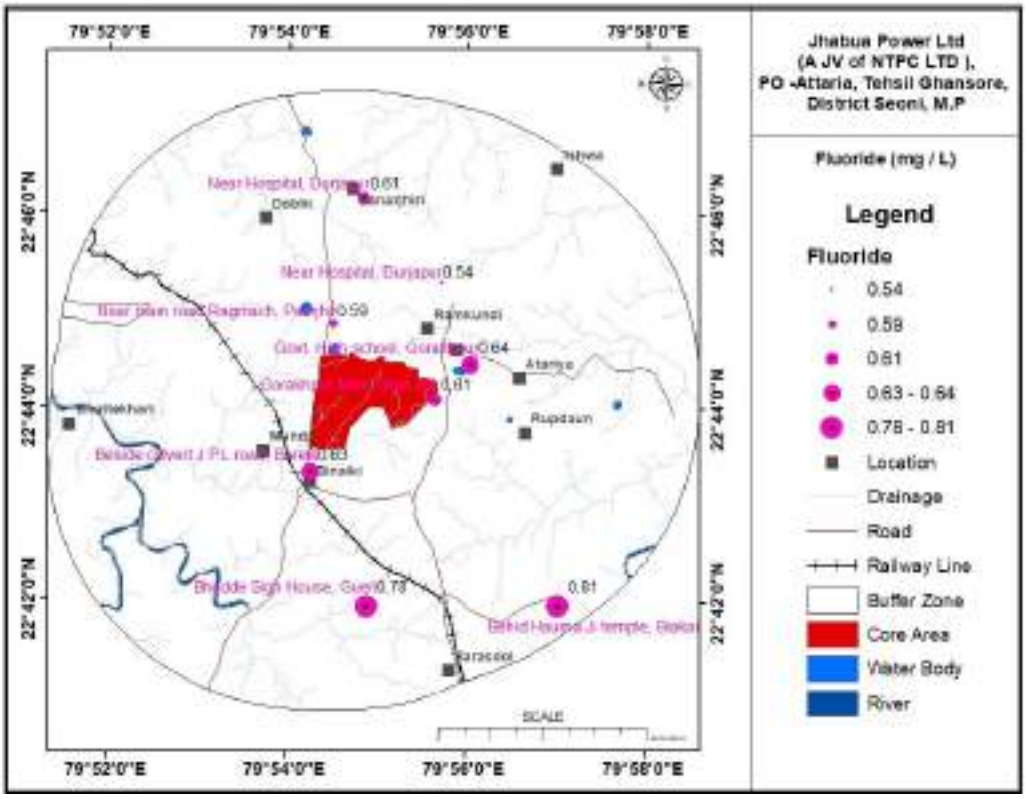


Figure-20: Groundwater Quality Map of Fluoride

Impact on Water Quality:

The groundwater water quality of the bore wells existing in the study area has been assessed and the details are mentioned in **Annexure-6**. Location wise histogram of Electrical Conductivity, Fluoride, Nitrate and Chlorides are prepared for comparison of changes over the years (shown in **Figure-21 to 28**). From the table and figures, it is observed, most of the physical, chemical and biological parameters of the groundwater of the region in are within the limits specified in IS 10500:2012. Further no any adverse changes are observed over the years.

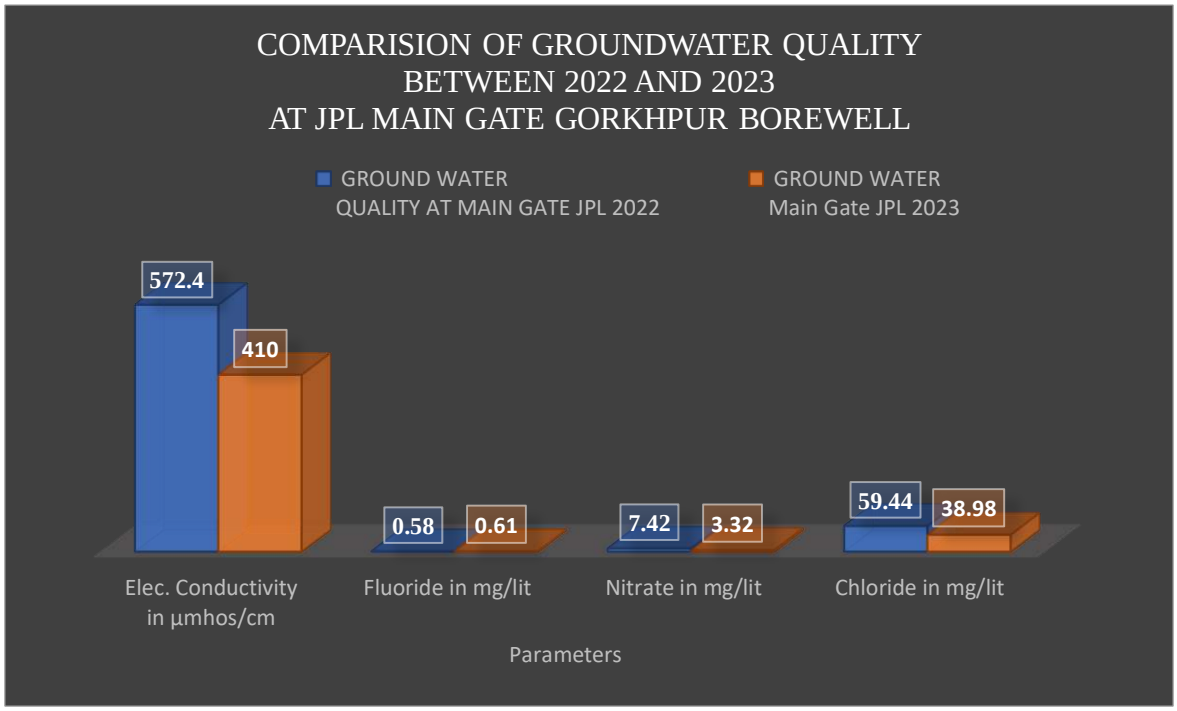


Figure-21: Histogram showing Comparison of Groundwater Quality(2022 and 2023) at JPL Main Gate, Gorkhpur.

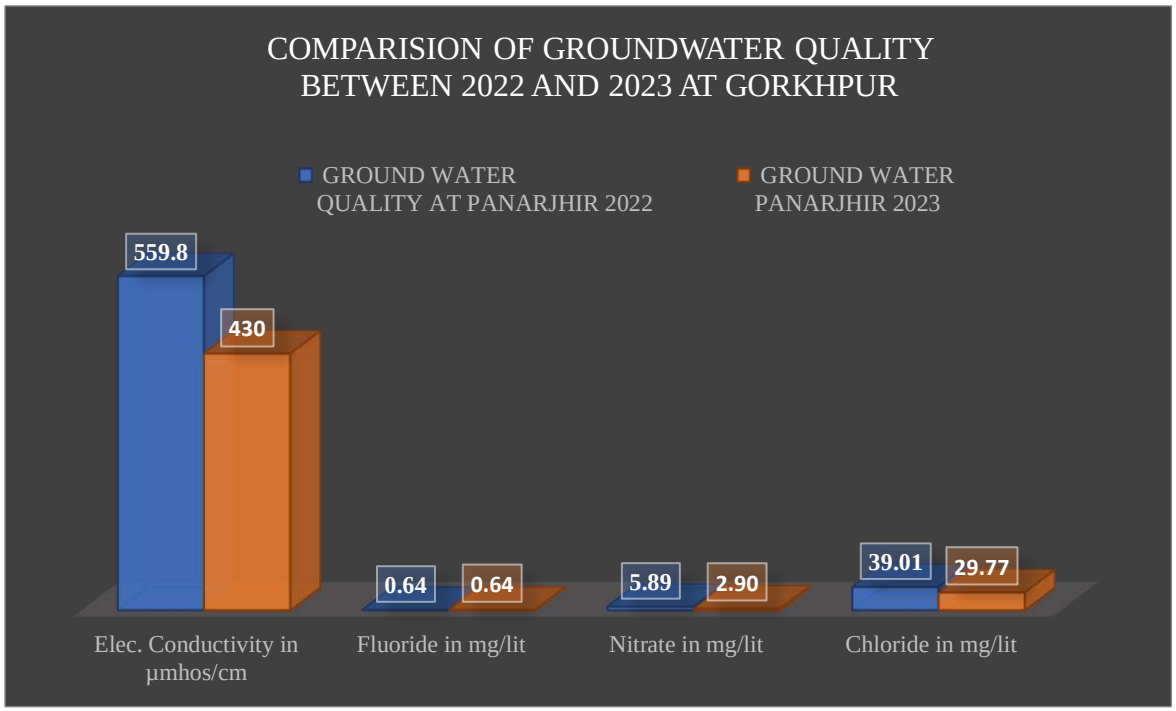


Figure-22: Histogram showing Comparison of Groundwater Quality (2022 and 2023) at Gorkhpur.

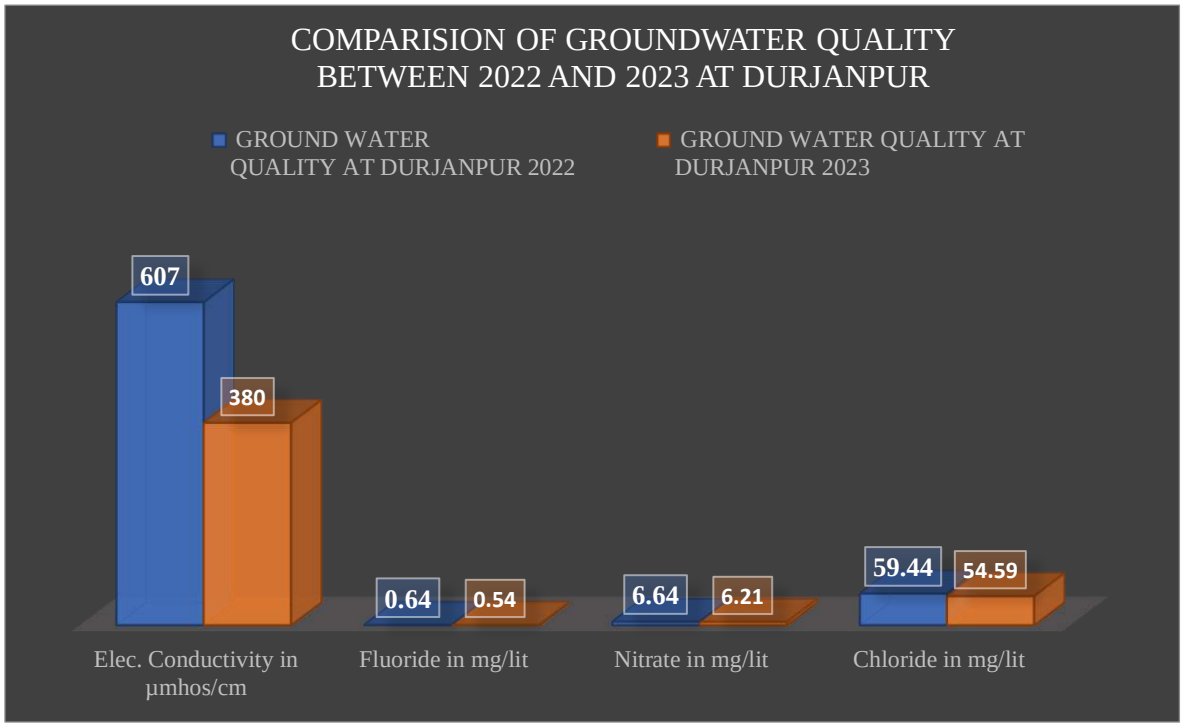


Figure-23: Histogram showing Comparison of Groundwater Quality (2022 and 2023) at Durjanpur.

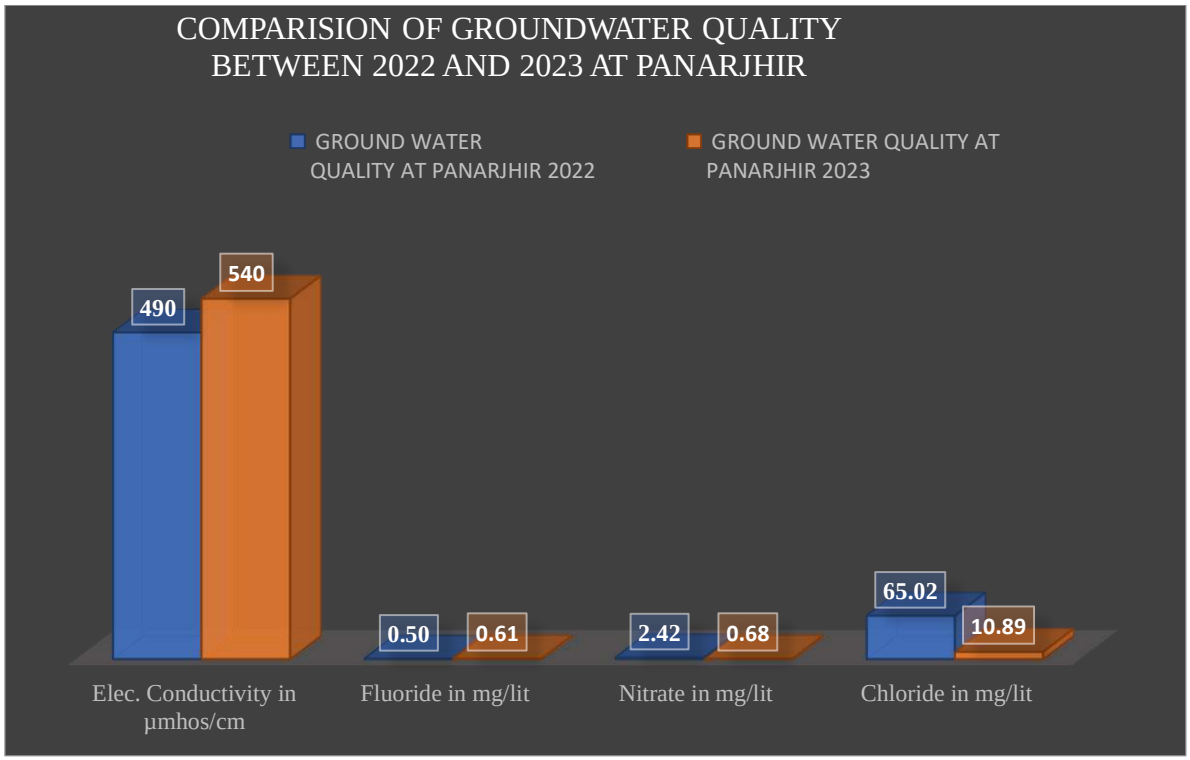


Figure-24: Histogram showing Comparison of Groundwater Quality (2022 and 2023) at Panarjhir.

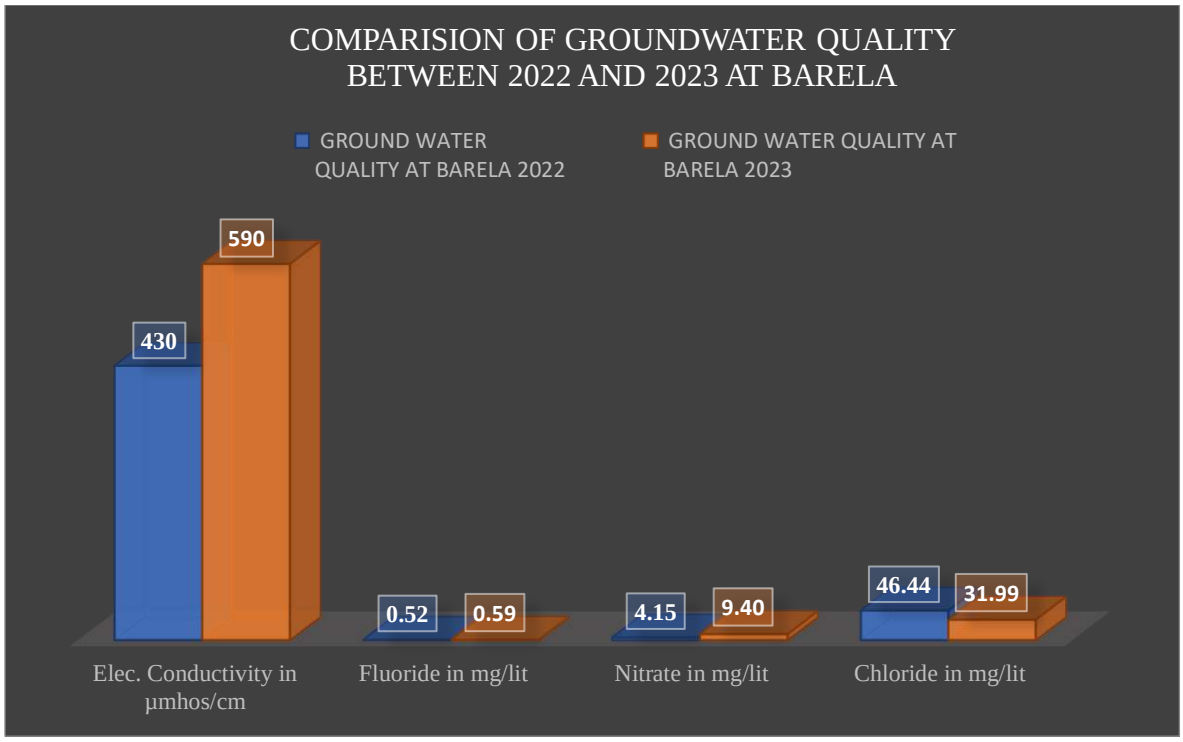


Figure-25: Histogram showing Comparison of Groundwater Quality (2022 and 2023) at Barela.

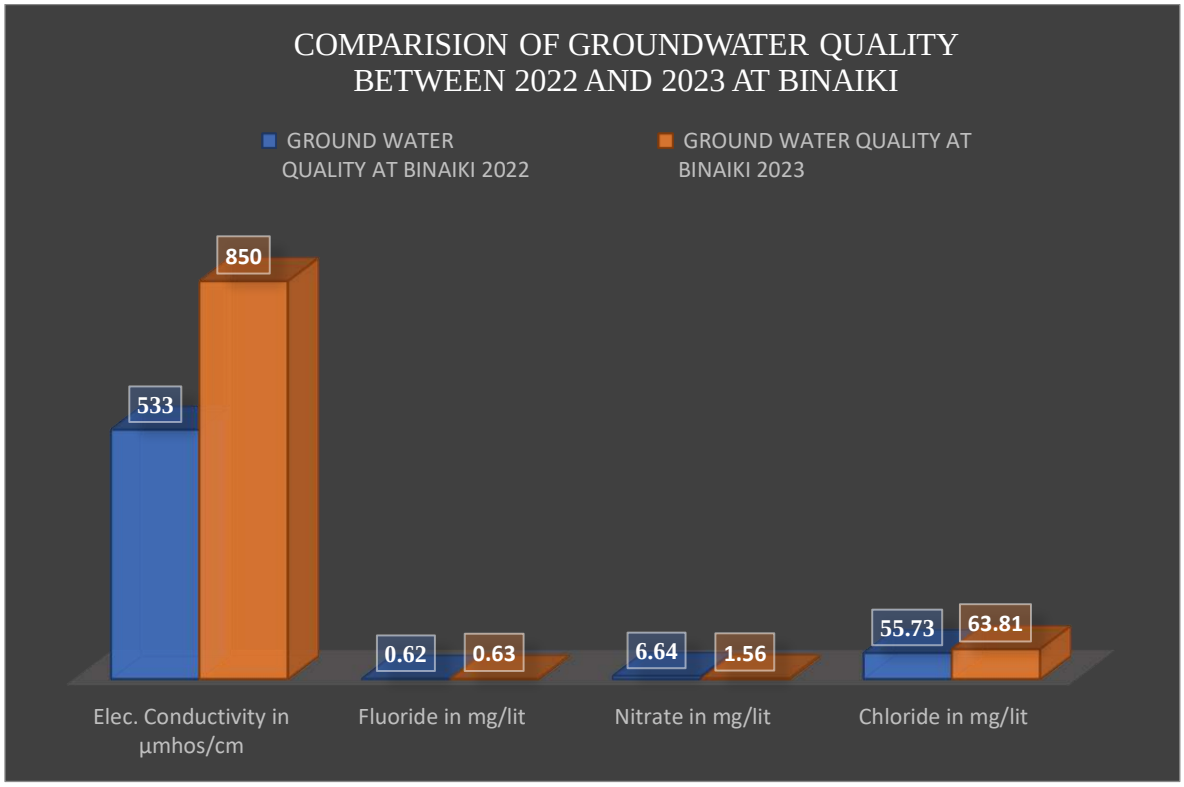


Figure-26: Histogram showing Comparison of Groundwater Quality (2022 and 2023) at Binaiki.

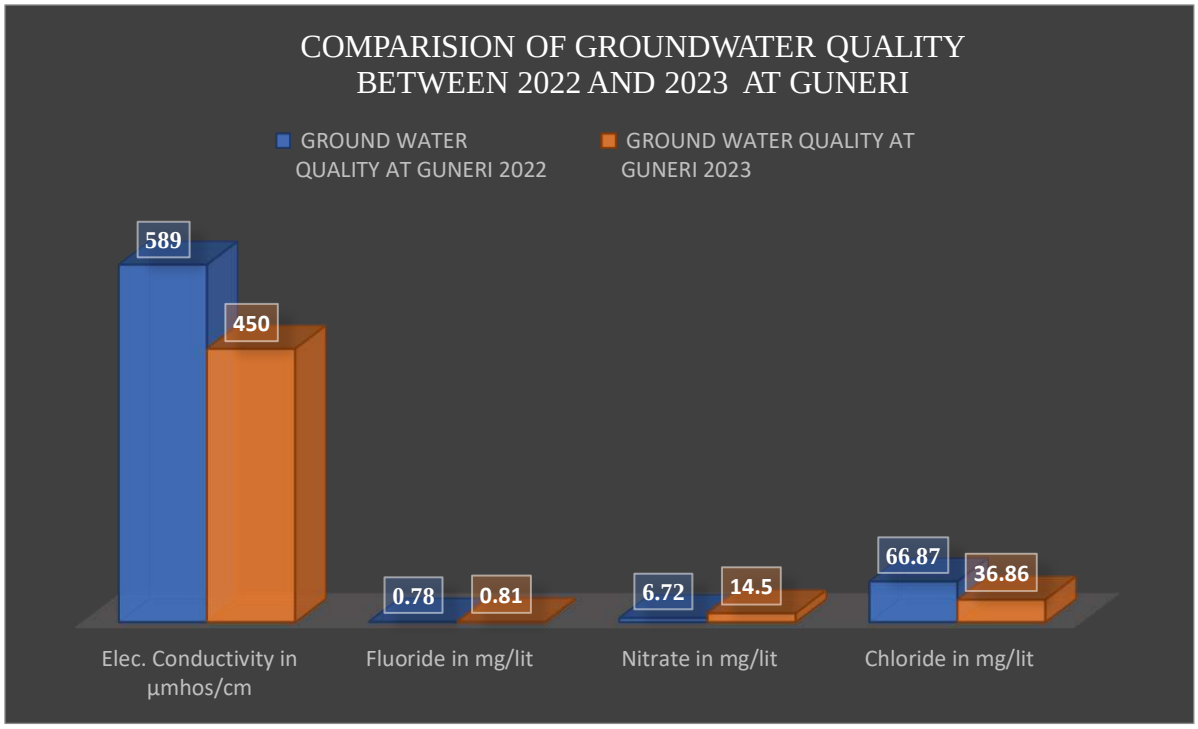


Figure-27: Histogram showing Comparison of Groundwater Quality (2022 and 2023) at Guneri.

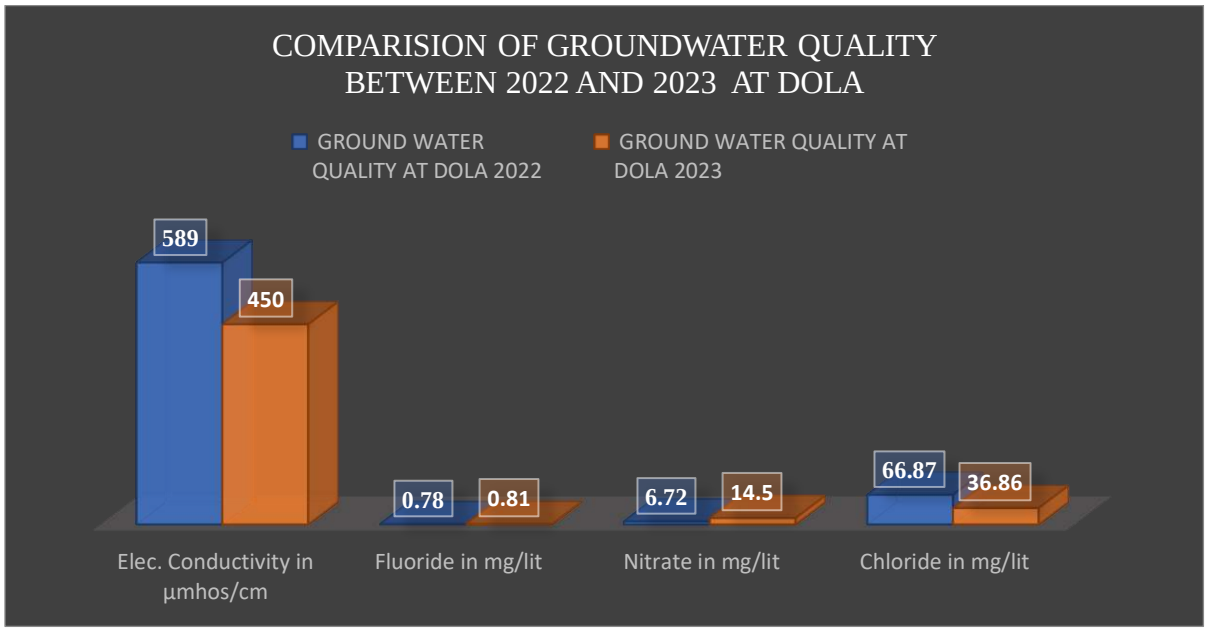


Figure-28: Histogram showing Comparison of Groundwater Quality (2022 and 2023) at Dola.

Groundwater quality of water samples are collected from borewells of the study area and analyzed in NABL accredited laboratory. The ground water quality parameters of EC, Chloride, Nitrate and

Fluoride in 2022 and 2023 is more or less same and within the prescribed limit of IS 10500:2012 standards.

To find out the quality of ground water of the area, 8 water samples were collected from the study area core and buffer zone. In view of above histograms of groundwater quality reveals that the water quality is potable and all the chemical constituents are within the permissible limits.

Conclusion:

- Jhabua Power Limited (JPL), is a Joint Venture of National Thermal Power Company Ltd (NTPC) and Banks. It is located in district Seoni of Madhya Pradesh.
- The power plant (earlier Avantha Power) is acquired by NTPC in September 2022. The said site is at a distance of around 56 Km. from Jabalpur, the divisional Head Quarter.
- To access and understand the drinking water need of the villages such as: Barela, Gorakhpur, Binaki, Guneri, Panarjhir, Durjanpur and Dola *"A Comprehensive hydrogeological study report to assess the hydrogeological conditions for drinking and domestic uses i*n the selected habitation around the plant site.
- The study area (5 km radius from the center of the JPL plant) elevation ranges from 555 m in the northeast (near Durjanpur village) to 529 m amsl in southeast part (at Dola village).
- Geomorphologically, the majority of the study underlying by structural plain.
- The drainage of the study area is controlled by Temhar River, which is the tributary of Narmada River.
- The entire area of buffer zone is underlain by rocks of Upper Cretaceous to Paleogene period comprises basalt rock belongs to Amarkantak group.
- The principal aquifers in the study area have been delineated as Basalt rock. The ground water table generated using the pre and post monsoon data indicates that the groundwater flow direction is towards southwest and southeast.
- Pre-monsoon water level varies from 3.25 to 23.2 m below ground level. Post-monsoon water level varies from 1.65 to 13.8 m below ground level.
- The chemical analysis results of ground water quality reveals that the quality of ground water in the study area is within the permissible limits of drinking water standards, the environmental values are those qualities of the groundwater aquifer that makes it suitable to be used for various purposes such as drinking, domestic, irrigation and industrial purposes.
- The Net Annual Extractable Ground Water Resource in the Ghansore Block is 6769.02 Ham

and Ground Water Extraction from all uses is 1611.6 Ham. The stage of ground water extraction is 23.80 % and the industry falls in Safe category as per Ground water Resources-2022.

- Long term water level trend analysis of Gorkhpur Observation well from 2013 to 2020 show falling trend of 0.126 m/year during pre-monsoon. During post monsoon rising of 0.047 m/year is observed. The long-term trend in and around the study area clearly indicates that there is no stress in the Groundwater.

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- **Karanth, K. R. (1987):** Ground Water Assessment Development and Management.
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Annexure-1: Groundwater Quality Reports

Location: Groundwater quality report of Gorkhpur JPL Main Gate.

GANGA ENVIROTECH & RESEARCH LABORATORY

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ISO 9001-2015 ISO 14001-2015 ISO 45001-2018

TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0013	Report No	GERL/W/129/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt. Seoni (M.P.)	Format No.	GERL/QM/FM/390
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Gorakhpur Main Gate JPL	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	31.07. 2023 to 01.08.2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 25.9 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		ULR No.	--------

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	pH	APHA 23rd edition 4500 H+B electrometric method :2017	7.23	-
2	Taste	IS 3025 (P-8)1984	Agreeable	-
3	Odour	APHA 23rd ED., 2150 B	Agreeable	-
4	Temperature	APHA 23rd ED.2550 B	Ambient	-
5	Chloride	APHA 23rd ED., 4500 Cl-B:2017	38.98	mg/l
6	Calcium	APHA 23rd ED., 3500 CA-B:2017	34.46	mg/l
7	Total Dissolved Solid	APHA 2540 B Gravimetric Method: 2017	311	mg/l
8	Conductivity	APHA 23rd ED., 2510B:2017	2.82	µs/cm-
9	Alkalinity	APHA 23rd ED., 2320B:2017	114	mg/l
10	Fluoride	APHA 23rd ED., 4500-FD:2017	0.61	mg/l
11	Phosphate	APHA 23rd ED., 4500-PC:2017	1.54	mg/l
12	Sulphate	IS 2720(Part 27)	35.60	mg/l
13	Nitrate	APHA 23rd ED., 4500-NO3 B	3.32	mg/l
14	Magnesium	APHA 23rd -2340 B	4.37	mg/l
15	Total hardness	APHA 23rd ED., 2540 C	198	mg/l

BDL* (Below Detection Limit) ** (DL Detection Limit)
Results refers only to the test sample & applicable Parameters
This report cannot be reproduced without the written permission of the Head of Laboratory
The sample will be destroyed after 30 days from the date of issue of test report
The Liability of the laboratory is limited to the invoiced amount
The results confirmed/not confirmed to the standard

Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	Shalini

----------End of the report----------

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ISO 9001-2015 ISO 14001-2015 ISO 45001-2018

TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0013	Report No	GERL/W/129/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt. Seoni (M.P.)	Format No.	GERL/QM/FM/39D
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Gorakhpur Main gate JPL	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	02.08.2023to 04.08.2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 25.9 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		ULR No.	----------

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	Total Arsenic As	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
2	Cadmium Cd	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
3	Chromium Cr	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
4	Copper Cu	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
5	Iron Fe	APHA (23rd Edition), 3113B: 2017	0.14	mg/l
6	Mercury Hg	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
7	Manganese	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
8	Lead Pb	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
9	Zinc Zn	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
10	Boron	APHA (23rd Edition), 4500B: 2017	BLQ	mg/l
11	Turbidity	IS 3025 (P- 10): 1984,RA:2017	BLQ	NTU
12	Selenium Se	APHA(23rd Edition), 3114C, 2017	BLQ	mg/l
13	Aluminium	IS 3025(P-55): 2003, RA: 2019	BLQ	mg/l
14	Residual Free Chlorine	IS 3025 (P-26):2021	BLQ	mg/l
15	Phenolic Compound	APHA 23 Edition 5530 C: 2017	BLQ	mg/l
16	Total Coliform	IS 15185:2016	Absent	Per 100 ml
17	E. Coli	IS 15185:2016	Absent	Per 100 ml

BLQ* (Below Quantification Limit) ** (DL Detection Limit)
Results refers only to the test sample & applicable Parameters
This report cannot be reproduced without the written permission of the Head of Laboratory
The sample will be destroyed after 30 days from the date of issue of test report
The Liability of the laboratory is limited to the invoiced amount
The results confirmed/not confirmed to the standard

Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	Shalini

----------End of the report----------

Page 02 of 02

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Groundwater quality report of Gorkhpur village.

GANGA ENVIROTECH & RESEARCH LABORATORY

Registered Office: Plot No. 38, Khasra No. 82/3, Harinagar, Lucknow-Ayodhya Road, Near Green City, Babu Banarsi Das University (BBD), Semra, Chinhat, Lucknow, U.P. 226028

ISO 9001-2015 ISO 14001-2015 ISO 45001-2018

TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0014	Report No	GERL/W/130/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt. Seoni (M.P.)	Format No.	GERL/QM/FM/39D
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Govt. High school Gorakhpur	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	01.08.2023 to 02.08.2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 25.9 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		ULR No.	———

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	pH	APHA 23rd edition 4500 H+B electrometric method :2017	7.33	-
2	Taste	IS 3025 (P-8)1984	Agreeable	-
3	Odour	APHA 23rd ED., 2150 B	Agreeable	-
4	Temperature	APHA 23rd ED.2550 B	Ambient	-
5	Chloride	APHA 23rd ED., 4500 Cl-B:2017	29.77	mg/l
6	Calcium	APHA 23rd ED., 3500 CA-B:2017	8.81	mg/l
7	Total Dissolved Solid	APHA 2540 B Gravimetric Method: 2017	211	mg/l
8	Conductivity	APHA 23rd ED., 2510B:2017	2.7	µs/cm.
9	Alkalinity	APHA 23rd ED., 2320B:2017	128	mg/l
10	Fluoride	APHA 23rd ED., 4500-FD:2017	0.64	mg/l
11	Phosphate	APHA 23rd ED., 4500-PC:2017	1.73	mg/l
12	Sulphate	IS 2720(Part 27)	31.52	mg/l
13	Nitrate	APHA 23rd ED., 4500-NO3 B	2.9	mg/l
14	Magnesium	APHA 23rd -2340 B	3.40	mg/l
15	Total hardness	APHA 23rd ED., 2540 C	238	mg/l

BDL* (Below Detection Limit) ** (DL Detection Limit)
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The results confirmed/not confirmed to the standard.

Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	Shalini

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ISO 9001-2015 ISO 14001-2015 ISO 45001-2018

TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0014	Report No	GERL/W/190/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt. Seoni (M.P.)	Format No.	GERL/QM/FM/39D
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Govt. High school Gorakhpur	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	04.08.2023 to 06.08.2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 25.9 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		ULR No.	-------

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	Total Arsenic As	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
2	Cadmium Cd	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
3	Chromium Cr	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
4	Copper Cu	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
5	Iron Fe	APHA (23rd Edition), 3113B: 2017	0.11	mg/l
6	Mercury Hg	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
7	Manganese	APHA (23rd Edition),3030D 3113B: 2	BLQ	mg/l
8	Lead Pb	APHA (23rd Edition),3030D 3113B: 2	BLQ	mg/l
9	Zinc Zn	APHA (23rd Edition),3030D 3113B: 2	BLQ	mg/l
10	Boron	APHA (23rd Edition), 4500B: 2017	BLQ	mg/l
11	Turbidity	IS 3025 (P- 10): 1984,RA:2017	BLQ	NTU
12	Selenium Se	APHA(23rd Edition), 3114C, 2017	BLQ	mg/l
13	Aluminium	IS 3025(P-55): 2003, RA: 2019	BLQ	mg/l
14	Residual Free Chlorine	IS 3025 (P-26):2021	BLQ	mg/l
15	Phenolic Compound	APHA 23 Edition 5530 C: 2017	BLQ	mg/l
16	Total Coliform	IS 15185:2016	Absent	Per 100 ml
17	E. Coli	IS 15185:2016	Absent	Per 100 ml

BDL* (Below Detection Limit) ** (DL Detection Limit)
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The results confirmed/not confirmed to the standard

Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	Shalini

----------End of the report----------

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Groundwater quality report of Durjanpur village.

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TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0015	Report No	GERL/W/131/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt. Seoni (M.P.)	Format No.	GERL/QM/FM/39D
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Near Hospital Durjanpur	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	01.08.2023 to 02.08.2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 25.9 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		ULR No.	----------

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	pH	APHA 23rd edition 4500 H+B electrometric method :2017	7.31	-
2	Taste	IS 3025 (P-8)1984	Agreeable	-
3	Odour	APHA 23rd ED, 2150 B	Agreeable	-
4	Temperature	APHA 23rd ED.2550 B	Ambient	-
5	Chloride	APHA 23rd ED, 4500 Cl-B:2017	54.59	mg/l
6	Calcium	APHA 23rd ED, 3500 CA-B:2017	55.67	mg/l
7	Total Dissolved Solid	APHA 2540 B Gravimetric Method: 2017	322	mg/l
8	Conductivity	APHA 23rd ED, 2510B:2017	2.03	µs/cm-
9	Alkalinity	APHA 23rd ED, 2320B:2017	140	mg/l
10	Fluoride	APHA 23rd ED, 4500-FD:2017	0.54	mg/l
11	Phosphate	APHA 23rd ED, 4500-PC:2017	1.45	mg/l
12	Sulphate	IS 2720(Part 27)	25.86	mg/l
13	Nitrate	APHA 23rd ED, 4500-NO3 B	6.21	mg/l
14	Magnesium	APHA 23rd -2340 B	9.97	mg/l
15	Total hardness	APHA 23rd ED, 2540 C	179	mg/l

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Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	Shalini

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ISO 9001-2015 ISO 14001-2015 ISO 45001-2018

TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0015	Report No	GERL/W/131/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt, Seoni (M.P.)	Format No.	GERL/QM/FM/39D
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Near Hospital Durjanpur	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	03.08.2023 to 04.08.2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 25.9 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		ULR No.	———

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	Total Arsenic As	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
2	Cadmium Cd	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
3	Chromium Cr	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
4	Copper Cu	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
5	Iron Fe	APHA (23rd Edition), 3113B: 2017	0.14	mg/l
6	Mercury Hg	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
7	Manganese	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
8	Lead Pb	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
9	Zinc Zn	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
10	Boron	APHA (23rd Edition), 4500B: 2017	BLQ	mg/l
11	Turbidity	IS 3025 (P- 10): 1984,RA:2017	BLQ	NTU
12	Selenium Se	APHA(23rd Edition). 3114C. 2017	BLQ	mg/l
13	Aluminium	IS 3025(P-55): 2003, RA: 2019	BLQ	mg/l
14	Residual Free Chlorine	IS 3025 (P-26):2021	BLQ	mg/l
15	Phenolic Compound	APHA 23 Edition 5530 C: 2017	BLQ	mg/l
16	Total Coliform	IS 15185:2016	Absent	Per 100 ml
17	E. Coli	IS 15185:2016	Absent	Per 100 ml

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Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	Shalini

----------End of the report----------

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Groundwater quality report of Panarjhir village.

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ISO 9001-2015 ISO 14001-2015 ISO 45001-2018

TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0016	Report No	GERL/W/132/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt. Seoni (M.P.)	Format No.	GERL/QM/FM/39D
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Near main road Rangmanch Panarjhir	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	02.08.2023 to 03.08.2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 25.9 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		ULR No.	———

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	pH	APHA 23rd edition 4500 H+B electrometric method :2017	7.21	-
2	Taste	IS 3025 (P-8)1984	Agreeable	-
3	Odour	APHA 23rd ED., 2150 B	Agreeable	-
4	Temperature	APHA 23rd ED.2550 B	Ambient	-
5	Chloride	APHA 23rd ED., 4500 Cl-B:2017	10.89	mg/l
6	Calcium	APHA 23rd ED., 3500 CA-B:2017	56.11	mg/l
7	Total Dissolved Solid	APHA 2540 B Gravimetric Method: 2017	439	mg/l
8	Conductivity	APHA 23rd ED., 2510B:2017	1.83	µs/cm-
9	Alkalinity	APHA 23rd ED., 2320B:2017	116	mg/l
10	Fluoride	APHA 23rd ED., 4500-FD:2017	0.61	mg/l
11	Phosphate	APHA 23rd ED., 4500-PC:2017	3.19	mg/l
12	Nitrate	APHA 23rd ED., 4500-NO3 B	0.68	mg/l
13	Magnesium	APHA 23rd -2340 B	13.60	mg/l
14	Total hardness	APHA 23rd ED., 2540 C	190	mg/l
15	Sulphate	IS 2720(Part 27)	33.69	mg/l

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Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	Shalini

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TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0016	Report No	GERL/W/132/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt. Seoni (M.P.)	Format No.	GERL/QM/FM/39D
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Near main road Rangmanch Panarjhir.	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	05.08.2023 to 06.08.2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 25.9 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		ULR No.	———

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	Total Arsenic As	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
2	Cadmium Cd	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
3	Chromium Cr	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
4	Copper Cu	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
5	Iron Fe	APHA (23rd Edition), 3113B: 2017	0.13	mg/l
6	Mercury Hg	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
7	Manganese	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
8	Lead Pb	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
9	Zinc Zn	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
10	Boron	APHA (23rd Edition), 4500B: 2017	BLQ	mg/l
11	Turbidity	IS 3025 (P- 10): 1984,RA:2017	BLQ	NTU
12	Selenium Se	APHA(23rd Edition), 3114C, 2017	BLQ	mg/l
13	Aluminium	IS 3025(P-55): 2003, RA: 2019	BLQ	mg/l
14	Residual Free Chlorine	IS 3025 (P-26):2021	BLQ	mg/l
15	Phenolic Compound	APHA 23 Edition 5530 C: 2017	BLQ	mg/l
16	Total Coliform	IS 15185:2016	Absent	Per 100 ml
17	E. Coli	IS 15185:2016	Absent	Per 100 ml

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The results confirmed/not conformed to the standard.

Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	Shalini

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Groundwater quality report of Barela village.

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TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0017	Report No	GERL/W/133/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt. Seoni (M.P.)	Format No.	GERL/QM/FM/39D
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Beside culvert J.P.L road Barela.	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	01.08.2023 to 02.08.2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 25.9 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		ULR No.	----------

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	pH	APHA 23rd edition 4500 H+B electrometric method :2017	7.21	-
2	Taste	IS 3025 (P-8)1984	Agreeable	-
3	Odour	APHA 23rd ED, 2150 B	Agreeable	-
4	Temperature	APHA 23rd ED.2550 B	Ambient	-
5	Chloride	APHA 23rd ED, 4500 Cl-B:2017	31.99	mg/l
6	Calcium	APHA 23rd ED, 3500 CA-B:2017	32.06	mg/l
7	Total Dissolved Solid	APHA 2540 B Gravimetric Method: 2017	312	mg/l
8	Conductivity	APHA 23rd ED, 2510B:2017	1.79	µs/cm
9	Alkalinity	APHA 23rd ED, 2320B:2017	110	mg/l
10	Fluoride	APHA 23rd ED, 4500-FD:2017	0.59	mg/l
11	Phosphate	APHA 23rd ED, 4500-PC:2017	1.58	mg/l
12	Sulphate	IS 2720(Part 27)	25.39	mg/l
13	Nitrate	APHA 23rd ED, 4500-NO3 B	9.40	mg/l
14	Magnesium	APHA 23rd -2340 B	2.91	mg/l
15	Total hardness	APHA 23rd ED, 2540 C	135.6	mg/l

BDL* (Below Detection Limit) ** (DL Detection Limit)
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Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	Shalini

----------End of the report----------

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ISO 9001-2015 ISO 14001-2015 ISO 45001-2018

TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0017	Report No	GERL/W/133/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt Seoni (M.P.)	Format No.	GERL/QM/FM/39D
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Beside culvert J.P.L road Barela.	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	05.08.2023 to 06.08.2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 25.9 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		ULR No.	———

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	Total Arsenic As	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
2	Cadmium Cd	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
3	Chromium Cr	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
4	Copper Cu	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
5	Iron Fe	APHA (23rd Edition), 3113B: 2017	0.14	mg/l
6	Mercury Hg	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
7	Manganese	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
8	Lead Pb	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
9	Zinc Zn	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
10	Boron	APHA (23rd Edition), 4500B: 2017	BLQ	mg/l
11	Turbidity	IS 3025 (P- 10): 1984,RA:2017	BLQ	NTU
12	Selenium Se	APHA(23rd Edition). 3114C. 2017	BLQ	mg/l
13	Aluminium	IS 3025(P-55): 2003, RA: 2019	BLQ	mg/l
14	Residual Free Chlorine	IS 3025 (P-26):2021	BLQ	mg/l
15	Phenolic Compound	APHA 23 Edition 5530 C: 2017	BLQ	mg/l
16	Total Coliform	IS 15185:2016	Absent	Per 100 ml
17	E. Coli	IS 15185:2016	Absent	Per 100 ml

BDL* (Below Detection Limit) ** (DL Detection Limit)
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Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	Shalini

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Groundwater quality report of Binaiki village.

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ISO 9001-2015 ISO 14001-2015 ISO 45001-2018

TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0018	Report No	GERL/W/134/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt Seoni (M.P.)	Format No.	GERL/QM/FM/390
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Behind Hanuman Ji temple, Binakai.	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	02.08.2023 to 03.08.2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 25.9 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		ULR No.	----------

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	pH	APHA 23rd edition 4500 H+B electrometric method :2017	7.28	-
2	Taste	IS 3025 (P-8)1984	Agreeable	-
3	Odour	APHA 23rd ED., 2150 B	Agreeable	-
4	Temperature	APHA 23rd ED.2550 B	Ambient	-
5	Chloride	APHA 23rd ED., 4500 Cl-B:2017	63.81	mg/l
6	Calcium	APHA 23rd ED., 3500 CA-B:2017	68.13	mg/l
7	Total Dissolved Solid	APHA 2540 B Gravimetric Method: 2017	252	mg/l
8	Conductivity	APHA 23rd ED., 2510B:2017	2.95	µs/cm-
9	Alkalinity	APHA 23rd ED., 2320B:2017	151	mg/l
10	Fluoride	APHA 23rd ED., 4500-FD:2017	0.63	mg/l
11	Phosphate	APHA 23rd ED., 4500-PC:2017	0.84	mg/l
12	Sulphate	IS 2720(Part 27)	25.83	mg/l
13	Nitrate	APHA 23rd ED., 4500-NO3 B	1.56	mg/l
14	Magnesium	APHA 23rd -2340 B	17.70	mg/l
15	Total hardness	APHA 23rd ED., 2540 C	175	mg/l

BDL* (Below Detection Limit) ** (DL Detection Limit)
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Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	Shalini

----------End of the report----------

Page 01 of 02

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GANGA ENVIROTECH & RESEARCH LABORATORY

Registered Office: Plot No. 38, Khasra No. 82/3, Harinagar, Lucknow-Ayodhya Road, Near Green City, Babu Banarsi Das University (BBD), Semra, Chinhat, Lucknow, U.P. 226028

ISO 9001-2015 ISO 14001-2015 ISO 45001-2018

TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0018	Report No	GERL/W/134/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt Seoni (M.P.)	Format No.	GERL/QM/FM/39D
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Behind Hanuman Ji temple, Binaksi	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	04.08.2023 to 06.09.2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 26.1 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		ULR No.	----------

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	Total Arsenic As	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
2	Cadmium Cd	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
3	Chromium Cr	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
4	Copper Cu	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
5	Iron Fe	APHA (23rd Edition), 3113B: 2017	0.14	mg/l
6	Mercury Hg	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
7	Manganese	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
8	Lead Pb	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
9	Zinc Zn	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
10	Boron	APHA (23rd Edition), 4500B: 2017	BLQ	mg/l
11	Turbidity	IS 3025 (P- 10): 1984,RA:2017	BLQ	NTU
12	Selenium Se	APHA(23rd Edition), 3114C, 2017	BLQ	mg/l
13	Aluminium	IS 3025(P-55): 2003, RA: 2019	BLQ	mg/l
14	Residual Free Chlorine	IS 3025 (P-26):2021	BLQ	mg/l
15	Phenolic Compound	APHA 23 Edition 5530 C: 2017	BLQ	mg/l
16	Total Coliform	IS 15185:2016	Absent	Per 100 ml
17	E. Coli	IS 15185:2016	Absent	Per 100 ml

BDL* (Below Detection Limit) ** (DL Detection Limit)
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The results confirmed/not confirmed to the standard

Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	Shalini

----------End of the report----------

Page 02 of 02

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Groundwater quality report of Guneri village.

GANGA ENVIROTECH & RESEARCH LABORATORY

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ISO 9001-2015 ISO 14001-2015 ISO 45001-2018

TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0019	Report No	GERL/W/135/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt. Seoni (M.P.)	Format No.	GERL/QM/FM/39D
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Bhadde Singh House, Guneri	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	31.07.2023 to 01.08 2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 25.9 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		UUR No.	———

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	pH	APHA 23rd edition 4500 H+B electrometric method :2017	7.26	-
2	Taste	IS 3025 (P-8)1984	Agreeable	-
3	Odour	APHA 23rd ED., 2150 B	Agreeable	-
4	Temperature	APHA 23rd ED.2550 B	Ambient	-
5	Chloride	APHA 23rd ED., 4500 Cl-B:2017	36.86	mg/l
6	Calcium	APHA 23rd ED., 3500 CA-B:2017	46.49	mg/l
7	Total Dissolved Solid	APHA 2540 B Gravimetric Method: 2017	306	mg/l
8	Conductivity	APHA 23rd ED., 2510B:2017	2.04	µs/cm-
9	Alkalinity	APHA 23rd ED., 2320B:2017	128	mg/l
10	Fluoride	APHA 23rd ED., 4500-FD:2017	0.81	mg/l
11	Phosphate	APHA 23rd ED., 4500-PC:2017	1.21	mg/l
12	Sulphate	IS 2720(Part 27)	35.30	mg/l
13	Nitrate	APHA 23rd ED., 4500-NO3 B	14.5	mg/l
14	Magnesium	APHA 23rd -2340 B	17.98	mg/l
15	Total hardness	APHA 23rd ED., 2540 C	190.0	mg/l

BDL* (Below Detection Limit) ** (DL Detection Limit)
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The results confirmed/not confirmed to the standard.

Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	Shalini

----------End of the report----------

Page 01 of 02

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ISO 9001-2015 ISO 14001-2015 ISO 45001-2018

TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0019	Report No	GERL/W/135/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt Seoni (M.P.)	Format No.	GERL/QM/FM/39D
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Bhadde singh House, Guneri.	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	02.08.2023 to 04.08.2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 25.9 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		ULR No.	-------

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	Total Arsenic As	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
2	Cadmium Cd	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
3	Chromium Cr	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
4	Copper Cu	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
5	Iron Fe	APHA (23rd Edition), 3113B: 2017	0.22	mg/l
6	Mercury Hg	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
7	Manganese	APHA (23rd Edition),3030D 3113B: 2	BLQ	mg/l
8	Lead Pb	APHA (23rd Edition),3030D 3113B: 2	BLQ	mg/l
9	Zinc Zn	APHA (23rd Edition),3030D 3113B: 2	BLQ	mg/l
10	Boron	APHA (23rd Edition), 4500B: 2017	BLQ	mg/l
11	Turbidity	IS 3025 (P- 10): 1984,RA-2017	BLQ	NTU
12	Selenium Se	APHA(23rd Edition), 3114C, 2017	BLQ	mg/l
13	Aluminium	IS 3025(P-55): 2003, RA: 2019	BLQ	mg/l
14	Residual Free Chlorine	IS 3025 (P-26):2021	BLQ	mg/l
15	Phenolic Compound	APHA 23 Edition 5530 C: 2017	BLQ	mg/l
16	Total Coliform	IS 15185:2016	Absent	Per 100 ml
17	E. Coli	IS 15185:2016	Absent	Per 100 ml

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Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	Shalini

----------End of the report----------

Page 02 of 02

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Groundwater quality report of Dola village.

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ISO 9001-2015 ISO 14001-2015 ISO 45001-2018

TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0020	Report No	GERL/W/136/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt. Seoni (M.P.)	Format No.	GERL/QM/FM/390
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Main road near Bhagrath House, Dola.	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	03.08.2023 to 04.08.2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 25.9 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		ULR No.	----------

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	pH	APHA 23rd edition 4500 H+B electrometric method :2017	7.09	-
2	Taste	IS 3025 (P-8)1984	Agreeable	-
3	Odour	APHA 23rd ED., 2150 B	Agreeable	-
4	Temperature	APHA 23rd ED.2550 B	Ambient	-
5	Chloride	APHA 23rd ED., 4500 Cl-B:2017	34.98	mg/l
6	Calcium	APHA 23rd ED., 3500 CA-B:2017	28.85	mg/l
7	Total Dissolved Solid	APHA 2540 B Gravimetric Method: 2017	400	mg/l
8	Conductivity	APHA 23rd ED., 2510B:2017	2.46	µs/cm-
9	Alkalinity	APHA 23rd ED., 2320B:2017	176	mg/l
10	Fluoride	APHA 23rd ED., 4500-FD:2017	0.78	mg/l
11	Phosphate	APHA 23rd ED., 4500-PC:2017	2.37	mg/l
12	Sulphate	IS 2720(Part 27)	32.42	mg/l
13	Nitrate	APHA 23rd ED., 4500-NO3 B	7.63	mg/l
14	Magnesium	APHA 23rd -3500 B	12.91	mg/l
15	Total hardness	APHA 23rd ED., 2540 C	260	mg/l

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Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	

----------End of the report----------

Page 01 of 02

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ISO 9001-2015 ISO 14001-2015 ISO 45001-2018

TEST REPORT GROUND WATER

Sample Number	GERL/W/230724/0020	Report No	GERL/W/136/2023
Name & Address of Party	Jhabua Power Ltd. Post – Attaria Tehsil Ghansore Distt. Seoni (M.P.)	Format No.	GERL/QM/FM/39D
Sample Description	Ground Water	Party Ref. Number	MKA/2023-24/LOI/WQ/01, dated 20.07.2023
Location	Main road near Bhagrath House, Dola	Report Date	07.09.2023
Sample Collected by	Party	Period of Analysis	05.08.2023 to 06.08.2023
Preservation	Yes in deep freezer	Sampling Date	20.07.2023
Sampling & Analysis Protocol	APHA 23 Edition 2017	Sample Receipt Date	24.07.2023
		Sampling Type	Grab
		Environmental Condition	Temp: 25.9 Humidity: 48.1%
		Packing Status	Sealed
		Sample Quantity	2.0 litres
		ULR No.	———

Sr. No.	Parameter	Test Method/Protocol	Results	Units
1	Total Arsenic As	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
2	Cadmium Cd	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
3	Chromium Cr	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
4	Copper Cu	APHA (23rd Edition), 3113B: 2017	BLQ	mg/l
5	Iron Fe	APHA (23rd Edition), 3113B: 2017	0.22	mg/l
6	Mercury Hg	APHA (23rd Edition), 3113C: 2017	BLQ	mg/l
7	Manganese	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
8	Lead Pb	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
9	Zinc Zn	APHA (23rd Edition),3030D 3113B: 2017	BLQ	mg/l
10	Boron	APHA (23rd Edition), 4500B: 2017	BLQ	mg/l
11	Turbidity	IS 3025 (P- 10): 1984,RA:2017	BLQ	NTU
12	Selenium Se	APHA(23rd Edition), 3114C, 2017	BLQ	mg/l
13	Aluminium	IS 3025(P-55): 2003, RA: 2019	BLQ	mg/l
14	Residual Free Chlorine	IS 3025 (P-26):2021	BLQ	mg/l
15	Phenolic Compound	APHA 23 Edition 5530 C: 2017	BLQ	mg/l
16	Total Coliform	IS 15185:2016	Absent	Per 100 ml
17	E. Coli	IS 15185:2016	Absent	Per 100 ml

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Checked By Arpita Srivastava	Arpita	**Technical Manager** Shalini Srivastava	Shalini

----------End of the report----------

Page 02 of 02

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Annexure-2: Valid NABL certificate of testing agency:

M/s Ganga Envirotech & Research Laboratory.

National Accreditation Board for Testing and Calibration Laboratories

NABL

CERTIFICATE OF ACCREDITATION

GANGA ENVIROTECH & RESEARCH LABORATORY

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

"General Requirements for the Competence of Testing & Calibration Laboratories"

for its facilities at

PLOT NO. 38, KHASRA NO. 82/3, SEMRA, CHINHAT, LUCKNOW, UTTAR PRADESH, INDIA

in the field of

TESTING

Certificate Number: TC-10980

Issue Date: 11/09/2022 Valid Until: 10/09/2024

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Identity: GANGA ENVIROTECH & RESEARCH LABORATORY

Signed for and on behalf of NABL

N. Venkateswaran
Chief Executive Officer

Annexure –2

Recent Stack Monitoring Report

TEST REPORT

TC-11327

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/S/01

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/S/2410030001/A
Format No : 7.8 F-03
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : Stack Emission Monitoring

General Information:-

Sampling Location	:	1500 KVA (DG Set No.-2)
Sample Collected By	:	VTL Team
Date of Sampling	:	01/10/2024
Sampling duration (Minutes)	:	21 min. (13:00 to 13:21 hrs.)
Stack attached to	:	DG Set
Make of stack	:	Iron
Diameter of stack(m)	:	0.450 m
Height of stack(m)	:	30 m
Instrument calibration status	:	Calibrated
Meteorological Condition	:	Clear Sky
Ambient Temperature - Ta (°C)	:	35°C
Temperature of Stack Gases - Ts (°C)	:	124
Velocity of Stack Gases (m/sec.)	:	14.8
Flow rate of PM (LPM)	:	47
Flow rate of Gas (LPM)	:	2.0
Sampling condition	:	OK
Protocol used	:	IS 11255 & USEPA
Coordinates	:	--

S.No.	Parameters	Test Method	Results	Units	Limits
1	PM (at 15 % O2 Correction)	IS: 11255 (P-1) : 1985, RA 2014	52.83	mg/Nm3	75.0
2	NOX (at 15 % O2 Correction)	IS 11255 (P- 7) 2005, RA 2017	298.5	ppmv	710.0
3	Carbon Monoxide (CO) (at 15 % O2 Correction)	USEPA-10, 1996	69.43	mg/Nm3	150.0

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

End of Report

Checked by

RK Yadav
Lab Incharge
Authorized Signatory

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

Term & conditions PTO

Vibrant Techno Lab Pvt. Ltd.
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9929108691, 9810205356, 8005707098, 9549956601
0141-2954638
bd@vibranttechnolab.com
www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/S/01

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghanscore Seoni MP

Report No. : VTL/S/2410030001/B
Format No : 7.8 F-03
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : Stack Emission Monitoring

General Information:-

Sampling Location	:	1500 KVA (DG Set No.-2)
Sample Collected By	:	VTL Team
Date of Sampling	:	01/10/2024
Sampling duration (Minutes)	:	21 min. (13:00 to 13:21 hrs.)
Stack attached to	:	DG Set
Make of stack	:	Iron
Diameter of stack(m)	:	0.450 m
Height of stack(m)	:	30 m
Instrument calibration status	:	Calibrated
Meteorological Condition	:	Clear Sky
Ambient Temperature - Ta (°C)	:	35°C
Temperature of Stack Gases - Ts (°C)	:	124
Velocity of Stack Gases (m/sec.)	:	14.8
Flow rate of PM (LPM)	:	47
Flow rate of Gas (LPM)	:	2.0
Sampling condition	:	OK
Protocol used	:	IS 11255 & USEPA
Coordinates	:	--

S.No.	Parameters	Test Method	Results	Units	Limits
1	NMHC (at 15 % O2 Correction)	IS:5182 (P-21), Based On GC, RA 2012	27.16	mg/Nm3	100.0

*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/S/02

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/S/2410030002/A
Format No : 7.8 F-03
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : Stack Emission Monitoring

General Information:-

Sampling Location	:	1500 KVA (DG Set No.-1)
Sample Collected By	:	VTL Team
Date of Sampling	:	01/10/2024
Sampling duration (Minutes)	:	22 min. (12:00 to 12:22 hrs.)
Stack attached to	:	DG Set
Make of stack	:	Iron
Diameter of stack(m)	:	0.450 m
Height of stack(m)	:	30 m
Instrument calibration status	:	Calibrated
Meteorological Condition	:	Clear Sky
Ambient Temperature - Ta (°C)	:	35°C
Temperature of Stack Gases - Ts (°C)	:	153
Velocity of Stack Gases (m/sec.)	:	15.34
Flow rate of PM (LPM)	:	46
Flow rate of Gas (LPM)	:	2.0
Sampling condition	:	OK
Protocol used	:	IS 11255 & USEPA
Coordinates	:	--

S.No.	Parameters	Test Method	Results	Units	Limits
1	PM (at 15 % O2 Correction)	IS: 11255 (P-1) : 1985, RA 2014	49.58	mg/Nm3	75.0
2	NOX (at 15 % O2 Correction)	IS 11255 (P- 7) 2005, RA 2017	293.4	ppmv	710.0
3	Carbon Monoxide (CO) (at 15 % O2 Correction)	USEPA-10, 1996	68.43	mg/Nm3	150.0

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

End of Report

Checked by

RK Yadav
Lab Incharge
Authorized Signatory

Terms & 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
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www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/S/02

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/S/2410030002/B
Format No : 7.8 F-03
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : Stack Emission Monitoring

General Information:-

Sampling Location	:	1500 KVA (DG Set No.-1)
Sample Collected By	:	VTL Team
Date of Sampling	:	01/10/2024
Sampling duration (Minutes)	:	22 min. (12:00 to 12:22 hrs.)
Stack attached to	:	DG Set
Make of stack	:	Iron
Diameter of stack(m)	:	0.450 m
Height of stack(m)	:	30 m
Instrument calibration status	:	Calibrated
Meteorological Condition	:	Clear Sky
Ambient Temperature - Ta (°C)	:	35°C
Temperature of Stack Gases - Ts (°C)	:	153
Velocity of Stack Gases (m/sec.)	:	15.34
Flow rate of PM (LPM)	:	46
Flow rate of Gas (LPM)	:	2.0
Sampling condition	:	OK
Protocol used	:	IS 11255 & USEPA
Coordinates	:	--

S.No.	Parameters	Test Method	Results	Units	Limits
1	NMHC (at 15 % O2 Correction)	IS:5182 (P-21), Based On GC, RA:2012	29.43	mg/Nm3	100.0

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

End of Report

Checked by

RK Yadav
Lab Incharge
Authorized Signatory

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

Term & conditions PTO

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TEST REPORT

VIBRANT
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TC-11237

Sample Number : VTL/S/03

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/S/2410030003/A
Format No : 7.8 F-03
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : Stack Emission Monitoring

General Information:-

Sampling Location	:	TPP (600 MW)
Sample Collected By	:	VTL Team
Date of Sampling	:	02/10/2024
Sampling duration (Minutes)	:	32 min. (12:00 to 12:32 hrs.)
Stack attached to	:	--
Make of stack	:	RMC
Diameter of stack(m)	:	7.26 m
Height of stack(m)	:	275 m
Instrument calibration status	:	Calibrated
Meteorological Condition	:	Clear Sky
Ambient Temperature - Ta (°C)	:	35°C
Temperature of Stack Gases - Ts (°C)	:	140
Velocity of Stack Gases (m/sec.)	:	10.02
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	Limits
1	Particulate Matter (PM)	IS: 11255 (P-1) : 1985, RA 2019	38.43	mg/Nm3	50
2	Sulphur Dioxide (SO2)	IS: 11255(P- 2): 1985, RA 2019	523.6	mg/Nm3	600
3	Oxide of Nitrogen (NO2)	IS-11255 (P-7), RA 2017	229.4	mg/Nm3	300
4	Mercury (Hg)	USEPA 29: 1996	*BLQ(**LOQ-0.001)	mg/Nm3	0.03

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

End of Report

Checked by

RK Yadav
Lab Incharge
Authorized Signatory

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

Term & conditions, PTO

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Annexure -3

Fly Ash Utilization Audit Report for the Year 2023-24

Phone 0532-227 1301 (O)

जानपद अभियांत्रिकी विभाग
मोतीलाल नेहरू राष्ट्रीय प्रौद्योगिकी संस्थान इलाहाबाद
प्रयागराज–211004 (भारत)
Civil Engineering Department
Motilal Nehru National Institute of Technology Allahabad
Prayagraj-211004 (India)

Letter No.: 1176 / CED / R&C/2024-25 Dated 04/10/2024

To

Er. Anoop Kr. Srivastava, DGM-Environment
M/S Jhabua Power Ltd.
Village- Barela Post Office – Attaria,
Tehsil Ghansore District-Seoni-480997

Subject: Ash Audit on Generation & Utilization for 2023-24

Dear Sir,

This has reference to you letter dated: 29/04/2024 regarding the Ash Audit on Generation & Utilization from NTPC Jhabua, Seoni (MP) for Apri-2023-March 2024. The Ash Audit report attached with this letter for your kind refernce.

Thanking you

With Regards

4/10/24

(Dr.N. R. Rawal)
Associate Professor & P.I.,
CED, MNNIT A, Prayagraj (UP)

Dr. Nekram Rawal
Associate Professor
Department of Civil Engineering
MNNIT Allahabad
Prayagraj-211004, U.P.

M.N. National Institute of Technology
Civil Engineering Department
Allahabad

Encl.: Report on Ash Audit Generation & Utilization for 2023-24

Report

on

Ash Audit on Generation & Utilization from

NTPC Jhabua, Seoni (MP)

(For 2023-24)

Submitted to:

Central Pollution Control Board

Submitted by:

Dr. N.R. Rawal & Dr. V. P. Singh

Department of Civil Engineering
Motilal Nehru National Institute of Technology Allahabad,
Prayagraj UP India

Ash Audit on Generation & Utilization from NTPC Jhabua, Seoni (MP)

(in the year 2023-24)

1.0 Context of Audit:

The Central Pollution Control Board (CPCB) is conducting third-party audits on Fly Ash generation and utilization, as mandated by Clause-E (5) of the Ministry of Environment, Forest and Climate Change (MoEF& CC) Gazette Notification dated 31st December 2021. Compliance audits for ash disposal by thermal power plants are to be performed by auditors authorized by the CPCB. The audit reports must be submitted annually to both the CPCB and the respective State Pollution Control Board (SPCB). These audits are conducted independently.

Jhabua Power Limited (JPL), is a Joint Venture of National Thermal Power Company Ltd (NTPC) and Banks. It is located in district Seoni of Madhya Pradesh. The power plant (earlier Avantha Power) is acquired by NTPC in September 2022. The said site is at a distance of around 56 Km. from Jabalpur, the divisional Head Quarter.

Electricity generation is predominantly coal based. One of the important aspects of any coal based TPPs is necessity of combustion of coal. However, the coal combustion generates two categories of by-products i.e., bottom ash and fly ash. Indian coal is of low grade having very high ash content in the range from 38-41%. Bottom ash is collected at the bottom of the boiler. While, fly ash is collected in the electrostatic precipitators as well as in economizer hoppers. Generally, the combustion of coal produces approximately 20% of by-product in the form of bottom ash and remaining 80% in the form of fly ash. Thus, fly ash generation is significantly large in quantity than the bottom ash. Therefore, utilization of fly ash that has generated in huge quantity is a challenge. A large number of techniques and methods have been developed for gainful utilization and safe management of fly ash. The unutilized ash requires substantial precious land for its storage and its physical presence is a threat to environment and ecosystem, as it can become source of pollution of both air and water. To reduce the requirement of land for storage and disposal of fly ash into ash ponds and to address the problem caused by physical presence of fly ash, a holistic approach is needed. Notifications have been issued by MoEF&CC, Government of India, so as to achieve 100% utilization of fly ash. In order to assess the percentage utilization of fly at NTPC Jhabua, Central Pollution Control Board has been conducting an audit. This report is prepared based on the audit carried out by visiting NTPC Jhabua.

Ministry of Environment & Forestry (MoEF), Govt. of India, has issued Notifications country mandating all TPPs for achieving 100% utilization of fly ash in diverse sectors. Adhering to the guidelines of Ministry, most of the TPPs are thriving to achieve 100% utilization of fly ash. This audit is intended to ascertain the correctness of the information supplied by TPPs and in compliance with MoEF guidelines.

01/10/24

2.0 Objective of the Work

The objective of the study is to audit & validate of data on Ash generation and utilization by NTPC Jhabua during the year 2023-24.

3.0 Scope of the Work

The scope of the work involves the following activities:

a) To audit the data available on fly ash generation &utilization by NTPC Jhabua, in different sectors, for the year 2023-24.
b) To scrutinize and verify the documents and data submitted by NTPC Jhabua for the year 2023-24.
c) To make field visits to NTPC Jhabu and interact with the plant authorities on fly ash generation and utilization.
d) To assess the present practices of ash management being adopted by NTPC Jhabua.

4.0 Brief of the Organization

Jhabua Power Limited (JPL), is a Joint Venture of National Thermal Power Company Ltd (NTPC) and Banks. It is located in district Seoni of Madhya Pradesh. The power plant (earlier Avantha Power) is acquired by NTPC in September 2022. The said site is at a distance of around 56 Km. from Jabalpur, the divisional Head Quarter.

5.0 Methodology Adopted for Auditing

The methodology adopted for the completion of auditing is divided into three parts for convenience and easy of doing.

Part-A: Data Collection

The information related to data on ash generation and utilization and other relevant supporting documents that have been submitted by NTPC Jhabua for the year 2023-24 was collected. The entire auditing has been progressed solely on the basis of these documents only.

Part-B: Auditing the Data and Information

Auditing has been carried out by physically visiting NTPC Jhabua on 24/11/2023. The schedule of the visit was intimated to NTPC Jhabua in advance so that the concerned officials can make the necessary documents ready for auditing purpose during the visit. Following the intimation, the visit was made on the said date and audit has been conducted. During the audit, the data provided by NTPC Jhabua month wise has been scrutinized and verified vis-à-vis the records that each plant has been maintaining. Auditing includes verification of data pertinent to the capacity of the power plant, coal consumption, fly ash generation& utilization, ash disposal system, etc. All records giving details on the above parameters have been critically scrutinized and verified against each individual parameter to ascertain that the data and information provided by the NTPC Jhabua. Any mismatch in the data and information between that communicated to CPCB and records were noted down and brought to the notice of CPCB in the form of this report.

10/4/10/24

Part-C: Field Visits

NTPC Jhabua have intimated to CPCB that they are utilizing the fly ash for a variety of applications. Some of the applications include brick or cement or tile or asbestos manufacturing, agriculture land reclamation, small land filling, land development, dike raising, construction of roads, etc. In order to ascertain whether or not fly ash is being utilized in these applications and to assess the exact quantity of fly ash being utilized, sites where fly ash used for a specific activity was physically inspected and photographs have been captured as evidence. Facts or anomalies identified or found during the site visit have been noted down to include in the final report that is herewith submitted to CPCB.

Following the completion of data auditing and field visits, data obtained was collated and assimilated to make final recommendations. A final report is prepared using compiled data and submitted to CPCB.

5.1 Document Verification

During the audit, the following important documents were verified.

1) Records in support of daily or monthly fly ash and bottom ash generation & utilization for the period from April-2023 to March-2024.
2) Reports of coal and fly ash analysis
3) List of brick manufacturers to whom fly ash has been supplied.
4) Work Order/PO/Contract Agreement/Formal Letter of Requisition released by TPP engaging a transporting agency for mobility of fly ash for brick manufacturing or road making or land fill or dike raise or agriculture land reclamation or land development or cement making, etc.
5) Weigh bridge documents depicting actual quantity of fly ash transported daily/monthly.
6) Documents related to fly ash utilization in diverse sectors.

5.2 Interaction with NTPC Jhabua Officials

The following members were present during the site visit on 31.08.2024 (Plate-1).

1. Mr. Anoop kr. Shrivastav, DGM - Environment and Ash Management, NTPC Jhabua
2. Dr. V. P. Singh, Associate Professor, CED, MNNIT Allahabad
3. Dr. N.R. Rawal, Associate Professor, CED, MNNIT Allahabad

(Plate 1: Ash pond)

04/10/24

During the audit and physical visit to the various TPP, active interactions have been made with officials working in Environmental Divisions and those who are dealing with disposal and utilization of fly ash. The officials include civil engineers, environmental engineers, administration, security, lab technicians, etc. It has been noticed during the interactions that several of personnel's dealing with ash disposal and utilization, unaware of recent developments on ash utilization and manufacturing of value added products from fly ash. In addition, the various physical and chemical properties of fly ash produced by respective TPP were verified and generic suggestions were made to the best knowledge of the auditor.

6.0 Fly Ash Generation & Utilization by NTPC Jhabua

The audit has been conducted on NTPC Jhabua, Summary of ash generation and utilization is listed in Table 1.

Table 1 Summary of ash generation and utilization during the 1st April-31st March 2023-24

Sl. No.	Details	Particulars
1.	**Quantity of coal consumption during reporting period (MT per Annum):**	2918269
2.	**Average ash content in percentage (per cent):**	39.49
3.	**Quantity of current ash generation during reporting period (MT per annum)**	1167308
	Fly ash (Metric Tons per Annum):	933846
	Bottom ash (Metric Tons per Annum):	233462
4.	**Capacity of dry fly ash storage silo(s) (Metric Tons):**	3500 MT
5.	**Details of utilization of current ash generated during reporting period**	
	(a)Total quantity of current ash utilized (MT) during reporting period:	1237386 MT
	(b) Quantity of fly ash utilized (MT):	
	(i) Fly ash-based products (bricks or blocks or tiles or fiber cement sheets or pipes or boards or panels)	96755 MT
	(ii) Cement manufacturing:	289585 MT
	(iii)Ready mix concrete:	0
	(IV) Highway construction	15960 MT
	(c)Quantity of bottom ash utilized (MTPA)	0
	(i) Fly ash-based products (bricks or blocks or tiles or fibre cement sheets or pipes or boards or panels):	0
	(viii) Filling up of low-lying area:	Within Premises: 174998 MT Outside Premises: 660088 MT
	Total quantity of current ash unutilized (MTPA) during reporting period:	1237386 MT
6.	**Percentage utilization of current ash generated during reporting period (per cent):**	106.00 %
7.	**Details of disposal of ash in ash ponds** **(a) Total quantity of ash available in ash pond(s) (Metric Tons) as on April 2023 (excluding reporting period):**	1135308 MT
	(b) Total quantity of ash available in ash pond(s) (Metric Tons) as on March 2024 (excluding reporting period):	1065229 MT

M.N. National Institute of Technology Civil Engineering Department Allahabad

04/10/24

	(c) Total number of ash ponds:	02 (Ash Pond No.1 – Bottom Ash, Ash Pond No. 2- Fly Ash)
	(i) Active:	Ash Pond No. 2 operational for utilization of fly ash
	(ii) Exhausted (yet to be reclaimed):	NO
	(iii) Reclaimed:	Active
8.	Individual ash pond details	Ash Pond No.1 – Bottom Ash, Ash Pond No. 2- Fly Ash
	(i) Date of start of ash disposal in ash pond	03/05/2016
	(ii) quantity of ash disposed as on 31st March 2024 (Metric Tons):	1065229 MT
	(iii) Available volume in percentage (per cent) and quantity of ash can be further disposed (Metric Tons):	Ash Pond No. 1-35% Ash Pond No. 2-40%
	(iv) Expected life of ash pond (number of years and months):	Approx. – 3.5 Years
9.	(i) Ash water recycling system (AWRS) installed and functioning:	YES
	(ii) Quantity of wastewater from ash pond discharged into land or water body (m3):	NO

8.0 SUMMARY AND RECOMMENDATIONS

- Auditing for ash generation and utilization was done for NTPC Jhabua on 31/08/2024.
- The actual ash generation is 1167308 MT and utilization is 1237386 MT. 106.00% utilization of fly ash is achieved by NTPC Jhabua during the period of 1st April-31st March 2023-24.
- The maximum percentage utilization of fly ash is in Fly ash-based products (bricks or blocks or tiles or fibre cement sheets or pipes or boards or panels), Cement manufacturing and in Highway embankment construction.

04/10/24

(Dr. V P Singh)
Associate Professor (Co-PI)

M.N. National Institute of Technology Civil Engineering Department Allahabad

04/10/24

(Dr. N.R.Rawal)
Associate Professor (PI)

Dr. Nekram Rawal
Associate Professor
Department of Civil Engineering
MNNIT Allahabad
Prayagraj-211004 U.P.

Department of Civil Engineering
Motilal Nehru National Institute of Technology Allahabad
Pryagraj, Uttar Pradesh,India

Annexure -4

Analysis Report of Ash pond effluent

TEST REPORT

VIBRANT
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Sample Number : VTL/WW/08

M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Name & Address of the Party :

Sample Description : Waste Water
Sampling Location : Ash Pond Effluent
Sample Collected By : VTL Team
Coordinates : --

ULR No. : TC112272400000213 4F
Report No. : VTL/WW/2410030006/A
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	pH	IS: 3025 (P-11): 2022	7.42	-	5.5 to 9.0
2	Total Suspended Solids (TSS)	IS: 3025 (P-17): 2022	29.42	mg/l	100
3	Oil & Grease	IS:3025 (P-39): 2021	*BLQ(**LOQ-4.0)	mg/l	10
4	Lead (as Pb)	APHA 23rd Edition-3030 D, 3113 B, 2017	*BLQ(**LOQ-0.1)	mg/l	0.1
5	Chromium (as Cr)	APHA 23rd Edition 3113 B, 2017	0.29	mg/l	2
6	Arsenic (as As)	APHA 23rd Edition-3114C, 2017	*BLQ(**LOQ-0.05)	mg/l	0.2
7	Mercury (as Hg)	APHA 23rd Edition-3114 C, 2017	*BLQ(**LOQ-0.05)	mg/l	0.01

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

End of Report

Checked by

RK Yadav
Lab Incharge
Authorized Signatory

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

Term & conditions PTO

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Annexure -5

Structural Adequacy report of Ash Dyke certified by NIT, WARANGAL

ANNUAL CERTIFICATION OF ASH PONDS AND ASH DYKES FOR JHABUA POPWER, MADHYA PRADESH

Laboratory Proposal No. NITW/SRIC/Civil/WED/PVR/24/121 Dt. 09.03.24

Ref.: CPCB, MoEFCC Notification as per the guidelines on Design, Construction, O&M and Annual Certification of Coal ash ponds, June 23

Our Email Correspondence on 09.03.2024

DEPARTMENT OF CIVIL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY
WARANGAL - 506 004, TELANGANA, INDIA

March 2024

1. INTRODUCTION

Ash Notification dated 31.12.2021 (as amended by amendment notification 30.12.2022) mandates power plants to ensure Annual Certification of the operational as well as stabilized and reclaimed ash pond and dyke on its safety, environmental pollution, available volume, mode of disposal, water consumption or conservation in disposal, ash water recycling and green belt etc., according to the specification and procedures laid down by CPCB in consultation with CEA, and submit annual implementation report about the compliance of provisions in the notification by the 30th day of April, every year to Central Pollution Control Board (CPCB) and concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC), Central Electricity Authority (CEA), and concerned Integrated Regional Office of Ministry of Environment, Forest and Climate Change by the coal or lignite based thermal power plants.

Ash Notification dated 31.12.2021 also mandates that Annual Compliance Audit of Ash Utilization and Disposal by power plants as well as user agencies shall be conducted by auditors, authorized by Central Pollution Control Board (CPCB) and audit report shall be submitted to Central Pollution Control Board (CPCB) and concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) by 30th November every year. Central Pollution Control Board (CPCB) and concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC) shall initiate action against non-compliant thermal power plants within fifteen days of receipt of audit report.

2. ANNUAL CERTIFICATION OF ASH POND AND DYKES

Annual certification of ash ponds and dykes shall be carried out by a qualified professional engineer for structural stability and safety assessment and to ensure that the construction, operation, and maintenance of the ash pond and ash dykes is consistent with recognized and generally accepted good engineering standards. The following is the scope of the work.

1. Annual certification shall be carried out once in every year and annual implementation report about the compliance of provisions in the notification shall be submitted by the 30th day of April, every year
2. Annual certification shall be by a qualified professional Geotechnical engineer.
3. Thermal Power Plants (TPP) shall make available any kind of record/Data etc required at the time of certification.
4. Certifying Expert shall examine the Compulsory Periodic Maintenance Inspection Checklist for the Ash Pond provided by TPP.
5. Certifying Expert shall submit the report which shall cover the following:

   a) Structural stability as per IS 7894 construction drawings, quality control documents, monitoring reports etc., to establish that the constructed ash dykes are technically sound and structurally sustainable.

b) Slope Protection as per relevant IS code
c) Adequate Spillway Capacity
d) Dykes compaction
e) Downstream erosion protection
f) Environmental pollution,
g) Available volume
h) Mode of disposal, water consumption or conservation in disposal, ash water recycling
i) Green belt
j) Check list for Annual Safety Audit and Check list for Fly Ash generation and utilization
k) Interpretations from the compulsory maintenance inspections check lists on the overall safety of the Ash Pond
l) Details of the actions taken on the deficiencies noted during the maintenance inspections and annual certification inspection

6. Report of the annual certification shall inter alia include observations on points mentioned in Para A(6) of the notification as well as details of the actions taken on the deficiencies noted during the safety audit.

7. Details of the Evaluators:

Prof. P. Venkateswara Rao
Ph.D in Environmental Engineering
Professor, Water and Environment Division
Department of Civil Engineering
NIT Warangal
Email: pvenku@nitw.ac.in
Phone: 9420161800

Dr. Y. Sudheer Kumar
Ph.D in Geotechnical Engineering
Asst. Professor, Geotechnical Division
Department of Civil Engineering
NIT Warangal
Email: skyamsani@nitw.ac.in
Phone: 8486367769

3. OBSERVATIONS

The following observations were made during the visit held on 27.03.2024 at NTPC JPL plant located at Seoni, Madhya Pradesh.

1. The ash pond has been checked for all the parameters as required by the guidelines provided by the CPCB, MoEFCC as referred for period i.e 1st April, 2023 to 31st March, 2024.

2. The dyke is observed to be well maintained by taking all the necessary O&M activities by the NTPC during the evaluation period.

3. The detailed observation checklist for annual certification is attached as an ***Annexure-1***.

4. RECOMMENDATIONS

Based on the field visit and records verification, the dykes are maintained well as per the O&M guidelines provided by the regulatory authority.

Prof. P. Venkateswara Rao
Professor, Environmental Division
Department of Civil Engineering
NIT Warangal-TS

Dr. Y. Sudheer Kumar
Asst. Professor, Geotechnical Division
Department of Civil Engineering
NIT Warangal-TS

Annexure-1

Sr No	Component	Observations/ Remarks
1.	**Name of Power Plant**	NTPC-Jhabua Power Ltd
2.	**Name of the company**	NTPC-Jhabua Power Ltd (A JV of NTPC Ltd)
3.	**District**	Seoni
4.	**State**	Madhya Pradesh
5.	**Postal address for communication:**	Village Barela,Post Attaria,Tehsil Ghasnore-480997
6.	**E-mail:**	ashish.khare@jhabuapower.co.in (Head AHP & Ash dyke)
7.	**Power Plant installed capacity (MW):**	600 MW
8.	**No. of units generated (MWh):**	3600 (MWh)
9.	**Total area under power plant (ha): (including area under ash ponds)**	337.5 (Ha)
10.	Method of slurry discharge water consumption or conservation in disposal, ash water recycling	HCSD and the decanted water is being recycled.
11.	TSS of decant Water (Going outside/ for recirculation)	Within limits
12.	Maintenance of Dyke.	
	1. Top Width 2. Top level of dyke 3. Adequate Spillway Capacity 4. Free board 5. Available volume 6. Earth covering and turfing 7. U/S slope protection 8. WBM Road 9. Rock Toe, toe drain, berm, rock, pitching 10. Dyke compaction 11. D/S erosion control	1. 6m 2. RL 544.5 m 3. Available 4. Available 5. 3.3 LCM 6. Available 7. Available 8. Available 9. Available 10. Ok 11. OK
13.	Instrumentation a) Piezometer, b) surface settlement	Procurement under progress
14.	Wet Patches/ softening on down Slope	None
15.	Gully Formation	None
16.	Rat holes/ animal burrows	None

17.	Growth of plants	None
18.	Toe drain and surface drainage system.	Available
19.	Facilities for inspection and maintenance of the dyke	Available
20.	Flooding Lighting.	Available
21.	Seepage or Leakage	None
22.	Monolith Joints	None
23.	Foundation should be examined for damage or possible undermining of the downstream toe	Examined. No damage or undermining is observed.
24.	Slope Stability dyke: 1. Dyke Slope stability, as per IS 7894: Dyke structural stability to be examined as per construction drawings, quality control documents, monitoring reports etc. 2. Dyke slopes should be examined for irregularities in alignment and variances from smooth uniform slopes, unusual changes from original crest alignment and elevation, evidence of movement at or beyond the toe, and surface cracks which indicate movement.	1) Yes, the Dyke slope stability was performed by IIT Roorkee in 2023. 2) Examined and found OK.
25.	Condition of Drainage Systems	Ok
26.	Condition of Slope Protection	Ok
27.	Environmental Pollution	Under Control
28.	Green belt	Ok
29.	Any other information: Soft copy of the annual compliance report, and shape files of power plant and ash ponds may be e-mailed to: - moefcccoalash@ gov.in	NTPC JPL may send the required documents to the authority mentioned.
30.	Signature of Authorized Signatory	1. Prof. P. V. Rao, Env. Division, NIT Warangal 2. Dr. Sudheer Y., Geotech Division, NIT Warangal.

Annexure -6

Treated sewage analysis report

TEST REPORT

VIBRANT
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Sample Number : VTL/WW/07

M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Altaria, Tehsil- Ghansore Seoni MP

Name & Address of the Party :

Sample Description : Waste Water
Sampling Location : Treated Sewage Water Field Hostel -I
Sample Collected By : VTL Team
Coordinates : --

ULR No. : TC112272400000213 5F
Report No. : VTL/WW/2410030007/A
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	pH	IS: 3025 (P-11): 2022	7.24	-	5.5 to 9.0
2	Total Suspended Solids (TSS)	IS: 3025 (P-17): 2022	8.2	mg/l	100
3	Oil & Grease	IS:3025 (P-39): 2021	*BLQ(**LOQ-4.0)	mg/l	10
4	Ammonical Nitrogen (as NH3-N)	IS: 3025 (P-34) : 1988,Sec 4 RA: 2022	4.56	mg/l	50
5	Total Kjeldahl Nitrogen (as NH3)	IS: 3025 (P-34): 1988, RA 2022 (Macro Kjeldahl Method)	6.49	mg/l	100
6	Biochemical Oxygen Demand (BOD) (3 days @ 27°C)	IS: 3025 (P-44): 1993, RA: 2019	7.85	mg/l	30
7	Chemical oxygen Demand (COD)	IS : 3025 (P-58) : 2006 RA: 2017	33.6	mg/l	250

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

End of Report

Checked by

RK Yadav
Lab Incharge
Authorized Signatory

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TEST REPORT

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Sample Number : VTL/WW/07

M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Name & Address of the Party :

Sample Description : Waste Water
Sampling Location : Treated Sewage Water Field Hostel -I
Sample Collected By : VTL Team
Coordinates : --

Report No. : VTL/WW/2410030007/B
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
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	0.35	mg/l	5
2	Fecal Coliform	IS 1622, 2009	Absent	MPN/100ml	<1000

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

End of Report

Checked by

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Lab Incharge
Authorized Signatory

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TEST REPORT

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TC-11027

Sample Number : VTL/WW/08

M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Name & Address of the Party :

Sample Description : Waste Water
Sampling Location : Treated Sewage Water Field Hostel - II
Sample Collected By : VTL Team
Coordinates : --

ULR No. : TC112272400002136F
Report No. : VTL/WW/2410030008/A
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	pH	IS: 3025 (P-11): 2022	7.21	-	5.5 to 9.0
2	Total Suspended Solids (TSS)	IS: 3025 (P-17): 2022	6.82	mg/l	100
3	Oil & Grease	IS:3025 (P-39): 2021	*BLQ(**LOQ-4.0)	mg/l	10
4	Ammonical Nitrogen (as NH3-N)	IS: 3025 (P-34) : 1988,Sec 4 RA: 2022	6.95	mg/l	50
5	Total Kjeldahl Nitrogen (as NH3)	IS: 3025 (P-34): 1988, RA 2022 (Macro Kjeldahl Method)	7.24	mg/l	100
6	Biochemical Oxygen Demand (BOD) (3 days @ 27°C)	IS: 3025 (P-44): 1993, RA: 2019	8.16	mg/l	30
7	Chemical oxygen Demand (COD)	IS : 3025 (P-58) : 2006 RA: 2017	34.5	mg/l	250

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

End of Report

Checked by

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Lab Incharge
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TEST REPORT

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Sample Number : VTL/WW/08

M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Name & Address of the Party :

Sample Description : Waste Water
Sampling Location : Treated Sewage Water Field Hostel - II
Sample Collected By : VTL Team
Coordinates : --

Report No. : VTL/WW/2410030008/B
Format No : 7.8 F-01
Party Reference No : 4300000689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
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	0.33	mg/l	5
2	Fecal Coliform	IS 1622, 2009	Absent	MPN/100ml	<1000

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

End of Report

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TEST REPORT

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TC-11227

Sample Number : VTL/WW/09

M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Name & Address of the Party :

Sample Description : Waste Water
Sampling Location : Treated Sewage Water Site Office
Sample Collected By : VTL Team
Coordinates : --

ULR No. : TC112272400002137F
Report No. : VTL/WW/2410030009/A
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	pH	IS: 3025 (P-11): 2022	7.34	-	5.5 to 9.0
2	Total Suspended Solids (TSS)	IS: 3025 (P-17): 2022	8.59	mg/l	100
3	Oil & Grease	IS:3025 (P-39): 2021	*BLQ(**LOQ-4.0)	mg/l	10
4	Ammonical Nitrogen (as NH3-N)	IS: 3025 (P-34) : 1988,Sec.4 RA: 2022	7.66	mg/l	50
5	Total Kjeldahl Nitrogen (as NH3)	IS: 3025 (P-34): 1988, RA 2022 (Macro Kjeldahl Method)	8.14	mg/l	100
6	Biochemical Oxygen Demand (BOD) (3 days @ 27°C)	IS: 3025 (P-44): 1993, RA: 2019	9.35	mg/l	30
7	Chemical oxygen Demand (COD)	IS : 3025 (P-58) : 2006 RA: 2017	36.0	mg/l	250

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

End of Report

Checked by

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TEST REPORT

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Sample Number : VTL/WW/09

M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Name & Address of the Party :

Sample Description : Waste Water
Sampling Location : Treated Sewage Water Site Office
Sample Collected By : VTL Team
Coordinates : --

Report No. : VTL/WW/2410030009/B
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
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	0.36	mg/l	5
2	Fecal Coliform	IS 1622, 2009	Absent	MPN/100ml	<1000

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

End of Report

Checked by

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TEST REPORT

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Sample Number : VTL/WW/10

M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Name & Address of the Party :

Sample Description : Waste Water
Sampling Location : Plant STP Treated Water
Sample Collected By : VTL Team
Coordinates : --

ULR No. : TC112272400000215 8F
Report No. : VTL/WW/2410030010/A
Format No : 7.8 F-01
Party Reference No : 4300005589
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 03/10/2024
Parameter Required : As per work order

S.No.	Test Parameters	Test Method	Result	Unit	Limits
1	pH	IS: 3025 (P-11): 2022	7.27	-	5.5 to 9.0
2	Total Suspended Solids (TSS)	IS: 3025 (P-17): 2022	7.13	mg/l	100
3	Oil & Grease	IS:3025 (P-39): 2021	*BLQ(**LOQ-4.0)	mg/l	10
4	Ammonical Nitrogen (as NH3-N)	IS: 3025 (P-34) : 1988,Sec 4 RA: 2022	6.92	mg/l	50
5	Total Kjeldahl Nitrogen (as NH3)	IS: 3025 (P-34): 1988, RA 2022 (Macro Kjeldahl Method)	7.59	mg/l	100
6	Biochemical Oxygen Demand (BOD) (3 days @ 27°C)	IS: 3025 (P-44): 1993, RA: 2019	7.85	mg/l	30
7	Chemical oxygen Demand (COD)	IS : 3025 (P-58) : 2006 RA: 2017	32.0	mg/l	250

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

End of Report

Checked by

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Lab Incharge
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TEST REPORT

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Sample Number : VTL/WW/10

M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghanscre Seoni MP

Name & Address of the Party :

Sample Description : Waste Water
Sampling Location : Plant STP Treated Water
Sample Collected By : VTL Team
Coordinates : --

Report No. : VTL/WW/2410030010/B
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 03/10/2024
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	0.30	mg/l	5
2	Fecal Coliform	IS 1622, 2009	Absent	MPN/100ml	<1000

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

End of Report

Checked by

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Annexure -7

Ground Water Analysis Report

TEST REPORT

VIBRANT
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TC-11227

Sample Number : VTL/W/06

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

ULR No. : TC112272400000214 3F
Report No. : VTL/W/2410030006/A
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : Ground Water Sample
Sampling Location : Project Site
Sample Collected By : VTL Team
Preservation : Suitable Preservation
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	7.48	--	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	196	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	61.3	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	165	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	68.3	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	10.46	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	465	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	39.4	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.71	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	9.86	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.28	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	Total Chromium (as Cr)	APHA 23rd Edition 2017 3113 B, 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	No Relaxation
16	Phenolic Compounds (C6H5OH)	APHA 23rd Edition 5530C 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	0.002
17	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.34	mg/l	5.0	15.0

Checked by

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TEST REPORT

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Sample Number : VTL/W/06

ULR No. : TC112272400000214 3F
Report No. : VTL/W/2410030006/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
19	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3
20	Cadmium (as Cd)	APHA 23rd Edition, 3030D, 3113 B, 2017	*BLQ(**LOQ-0.002)	mg/l	0.003	No Relaxation
21	Lead (as Pb)	APHA 23rd Edition, 3030D, 3113 B,2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
22	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
23	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
24	Mercury (as Hg)	APHA 23rd edition, 3114C 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	No Relaxation
25	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
26	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
27	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0

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

End of Report

Checked by

RK Yadav
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TEST REPORT

VIBRANT
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Sample Number : VTL/W/06

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/W/2410030006/B
Format No : 7.8 F-01
Party Reference No : 4300005669
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : Ground Water Sample
Sampling Location : Project Site
Sample Collected By : VTL Team
Preservation : Suitable Preservation
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	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0

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

End of Report

Checked by

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Authorized Signatory

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TEST REPORT

VIBRANT
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TC-11327

Sample Number : VTL/W/07

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/W/2410030007/A
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024

Sample Description : Ground Water Sample
Sampling Location : Village - Barela
Sample Collected By : VTL Team
Preservation : Suitable Preservation
Method of sampling : IS :3025

Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

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	7.28	--	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	146	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	38.6	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	120	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	55.9	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	12.07	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	336	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	33.4	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	8.41	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	Total Chromium (as Cr)	APHA 23rd Edition 2017 3113 B, 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	No Relaxation
16	Phenolic Compounds (C6H5OH)	APHA 23rd Edition 5530C 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	0.002
17	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.30	mg/l	5.0	15.0

Checked by

RK Yadav
Lab Incharge
Authorized Signatory

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TEST REPORT

VIBRANT
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TC-15227

Sample Number : VTL/W/07 Report No. : VTL/W/2410030007/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
19	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3
20	Cadmium (as Cd)	APHA 23rd Edition, 3030D, 3113 B, 2017	*BLQ(**LOQ-0.002)	mg/l	0.003	No Relaxation
21	Lead (as Pb)	APHA 23rd Edition, 3030D, 3113 B,2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
22	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
23	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
24	Mercury (as Hg)	APHA 23rd edition, 3114C 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	No Relaxation
25	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
26	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
27	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0

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

End of Report

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TEST REPORT

VIBRANT
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Sample Number : VTL/W/07

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/W/2410030007/B
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : —

Sample Description : Ground Water Sample
Sampling Location : Village - Barela
Sample Collected By : VTL Team
Preservation : Suitable Preservation
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	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0

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

End of Report

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TEST REPORT

VIBRANT
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TC-11227

Sample Number : VTL/W/08

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Gharsore Seoni MP

ULR No : TC112272400002144F
Report No. : VTL/W/2410030006/A
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : Ground Water Sample
Sampling Location : Village - Panarjhir
Sample Collected By : VTL Team
Preservation : Suitable Preservation
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	7.33	--	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	162	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	42.8	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	141	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	75.8	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	13.42	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	388	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	49.5	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD ,2017	0.73	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	7.26	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.31	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	Total Chromium (as Cr)	APHA 23rd Edition 2017 3113 B, 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	No Relaxation
16	Phenolic Compounds (C6H5OH)	APHA 23rd Edtion 5530C: 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	0.002
17	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.40	mg/l	5.0	15.0

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TEST REPORT

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TC-11227

Sample Number : VTL/W/08

ULR No. : TC112272400000214 4F
Report No. : VTL/W/2410030008/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
19	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3
20	Cadmium (as Cd)	APHA 23rd Edition, 3030D, 3113 B, 2017	*BLQ(**LOQ-0.002)	mg/l	0.003	No Relaxation
21	Lead (as Pb)	APHA 23rd Edition, 3030D, 3113 B,2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
22	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
23	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
24	Mercury (as Hg)	APHA 23rd edition, 3114C 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	No Relaxation
25	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
26	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
27	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0

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

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TEST REPORT

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Sample Number : VTL/W/08

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/W/2410030008/B
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : Ground Water Sample
Sampling Location : Village - Panarjhir
Sample Collected By : VTL Team
Preservation : Suitable Preservation
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	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0

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

End of Report

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TEST REPORT

VIBRANT
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TC-11227

Sample Number : VTL/W/09

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Gharsore Seoni MP

ULR No. : TC112272400002145F
Report No. : VTL/W/2410030009/A
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : --

Sample Description : **Water Sample**
Sampling Location : Village - Binaiki
Sample Collected By : VTL Team
Preservation : Suitable Preservation
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	7.56	--	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	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	56.5	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	184	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	70.3	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	16.28	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	479	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	50.3	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.78	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	15.4	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.27	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	Total Chromium (as Cr)	APHA 23rd Edition 2017 3113 B, 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	No Relaxation
16	Phenolic Compounds (C6H5OH)	APHA 23rd Edition 5530C: 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	0.002
17	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.39	mg/l	5.0	15.0

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TEST REPORT

VIBRANT
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TC-11237

ULR No. : TC112272400002145F
Report No. : VTL/W/2410030009/A

Sample Number : VTL/W/09

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
19	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3
20	Cadmium (as Cd)	APHA 23rd Edition, 3030D, 3113 B, 2017	*BLQ(**LOQ-0.002)	mg/l	0.003	No Relaxation
21	Lead (as Pb)	APHA 23rd Edition, 3030D, 3113 B,2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
22	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
23	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
24	Mercury (as Hg)	APHA 23rd edition, 3114C 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	No Relaxation
25	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
26	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
27	Free Residual Chlorine	IS 3025 (P-26) 2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0

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

End of Report

Checked by

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TEST REPORT

VIBRANT
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Sample Number : VTL/W/09

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Gharsore Seoni MP

Report No. : VTL/W/2410030009/S
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : Water Sample
Sampling Location : Village - Binaiki
Sample Collected By : VTL Team
Preservation : Suitable Preservation
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	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0

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

End of Report

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Page No. 1/1

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TEST REPORT

VIBRANT
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TC-11227

Sample Number : VTL/W/10

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

ULR No. : TC112272400002146F
Report No. : VTL/W/2410030010/A
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr
Coordinates : --

Sample Description : Water Sample
Sampling Location : Village - Durjanpur
Sample Collected By : VTL Team
Preservation : Suitable Preservation
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	7.63	--	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	186	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	54.8	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	157	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	70.3	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	11.97	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	435	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	40.6	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.81	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	12.6	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.30	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	Total Chromium (as Cr)	APHA 23rd Edition 2017 3113 B, 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	No Relaxation
16	Phenolic Compounds (C6H5OH)	APHA 23rd Edition 5530C: 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	0.002
17	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.43	mg/l	5.0	15.0

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TEST REPORT

VIBRANT
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Sample Number : VTL/W/10

ULR No. : TC112272400000214 6F
Report No. : VTL/W/2410030010/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
19	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3
20	Cadmium (as Cd)	APHA 23rd Edition, 3030D, 3113 B, 2017	*BLQ(**LOQ-0.002)	mg/l	0.003	No Relaxation
21	Lead (as Pb)	APHA 23rd Edition, 3030D, 3113 B,2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
22	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
23	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
24	Mercury (as Hg)	APHA 23rd edition, 3114C 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	No Relaxation
25	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
26	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
27	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0

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

End of Report

Checked by

RK Yadav
Lab Incharge
Authorized Signatory

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

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www.vibranttechnolab.com

TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/10

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/W/2410030010/B
Format No : 7.6 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : Water Sample
Sampling Location : Village - Durjanpur
Sample Collected By : VTL Team
Preservation : Suitable Preservation
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	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0

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

End of Report

Checked by

RK Yadav
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TEST REPORT

VIBRANT
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Sample Number : VTL/W/11

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attara, Tehsil- Ghansore Seoni MP

ULR No. : TC112272400002147F
Report No. : VTL/W/2410030011/A
Format No : 7.8 F-01
Party Reference No : 4300009589
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : Water Sample
Sampling Location : Village - Gunen
Sample Collected By : VTL Team
Preservation : Suitable Preservation
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	7.46	--	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	178	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	52.3	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	143	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	66.8	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	11.54	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	396	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	44.8	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.83	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	13.5	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.35	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	Total Chromium (as Cr)	APHA 23rd Edition 2017 3113 B, 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	No Relaxation
16	Phenolic Compounds (C6H5OH)	APHA 23rd Edition 5530C: 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	0.002
17	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.49	mg/l	5.0	15.0

Checked by

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TEST REPORT

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TC-11227

Sample Number : VTL/W/11

ULR No. : TC112272400000214 7F
Report No. : VTL/W/2410030011/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
19	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3
20	Cadmium (as Cd)	APHA 23rd Edition, 3030D, 3113 B, 2017	*BLQ(**LOQ-0.002)	mg/l	0.003	No Relaxation
21	Lead (as Pb)	APHA 23rd Edition, 3030D, 3113 B,2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
22	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
23	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
24	Mercury (as Hg)	APHA 23rd edition, 3114C 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	No Relaxation
25	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
26	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
27	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0

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

End of Report

Checked by

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TEST REPORT

VIBRANT
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Sample Number : VTL/W/11

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/W/2410030011/B
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : Water Sample
Sampling Location : Village - Guneri
Sample Collected By : VTL Team
Preservation : Suitable Preservation
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	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0

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

End of Report

Checked by

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TEST REPORT

VIBRANT
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Sample Number : VTL/W/12

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

ULR No. : TC112272400002148F
Report No. : VTL/W/2410030012/A
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : Water Sample
Sampling Location : Village - Dola
Sample Collected By : VTL Team
Preservation : Suitable Preservation
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	7.51	--	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	234	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	70.63	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	214	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	79.5	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	14.04	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	478	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	48.6	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.87	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	18.5	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.33	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	Total Chromium (as Cr)	APHA 23rd Edition 2017 3113 B, 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	No Relaxation
16	Phenolic Compounds (C6H5OH)	APHA 23rd Edition 5530C: 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	0.002
17	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.50	mg/l	5.0	15.0

Checked by

RK Yadav
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TEST REPORT

VIBRANT
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TC-11227

Sample Number : VTL/W/12

ULR No. : TC112272400000214 8F
Report No. : VTL/W/24100300 12/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
19	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3
20	Cadmium (as Cd)	APHA 23rd Edition, 3030D, 3113 B, 2017	*BLQ(**LOQ-0.002)	mg/l	0.003	No Relaxation
21	Lead (as Pb)	APHA 23rd Edition, 3030D, 3113 B,2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
22	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
23	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
24	Mercury (as Hg)	APHA 23rd edition, 3114C 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	No Relaxation
25	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
26	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
27	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0

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

End of Report

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TEST REPORT

VIBRANT
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Sample Number : VTL/W/12

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghahsore Seoni MP

Report No. : VTL/W/24100300012/B
Format No : 7.8 F-01
Party Reference No : 4300005669
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : Water Sample
Sampling Location : Village - Dola
Sample Collected By : VTL Team
Preservation : Suitable Preservation
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	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0

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

End of Report

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TEST REPORT

VIBRANT
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TC-11227

Sample Number : VTL/W/13
Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

ULR No. : TC112272400002149F
Report No. : VTL/W/2410030013/A
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : Water Sample
Sampling Location : Village - Gorakhpur
Sample Collected By : VTL Team
Preservation : Suitable Preservation
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	247	mg/l	200	600
4	Calcium (as Ca)	IS: 3025 (P- 40): 1991 RA 2019	67.52	mg/l	75	200
5	Total Alkalinity (as CaCO3)	IS: 3025 (P-23): 1986, RA 2019	192	mg/l	200	600
6	Chloride (as Cl)	IS: 3025 (P-32): 1988, RA 2019	70.5	mg/l	250	1000
7	Magnesium (as Mg)	IS: 3025 (P-46): 1994, RA 2019	19.08	mg/l	30	100
8	Total Dissolved Solids	IS :3025 (P-16): 1984, RA 2017	420	mg/l	500	2000
9	Sulphate (as SO4)	IS: 3025 (P-24): 1986, RA 2022	35.2	mg/l	200	400
10	Fluoride (as F)	APHA 23rd Edition ,4500FD :2017	0.69	mg/l	1.0	1.5
11	Nitrate (as NO3)	IS: 3025 (P-34): 1988	15.3	mg/l	45.0	No Relaxation
12	Iron (as Fe)	APHA 23rd Edition , 3111B,2017	0.36	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	Total Chromium (as Cr)	APHA 23rd Edition 2017 3113 B, 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	No Relaxation
16	Phenolic Compounds (C6H5OH)	APHA 23rd Edition 5530C 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	0.002
17	Zinc (as Zn)	APHA 23rd Edition,3030D, 3113 B , 2017	0.45	mg/l	5.0	15.0

Checked by

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TEST REPORT

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Sample Number : VTL/W/13

ULR No. : TC112272400000214 9F
Report No. : VTL/W/2410030013/A

S.No.	Test Parameters	Test Method	Results	Units	IS:10500-2012	
					Acceptable Limit	Permissible Limit
18	Copper (as Cu)	APHA 23rd Edition 3111B 2017	*BLQ(**LOQ-0.02)	mg/l	0.05	1.5
19	Manganese (as Mn)	APHA 23rd Edition, 3030D, 3111 B, 2017	*BLQ(**LOQ-0.05)	mg/l	0.1	0.3
20	Cadmium (as Cd)	APHA 23rd Edition, 3030D, 3113 B, 2017	*BLQ(**LOQ-0.002)	mg/l	0.003	No Relaxation
21	Lead (as Pb)	APHA 23rd Edition, 3030D, 3113 B,2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
22	Selenium (as Se)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	No Relaxation
23	Arsenic (as As)	APHA 23rd Edition, 3114C, 2017	*BLQ(**LOQ-0.005)	mg/l	0.01	0.05
24	Mercury (as Hg)	APHA 23rd edition, 3114C 2017	*BLQ(**LOQ-0.001)	mg/l	0.001	No Relaxation
25	Total Coliform	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
26	E.Coli	IS : 15185 : 2016	Absent	per 100 ml	Shall not be detectable in any 100 ml sample	--
27	Free Residual Chlorine	IS 3025 (P-26):2021	*BLQ(**LOQ-0.2)	mg/l	0.2	1.0

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

End of Report

Checked by

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TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/W/13

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/W/24100300013/B
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : Water Sample
Sampling Location : Village - Gorakhpur
Sample Collected By : VTL Team
Preservation : Suitable Preservation
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	Anionic Detergents (as MBAS)	APHA 23rd Edition , 5540C 2017	*BLQ(**LOQ-0.05)	mg/l	0.2	1.0

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

End of Report

Checked by

RK Yadav
Lab Incharge
Authorized Signatory

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

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Annexure -8

Surface water Analysis Report

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/SW/01

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

ULR No. : TC112273400000215OF
Report No. : VTL/W/2410030014/A
Format No : 7.6 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : SURFACE WATER
Sampling Location : Pariyat River
Sample Collected By : VTL Team
Preservation : Suitable Preservation
Method of sampling : IS :3025

S.No.	Test Parameters	Test Method	Results	Unit
1	pH value	IS : 3025 (P-11) : 2022	7.55	--
2	Turbidity	IS : 3025 (P- 10) : 1984, RA 2017	*BLQ(**LOQ-1.0)	NTU
3	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 1984, RA 2017	392	mg/l
4	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	34.8	mg/l
5	Sulphate as (SO4)	IS: 3025 (P- 24) : 1998,Sec.RA 2022	17.6	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (P- 23) : 1986, RA 2019	176	mg/l
7	Total Suspended Solids (TSS)	IS: 3025 (P-17) : 2022	9.2	mg/l
8	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	227	mg/l
9	Calcium (as Ca)	IS : 3025 (P-40) : 1991 RA 2019	49.6	mg/l
10	Magnesium (as Mg)	IS : 3025 (P- 46) : 1994, RA 2019	25.09	mg/l
11	Fluoride (as F)	APHA 23rd Edition, 4500D, 2017	0.58	mg/l
12	Nitrate (as NO3)	IS: 3025 (P- 34) : 1988 RA 2022	6.54	mg/l
13	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 1993, RA : 2019	10.8	mg/l
14	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2006 RA 2017	37.3	mg/l
15	Iron (as Fe)	APHA 23rd Edition,3111B, 2017	0.21	mg/l
16	Zinc (as Zn)	APHA 23rd Edition, 3030D,3113B, 2017	0.32	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- 0.2)	mg/l

Checked by

RK Yadav
Lab Incharge
Authorized Signatory

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TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

ULR No. : TC112272400000215OF
Report No. : VTL/W/2410030014/A

Sample Number : VTL/SW/01

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
26	Phenolic Compounds	APHA 23rd Edition,5530C, 2017	*BLQ(**LOQ- 0.05)	mg/l

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

End of Report

Checked by

JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

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TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/SW/01

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/W/2410030014/B
Format No : 7.8 F-01
Party Reference No : 4300005669
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : SURFACE WATER
Sampling Location : Pariyat River
Sample Collected By : VTL Team
Preservation : Suitable Preservation
Method of sampling : IS :3025

S.No.	Test Parameters	Test Method	Results	Unit
1	Colour	IS : 3025 (P-4) : 2021	*BLQ(**LOQ-5.0)	Hazen
2	Odour	IS : 3025 (P-5) : 2018	Agreeable	--
3	Taste	IS : 3025 (P-8) : 1984 RA 2017	Agreeable	--
4	Residual Free Chlorine (RFC)	IS : 3025 (P-26) :2021	*BLQ(**LOQ- 0.2)	mg/l
5	Cyanide (as CN)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ- 5.0)	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

RK Yadav
Lab Incharge
Authorized Signatory

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Page No. 1/1

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TEST REPORT

VIBRANT
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TC-11227

Sample Number : VTL/SW/02

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

ULR No. : TC112272400000215IF
Report No. : VTL/W/24100300151A
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : SURFACE WATER
Sampling Location : Tomar River
Sample Collected By : VTL Team
Preservation : Suitable Preservation
Method of sampling : IS :3025

S.No.	Test Parameters	Test Method	Results	Unit
1	pH value	IS : 3025 (P-11) : 2022	7.69	--
2	Turbidity	IS : 3025 (P- 10) : 1984, RA 2017	*BLQ(**LOQ-1.0)	NTU
3	Total Dissolved Solids (TDS)	IS : 3025 (P-16) : 1984, RA 2017	320	mg/l
4	Chloride (as Cl)	IS: 3025 (P-32) : 1988, RA 2019	36.4	mg/l
5	Sulphate as (SO4)	IS: 3025 (P- 24) : 1986,Sec.RA 2022	17.1	mg/l
6	Total Alkalinity (as CaCO3)	IS: 3025 (P- 23) : 1986, RA 2019	168	mg/l
7	Total Suspended Solids (TSS)	IS: 3025 (P-17) : 2022	6.9	mg/l
8	Total Hardness (CaCO3)	IS: 3025 (P- 21) : 2009, RA 2019	141	mg/l
9	Calcium (as Ca)	IS : 3025 (P-40) : 1991 RA 2019	27.46	mg/l
10	Magnesium (as Mg)	IS : 3025 (P- 46) : 1994, RA 2019	17.61	mg/l
11	Fluoride (as F)	APHA 23rd Edition, 4500D, 2017	0.51	mg/l
12	Nitrate (as NO3)	IS: 3025 (P- 34) : 1988 RA 2022	7.23	mg/l
13	Biochemical Oxygen Demand (BOD) (3 days at 27°C)	IS: 3025 (P-44) : 1993, RA : 2019	6.18	mg/l
14	Chemical Oxygen Demand (COD)	IS : 3025 (P- 58) : 2006 RA 2017	28.6	mg/l
15	Iron (as Fe)	APHA 23rd Edition,3111B, 2017	0.21	mg/l
16	Zinc (as Zn)	APHA 23rd Edition, 3030D,3113B, 2017	0.35	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- 0.2)	mg/l

Checked by

RK Yadav
Lab Incharge
Authorized Signatory

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TEST REPORT

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ULR No. : TC112272400000215 1F
Sample Number : VTL/SW/02 Report No. : VTL/W/2410330015/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
26	Phenolic Compounds	APHA 23rd Edition,5530C, 2017	*BLQ(**LOQ- 0.05)	mg/l

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

End of Report

Checked by

RK Yadav
Lab Incharge
Authorized Signatory

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TEST REPORT

VIBRANT
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Sample Number : VTL/SW/02

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/W/24100300151B
Format No : 7.8 F-01
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024
Sampling Date : 02/10/2024
Sampling Type : Grab
Sample Quantity : 2 Ltr.
Coordinates : --

Sample Description : SURFACE WATER
Sampling Location : Tomar River
Sample Collected By : VTL Team
Preservation : Suitable Preservation
Method of sampling : IS :3025

S.No.	Test Parameters	Test Method	Results	Unit
1	Colour	IS : 3025 (P-4) : 2021	*BLQ(**LOQ-5.0)	Hazen
2	Odour	IS : 3025 (P-5) : 2018	Agreeable	--
3	Taste	IS : 3025 (P-8) : 1984 RA 2017	Agreeable	--
4	Residual Free Chlorine (RFC)	IS : 3025 (P-26) :2021	*BLQ(**LOQ- 0.2)	mg/l
5	Cyanide (as CN)	APHA 23rd Edition, 4500D, 2017	*BLQ(**LOQ- 5.0)	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

RK Yadav
Lab Incharge
Authorized Signatory

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Annexure –9

Green belt development report

Green Belt Development

Plantation on 33% land of 406 acres	**134 acres**
Density of plantation	2500 plants/Hectare
Area required per plant	4.0 SQM
Total plantation required on 134 acres (542164 SQM) of land	135541 Nos
No of plantation completed	186232

PLANTATION PHOTOGRAPH

Annexure -10

COD Letter

भारत सरकार
Government of India
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
पश्चिम क्षेत्रीय विद्युत समिति
Western Regional Power Committee
एफ -3, एमआयडीसी क्षेत्र, अंधेरी (पूर्व), मुंबई - 93
F-3, MIDC Area, Andheri (East), Mumbai -93
दूरभाष Phone: 022- 28221636; 28200195; 28200194 ; फैक्स Fax : 022 - 28370193
Website : www.wrpc.gov.in E-mail : ms-wrpc@nic.in

आई एस ओ : 9001 : 2008
ISO : 9001:2008

NO.WRPC/OPN/MBPMPL-COD/2016/ 33 9 = Date: 05.05.2016

To,
Chief Engineer (OM Division),
Central Electricity Authority
Sewa Bhavan, R.K.Puram.
New Delhi – 110066.

Sub:- Confirmation of Commercial Date of Operation in respect of Unit No 1(600 MW) of 1260 MW Jhabua Power Limited in Distt Seoni of Madhya Pradesh.

Sir,

M/s. Jhabua Power Limited. vide letter No.JPL/BD/WRPC/16/1, dated 03.05.2016 have intimated the date of Commercial Operation (COD) of Unit No.1 (600 MW) of 1260 MW Jhabua Power Limited in Distt Seoni of Madhya Pradesh with effect from 00:00 hrs of 03.05.2016. In support of this M/s. Jhabua Power Limited in Distt Seoni of Madhya Pradesh. have submitted certificate from Director in prescribed format (Appendix -VI.) as per Regulation – 4 of CERC (Terms & Conditions of Tariff Regulation 2014) also certificate for COD from Independent Engineer viz. Lahmeyer International(India) Pvt Ltd, Gurgoan., certifying the demonstration of installed capacity through successful trial run of the said unit between 20:00 Hrs of 29th April, 2016 to 20:00 Hrs of 2nd May, 2016 at 95% and above of its rated capacity.

WRLDC Mumbai has furnished the verified data for continuous 72 hrs running of the unit No.1(600 MW) between 20:00 Hrs of 29th April, 2016 to 20:00 Hrs of 2nd May, 2016 at 95% and above of its rated capacity.

In view of the above supporting document, all the formalities requisite for declaration of COD have been fulfilled. Therefore it is to confirm that COD of Unit No.1 (600 MW) of 1260 MW Jhabua Power Limited in Distt Seoni of Madhya Pradesh may be taken from 00:00 hrs of 03/05/2016.

Thanking you,

Yours faithfully,

(S.D.TAKSANDE)
Member Secretary

Copy to:- 1.
1. Member (GO&D), CEA, New Delhi.
2. Chief Engineer (GM),CEA, New Delhi.
3. Secretary, CEA, New Delhi
4. Director, Jhabua Power Limited in Distt Seoni of Madhya Pradesh.
5. Shri Gattu Rambhav, COO, Avantha Power Ltd. Gurgaon.

Annexure -11

Photographs of medical center & sanitation

First Aid Center

First Aid Center

First Aid Center

Urinals

Urinals

Toilet attached bath rooms

Annexure -12

Ambient Noise Level monitoring report

TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AN/01

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/N/2410030001/A
Format No : 7.8 F-04
Party Reference No : 4300006669
Report Date : 10/10/2024
Receipt Date : 03/10/2024
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 : Project Site (Jhabua Power Plant)
Instrument Code : VTL/SLM/01
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 30/09/2024 To 01/10/2024
Time of Monitoring : 06:00 to 06:00 Hrs.
Ambient Temperature (°C) : Min.22° Max 33°
Surrounding Activity : Human, Vehicular & Plant Activities
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	52.5

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

RK Yadav
Lab Incharge
Authorized Signatory

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

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TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-15227

Sample Number : VTL/AN/02

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/N/2410030002/A
Format No : 7.8 F-04
Party Reference No : 4300005689
Report Date : 10/10/2024
Receipt Date : 03/10/2024
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 : Village - Barela
Instrument Code : VTL/SLM/02
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 30/09/2024 To 01/10/2024
Time of Monitoring : 06:00 to 06:00 Hrs.
Ambient Temperature (°C) : Min.22° Max 33°
Surrounding Activity : Human, Vehicular & Other Activities
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	42.8

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

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TEST REPORT

VIBRANT
"Experience the unimaginable"

TC-11227

Sample Number : VTL/AN/03

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No.	: VTL/N/2410030003/A
Format No	: 7.8 F-04
Party Reference No	: 4300005889
Report Date	: 10/10/2024
Receipt Date	: 03/10/2024
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	: Village - Gorakhpur
Instrument Code	: VTL/SLM/03
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 30/09/2024 To 01/10/2024
Time of Monitoring	: 06:00 to 06:00 Hrs
Ambient Temperature (°C)	: Min.22° Max 33°
Surrounding Activity	: Human, Vehicular & Other Activities
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	52.6	42.7

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

RK Yadav
Lab Incharge
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Vibrant Techno Lab Pvt. Ltd.
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TEST REPORT

VIBRANT
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TC-11227

Sample Number : VTL/AN/04

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Gharsore Seoni MP

Report No. : VTL/N/2410030004/A
Format No : 7.8 F-04
Party Reference No : 4300005689
Report Date : 10/10/2024
Receipt Date : 03/10/2024
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 : Village - Binaiki
Instrument Code : VTL/SLM/04
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 30/09/2024 To 01/10/2024
Time of Monitoring : 06:00 to 06:00 Hrs.
Ambient Temperature (°C) : Min.22° Max 33°
Surrounding Activity : Human, Vehicular & Other Activities
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	50.4	37.8

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 100m 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

RK Yadav
Lab Incharge
Authorized Signatory

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TEST REPORT

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TC-11227

Sample Number : VTL/AN/05

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No.	: VTL/N/2410030005/A
Format No	: 7.8 F-04
Party Reference No	: 4300006669
Report Date	: 10/10/2024
Receipt Date	: 03/10/2024
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	: Village - Panarjhir
Instrument Code	: VTL/SLM/01
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 30/09/2024 To 01/10/2024
Time of Monitoring	: 06:00 to 06:00 Hrs
Ambient Temperature (°C)	: Min.22° Max 33°
Surrounding Activity	: Human, Vehicular & Other Activities
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	53.5	42.1

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

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TEST REPORT

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TC-11227

Sample Number : VTL/AN/06

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/N/2410030006/A
Format No : 7.8 F-04
Party Reference No : 4300005689
Report Date : 10/10/2024
Receipt Date : 03/10/2024
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 : Coal Road
Instrument Code : VTL/SLM/02
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 01/10/2024 To 02/10/2024
Time of Monitoring : 06:00 to 06:00 Hrs.
Ambient Temperature (°C) : Min.22° Max 34°
Surrounding Activity : Human, Vehicular & Other Activities
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	49.5	38.5

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.
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TEST REPORT

VIBRANT
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Sample Number : VTL/AN/07

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No.	: VTL/N/2410030007/A
Format No	: 7.8 F-04
Party Reference No	: 4300005889
Report Date	: 10/10/2024
Receipt Date	: 03/10/2024
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	: Village - Guneri
Instrument Code	: VTL/SLM/03
Meteorological condition during monitoring	: Clear Sky
Date of Monitoring	: 01/10/2024 To 02/10/2024
Time of Monitoring	: 06:00 to 06:00 Hrs.
Ambient Temperature (°C)	: Min.22° Max 34°
Surrounding Activity	: Human, Vehicular & Other Activities
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	51.3	42.1

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.

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TEST REPORT

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TC-11227

Sample Number : VTL/AN/08

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/N/2410030008/A
Format No : 7.8 F-04
Party Reference No : 4300005689
Report Date : 10/10/2024
Receipt Date : 03/10/2024
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 : Village - Dola
Instrument Code : VTL/SLM/04
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 01/10/2024 To 02/10/2024
Time of Monitoring : 05:00 to 06:00 Hrs.
Ambient Temperature (°C) : Min 22° Max 34°
Surrounding Activity : Human, Vehicular & Other Activities
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	41.6

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.

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TEST REPORT

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TC-11237

Sample Number : VTL/AN/09

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Gharsora Seoni MP

Report No. : VTL/N/2410030009/A
Format No : 7.8 F-04
Party Reference No : 4300005689
Report Date : 10/10/2024
Receipt Date : 03/10/2024
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 : Village - Durjanpur
Instrument Code : VTL/SLM/05
Meteorological condition during monitoring : Clear Sky
Date of Monitoring : 01/10/2024 To 02/10/2024
Time of Monitoring : 06:00 to 06:00 Hrs.
Ambient Temperature (°C) : Min.22° Max.34°
Surrounding Activity : Human, Vehicular & Other Activities
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	50.7	40.1

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

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Annexure -13

Ambient Air Quality monitoring report

TEST REPORT

VIBRANT
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TC-11227

Sample Number : VTL/AA/01

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/A/2410030001/A
Format No : 7.8 F-02
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Project Site (Jhabua Power Plant)
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/01
Coordinates	:	75°55'03" & 22°44'14"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	30/09/2024 To 01/10/2024
Time of Monitoring	:	10:00 to 10:00 Hrs.
Ambient Temperature (°C)	:	Min.22° Max 33°
Surrounding Activity	:	Human, Vehicular & Plant Activities
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	62.83	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	27.49	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	8.94	µg/m³	80

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

End of Report

Checked by

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TEST REPORT

VIBRANT
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Sample Number : VTL/AA/01

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/A/2410030001/B
Format No : 7.8 F-02
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Project Site (Jhabua Power Plant)
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/01
Coordinates	:	79°55'03" & 22°44'14"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	30/09/2024 To 01/10/2024
Time of Monitoring	:	10.00 to 10.00 Hrs.
Ambient Temperature (°C)	:	Min.22° Max.33°
Surrounding Activity	:	Human, Vehicular & Plant Activities
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	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

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TEST REPORT

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TC-11227

Sample Number : VTL/AA/02

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/A/2410030002/A
Format No : 7.8 F-02
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Village - Barela
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/02
Coordinates	:	79°54'27" & 22°44'53"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	30/09/2024 To 01/10/2024
Time of Monitoring	:	10:10 to 10:10 Hrs.
Ambient Temperature (°C)	:	Min.22° Max 33°
Surrounding Activity	:	Human, Vehicular & Other Activities
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	58.43	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	24.62	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	12.88	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	7.56	µg/m³	80

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

End of Report

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TEST REPORT

VIBRANT
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Sample Number : VTL/AA/02

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/A/2410030002/B
Format No : 7.8 F-02
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Village - Barela
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/02
Coordinates	:	79°54'27" & 22°44'53"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	30/09/2024 To 01/10/2024
Time of Monitoring	:	10:10 to 10:10 Hrs.
Ambient Temperature (°C)	:	Min.22° Max 33°
Surrounding Activity	:	Human, Vehicular & Other Activities
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	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

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TEST REPORT

VIBRANT
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Sample Number : VTL/AA/03

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attana, Tehsil- Ghansore Seoni MP

Report No : VTL/A/2410030003/A
Format No : 7.8 F-02
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Village - Gorakhpur
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/03
Coordinates	:	79°55'44" & 22°44'15"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	30/09/2024 To 01/10/2024
Time of Monitoring	:	10:30 to 10:30 Hrs.
Ambient Temperature (°C)	:	Min.22° Max 33°
Surrounding Activity	:	Human, Vehicular & Other Activities
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	55.36	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	22.82	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	11.62	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	5.92	µg/m³	80

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

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TEST REPORT

VIBRANT
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Sample Number : VTL/AA/03

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/A/2410030003/B
Format No : 7.8 F-02
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : **AMBIENT AIR QUALITY MONITORING**

General Information:-

Sampling Location	:	Village - Gorakhpur
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/03
Coordinates	:	79°55'44" & 22°44'15"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	30/09/2024 To 01/10/2024
Time of Monitoring	:	10:30 to 10:30 Hrs.
Ambient Temperature (°C)	:	Min.22° Max.33°
Surrounding Activity	:	Human, Vehicular & Other Activities
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	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 LABS PRIVATE LIMITED JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

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TEST REPORT

VIBRANT
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Sample Number : VTL/AA/04

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No.	:	VTL/A/2410030004/A
Format No	:	7.8 F-02
Party Reference No	:	4300005889
Report Date	:	10/10/2024
Period of Analysis	:	03/10/2024-10/10/2024
Receipt Date	:	03/10/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Village - Binaiki
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/04
Coordinates	:	79°55'44" & 22°14'15"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	30/09/2024 To 01/10/2024
Time of Monitoring	:	10:45 to 10:45 Hrs.
Ambient Temperature (°C)	:	Min.22° Max 33°
Surrounding Activity	:	Human, Vehicular & Other Activities
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	54.66	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	21.18	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA 2018	11.25	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	5.61	µg/m³	80

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

End of Report

Checked by

RK Yadav
Lab Incharge
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TEST REPORT

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Sample Number : VTL/AA/04

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/A/2410030004/B
Format No : 7.8 F-02
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Village - Binaiki
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/04
Coordinates	:	79°55'44" & 22°14'15"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	30/09/2024 To 01/10/2024
Time of Monitoring	:	10:45 to 10:45 Hrs.
Ambient Temperature (°C)	:	Min 22° Max 33°
Surrounding Activity	:	Human, Vehicular & Other Activities
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	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

RK Yadav
Lab Incharge
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TEST REPORT

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Sample Number : VTL/AA/05

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attania, Tehsil- Ghansore Seoni MP

Report No. : VTL/A/2410030005/A
Format No : 7.8 F-02
Party Reference No : 4300005889
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Village - Durjanpur
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/05
Coordinates	:	79°55'47" & 22°45'35"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	30/09/2024 To 01/10/2024
Time of Monitoring	:	11:00 to 11:00 Hrs
Ambient Temperature (°C)	:	Min.22° Max 33°
Surrounding Activity	:	Human, Vehicular & Other Activities
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	53.82	µg/m³	100
2	Particulate Matter (as PM2.5)	IS.5182 (P- 24)-2019	18.78	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	9.35	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	6.28	µg/m³	80

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

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Sample Number : VTL/AA/05

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/A/2410030005/B
Format No : 7.8 F-02
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Vilage - Durjanpur
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/05
Coordinates	:	79°55'47" & 22°45'35"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	30/09/2024 To 01/10/2024
Time of Monitoring	:	11:00 to 11:00 Hrs.
Ambient Temperature (°C)	:	Min 22° Max 33°
Surrounding Activity	:	Human, Vehicular & Other Activities
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	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

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Sample Number : VTL/AA/05

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/A/2410030006/A
Format No : 7.8 F-02
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Coal Road
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	:	01/10/2024 To 02/10/2024
Time of Monitoring	:	10:10 to 10:10 Hrs.
Ambient Temperature (°C)	:	Min.22° Max 34°
Surrounding Activity	:	Human, Vehicular & Plant Activities
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	54.92	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	17.69	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	10.98	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	5.86	µg/m³	80

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

End of Report

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TEST REPORT

VIBRANT
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Sample Number : VTL/AA/06

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Gharsore Seoni MP

Report No. : VTL/A/2410030005/B
Format No : 7.8 F-02
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	: Coal Road
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	: 01/10/2024 To 02/10/2024
Time of Monitoring	: 10:10 to 10:10 Hrs
Ambient Temperature (°C)	: Min.22° Max.34°
Surrounding Activity	: Human, Vehicular & Plant Activities
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	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
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TEST REPORT

VIBRANT
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Sample Number : VTL/AA/07

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/A/2410030007/A
Format No : 7.8 F-02
Party Reference No : 4300005669
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Village - Guneri
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/02
Coordinates	:	79°57'7" & 22°42'10"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	01/10/2024 To 02/10/2024
Time of Monitoring	:	10:30 to 10:30 Hrs.
Ambient Temperature (°C)	:	Min.22° Max 34°
Surrounding Activity	:	Human, Vehicular & Other Activities
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	55.49	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	19.66	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA 2018	11.97	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	6.18	µg/m³	80

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

End of Report

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TEST REPORT

VIBRANT
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Sample Number : VTL/AA/07

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attana, Tehsil- Ghansore Seoni MP

Report No. : VTL/A/2410030007/B
Format No : 7.8 F-02
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Village - Guneri
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/02
Coordinates	:	79°57'7" & 22°42'10"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	01/10/2024 To 02/10/2024
Time of Monitoring	:	10:30 to 10:30 Hrs.
Ambient Temperature (°C)	:	Min.22° Max 34°
Surrounding Activity	:	Human, Vehicular & Other Activities
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	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

JAIPUR

RK Yadav
Lab Incharge
Authorized Signatory

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TEST REPORT

VIBRANT
"Experience the unimaginable"

Sample Number : VTL/AA/08

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attania, Tehsil- Ghansore Seoni MP

Report No. : VTL/A/2410030008/A
Format No : 7.8 F-02
Party Reference No : 4300005869
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Village - Dola
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/03
Coordinates	:	79°54'39" & 22°42'3"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	01/10/2024 To 02/10/2024
Time of Monitoring	:	10:40 to 10:40 Hrs.
Ambient Temperature (°C)	:	Min.23° Max 31°
Surrounding Activity	:	Human, Vehicular & Other Activities
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	54.82	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	18.55	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA 2018	12.43	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	6.10	µg/m³	80

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

End of Report

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TEST REPORT

VIBRANT
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Sample Number : VTL/AA/08

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/A/2410030006/B
Format No : 7.6 F-02
Party Reference No : 4300005869
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Village - Dola
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/03
Coordinates	:	79°54'39" & 22°42'3"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	01/10/2024 To 02/10/2024
Time of Monitoring	:	10:40 to 10:40 Hrs.
Ambient Temperature (°C)	:	Min.23° Max 31°
Surrounding Activity	:	Human, Vehicular & Other Activities
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	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

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TEST REPORT

VIBRANT
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Sample Number : VTL/AA/09

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/A/2410030009/A
Format No : 7.8 F-02
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Village - Panarjhir
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/04
Coordinates	:	79°54'33" & 22°46'13"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	01/10/2024 To 02/10/2024
Time of Monitoring	:	10:55 to 10:55 Hrs
Ambient Temperature (°C)	:	Min.22° Max.34°
Surrounding Activity	:	Human, Vehicular & Other Activities
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	53.29	µg/m³	100
2	Particulate Matter (as PM2.5)	IS:5182 (P- 24)-2019	16.73	µg/m³	60
3	Nitrogen Dioxide (as NO2)	IS:5182 (P- 6)-2006, RA.2018	11.45	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P- 2)-2001, RA. 2018	5.72	µg/m³	80

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

End of Report

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Sample Number : VTL/AA/09

Name & Address of the Party : M/s Jhabua Power Limited (A JV of NTPC LTD.)
Post Office - Attaria, Tehsil- Ghansore Seoni MP

Report No. : VTL/A/2410030009/B
Format No : 7.8 F-02
Party Reference No : 4300005689
Report Date : 10/10/2024
Period of Analysis : 03/10/2024-10/10/2024
Receipt Date : 03/10/2024

Sample Description : AMBIENT AIR QUALITY MONITORING

General Information:-

Sampling Location	:	Village - Panarjhir
Sample Collected By	:	VTL Team
Sampling Equipment used	:	RDS/FPS
Instrument Code	:	VTL/RDS/FPS/04
Coordinates	:	79°54'33" & 22°46'13"
Meteorological condition during monitoring	:	Clear Sky
Date of Monitoring	:	01/10/2024 To 02/10/2024
Time of Monitoring	:	10:55 to 10:55 Hrs
Ambient Temperature (°C)	:	Min 22° Max 34°
Surrounding Activity	:	Human, Vehicular & Other Activities
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	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

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

Annexure -14

Expenditure details under CSR

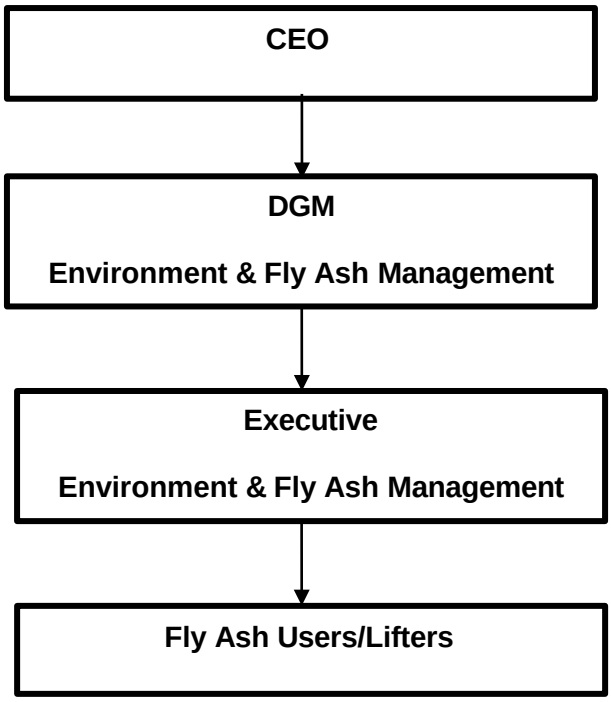
JHABUA POWER LTD. DETAILS OF EXPANSES DONE UNDER CSR SINCE INCEPTION TO SEPTEMBER 2024 (In Crore) ANNEXURE-14																
	Sr No	**Activity**	**2010-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**Total in Cr**
A	**RECURRING EXPENDITURE**															
	1	Skill development, Education and Women empowerment	2.30	0.72	0.45	0.36	0.09	0.09	0.26	0.29	0.32	0.25	0.46	0.23	0.323	6.14
	2	Agriculture and agro based livelihood	2.31	1.22	0.16	0.42	0.04	0.06	0.27	0.21	0.27	0.25	0.32	0.17	0.187	5.89
	3	Maternal and child health care project	1.31	0.56	0.13	0.34	0.10	0.13	0.13	0.00	0.00	0.00	0.00	0.00	0.000	2.71
	4	Rural Civil infrastruture development	1.44	2.94	0.28	0.00	0.02	0.04	5.08	9.79	0.01	0.01	0.08	.15.6	0.600	20.29
		Total	**7.36**	**5.44**	**1.02**	**1.12**	**0.25**	**0.32**	**5.74**	**10.29**	**0.60**	**0.51**	**0.86**	**0.40**	**1.110**	**35.02**
	Recurring expanses as per EC of MoEF (2010-2024)				**Rs. 2.5 crore per annum x 15 year**									**37.50**		
B	**One time capital expanses as per Environmental Clearance in Crore**															**12.00**
	Expanses done under one time capital expanses in crore															**22.00**
Total CSR expenditure as per E.C. till September 2024 in Cr. (A+ B)																**49.50**
Total CSR Expenditure done by JPL till September 2024																**59.50**

Annexure -15

Details of Environment Management cell

Annexure -15

ENVIRONMENT MANAGEMENT CELL



Sr. No	NAME	QUALIFICATION	DESIGNATION
1	Mr. Neeraj Jalota		CHIEF EXECUTIVE OFFICER
2	Mr. Anoop Kumar Srivastava	M.Sc. Environment P.G. Diploma in Industrial Safety	DGM (Environment & Ash Management)

Annexure -16

Receipts of last compliance report submission

Your (Environment Clearance) application has been Submitted with following details

Proposal No	IA/MP/THE/10294/2008
Compliance ID	64984906
Compliance Number(For Tracking)	EC/M/COMPLIANCE/64984906/2024
Reporting Year	2024
Reporting Period	01 Jun(01 Oct - 31 Mar)
Submission Date	02-05-2024
IRO Name	Shri Ashok Kumar Sinha
IRO Email	tg035@ifs.nic.in
State	MADHYA PRADESH
IRO Office Address	Integrated Regional Offices, Bhopal

Note:- SMS and E-Mail has been sent to Shri Ashok Kumar Sinha, MADHYA PRADESH with Notification to Project Proponent.

Anoop srivastava

From:	Anoop srivastava
Sent:	07 May 2024 12:15
To:	'yogendra78@nic.in'
Cc:	'sudheer.ch@gov.in'
Subject:	Submission of Six Monthly Compliance Report - 1x600 MW Coal Based Thermal Power Plant, Villages- Barela & Gorakpur, Tehsil- Ghansore, Distt.-Seoni, Madhya Pradesh: Six Monthly Compliance Report (October' 2023 to March' 2024)
Attachments:	Director Environment Delhi Phase I.pdf

Ref.: EC Letter No.: J-13012/105/2008-IA-II (T) dated 17th February, 2010 & Corrigendum dated 22nd December, 2010.

Dear Sir,

Please find attached the **Six Monthly Compliance Report (October' 2023 to March' 2024)** in fulfilment of conditions stipulated in the Environment Clearance (letter issued by MoEF, New Delhi and referenced above) for 1x600 MW Coal based Thermal Power Plant at Villages- Barela & Gorakpur, Tehsil- Ghansore, Distt.- Seoni, Madhya Pradesh of M/s Jhabua Power Ltd. Soft copy is uploaded on MoEF & CC web site-Parivesh.

Kindly acknowledge.

Regards,

Anoop Srivastava

Enc.: Six Monthly Compliance Report (October' 2023 to March' 2024)

Anoop srivastava

From:	Anoop srivastava
Sent:	07 May 2024 12:18
To:	'ms-mppcb@mp.gov.in'
Cc:	'romppcbjbp@rediffmail.com'
Subject:	Submission of Six Monthly Compliance Report - 1x600 MW Coal Based Thermal Power Plant, Villages- Barela & Gorakpur, Tehsil- Ghansore, Distt.-Seoni, Madhya Pradesh: Six Monthly Compliance Report (October' 2023 to March' 2024)
Attachments:	Member Secretary MPPCB Bhopal Phase I.pdf

Ref.: EC Letter No.: J-13012/105/2008-IA-II (T) dated 17th February, 2010 & Corrigendum dated 22nd December, 2010.

Dear Sir,

Please find attached the **Six Monthly Compliance Report (October' 2023 to March' 2024)** In fulfilment of conditions stipulated in the Environment Clearance (letter issued by MoEF, New Delhi and referenced above) for 1x600 MW Coal based Thermal Power Plant at Villages- Barela & Gorakpur, Tehsil- Ghansore, Distt.- Seoni, Madhya Pradesh of M/s Jhabua Power Ltd. Soft copy is uploaded on MoEF & CC web site-Parivesh.

Kindly acknowledge.

Regards,

Anoop Srivastava

Enc.: Six Monthly Compliance Report (October' 2023 to March' 2024)

Anoop srivastava

From:	Anoop srivastava
Sent:	07 May 2024 12:20
To:	'cpcb.bhopal@gmail.com'
Subject:	Submission of Six Monthly Compliance Report - 1x600 MW Coal Based Thermal Power Plant, Villages- Barela & Gorakpur, Tehsil - Ghansore, Distt.-Seoni, Madhya Pradesh: Six Monthly Compliance Report (October' 2023 to March' 2024)
Attachments:	Director CPCB Bhopal Phase I.pdf

Ref.: EC Letter No.: J-13012/105/2008-IA-II (T) dated 17th February, 2010 & Corrigendum dated 22nd December, 2010.

Dear Sir,

Please find attached the **Six Monthly Compliance Report (October' 2023 to March' 2024)** in fulfilment of conditions stipulated in the Environment Clearance (letter issued by MoEF, New Delhi and referenced above) for 1x600 MW Coal based Thermal Power Plant at Villages- Barela & Gorakpur, Tehsil- Ghansore, Distt.- Seoni, Madhya Pradesh of M/s Jhabua Power Ltd. Soft copy is uploaded on MoEF & CC web site-Parivesh.

Kindly acknowledge.

Regards,

Anoop Srivastava

Enc.: Six Monthly Compliance Report (October' 2023 to March' 2024)

Anoop srivastava

From:	Anoop srivastava
Sent:	07 May 2024 12:23
To:	'mscb.cpcb@gov.in'; 'mscb.cpcb@nic.in'; 'ccb.cpcb@nic.in'
Subject:	Submission of Six Monthly Compliance Report - 1x600 MW Coal Based Thermal Power Plant, Villages- Barela & Gorakpur, Tehsil- Ghansore, Distt.-Seoni, Madhya Pradesh: Six Monthly Compliance Report (October' 2023 to March' 2024)
Attachments:	Chairman CPCB Delhi Phase I.pdf

Ref.: EC Letter No.: J-13012/105/2008-IA-II (T) dated 17th February, 2010 & Corrigendum dated 22nd December, 2010.

Dear Sir,

Please find attached the **Six Monthly Compliance Report (October' 2023 to March' 2024)** in fulfillment of conditions stipulated in the Environment Clearance (letter issued by MoEF, New Delhi and referenced above) for 1x600 MW Coal based Thermal Power Plant at Villages- Barela & Gorakpur, Tehsil- Ghansore, Distt.- Seoni, Madhya Pradesh of M/s Jhabua Power Ltd. Soft copy is uploaded on MoEF & CC web site-Parivesh.

Kindly acknowledge.

Regards,

Anoop Srivastava

Enc.: Six Monthly Compliance Report (October' 2023 to March' 2024)

Anoop srivastava

From:	Anoop srivastava
Sent:	07 May 2024 12:30
To:	'apccfbhopal@gmail.com'
Subject:	Submission of Six Monthly Compliance Report - 1x600 MW Coal Based Thermal Power Plant, Viflages- Barela & Gorakpur, Tehsil- Ghansore. Distt.-Seoni, Madhya Pradesh: Six Monthly Compliance Report (October' 2023 to March' 2024)
Attachments:	Director Environment Bhopal Phase I.pdf

Ref.: EC Letter No.: J-13012/105/2008-IA-II (T) dated 17th February, 2010 & Corrigendum dated 22nd December, 2010.

Dear Sir,

Please find attached the **Six Monthly Compliance Report (October' 2023 to March' 2024)** in fulfilment of conditions stipulated in the Environment Clearance (letter issued by MoEF, New Delhi and referenced above) for 1x600 MW Coal based Thermal Power Plant at Villages- Barela & Gorakpur, Tehsil- Ghansore, Distt.- Seoni, Madhya Pradesh of M/s Jhabua Power Ltd. Soft copy is uploaded on MoEF & CC web site-Parivesh.

Kindly acknowledge.

Regards,

Anoop Srivastava

Enc.: Six Monthly Compliance Report (October' 2023 to March' 2024)

Annexure -17

Submission receipt of Environment Statement

एनटीपीसी
NTPC

JHABUA
POWER

August 12, 2024

To,

The Member Secretary,

Madhya Pradesh Pollution Control Board,
E-5, Arera Colony,
Paryawaran Parisar,
Bhopal-16, Madhya Pradesh.

Subject: Submission of Environmental Statement Report for the year 2023-24 for 1 x 600 MW Thermal Power Plant at Village-Barela & Gorakhpur, Tehsil- Ghansore, Distt.- Seoni, Madhya Pradesh by M/s Jhabua Power Plant.

Ref.: MoEF Environmental Clearance No.: J-13012/105/2008-IA-II (T) dated 17th February 2010 & Corrigendum dated 22nd December 2010.

Dear Sir,

Please find attached the **Environmental Statement** for the year 2023 - 2024 in fulfilment of conditions stipulated in the Environment Clearance (letter issued by MoEF, New Delhi and referenced above) for 1x600 MW Coal based Thermal Power Plant at Villages- Barela & Gorakhpur, Tehsil- Ghansore, Distt.- Seoni, Madhya Pradesh of M/s Jhabua Power Ltd.

We submit to you that Environmental Protection always remains in our top most agenda and all the efforts are being put for the effective compliance all the time.

Thanking You,
Yours Sincerely,

12/08/2024

For Jhabua Power Ltd
Authorized Signatory

Encl.: Environment Statement Report for the year 2023-24.
CC: Regional Office, MPPCB, Vijaynagar, Jabalpur, MP.

Jhabua Power Limited
(Joint Venture of NTPC Limited)
CIN: U40105MP1995PLC058616
Corporate Office: Unit No- 307, 3rd Floor, ABW Tower, M.G. Road, Near IFFCO Chowk, Gurugram- 122002, Haryana, India
Tel: 0124- 4392000/01 E- Mail : communications@jhabuapower.co.in Web : www.jhabuapower.co.in
Registered Office: Macmet House, 7th Floor, 10B, D C Ganguly Sarani, Kolkata- 700 020, West Bengal, India
Site Office: Village- Barela, Post Office- Attaria, Tehsil- Ghansore, District- Seoni- 480997, Madhya Pradesh, India

Annexure -18

Expenditure break-up
April 2024 to September 2024

ANNEXURE - 18

EXPENDITURE DETAILS ON ENVIRONMENT FROM APRIL 2024 TO SEPTEMBER 2024

DESCRIPTION	EXPENDITURE
ENVIRONMENT	
World Environment Day Celebration	121300
Third Party Environmental Quality monitoring	197425
Hydrogeological study of the area	88659
Disposal of conditioned fly ash through railway rake	8471150
Tarpaulin covering of conditioned Fly Ash wagon.	1287600
Legacy Ash disposal in low lying area near Rajgadhi	42943268
Legacy Ash disposal in low lying area near Umerpani	42775200
Spare of AAQMS	1046626
p H elctrode for EQMS	76676
AMC for online monitoring system-AAQMS	232106
Connectivity of EQMS with CPCB & MPPCB	70800
AMC for water Sprinkling	1550000
AMC CEMS	79650
AMC PTZ camera connectivity	11800
Biomedical waste disposal to MPPCB authorised vender	182000
Motilal Nehru Institute of Technology for ash utilization audit	177000
Total expenditure in Rs	**99311260**
Total expenditure in Cr.	**9.93113**